



## 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

Ken Alex, Senior Policy Advisor to Governor Brown and the Director of the Office of Planning and Research

### 10:00 am – 10:30 am California's Changing Climate

Dr. Daniel R. Cayan, Director of the Climate Research Division, Oceanographer and Meteorologist, Scripps Institution of Oceanography, University of California at San Diego

### 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

**Overview of California Adaptation Efforts**, 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

Jimmie I. Cho, Senior Vice President, Gas Operations 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. Daniel R. Cayan, Director of the Climate Research Division, Oceanographer and Meteorologist, Scripps Institution of Oceanography, University of California at San Diego**

Dr. Daniel Cayan is Director of the Climate Research Division, Oceanographer and Meteorologist at the Scripps Institution of Oceanography (SIO), University of California, San Diego, and is also a Researcher in the U.S. Geological Survey. His work is aimed at understanding climate variability and changes over the Pacific Ocean and North America. Specific interests concern impacts of climate changes on water resources and other sectors in western North America. Cayan heads the California Nevada Applications Program and the California Climate Change Center, climate research programs to improve climate information and forecasts for decision makers in the California region. He has been employed by Scripps since 1977 and by the U. S. Geological Survey Water Resources Division since 1991.

### **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.

### **Jimmie I. Cho, Senior Vice President of Gas Operations and System Integrity, So Cal Gas**

Jimmie I. Cho is Senior Vice President, gas operations and system integrity for SoCalGas and SDG&E, Sempra Energy's regulated California utilities. Cho is responsible for all of gas operations and engineering. In his previous role, Cho served as vice president of gas operations where he oversaw all aspects of field operations including gas distribution, transmission, storage and system operations. He also held prior roles as vice president of human resources, diversity and inclusion for SoCalGas; director of customer communications, research and web strategy; director of safety and emergency services; director of customer service field operations.

### **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.