

Jefferson Science Fellows Distinguished Lecture Series

Sponsored by the Science & Technology Adviser to the Secretary (STAS), the Bureau of Oceans and International Environmental & Scientific Affairs (OES), & the USAID Global Development Lab, and the National Academy of Sciences

Smart Grid for All

By

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and

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U.S. Department of State

Bureau of East Asian and Pacific Affairs, Office of Economic Policy

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11 am – 12 pm

National Academy of Sciences, Room 125
2101 Constitution Ave NW, Washington, DC 20418

Introductory remarks by:

Joy Yamamoto

Director, Office of Economic Policy

U.S. Department of State

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Abstract

The basic idea behind smart grid is to leverage progress in communications, computing, sensors, and power electronics technologies to increase the power grid's reliability, resiliency, efficiency, and flexibility. These technologies also enable integration of higher levels of intermittent renewable energy resources into the power grid. Although the primary initiative to promote the smart grid began in the United States, it has received worldwide attention. For the United States smart grid implies making the grid perfectly reliable, but for developing countries smart grid may mean optimally utilizing existing assets for reductions in equipment failures and power interruptions, or providing electricity access to people. Since 20 percent of the world population still does not have access to electricity, these advances provide new opportunities. Specifically, off-grid application of microgrids with a combination of renewable and traditional resources, and storage supported by smart grid technologies, is a viable alternative to building large power plants and expensive transmission lines for remote communities. This presentation will give an overview of the smart grid concept and its implications for the advanced as well as developing economies of the world. Policies and

plans to promote renewable energy and remove barriers for sustainable growth of electrification will be discussed.

Biography

Dr. Anil Pahwa is Professor and Logan-Fetterhoof Chair at Kansas State University in Electrical and Computer Engineering, where he has worked since 1983. He is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE). He received his Ph.D. from Texas A&M University in 1983, M.S. from University of Maine in 1979, and B.E. from BITS-Pilani, India in 1975, all in electrical engineering. BITS-Pilani selected him for the Distinguished Alumnus Award in 2014. He received the Douglas A. Staszsky Distribution Automation Award in 2012 and the Prize Paper Award in 2013 from the IEEE Power and Energy Society (PES). He served as Chair of the IEEE PES Power and Energy Education Committee in 2012 and 2013, and presently he is an editor of IEEE Transactions on Power Systems. He received the Erickson Public Service Award in 2011 and the Frankenhoff Outstanding Research Award in 2012 from the College of Engineering of Kansas State University. His research and teaching interests include smart grid, distribution systems, renewable energy, and sustainability. He served as advisor for the student chapter of Engineers Without Borders from 2008 to 2014. Currently, Dr. Pahwa is a Jefferson Science Fellow in the U.S. Department of State, serving as Senior Science Advisor in the Bureau of East Asian and Pacific Affairs.