

# Supporting Sustainable Energy Transitions: Understanding the Links Between Energy and Society

## Impact Statement 2018

### INVESTIGATORS

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### SUMMARY

Energy and people are connected across numerous scales. Human behaviors both impact and are impacted by transitions in energy systems, particularly in the face of climate change and new technologies. **School of Environment and Natural Resources (SENR) faculty are national leaders in research on energy production, distribution and consumption to understand the relationships between society and energy systems.** We also developed teaching and outreach programs to enhance energy literacy and increase social well-being amid energy transitions.

### SITUATION

Ohio has historically been a leader of the production and use of energy. Ohio's coal industry fueled the industrial revolution while our coal and nuclear energy continue to power the region's largest population and industrial centers. More recently, Ohio has hosted shale development via hydraulic fracturing, large wind farm development, and large-scale solar arrays. These energy transitions affect all residents, landowners, and consumers, though the distribution of costs and benefits from production and consumption of energy is spread unevenly across the state. Research is needed to guide public policy to maximize social, economic, and environmental outcomes. Despite its importance, many residents have little understanding of the state's energy systems. Research, teaching, and outreach programs are required to mitigate problems associated with the production of energy and to increase energy literacy to allow consumers to make informed decisions about their own behavior.

RESEARCH IS  
NEEDED TO GUIDE  
PUBLIC POLICY TO  
**MAXIMIZE SOCIAL,  
ECONOMIC, AND  
ENVIRONMENTAL  
OUTCOMES.**



THE OHIO STATE UNIVERSITY

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## RESPONSE

SENR faculty and students bring diverse scientific research and outreach skills to unpack the linkages between people and the production and consumption of energy.

Our faculty and students are **leading research** projects to understand:

- how landowners respond to opportunities to host new types of energy production
- how different forms of energy development and distribution impact local residents and communities
- variation in attitudes towards energy development, distribution and use
- drivers of consumer behaviors and energy usage patterns

Our courses use energy issues to explore the complicated linkages between policy and the social, economic and environmental outcomes of energy transitions. Students gain increased levels of energy literacy, knowledge of the social, environmental and economic aspects of energy, and learn how to apply this knowledge to real world problems and case-studies.



THESE RESULTS ARE BEING USED TO  
**ADVOCATE FOR POLICIES** TO ENSURE THAT  
THE BENEFITS OF 21ST CENTURY ENERGY  
TRANSITIONS ARE WIDELY SHARED.

## IMPACT

Supported by competitive external grants, in 2018 **our faculty implemented a growing and nationally-recognized body of applied research on social aspects of energy transitions**. We conducted surveys, interviews, and focus groups that document how different landowner groups perceive and are impacted by wind, shale, and coal production. These results are being used to advocate for policies to ensure that the benefits of 21st century energy transitions are widely shared. **We demonstrated** how industry networks and state policy approaches to regulating shale energy development shape the trajectory and impacts of new energy projects across 15 different states. **We surveyed** agricultural operators to better understand their decisions to allow new forms of energy development on their productive fields, which enables us to better predict when and where such projects may take place. **We partnered** with public utilities to gather data from consumers that is contributing to the design of more effective interventions to reduce and/or load-shift energy use in residential buildings. We worked with the Smart Columbus program to document how interpersonal discussions and issues of identity can help increase electric vehicle adoption in the region. We raised the **energy literacy** of hundreds of Ohio State University undergraduate and graduate students by engaging them in hands-on applications of academic theory and research to tackle real world energy issues.

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