



ASU Energy Social Sciences Initiative

OVERVIEW

Engaging the Social Sciences and Humanities in Energy System Change

Energy systems change is, fundamentally, a human problem. We often think about energy systems in largely technical terms, but the evolution of these systems is ultimately driven by their mobilization for social purposes. People put energy to use. People thus define the parameters that energy technologies must meet. People also make energy systems work, from miners and engineers to businessmen and regulators. People transform energy into lives and livelihoods. People have constructed the largest and most important social, economic, and political structures on the planet in and around specific forms of energy production, distribution, and consumption. Changing energy systems will thus require enormous social, economic, and political innovation: innovation in ideas, practices, values, behaviors, networks, and institutions, not to mention innovations in individual and organizational routines, business models, and regulatory frameworks. At the same time, energy system change will carry enormous implications for everything from how people live and work to the global distribution of wealth and power.

Critical National Need

Engaging the full range of the social and humanistic sciences in the problem of energy system change is thus a critical national need. Recognition of the significance of these challenges is growing in energy science, engineering, and policy communities. The US Department of Energy's Quadrennial Technology Review called for increasing social and behavioral research in the field of energy. So, too, have reports from the President's Council of Advisors on Science and Technology, the American Academy of Arts and Sciences, and a recent letter to Secretary Chu from several members of Congress, motivated by the Association for Psychological Science. With funding from the National Science Foundation, the National Academy of Engineering has also recently launched an important new initiative focused on the ethical and social dimensions of energy transitions.

Key Questions

Critical facets of energy system change are not amenable to research in the natural sciences and engineering, requiring instead social science and humanistic approaches:

- *What changes to existing energy governance institutions are required for managing the multi-dimensional facets of large-scale energy systems change?*
- *How can societies mobilize existing formal and informal capacities for communicating and deliberating major issues of policy concern?*
- *What kinds of social benefits and risks are already visible in small projects that can provide guidance for larger-scale, renewable energy projects for the future?*
- *How have energy systems changed, historically, and what insights can be gleaned from the past to inform current energy projects?*
- *What ethical frameworks should guide the development of new energy systems?*
- *How do consumer preferences and social behaviors and practices form and re-form around energy production and use?*
- *What are the economics of potential sustainable energy supply chains and systems?*
- *How do energy politics relate to the evolution of policy choices and decision-making?*
- *What shapes public understanding of and engagement with energy issues?*
- *What role do public attitudes play in the direction and pace of policy and technology innovations?*
- *How do energy issues intersect with other concerns such as the environment, health, biodiversity, and food?*
- *How do or should democratic government processes include both technical expertise and social values?*
- *What does a sustainable energy future mean?*

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New ASU Initiative

In response to these challenges, ASU is launching a new initiative to support social and humanistic studies of energy change. This initiative is built around several key areas of investigation, with faculty clusters pursuing original research in each:

- Energy economics, business, and markets
- Energy policy, law, and governance
- Energy attitudes, behavior, and decision-making
- Energy social systems, movements, and networks
- Energy communication, collaboration, and deliberation
- Energy ethics, justice, and human development

In addition, we propose to host:

- A series of workshops and conferences in 2013-14 designed to focus attention on critical issues, including climate change and infrastructure, energy and water, energy ethics, and energy economics, culminating in a global conference on the social dimensions of energy system change.
- An energy leadership program designed to prepare students in the governance and management of large-scale transitions in energy and society.

“Energy systems change is, fundamentally, a **human** problem.”

LightWorks pulls light-inspired research at ASU under one strategic framework. It is a multidisciplinary effort to leverage ASU's unique strengths, particularly in renewable energy fields including artificial photosynthesis, biofuels, and next-generation photovoltaics. The LightWorks initiative at Arizona State University is supported by ASU's Office of Knowledge Enterprise Development (OKED). OKED advances research, innovation, entrepreneurship at ASU and economic development in Arizona and beyond. OKED also manages the university's major interdisciplinary research institutes and initiatives.

The Consortium for Science, Policy, and Outcomes is an intellectual network aimed at enhancing the contribution of science and technology to society's pursuit of equality, justice, freedom, and overall quality of life. The Consortium creates knowledge and methods, cultivates public discourse, and fosters policies to help decision makers and institutions grapple with the immense power and importance of science and technology as society charts a course for the future.

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The ASU Energy Social Sciences Initiative is supported by ASU LightWorks and the Consortium for Science, Policy & Outcomes.
www.asulightworks.com
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