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CIVIL & ENVIRONMENTAL ENGINEERING

Presents

The 2014 Daniel L. and Irma Evans Lecture

Featuring

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Director, Atmosphere/Energy Program
Stanford University

Roadmaps for transitioning Washington State and all other 49 U.S. states to wind, water, and solar power for all purposes

Thursday, May 15, 2014
4:30 PM
Kane Hall, room 120

Global warming, air pollution, and energy insecurity are three of the most significant problems facing the world today. This talk discusses the development of technical and economic plans to convert the energy infrastructure of Washington State and each of the other United States to those powered by 100% wind, water, and sunlight (WWS) for all purposes, including electricity, transportation, industry, and heating/cooling, after energy efficiency measures are accounted for. The plans call for ~80% conversion by 2030 and 100% by 2050 through aggressive policy measures and natural transition. Wind and solar resource availability, footprint and spacing areas required, jobs created, energy costs, avoided costs from air pollution mortality and morbidity and climate damage, methods of ensuring reliability of the grid, and impacts of offshore wind farms on hurricane dissipation are discussed. Air pollution reductions alone due to the plan would eliminate a mean of 60,000 premature mortalities in the U.S., avoiding costs equivalent to 3.3 percent of the United States gross domestic product based on statistical cost of life.

More information can be found at
http://www.stanford.edu/group/efmh/jacobson/Articles/I/susenergy2030.html.

Mark Z. Jacobson is Director of the Atmosphere/Energy Program and Professor of Civil and Environmental Engineering at Stanford University. He is also a Senior Fellow of the Woods Institute for the Environment and Senior Fellow of the Precourt Institute for Energy. He received a B.S. in Civil Engineering with distinction, an A.B. in Economics with distinction, and an M.S. in Environmental Engineering from Stanford University ('88). He received an M.S. ('91) and PhD ('94) in Atmospheric Sciences from UCLA. His work relates to the development and application of numerical models to understand better the effects of energy systems and vehicles on climate and air pollution and the analysis of renewable energy resources.


Mark Z. Jacobson