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Development, Energy, and Climate Change Policy: Enabling Sustainable Development through Access to Energy

Robert J. Brecha

University of Dayton, rbrecha1@udayton.edu

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Research Panel: Inequalities, Rights, and Sustainable Development

Presenter: Robert J. Brecha, University of Dayton

Title: Development, Energy, and Climate Change Policy: Enabling Sustainable Development through Access to Energy

Abstract:

Human rights, human development, and climate change clearly overlap in many ways. Development, as quantified by the Human Development Index (HDI), for example, has historically been strongly correlated with energy consumption. This fact is recognized in Sustainable Development Goal (SDG) 7, to “ensure access to affordable, reliable, sustainable and modern energy for all.” Currently the world is in the midst of a large wave of human migration, much of it involuntary and due to stymied development opportunities as well as political upheaval. Climate change will become, or already is, an exacerbating factor in migration dynamics.

A pertinent question is how to ensure energy access in the context of a changing climate for those peoples who have not enjoyed the benefits of plentiful and cheap fossil fuels, the pathway followed by all industrialized countries. Policies and pathways for mitigating climate change can be investigated using computer models that examine current and future energy systems in many regions around the world. Although stylized in many ways through simplified economic representations and climate modules, these models very uniformly project that, undertaken judiciously, climate protection can be relatively inexpensive on a global scale.

Looking more closely at the regional projections of these models, however, one often finds somewhat unrealistic assumptions as to how countries can supposedly develop while having access to only very small amounts of energy compared to what has been the historical norm. This paper shows some of these results. The key question is whether low-energy development pathways are feasible or if we will have to think harder about the effort needed to enable access to sustainable energy for developing countries.

About the presenter:

Robert J. Brecha, PhD, is a professor in the University of Dayton Department of Physics, the Hanley Sustainability Institute, and the Renewable and Clean Energy Program. After earning a bachelor’s degree in physics from Wright State University and a doctorate in physics from the University of Texas at Austin, he spent two years in post-doctoral research in Germany before joining the University of Dayton faculty. He was a founding coordinator of the Sustainability, Energy, and the Environment (SEE) minor from 2007 to 2015, and since 2006, he has been a regular visiting scientist at the Potsdam Institute for Climate Impact Research (PIK) in Germany. He conducts research on energy efficiency in buildings, climate change mitigation strategies, fossil-fuel resource limits, integration of fluctuating renewable energy sources, and energy needs for sustainable development. He is also actively engaged in public

outreach on sustainability issues through print media, public talks, and a series of radio essays on NPR affiliate WYSO-FM.