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## CPUC/CEC Workshop on Climate Adaptation Opportunities for the Energy Sector July 27, 2015

### **CPUC Auditorium**

#### Agenda:

This workshop will provide an opportunity for Commissioners, stakeholders and interested parties to examine and discuss the physical vulnerabilities in the gas and electric systems due to climate change and the actions that the largest investor-owned utilities in California are taking to adapt to those changes. "Climate Adaptation," "Readiness," and "Resilience" are all terms used to describe taking deliberate and considered actions to avoid, manage or reduce the consequences of a hotter, drier and more extreme climate and to take advantage of the opportunities that such changes may generate. Presentations will cover adaptation efforts in the gas and electric sectors nationally and in California. A quorum of Commissioners from the CPUC and/or the CEC may be in attendance, but no CPUC or CEC business will be discussed, and no votes will be taken.

Executive Director Tim Sullivan will convene the meeting.

9:30 am – 10:00 am	Welcome and Introductions
	Liane M. Randolph, Commissioner, California Public Utilities Commission
	Robert B. Weisenmiller, Chair, California Energy Commission
10:00 am – 10:30 am	California's Changing Climate
	Dr. William Collins, Director, Climate Readiness Institute and Senior Scientist & Head of Climate Sciences Department, Lawrence Berkeley National Lab
10:30 am – 11:00 am	National and Regional Approaches to Adaptation in the Energy Sector
	Dr. Craig Zamuda, Senior Policy Advisor, Climate Resilience Partnership, U.S. Department of Energy
11:00 am – 11:30 am	Methods for Developing Robust Adaptation Plans in the Energy Sector
	Dr. David Groves, Co-director, RAND Water and Climate Resilience Center

#### 11:30 am – 12:00 pm Regional Collaborative Approach to Climate Readiness

Kathleen Ave, Climate Program Manager, Sacramento Municipal Utility District

	Noon to 1 pm Lunch Break
1:00 pm – 2:15 pm	California Adaptation Efforts
	Moderator:
	Marzia Zafar, Director, Policy & Planning Division, CPUC
	<b>Overview of California Adaptation Efforts,</b> Louise Bedsworth, Deputy Director, Governor's Office of Planning and Research
	Research Efforts for the Energy System, Guido Franco, Team Lead for Climate and Environmental Research, CEC
	Consideration of Climate Adaption in Renewable Energy Planning and Permitting, Scott Flint, Desert Renewable Energy and Conservation Plan (DRECP) Program Lead, CEC
	Science and Tools for Understanding Coastal Vulnerability of Energy Facilities, Dr. Susan Fischer Wilhelm, Research Lead on Climate Change, CEC and Dr. Li Erikson, CoSMoS Lead Modeler, USGS
2:15 pm – 4:00 pm	California Utilities' Adaptation Efforts: A Panel Discussion
	Moderator: Kristin Ralff-Douglas, Senior Policy Analyst, Policy & Planning Division, CPUC
	Utility Presentations by Panelists
	Diana Day, Vice President of Enterprise Risk Management, San Diego Gas & Electric Doug Schneider, Vice President of Gas Engineering and System Integrity, Southern California Gas Company
	Paul Grigaux, Vice President of Transmission Substations & Operations, Southern California Edison
	Patrick Hogan, Vice President, Electric Operations Asset Management, Pacific Gas & Electric
4:00 pm – 4:30 pm	Public Comment
4:30 pm – 5:00 pm	Concluding Remarks
	CPUC/CEC Commissioners

### **Speaker Bios (in order of appearance)**

# Dr. William Collins, Director, Climate Readiness Institute and Senior Scientist & Head of Climate Sciences Department, Lawrence Berkeley National Lab

Dr. William (Bill) Collins is an internationally recognized expert in climate modeling and climate change science. He serves as a senior scientist, head of the Climate Sciences Department, and director of the Center at LBNL for Integrative Modeling of the Earth System (CLIMES) at the Lawrence Berkeley National Laboratory (LBNL); a Professor in Residence in the Department of Earth and Planetary Science at the University of California, Berkeley; and chief scientist for the Department of Energy's Enterprise in Climate and Earth System Modeling. He was a Lead Author on both the Fourth and Fifth Assessment of the Intergovernmental Panel on Climate Change (IPCC).

#### Dr. Craig Zamuda, Senior Policy Advisor, Climate Resilience Partnership, U.S. Department of Energy

Dr. Craig Zamuda is a senior policy advisor for Climate and Environmental Analysis in the U.S. Department of Energy's (DOE) Office of Energy Policy and Systems Analysis, and provides policy and technical advice on energy technology development and deployment programs related to climate change and energy security. Craig represents DOE in domestic and international fora for the advancement of climate change resilience activities, including the White House Council on Climate Preparedness and Resilience, and the Interagency Infrastructure Resilience Working Group. He served as a lead author on the report "U.S. Energy Sector Vulnerabilities to Climate Change and Extreme Weather."

#### Dr. David Groves, Co-director, RAND Water and Climate Resilience Center

Dr. David Groves is co-director of the RAND Water and Climate Resilience Center, a senior policy researcher at the RAND Corporation, and a professor at the Pardee RAND Graduate School. He specializes in improving the long-term planning and decision-making of natural resource planning agencies through the application of innovative analytic methods and decision support tools. David has worked water utilities and coastal planning agencies across the U.S. and abroad, helping them to address climate change in their long-term plans. He has also worked with the California Energy Commission's Electricity Supply Analysis Division exploring new methods for planning under uncertainty.

#### Kathleen Ave, Climate Program Manager, Sacramento Municipal Utility District

Kathleen Ave is the Climate Program Manager in Energy Research & Development at the Sacramento Municipal Utility District, a publicly owned electric utility. A former Coro Fellow, she directs SMUD's greenhouse gas research strategy, including climate readiness, water and local carbon sequestration initiatives. She represents SMUD on the steering committee of the Capital Region Climate Readiness Collaborative and the Alliance of Regional Collaboratives for Climate Adaptation. She also manages research projects with local water and wastewater agencies and solar projects intended to utilize marginal land resources, including a proposed solar canal installation designed to offset pumping load and reduce evaporative water loss.

#### Dr. Louise Bedsworth, Deputy Director, Governor's Office of Planning and Research

Dr. Louise Bedsworth is the Deputy Director at the Governor's Office of Planning and Research (OPR). Prior to joining OPR, she was a Research Fellow at the Public Policy Institute of California where she focused on climate action at the local level, adaptation to climate change, and transportation and air quality. She has also held positions at the Union of Concerned Scientists, Redefining Progress, and the International Institute for Applied Systems Analysis.

#### Guido Franco, Team Lead for Climate Change and Environmental Research, CEC

Guido Franco is the Team Lead for Climate Change and Environmental Research in the Energy Commission's Research Division. Guido led the preparation of the 1998 inventory of greenhouse gases for California, he was the main author of the 2003 Climate Change Research Plan, and he has been one of the main forces behind the three California Climate Assessments. He has been an Editor of two special issues of the prestigious journal Climatic Change on climate impacts and adaptation options for California. Guido was a member of an Advisory Committee created by NASA for its Applied Sciences Program. More recently, he was a member of the federal advisory committee that produced the National Climate Assessment delivered to the President and the US Congress on May 6, 2014.

#### Scott Flint, Desert Renewable Energy and Conservation Plan (DRECP) Program Lead, CEC

Scott Flint works in the California Energy Commission Siting, Transmission, and Environmental Protection Division. From 2008 to present, Scott has led the development of the Desert Renewable Energy and Conservation Plan, initiating this planning effort first at the California Department of Fish and Game (now Department of Fish and Wildlife), and then continuing at the Energy Commission. Scott is also a working member of the Natural Resource Agency's Renewable Energy Action Team, which focuses on developing workable solutions to accelerate the deployment of renewable energy while ensuring the long-term protection of California's natural resources.

#### Dr. Susan Fischer Wilhelm, Research Lead on Climate Change, CEC

Dr. Susan Fischer Wilhelm manages energy-related environmental research with a focus on issues related to climate change and public health. She is also currently managing development of CalAdapt.org, a web-based interactive visualization tool designed to convey the risks of climate change for the benefit of local decision makers and Californians who live in affected communities. Susan has worked for the State of California since September 2006, when she joined the California Air Resources Board (ARB) as the Science, Technology, and Health Policy Advisor to the Chairman. While at ARB, she also served as staff lead on research planning and supported recreational vehicle regulations to address the federal 8-hour ozone standard as called for by California's 2007 State Implementation Plan.

#### Dr. Li Erikson, CoSMoS Lead Modeler, USGS

Dr. Erikson is a research oceanographer with the USGS Pacific Coastal and Marine Science Center in Santa Cruz where she has been working since 2005, focused on hydrodynamics, nearshore processes, coastal flooding, and shoreline change. Li previously worked as an Environmental Engineering consultant and for international aid agencies assisting with coastal planning.

#### Diana Day, Vice President of Enterprise Risk Management & Compliance, San Diego Gas & Electric

Diana Day is Vice President of Enterprise Risk Management & Compliance for San Diego Gas & Electric (SDG&E) and Southern California Gas Co. Day has held various positions with the Sempra companies since 1997, including Assistant General Counsel – Commercial of SDG&E, General Counsel of Sempra Energy Global Enterprises and Vice President and Associate General Counsel of Sempra Energy. Prior to joining Sempra Energy, Diana was with the San Diego office of Latham & Watkins, where she served on that firm's EEO Committee.

#### Doug Schneider, Vice President of Gas Engineering and System Integrity, So Cal Gas

Doug Schneider is Vice President, Gas Engineering and System Integrity for Southern California Gas Company and San Diego Gas & Electric. He is responsible for gas engineering and pipeline integrity policies and programs. Previously, Doug served as the director of pipeline integrity where he oversaw the development and management of the utilities' pipeline integrity programs. Doug joined SoCalGas in 1991 as an engineer. He has held a number of engineering and related roles including technical services manager, pipeline integrity manager, and engineering design manager. He left SoCalGas briefly, from 1997 to 2001, and during this time held the title of vice president of sales and marketing for Rohrback Cosasco Systems, a manufacturer of corrosion control instrumentation and related systems.

#### Paul Grigaux, Vice President of Transmission, Substations & Operations, Southern California Edison

Paul Grigaux is Vice President of Transmission, Substations and Operations in the Transmission and Distribution (T&D) organization at Southern California Edison (SCE). Elected to that position in December of 2013, he is responsible for all grid operations, substation construction and maintenance, and transmission activities including system performance, reliability, compliance, and emergency response and restoration. Previously, Paul was director of Grid Operations in the Power Delivery unit at SCE, responsible for operating the company's transmission and distribution system. Paul also has served as director of T&D's Central Design and Field Accounting Division. He joined SCE in 2005 as director of the Shop Services and Instrumentation Division and senior vice president of Edison ESI, a wholly owned subsidiary of SCE.

#### Patrick Hogan, Vice President, Electric Operations Asset Management, Pacific Gas & Electric

Patrick Hogan is PG&E's Vice President of Electric Operations Asset Management. His responsibilities include all aspects of PG&E's electric transmission and distribution asset investment and reliability strategies, including the implementation of industry best practices in controls, systems and standards. He leads the development and deployment of technology and Smart Grid strategy for Electric Operations. Patrick's previous roles include the Vice President of Transmission and Distribution Engineering and Design for British Columbia Hydro, Vice President of Distribution Asset Management and Engineering for National Grid and Vice President of Transmission and Distribution for KeySpan.