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WHITING SCHOOL of ENGINEERING | Civil and Systems Engineering

Systems Science for the Energy Transition

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Abstract

The climate science, technology, and policy landscape we face today are hugely out of alignment. While the climate science community has highlighted the critical need for immediate action towards a 1.5 degree C (or, at one time we hoped, lower) global climate warming target, and while energy and transportation technologies are moving rapidly to enable that tremendously challenging goal, the US stands as a national denier of a path that requires immediate action on both the climate and justice transitions. Both large infrastructure choices and immediate daily decisions are needed. Sadly, every delay in moving the US to a productive, proactive position, makes achieving these goals less likely, or more costly. Immediate, pro-environment, inclusive growth, pro-business decisions are needed at the household, state, regional, national and global levels to put us on a sustainable path. I highlight a set of energy, transportation, and land-use modeling tools and policy opportunities that are consistent with the needed 1.5 degree Celsius objective that also meet social and environmental justice goals. The critical role of decision-making is highlighted through a series of technical, policy, and social justice opportunities. Recent events including the rise of a populist "Green New Deal" ethos, congressional debate over carbon pricing, and the role of environmental justice will be highlighted as critical, potentially 'last best chance' opportunities for climate sanity and meaningful support of much needed action.

About Our Speaker

Daniel Kammen is the Bloomberg Distinguished Professor of Energy and Climate Justice with joint appointments in the Whiting School of Engineering Department of Civil and Systems Engineering and the Paul Nitze School of Advanced International Studies. He is part of the Sustainable Transformations and Energy cluster and a leadership council member of the Ralph S. O'Connor Sustainable Energy Institute. As a world-renowned energy scientist, Kammen is an expert in renewable energy, climate policy, and sustainable development.

Having published more than 500 scientific papers, Kammen's current projects focus on decarbonization of power systems worldwide, energy access and social justice, materials science for low-carbon economies, big-data approaches to clean transportation, and the electrification of health facilities across Africa. He has decades of experience developing scalable, equitable energy solutions, and designing policy frameworks that support sustainable development.