



CA^{PER}

**Center for Advanced Power
Engineering Research**

2017 Summer Research Planning Workshop

Energy Economics and Policy: New Directions
Presented By: Christopher Galik, NCSU

Sustainable Systems & Policy

This faculty cluster will serve as a catalyst by filling four critical gaps in existing expertise: energy economics, energy and environmental policy, energy-focused life cycle assessment, and energy systems engineering. It will provide the capability to assess technology and policy options through an assessment that considers relevant technical, economic, environmental and socio-political factors. In addition to exploring the broader implications of technology deployment, we will also analyze the potential effects of top-down policy.



Harrison Fell

Associate Professor
Department of Agricultural and
Resource Economics

Dr. Fell conducts research in the fields of environmental, energy, and natural resources economics. His recent work includes an econometric assessment of coal plant retirements, the environmental benefit of renewable integration, and the influence of local labor conditions for construction workers on the effectiveness of energy efficiency investments.



Jeremiah Johnson

Associate Professor

Department of Civil, Construction, and Environmental
Engineering

Dr. Johnson's research employs systems approaches to assess the environmental impacts of variable renewable energy grid integration and large scale energy storage. Other areas of investigation include developing methods for more informed generation resource planning and forecasting material use impacts stemming from changing generation portfolios.

Wenyuan Tang

Assistant Professor

Department of Electrical and Computer
Engineering



Dr. Tang is interested in the interactions between power systems and electricity markets, and in the improvement of system efficiency through innovative market design. Three fields underlie this interdisciplinary research: control and optimization serve as the mathematical tools for power system operations; economic theory governs the rationale behind electricity market design; and data science enables new optimization approaches and empirical insights.

■ policy analysis

Evaluating the US Mid-Century Strategy for Deep Decarbonization amidst early century uncertainty

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The recent change in US presidential administrations has introduced significant uncertainty about both domestic and international policy support for continued reductions in GHG emissions. This brief analysis estimates the potential climate ramifications of changing US leadership, contrasting the Mid-Century Strategy for Deep Decarbonization (MCS) released under the Obama Administration, with campaign statements, early executive actions, and prevailing market conditions to estimate potential emission pathways under the Trump Administration. The analysis highlights areas where GHG reductions are less robust to changing policy conditions, and offers brief recommendations for addressing emissions in the interim. It specifically finds that continued reductions in the electricity sector are less vulnerable to changes in federal policy than those in the built environment and land use sectors. Given the long-lived nature of investments in these latter two sectors, however, opportunities for near-term climate action by willing cities, states, private landowners, and non-profit organizations warrant renewed attention in this time of climate uncertainty.

Key policy insights

- The recent US presidential election has already impacted mitigation goals and practices, injecting considerable uncertainty into domestic and international efforts to address climate change.
- A strategic assessment issued in the final days of the Obama Administration for how to reach long-term climate mitigation objectives provides a baseline from which to gauge potential changes under the Trump Administration.
- Though market trends may continue to foster emission declines in the energy sector, emission reductions in the land use sector and the built environment are subject to considerable uncertainty.
- Regardless of actions to scale back climate mitigation efforts, US emissions are likely to be flat in the coming years. Assuming that emissions remain constant under President Trump and that reductions resume afterwards to meet the Obama Administration mid-century targets in 2050, this near-term pause in reductions yields a difference in total emissions equivalent to 0.3–0.6 years of additional global greenhouse gas emissions, depending on the number of terms served by a Trump Administration.

Keywords: climate change mitigation; climate change policies; energy markets; land use, land use change and forestry (LULUCF); transportation sector

There is ample evidence that deep cuts in GHG emissions are necessary to avert the most severe impacts from global climate change (Edenhofer et al., 2014; U.S. Department of State, 2015). Given the change

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Shifting Political & Market Conditions



Pipelines: The new battleground over fracking

Denton City

BACKGROUND

Pipeline wars are raging in Pennsylvania, where production is high and pipeline capacity is low. Marcellus Shale gas has the potential to alter the landscape of the global energy market. But right now, a shortage of pipelines to get that gas from the wellheads to consumers means rock bottom prices for producers, who are eager to dig new trenches. Activists opposed to more drilling see pipeline construction as the new battleground over fracking.

In our six-part series on Pennsylvania's pipeline building boom, StateImpact examines who wins and who loses in the next phase of the natural gas rush.

Part One: Pipelines: The new battleground over fracking

Pennsylvania's pipeline building boom could expand the nation's and perhaps the world's, supply of natural gas. This boom includes an estimated 4,600 miles of new interstate pipes, tunneling under Pennsylvania's farms, wetlands, waterways, and backyards.

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Shifting Political & Market Conditions



BUSINESS

Rural NC town mocked on social media solar moratorium

BY JOHN MURAWSKI
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DECEMBER 14, 2015 7:56 PM

Usually what happens in Woodland stays in Woodland, a town 115 miles
Dollar General store and one restaurant.

Agriculture and Food Research Initiative Competitive Grants Program

Resilient Agroecosystems in a Changing Climate Challenge Area

Fiscal Year (FY) 2017 Request for Applications (RFA)

LETTER OF INTENT DEADLINE: Not Applicable
APPLICATION DEADLINE: July 13, 2017

ELIGIBILITY: See Part III, A of RFA



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Company News
December 5, 2016

Smithfield Leads Industry as First Major Protein Company to Adopt Greenhouse Gas Reduction Goal

SMITHFIELD, Va. (December 5, 2016)—Today, Smithfield Foods, Inc., became the first major protein company to announce a far-reaching greenhouse gas (GHG) reduction goal throughout its entire supply chain, from feed grain to packaged bacon. By 2025, Smithfield will reduce its absolute GHG emissions by 25 percent. When achieved, this goal will reduce emissions by more than 4 million metric tons, equivalent to removing 900,000 cars from the road. Smithfield collaborated with Environmental Defense Fund (EDF) in setting its goal.

"We are proud to lead the industry and set another first by launching an endeavor that is both environmentally beneficial and economically feasible," said Kenneth M. Sullivan, president and chief executive officer for Smithfield Foods. "While we will have unique challenges meeting this goal as the world's largest pork processor and hog producer, our size and scale also means that, if successful, we can make a significant, positive impact. Our mission is to produce 'Good food. Responsibly.' This announcement is yet another acknowledgement of our commitment to doing just that."

Next Steps?



Thanks !

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