

The Growing Conflicts in the Global Energy Enterprise

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With Dr. Michael Knotek

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Abstract

The global energy enterprise has 3 largely conflicting primary drivers:

- Prosperity and Economic Growth: 6 billion of the earth's 7.5 billion inhabitants are resolutely climbing the ladder of economic prosperity, with energy a critical enabler.
- Energy Security and Independence: The centrality of energy to economies and the vulnerability and volatility of global resources and supply lines mandate cheap, secure, domestic, and sustainable energy supplies.
- Sustaining the Environment and Climate: Energy accounts for roughly 9% of US GDP. Emissions of all kinds result in environmental issues, and greenhouse gas emissions from energy production (85% of which is fossil fuel combustion) severely threatens the global climate.

Every major economic region on the planet is in a unique and evolving balance point amongst these three drivers and global coordination is emerging. I would like the group to emerge with some idea of the primary factors and issues involved in these conflicts and the challenges and opportunities they present for humanity. Topics to be discussed include global energy development, new technologies and resultant capacity gains including fracking, renewables, storage, grid modernization, transportation transformation, efficiency and carbon abatement, and the future of nuclear energy. For the energy-geek there are numerous in-depth studies that can be queried to get a feel of the factors, their magnitudes, and their interactions – The World Energy Outlook, IEA Energy Outlook, BP Statistical Review of World Energy, The Quadrennial Technology Review (Energy.gov/QTR), and many more. These will be discussed.

Biography

Dr. Michael Knotek was the Deputy Undersecretary for Science and Energy at the Department of Energy (US/S&E) from 2013 to 2015. For DOE to have the ability to closely integrate and move quickly among basic science, applied research, technology demonstration, and deployment, The US/S&E manages the programs and laboratories of the Office of Science (SC), and the programs and laboratories respectively of DOE's energy technology portfolio in The Offices of Fossil Energy (FE), Energy Efficiency and Renewable Energy (EERE), Nuclear Energy (NE), as well as the Offices of Electricity Delivery and Energy Reliability (OE), Indian Energy (IE), and of Technology Transfer Coordinator. This office provides the framework for the feedback among the various elements to facilitate implementation of the President's Climate-Action-Plan and All-of-the-above national energy strategy and the nation's general science and energy goals.

Dr. Knotek, a physicist, has more than 50 years of research and management experience within the Energy Enterprise. From 2010 to 2013 he was Director of the Renewable and Sustainable Energy Institute at the University of Colorado. He has extensive research, management or consulting experience with Sandia, Brookhaven, Pacific Northwest, Argonne, Oak Ridge, Los Alamos, Idaho, Lawrence Berkeley, and Ames National Laboratories and NREL. During this career he has led DOE wide program formulation activities in Synchrotron Science and Facilities, Environmental Science, Fusion Sciences, High Performance Computation, and post-genomic Biology. In addition to senior Lab Management positions he previously served as senior science and technology adviser to the U.S. Secretary of Energy and was chief technology officer with the Battelle Memorial Institute. Knotek was a private consultant from 2001 through 2010, working with a wide range of Laboratories, DOE program offices, and other national Science and Technology concerns across a wide swath of renewable, fossil, and nuclear energy science and technology. He is widely published as scientist and is a fellow of the American Association for the Advancement of Science and the American Physical Society.



Dr. Michael Knotek

