

ASU awarded DOE Genesis Mission grant for electrical grid reliability research

AI-accelerated scenario planning tool will mitigate energy instability and speed infrastructure planning

By Monique Clement, ASU News
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An Arizona State University-led research team has been selected by the U.S. Department of Energy's Genesis Mission for a project leveraging artificial intelligence to enhance electrical grid resilience — research with potential for major impact in communities.

[Karen Fisher-Vanden](#), a Global Futures professor in the ASU [School of Sustainability](#), a unit of the [Rob Walton College of Global Futures](#), will lead the project. Her research team will develop an AI system to rapidly assess thousands of scenarios of changing energy demands, new technology integration, extreme weather and more.

The results will identify the most critical scenarios for maintaining electrical grid reliability, helping advance real solutions more quickly than traditional models. The AI model could also help to lower costs during uncertain times.

"Arizona State University is proud to be part of this ambitious Department of Energy initiative," said [Sally C. Morton](#), executive vice president of ASU Knowledge Enterprise and chief research and innovation officer. "This project reflects the exceptional expertise of our researchers and the power of collaboration across institutions, national laboratories and industry partners."

Why this research matters

Research is the invisible hand that powers America's progress.

"University research matters. By advancing AI-enabled approaches to strengthen the resilience of the electrical grid, we're helping to create knowledge and technologies that can support a more reliable, secure and sustainable energy future in the United States."

The award is through the [Genesis Mission](#)'s Transforming Science and Energy With AI initiative.

ASU is nationally recognized in grid resilience research, and the project brings together leaders in AI, energy systems and engineering. The team will work with grid operator partners to develop practical tools that maximize value.

The research team includes co-principal investigators Julia Szinai from [Lawrence Berkeley National Laboratory](#); Casey Burleyson from [Pacific Northwest National Laboratory](#); Renee Obringer and Mort Webster from [Pennsylvania State University](#); and Patricia Hidalgo-Gonzalez from the [University of California, San Diego](#).

The historic Genesis Mission united the 17 DOE national laboratories with industry, academia and nonprofit organization partners. Together, they are collaborating to harness AI to transform discovery and strengthen American leadership in science and technology.

In addition to energy projects, the Genesis Mission invited interdisciplinary teams to leverage AI to address more than 20 national challenges, including advanced manufacturing, biotechnology, critical materials, nuclear energy and quantum information science.

ASU researchers will also work on Genesis Mission projects awarded to other institutions, including one national laboratory. [John McGowen](#), an ASU senior global futures scientist, will work with Pacific Northwest National Laboratory to accelerate cost-effective production of biofuels, biochemicals and other bioproducts. In a project led by [Columbia University](#), [Petr Šulc](#), an associate professor in the ASU [School of Molecular Sciences](#), will help design biomolecular materials with predictable functionality.

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Main image



The U.S. Department of Energy's Genesis Mission selected ASU to lead a project to develop an artificial intelligence planning tool to maintain electrical grid resilience through unprecedented challenges. Image by urbans/Shutterstock