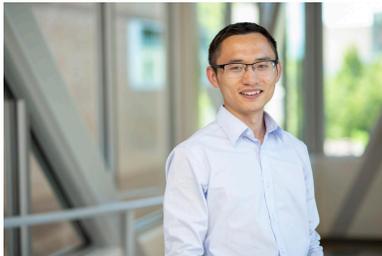


# Secure and Sustainable: USU Secures Major DOE Grant for Solar Technology Research | College of Engineering

04/09/2021

News Release — Apr. 9, 2021 — Utah State University transportation engineering researchers will partner with colleagues at Virginia Tech on a Department of Energy–funded study to identify emerging cybersecurity threats to the nation’s electric utility grids.



*ECE assistant professor Hongjie Wang received a \$300,000 grant from the Department of Energy to develop new security standards for solar-powered, community-scale utility grids.*

The project is specifically funded by SETO, or DOE’s Solar Energy Technologies Office. SETO supports research that helps develop community-scale microgrids that can disconnect from the traditional grid to operate autonomously when the main grid is down. In addition to functioning independently from the main grid, these microgrids rely heavily on renewable energy like solar, wind, and hydropower.

The project will develop new standards for resilient microgrids designed to resist cyberattacks and to bounce back following man-made or natural disasters. Under the direction of USU assistant professor Hongjie Wang, researchers will develop and improve models for inverters used in solar systems, as well as validate the developed technologies at USU’s microgrid. The work will be supported by a \$300,000 grant, which is a subaward from a \$3 million grant to Virginia Tech. The funding was selected and [announced by DOE](#) as part of \$130 million for new projects to advance solar technologies.

A major part of this work will be the use of a learning model-assisted blockchain framework, a type of database that uses a growing list of records, called blocks, to store and manage data. Because of its unique design, blockchain is resistant to modification of its data, which makes it a great option to protect systems against hacking, especially when there are many users accessing the database. Blockchain technology has been used in a number of industries, including cryptocurrency, financial services, and healthcare, but this is the first time blockchain will be used to manage utility grids and to ensure grid network resiliency against sophisticated-tier threats.

The project also fits into the broader goals of the [ASPIRE Engineering Research Center](#), where researchers are developing solutions to facilitate widespread electrification and charging infrastructure for all vehicle classes. In a world with electrified roads and electric buses and cars in need of charging, a reliable electric utility grid is essential.

###

Contact: Dr. Hongjie Wang, [hongjie.wang@usu.edu](mailto:hongjie.wang@usu.edu), 435-797-0591

Writer: Anessa Pennington, [anessa.pennington@usu.edu](mailto:anessa.pennington@usu.edu), 435-797-7512