

California's Energy Future

**The 16th Annual
Travers Conference on
Ethics and Accountability**

April 19, 2013

**9:00 AM to
3:15 PM**

**Bancroft Hotel
Great Hall**



Co-sponsored by the Travers Program in
Ethics and Accountability in Government

The Charles and Louise Travers
Department of Political Science
University of California, Berkeley

And

The Commonwealth Club of California

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The state of California has embraced an ambitious goal of meeting its future energy needs while increasing its use of renewable energy. But a recent Little Hoover Commission report finds that the state has failed to develop a comprehensive energy strategy that confronts the difficult tradeoffs it faces. The 16th Annual Travers Conference on Ethics & Accountability in Government will investigate the tradeoffs represented by reliance on different energy sources, including oil, natural gas, nuclear energy, biofuels, and wind and solar power.

for Energy Procurement in 2006. He was promoted to his current position in 2008. Mr. Wan has a Bachelor of Science in Chemical Engineering from Columbia University and an M.B.A. from the University of Michigan.

Sonia Yeh is a Research Scientist at the Institute of Transportation Studies, University of California, Davis and an adjunct faculty at the Department of Engineering and Public Policy, Carnegie Mellon University. Dr. Yeh's expertise is in energy market economics and modeling, lifecycle analysis of greenhouse gas emissions (including direct land use change associated with fossil energy), alternative transportation energy use and modeling, sustainability standards for biofuels, and technological change induced by government policy. Since 2007, she co-leads the UC research teams with UC Davis and UC Berkeley in supporting the implementation of California's Low Carbon Fuel Standard and is the co-director of the National Low Carbon Fuel Standard Project. Dr. Yeh holds a B.S. in Environmental Science from Tunghai University, an M.S. in Environmental Health from the Harvard School of Public Health, Boston, and a Ph.D. in Engineering and Public Policy from Carnegie Mellon University.

Agenda

9:00 am—9:15 am: Opening

Kerry P. Curtis, Board Member, Commonwealth Club of California and Professor Emeritus at the Ageno School of Business, Golden Gate University

9:15—10:00 am: An Overview of California's Energy Future(s)

Severin Borenstein, Director, UC Energy Institute and E.T. Grether Professor of Business Administration and Public Policy, Haas School of Business, University of California, Berkeley

10:15—11:15 am: Focus on Transportation and Mobile Sources

Moderator: Robert Sawyer, Class of 1935 Emeritus Professor of Energy and Professor of the Graduate School, University of California, Berkeley

Panelists:

Brad Edgar, Chief Executive Officer, 44 Energy Technologies, Inc.

Vera Pardee, Senior Attorney, Center for Biological Diversity

Sonia Yeh, Research Scientist, Institute of Transportation Studies, University of California, Davis

Agenda continued

11:30—12:30 pm: Focus on Electricity and Stationary Supplies

Moderator: Lucas Davis, Associate Professor of Economic Analysis and Policy, Haas School of Business, University of California, Berkeley

Panelists:

Shmuel Oren, Earl J. Isaac Professor in the Science and Analysis of Decision Making, Department of Industrial Engineering, University of California, Berkeley

James Fine, Economist, Environmental Defense Fund

Scott Murtishaw, Energy Advisor to Michael Peevey, President of the California Public Utilities Commission

1:00—1:30 pm Lunch: Keynote Speaker

Jane S. Long, Associate Director for Energy and Environment, Lawrence Livermore National Laboratory and Co-chair, California's Energy Future Committee.

1:45—3:15 pm: Roundtable: Is California on the Right Track?

Moderator: Greg Dalton, Vice President, Commonwealth Club of California and Founder, Climate One Program

Panelists:

Noah Long, Legal Director of the Western Energy Project, Natural Resources Defense Council

Karen Douglas, Energy Commissioner, California Energy Commission

Fong Wan, Senior Vice President, Energy Procurement, PG&E

Nick Chaset, Governor's Special Advisor for Distributed Generation, Combined Heat and Power, and Energy Storage

International, Entergy, and the Electric Power Research Institute. He has also been a member of a DOE task force on the National Transmission Grid Study. Dr. Oren holds BSc. and MSc. degrees in Mechanical Engineering from the Technion in Israel and M.S. and Ph.D. degrees in Engineering Economic Systems from Stanford University.

Vera P. Pardee is a senior attorney in the Climate Law Institute of the Center for Biological Diversity in San Francisco, California, where she has focused on Clean Air Act litigation. Before joining the Center, she was General Counsel of Digirad, a nuclear imaging company she helped take public, and before that of Nanogen, a molecular diagnostics and testing company. She was a litigation partner at Seltzer Caplan McMahon Vitek in San Diego and an associate at O'Melveny & Myers in Los Angeles. Ms. Pardee earned her law degree in 1982 from Southwestern University Law School.

Robert F. Sawyer is Class of 1935 Professor of Energy Emeritus and Professor of the Graduate School at the UC Berkeley. During his forty-six-year career at Berkeley, Dr. Sawyer's teaching and research included rocket propulsion, energy conversion, combustion, air pollution, and regulatory policy. He previously chaired Berkeley's Energy and Resources Group and directed the University of California Education Abroad Program in London. In January 2006, Dr. Sawyer left the University of California to accept the appointment by Governor Schwarzenegger to head the California Air Resources Board, a position he held through June 2007. He later returned to Berkeley to serve as Professor in the Graduate School. He is a graduate of Stanford and Princeton universities, a fellow of the Society of Automotive Engineers, and a member of the United States National Academy of Engineering.

Fong Wan is Senior Vice President for Energy Procurement with the Pacific Gas and Electric Company, where he is responsible for gas and electric supply planning and policies, wholesale market design, quantitative analysis, power plant development, commodity procurement and settlements. Mr. Wan joined PG&E in 1988 as a financial analyst and spent six years in the Financial Planning and Analysis organization. He served as director in the Gas Supply and Electric Transmission business units before becoming Vice President of Structure Transactions in 1997 with PG&E Energy Trading, an unregulated subsidiary of PG&E Corporation. In 2000, Mr. Wan moved to PG&E Corporation and served for four years as Vice President of Risk Initiatives. He was named Vice President for Power Contracts and Electric Resource Development in 2004 and Vice President

holds a bachelor's degree in engineering from Brown University and Master's and Ph.D from UC Berkeley.

Noah Long is the Legal Director for the National Resource Defense Council's Western Energy Project. Mr. Long's work with NRDC has focused on regulation of electric and gas utilities to align company and customer incentives to minimize the societal cost of energy services. He has worked on policies to deploy renewable energy and energy efficiency, invest in clean energy research and development, and clean up dirty power plants. Recently, Mr. Long has also served as the Clean Energy Counsel for the NRDC's land and wildlife program, which strives to minimize environmental conflicts from siting renewable energy projects. Mr. Long holds a JD from Stanford Law School, an MSc. in International Development and Environmental Policy from the London School of Economics, and a B.A. from Bowdoin College.

Scott Murtishaw is the senior energy advisor to President Peevey at the California Public Utilities Commission (CPUC), where he has played a key role in shaping the CPUC's climate policy. He also served as a key member of the Western Climate Initiative's Electricity Team. His work has focused on the design of California's cap and trade system, policies and programs for large and small-scale renewables, self-generation programs, Community Choice Aggregation and electric rate design. Prior to joining the CPUC, Mr. Murtishaw was a researcher at the Lawrence Berkeley National Laboratory where he authored studies on a wide variety of energy efficiency and climate policy topics. He has also been a guest researcher at the International Energy Agency in Paris. He holds a B.A. in International Relations from Stanford University and a Masters in Public Policy from the Goldman School of Public Policy at UC Berkeley.

Shmuel S. Oren is the Earl J. Isaac Professor in the Science and Analysis of Decision Making in the Department of Industrial Engineering and Operations Research at UC Berkeley. Dr. Oren's work focuses on issues related to modeling, optimization, market design and pricing policies. Over the last fourteen years he has served as the Berkeley site director of PSerc - a multi-university Power Systems Research Center sponsored by the National Science Foundation and industry members. He is a member of the Market Surveillance Committee of the California Independent System Operator and has advised numerous energy-related institutions, including New England Electric Systems, Niagara Mohawk Power Corporation, Los Angeles Water and Power District, New Zealand Electro Corp., PG&E, Edison

Panelist Bios

Severin Borenstein is E.T. Grether Professor of Business Administration and Public Policy at the Haas School of Business and Co-Director of the Energy Institute at Haas. He is also Director of the University of California Energy Institute and he has published extensively on the airline industry, the oil and gasoline industries, and electricity markets. His current research projects include the economics of renewable energy, economic policies for reducing greenhouse gases, alternative models of retail electricity pricing, and competitive dynamics in the airline industry. He served on the Board of Governors of the California Power Exchange from 1997 to 2003 and was a member of the California Attorney General's Gasoline Price Task Force (1999-2000). In 2010-11, Dr. Borenstein was a member of U.S. Secretary of Transportation Ray LaHood's Future of Aviation Advisory Committee. He received his A.B. from UC Berkeley and his Ph.D. in Economics from M.I.T.

Nick Chaset currently serves as Governor Jerry Brown's Special Advisor to the California Public Utilities Commission for Distributed Generation, Combined Heat and Power and Energy Storage. In this role, he is focused on the development and implementation of DG, CHP and Energy Storage Policy. Mr. Chaset previously served as the director of new market development and government affairs of Q-Cells NA, where he was responsible for leading Q-Cells' strategic marketing efforts, as well as representing Q-Cells with local, state and federal government agencies. He received his B.A. in international relations from Tufts University and his M.B.A. from Georgetown University.

Kerry P. Curtis is Professor Emeritus at the Ageo School of Business at Golden Gate University where he was professor of marketing and had a variety of administrative roles in his 14 full-time years there. He remains on the teaching faculty and participates in various curricular and administrative projects. Dr. Curtis is on the Board of the Commonwealth Club and serves on several board committees. For several years he was chair of the Club's Environment and Natural Resources forum. During the early 1990's, he was a Visiting Professor at the Haas School of Business at UC Berkeley. Earlier, during his twenty years at Bank of America, his roles involved marketing research and public affairs, and he also served on the board of SPUR and other organizations. Dr. Curtis is a Cal grad, and has lived in Orinda with his wife Lynn, an artist, for 40 years.

Greg Dalton is host and founder of Climate One, the sustainability initiative of The Commonwealth Club of California. Climate One engages leaders from business, government and civil society in reason-based discussions of energy, economy and environment. Mr. Dalton also created and hosts Climate One's monthly television show carried on KRCB public TV 22 on Comcast and DirecTV. He came to the Commonwealth Club after a career as a journalist. As International Editor at the Industry Standard magazine, he managed the Tokyo, Hong Kong and Buenos Aires bureaus and helped establish local-language editions in ten countries. He also worked at the international desk at The Associated Press, covered the early days of the Internet at InformationWeek, and wrote about China's rise for Rupert Murdoch's South China Morning Post as a correspondent in Beijing and Vancouver, Canada. He holds a master's degree in international affairs from Columbia University and a B.A. in politics from Occidental College.

Lucas Davis is Associate Professor of Economic Analysis and Policy at the Haas School of Business at UC Berkeley. Prior to joining Haas in 2009, he was an Assistant Professor of Economics at the University of Michigan. His research focuses on energy and environmental markets, and in particular, on electricity and natural gas regulation, pricing in competitive and non-competitive markets, and the economic and business impacts of environmental policy. His work appears in leading academic journals including the *American Economic Review*, the *RAND Journal of Economics*, and the *Journal of Political Economy*.

Karen Douglas was originally appointed to the California Energy Commission by Governor Arnold Schwarzenegger in February 2008 and re-appointed by Governor Jerry Brown in December 2012. She served as Chair from February 2009 to February 2011. She fills the Attorney position on the five-member Commission where four of the five members by law are required to have professional training in specific areas - engineering or physical science, environmental protection, economics, and law. Commissioner Douglas is the lead commissioner on power plant siting (including the Desert Renewable Energy Conservation Plan) and federal stimulus programs. From 2005 to 2008, Ms. Douglas served as Director of the California Climate Initiative at the Environmental Defense Fund. Commissioner Douglas is a 2001 graduate of the Stanford Law School and holds a Master's Degree in public policy from the University of Colorado, Boulder.

Brad Edgar is co-founder and Chief Executive Officer of 44 Energy Technologies, Inc. Prior to starting 44, Dr. Edgar co-founded three companies, including Cleaire Advanced Emission Controls, where he served

as President and Chief Technology Officer. While at Cleaire, Dr. Edgar pioneered important breakthroughs in advanced technologies to reduce diesel particulates and oxides of nitrogen from diesel engines. He is the author of numerous papers and presentations, and is the inventor or co-inventor on 11 United States Patents, primarily related to combustion and emission control technology. Dr. Edgar received his Ph.D. in Mechanical Engineering from UC Berkeley in 1997. In 2011, he received the prestigious Haagen-Smit Clean Air Award in the category of Science and Technology from the California Air Resources Board.

James Fine is an economist at the Environment Defense Fund (EDF), where he works to reduce the impacts of energy systems used to power buildings, transport and service people, and produce and move goods. His areas of research and advocacy include design and implementation of market-based policy, modeling the economic, air quality, and health consequences of policy decisions, deploying smart grid for environmental and electricity customer benefits, and facilitating the meaningful involvement of community stakeholders in environmental planning. Before joining EDF, Dr. Fine was an Assistant Professor in the Environmental Studies Program at the University of San Francisco (2003-2007). He is currently a Coordinating Team Member of the West Oakland Environmental Indicators Project (2005 - present) and a Task Force Member of the Port of Oakland Maritime Air Quality Improvement Plan (2007 - present) and the Bay Area Air Quality Management District CARE Program (2006 - present). He holds a Ph.D. from the Energy and Resources Group at UC Berkeley and a B.S. from the University of Pennsylvania.

Jane C. S. Long recently retired from Lawrence Livermore National Laboratory where she was the Principal Associate Director at Large, Fellow in the LLNL Center for Global Strategic Research and the Associate Director for Energy and Environment. She is currently a senior contributing scientist for the Environmental Defense Fund, Visiting Researcher at UC Berkeley, Co-chair of the Task Force on Geoengineering for the Bipartisan Policy Center and Co-chair of the California Council on Science and Technology's California's Energy Future committee. Her current work involves strategies for dealing with climate change, including reinvention of the energy system, geoengineering and adaptation. Dr. Long was the Dean of the Mackay School of Mines, University of Nevada, Reno and Department Chair for the Energy Resources Technology and the Environmental Research Departments at Lawrence Berkeley National Lab. She