

Az SMART: A (Really) Smart Way to Approach Solar in Arizona

Sunlight may be Arizona's greatest natural resource. With over 300 sunny days per year, enough light falls on Arizona to power not only what the state uses, but the electricity needs of the entire country.

Of course, this doesn't mean we can generate solar energy anywhere we'd like. Integrating a significant amount of solar and other renewable energy into the regional electric power grid is challenging.

In order to capitalize on Arizona's solar opportunity, utilities, developers and policy makers need to address complex issues dealing with economic, political, technical, social, operational, and environmental considerations.

That is precisely where [Az SMART](#) comes in. Arizona's Solar Market Analysis and Research Tool - a research effort led by Arizona State University and funded through a grant from Science Foundation Arizona - is being developed to help meet the challenges that face large-scale solar deployment in Arizona.



Az SMART leverages the research efforts and capabilities of Arizona State University and the University of Arizona, while fostering close collaboration with partners from industry and government.

Researchers crunch an extraordinary amount of data on land ownership, solar insolation, GIS mapping, transmission capacity, grid operations and management, central plant and distributed generation siting, population projections, environmental impact, energy storage needs, and also the assessment of the associated economic impacts on utilities, consumers and the state.

Az SMART then marries this data with the power of ASU's [Decision Theater](#) to create interactive, visual "what-if" scenarios that depict opportunities for - and the consequences of - deployment of solar power generation across Arizona.

Professor Tim James, director of research and consulting at ASU's W. P. Carey School of Business, is coordinating work by economists, engineers and others on this project.

"There's been little comprehensive thought about how to best deploy solar and other renewable energy. To create maximum economic benefit we need to think beyond technical feasibility and carefully consider issues like state permits, financial incentives, optimal land use and transmission."

***The potential payoff:** enough power to supply the entire western United States, to create significant revenue for Arizona and to provide Arizona with a greater degree of energy security.*

Az SMART will have applications for homeowners, business owners, policy makers, utilities and project developers. The tools will assist in determining how to deploy different types of energy across Arizona while considering such issues as land use, transmission challenges, and economic impact.

Az SMART research has already identified large areas appropriate for solar and alternative energy facilities, building on the number of potential sites identified by the federal Bureau of Land Management.

Az SMART is a key element of Science Foundation's **Solar Technology Initiative**, which seeks to facilitate development and deployment of solar energy in Arizona, and to foster creation of a vibrant solar-related ecosystem.