

The 9<sup>th</sup> Annual  
John H. and Cynthia H. Schultz  
Lecture in Energy



**Reducing Greenhouse Gas Emissions from the  
Electrical Power Sector**

**Paul L. Joskow**

**President, Alfred P. Sloan Foundation  
MIT, Elizabeth and James Killian Professor of Economics, Emeritus**

**Thursday, September 22, 2016  
Wolf Law Building, Wittemyer Courtroom  
Boulder, Colorado**

*Presented by the Getches-Wilkinson Center*



**COLORADO LAW**  
UNIVERSITY OF COLORADO BOULDER

# The 9<sup>th</sup> Annual Schultz Lecture in Energy



## The Schultz Lectureship

The Schultz Lectureship Series on oil and gas, energy, and natural resources provides valuable information to policymakers, practitioners, business executives, and the academic community on emerging issues in the field. The lectureship fund was made possible by the generosity of John H. and Cynthia H. Schultz.

John Schultz is a retired gas and oil attorney whose career in Colorado and the Western U.S. spanned the second half of the 20<sup>th</sup> century. Mr. Schultz is a graduate of the University of Colorado, Boulder where he was active in student government and participated in Varsity Gymnastics.

Cynthia Schultz was a retired University of Colorado, Boulder administrative staff member. She served as a member of the University of Colorado, Boulder Graduate School Advisory Council, the Graduate School ReSource Committee, and the University of Colorado As Hoc Task Force on Graduate Education. Cynthia passed away on December 20<sup>th</sup>, 2011.

## Past Schultz Lecturers

### **The Honorable John W. Hickenlooper**

Governor, State of Colorado  
November 12, 2015

### **Daniel Yergin**

Pulitzer Prize Winning Author and Chairman of HIS  
Cambridge Energy Research Associates  
October 19, 2011

### **Jim Burke**

President, NGL Energy Partners  
October 30, 2014

### **Kristina M. Johnson**

Under Secretary of Energy at the U.S. Dept. of Energy  
December 2, 2010

### **Tony Clark**

Commissioner, Federal Energy Regulatory Commission  
October 22, 2013

### **James E. Rodgers**

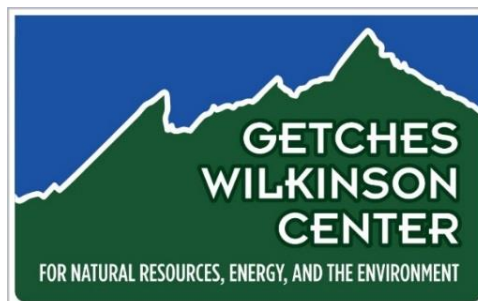
Chief Executive Officer and President of Duke Energy  
September 10, 2009

### **Jeff Bingaman**

United States Senator of New Mexico  
October 8, 2012

### **Bruce M. Kramer**

Maddox Professor of Law at Texas Tech University  
October 29, 2007



# Introduction



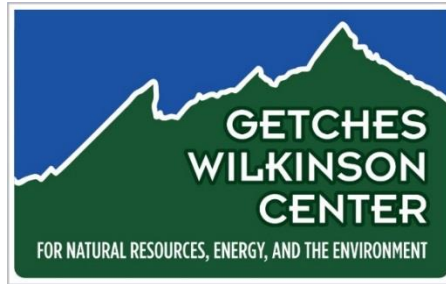
Dr. Paul L. Joskow has been the president of the Alfred P. Sloan Foundation since 2008. Prior to joining the Foundation he was the Elizabeth and James Killian Professor of Economics and Management at MIT (now Emeritus) and Director of the MIT Center for Energy and Environmental Policy Research. Dr. Joskow received a B.A. from Cornell University in 1968 and a Ph.D. in Economics from Yale University in 1972. He was an active member of the MIT faculty from 1972 until 2010 and served as Head of the MIT Department of Economics from 1994 to 1998. At MIT, his teaching and research focused on industrial organization, energy and environmental economics, competition policy, and government regulation of industry. He has published six books and more than 125

papers in these areas. He has served as an advisor or consultant to many groups including the National Science Foundation, the Organization for Economic Cooperation and Development, the U.S. Environmental Protection Agency, and the World Bank. Dr. Joskow is a member of the Board of Directors of Exelon Corporation, an independent Trustee of the Putnam Mutual Funds, a Trustee of Yale University, and a member of the Board of Overseers of the Boston Symphony Orchestra. He previously served on the Boards of Directors of TransCanada, National Grid, New England Electric System, State Farm Indemnity Company, and the Whitehead Institute for Biomedical Research. Dr. Joskow is a Distinguished Fellow of the American Economic Association, and a Fellow of the Econometric Society, the American Academy of Arts and Sciences, and the Industrial Organization Society. He was the Chair of the National Academies' Board on Science, Technology and Economic Policy (STEP) until April 1, 2015 and was a member of the Secretary of Energy Advisory Board (SEAB) from 2012-2015. He is a member of the Council on Foreign Relations and the Economic Club of New York.

## ***Reducing Greenhouse Gas Emissions from the Electrical Power Sector***

Electricity generation accounts for about 30% of U.S. greenhouse gas emissions. While emissions have declined by about 20% in the last ten years, much of this reduction is due to the fortuitous availability of cheap natural gas which has provided incentives to substitute less CO<sub>2</sub> intensive natural gas for coal as a generation fuel. The sector faces many challenges to meet long run 2050 goals of reducing emissions by as much as 80% from 2005 levels. These challenges include the diversity of federal, state and municipal regulation, the diverse and balkanized structure of the industry from state to state and region to region, the failure to enact policies to place a price on all carbon emissions, the extensive reliance on subsidies and command and control regulation to promote renewables and energy efficiencies, uncertainties about aggressive assumptions about improvements in energy efficiency beyond long-term trends, pre-mature closure of carbon free nuclear generating technologies, integrating renewables efficiently into large regional grids, methane leaks, and transmission constraints. The lecture will discuss these challenges and suggest policies to reduce the costs and smooth the transition to a low carbon electricity sector.

## Presented by



Serving the people of the American West, the nation, and the world through creative, interdisciplinary research, bold inclusive teaching, and innovative problem solving in order to further true sustainability for our lands, waters, and environment.

<http://www.colorado.edu/law/research/gwc>

## Event Co-sponsor



RASEI is a joint institute between the University of Colorado Boulder (CU-Boulder) and the National Renewable Energy Laboratory (NREL) addressing important, complex problems in energy that require a multidisciplinary, multi-institutional approach. Its mission is to expedite solutions that transform energy by advancing renewable energy science, engineering, and analysis through research, education, and industry partnerships

<http://www.colorado.edu/rasei/>

## Upcoming GWC Events

[40<sup>th</sup> Anniversary of the Federal Land Policy and Management Act](#)

Friday, October 21<sup>st</sup>, 2016

Wolf Law Building, Wittemyer Courtroom

[Martz Winter Symposium](#)

March 2<sup>nd</sup> and 3<sup>rd</sup>, 2017

Wolf Law Building, Wittemyer Courtroom

[Martz Summer Conference](#)

June 8th and 9th, 2017

Wolf Law Building, Wittemyer Courtroom

<http://www.colorado.edu/law/research/gwc/events>