

alifornia Energy & Air Quality Conference

October 29-30, 2008

**South Coast Air Quality Management District
21765 Copley Dr, Diamond Bar, CA 91765**

Sponsored By:



California Environmental Protection Agency

 **Air Resources Board**

AGENDA

Wednesday, October 29, 2008 8:30 am – 5 pm

8:30 – Opening

Martha Krebs (*California Energy Commission*)

8:35 – Introductory and Welcoming Remarks

Commissioner Jeffrey Byron (*California Energy Commission*)

8:45 – Keynote Address

Assembly Member Paul Krekorian

9:20 – Integrating Renewables into the Electricity System

Merwin Brown (*California Institute for Energy and Environment*)

9:45 – Break

Session 1

10:00 - Distributed Generation

Session Chair – Commissioner Jeffrey Byron (*California Energy Commission*)

Understanding Regional DG Impacts and Placement Options in Central and Southern California, Donald Dabdub (*University of California, Irvine*)

Estimating Air Quality Impacts in Urban Neighborhoods from the Use of Distributed Generation, Akula Venkatram (*University of California, Riverside*)

Realistic Applications of CHP with DG, Richard Hack (*University of California, Irvine*)

Life Cycle Analysis of DG, Margaret Mann (*National Renewable Energy Laboratory*)

Q&A

11:45 – Lunch

AGENDA

Wednesday, October 29, 2008 (Continued)

Session 2

12:45 – Building Characteristics and Indoor Environmental Quality

Session Chair – Peggy Jenkins (*California Air Resources Board*)

Indoor Air Quality in New Homes, Bud Offerman (*Indoor Environmental Engineering*)

Indoor Air Quality in Small and Medium—Sized Commercial Buildings in California, Michael Apte (*Lawrence Berkeley National Laboratory*)

Indoor Pollutant Emissions from Office Equipment, Ryan Johnson, (*California Air Resources Board*)

Q&A

2:15 – Break

Session 3

2:30 – Innovative Approaches to Electricity and Air Quality Planning

Session Chair – David Mehl (*California Air Resources Board*)

Using Seasonal Modeling to Better Understand Emissions Impacts on Air Quality in Central California, Nancy Brown (*Lawrence Berkeley National Laboratory*)

Electricity and Air Quality – A District’s Perspective, Elaine Chang (*South Coast Air Quality Management District*)

Understanding the Role Heat Island Controls Could Have on Improving Air Quality, Haider Taha (*Altostratus, Inc.*)

Heat Island from a District’s Perspective, Charles Anderson (*Sacramento Metropolitan Air Quality Management District*)

Air Emissions Reductions Through Energy and Peak Load Reductions and Renewable Generation, Jeremy Fisher (*Synapse*)

Tool to Evaluate Environmental Justice Implications of Projects, James Sadd (*Occidental College*)

Q&A

Day 1 Closing Remarks

5:00 – Social Hour

AGENDA

Thursday, October 30, 2008 8 am – 3:30 pm

8:00 - Day 2 Welcome

Marla Mueller (*California Energy Commission*)

8:05 – Methane Digestion: Trade-offs between Climate and Air Quality

Nancy Brown (*Lawrence Berkeley National Laboratory*)

Session 4

8:30 – Future Research Directions for Informed Policy Making

Moderator – **James Lents** (*International Sustainable Systems Research Center*)

Mike Hertel (*Director of Corporate Environmental Policy, Southern California Edison*)

Kip Lipper (*Legislative Aide to California Senator Don Perata*)

Jeffrey McKay (*Deputy Air Pollution Control Officer, Bay Area Air Quality Management District*)

Matt Miyasato (*Assistant Deputy Executive Officer Technology Advancement Office, South Coast Air Quality Management District*)

John White (*Executive Director, Center for Energy Efficiency and Renewable Energy*)

10:00 – Break

Session 5

10:15 – Air Quality and Natural Gas

Session Chair – **Marty Kay** (*South Coast Air Quality Management District*)

Natural Gas - Future Supply and Demand, **Barbara Mariner-Volpe** (*Energy Information Administration*)

Natural Gas Variability in California and Research to Evaluate Interchangeability, **David Rue** (*Gas Technology Institute*)

Interchangeability and Appliances – Air Quality Implications, **Brett Singer** (*Lawrence Berkeley National Laboratory*)

Interchangeability Testing in San Diego with Imported LNG, **Steven Moore** (*San Diego County Air Pollution Control District*)

Q&A

AGENDA

Thursday, October 30, 2008 (Continued)

12:00 – Lunch

Session 6

1:15 – Alternative Transportation Strategies - Air Quality and Climate Change

Session Chair – Bill Van Amburg, (*CALSTART*)

**Energy Commission's Deployment Programs for Alternative/
Renewable Fuels**

—**Alternative/Renewable Fuels Technology Program**, Peter Ward
(*California Energy Commission*)

—**PIER Transportation**, Philip Misemer (*California Energy Commission*)

**Transportation and Sustainability in the Alternative and Renewable
Fuel and Technology Program**, Jim McKinney (*California Energy Commis-
sion*)

Approaches to Low Carbon Fuel, John Courtis (*California Air Resources
Board*)

Air Quality and Climate Change Implications of Plug-in-Hybrids, Eladio
Knipping (*Electric Power Research Institute*)

Q&A

Day 2 Closing Remarks

OPENING SPEAKERS



KEYNOTE SPEAKER ASSEMBLYMEMBER PAUL KREKORIAN

Assemblymember Paul Krekorian was elected to the California State Legislature in 2006 to serve the communities of Burbank, Glendale, Los Feliz, North Hollywood, Silver Lake, Valley Glen, Van Nuys and Toluca Lake. Mr. Krekorian is the Chair of the Select Committee on Preservation of California's Entertainment Industry. He has a wide range of other assignments, including membership on the Assembly committees on Appropriations, Budget (including the Budget subcommittee on transportation and information technology), Human Services, Judiciary, Rules, and Utilities & Commerce (dealing with energy and telecommunications). He is also a member of the Select Committee on Hate Crimes. His other accomplishments are new laws that will reduce plastic pollution in the world's oceans (AB 258); expand solar energy generation in California and reduce carbon emissions (AB 946); protect senior citizens who are living in residential care facilities from abusive practices and neglect when those facilities close down (AB 949); make neighborhoods safer by authorizing local officials to evict gang members and others who use their residences to store or sell illegal weapons and ammunition (AB 1013); completely revamp and modernize California's trademark laws (AB 1484); and use prison resources more efficiently to achieve public safety by reducing expenditures on permanently medically incapacitated inmates (AB 1539). During the 2008 Legislative Session, Assembly Speaker Karen Bass selected Paul to lead a three-member working group that will find ways to accelerate California's adoption of renewable power. The Renewable Portfolio Standard working group, as it is known in Sacramento, has been working with environmentalists, labor groups, utilities, electricity generators and others to ensure that California generates innovative policy and establishes world-leadership in development of renewable resources. Prior to his service in the Assembly, Mr. Krekorian served as President of the Burbank Board of Education. At the same time, he served as President of the Five Star Education Coalition, a consortium of five suburban school districts that works to shape state and federal education policy. He is a partner in the law firm of Fisher & Krekorian, and he has practiced as a business, entertainment and intellectual property litigation attorney for 20 years. Mr. Krekorian received his law degree from UC Berkeley and a Bachelor of Arts degree in political science from USC.



JEFFREY BYRON – CALIFORNIA ENERGY COMMISSION

Jeffrey Byron, of Los Altos, was appointed to the California Energy Commission by Governor Arnold Schwarzenegger in June 2006. The five members of the Energy Commission are appointed by the Governor to staggered five-year terms and require Senate confirmation. By law, four of the five members of the Energy Commission are required to have professional training in specific areas - engineering or physics, environmental protection, economics, and law. One commissioner is appointed to represent the public-at-large. Commissioner Byron fills the public-at-large position with over 30 years of experience in the electric power industry and over 10 years of service assisting customers in meeting their energy needs. Commissioner Byron serves as Presiding Member of the Energy Commission's Electricity and Natural Gas Committee, the Siting Policy Committee, and the Integrated Energy Policy Committee. He also serves as Associate Member on the ad hoc committee for the joint greenhouse gas reduction proceeding with the CPUC. Prior to his appointment, Commissioner Byron served as president of Byron Consulting Group, developing strategic energy solutions for mid to large-sized firms since 2002. Commissioner Byron served as Co-Chair of the Silicon Valley Leadership Council's Energy Committee and managed an energy efficiency program to reduce energy use and carbon emissions among businesses and other organizations on behalf of the Silicon Valley Leadership Group and Sustainable Silicon Valley. Previously, he developed combined heat and power projects for Calpine C*Power from 2000 to 2001, and was Energy Director for Oracle Corporation from 1996 to 2000. Commissioner Byron served at the Electric Power Research Institute from 1985 to 1995 in a variety of capacities, including commercialization director and executive technical advisor. Commissioner Byron received a Bachelor and a Master of Science degree from Stanford University.

SPEAKER AND SESSION CHAIR BIOGRAPHIES

CHARLES ANDERSON

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Mr. Anderson is the Program Coordinator of the Planning Coordination Section at the Sacramento Metropolitan Air Quality Management District. Mr. Anderson began his career as an Air Monitoring Instrument Technician, before retaining the SMAQMD Statistician position. As statistician, he was responsible for analyzing, validating, and reporting on trends in ozone criteria pollutants and speciated particulate matter concentration data for the region. In his current position as Program Coordinator, Mr. Anderson leads a staff of air quality planners, engineers, and the District's statistician in development, publication, and submittal of the Sacramento Region's air quality plans. Mr. Anderson has a BS in Computer Science from Texas Lutheran University, and is pursuing his certification as a Project Management Professional. Mr. Anderson is also a retired Chief Master Sergeant of the United States Air Force.

MICHAEL APTE

LAWRENCE BERKELEY NATIONAL LABORATORY

Mr. Apte is a Staff Scientist with the Lawrence Berkeley National laboratory, a position he has held since 1980. He also is a Chemist, Group Leader for the Commercial Building Ventilation and Indoor Air Quality Group, Indoor Environment Department at Lawrence Berkeley National Laboratory. He is the author of 28 peer-reviewed archival publications, a book chapter, more than 50 conference proceedings and reports and two patents in the field of indoor environmental quality (IEQ) and pollutant exposure. His research includes environmental tobacco smoke emissions and dynamics, combustion appliance pollutant source characterization, population-based statistical modeling techniques for indoor air quality and human exposure, epidemiological study of building-related disease risk, international IEQ measurement and personal exposure studies, and development of patented exposure assessment instrumentation. His current focus includes IEQ, ventilation, health and productivity in office buildings and classrooms, FEMA trailer materials emissions characterization and invention of novel technologies for pollutant exposure assessment. He is a member of ASHRAE and ASHRAE Committee 62.1, Commercial Ventilation Standard; ISIAQ and ISEA.

MERWIN BROWN

CALIFORNIA INSTITUTE OF ENERGY AND ENVIRONMENT

Merwin Brown is employed by the California Institute for Energy and Environment, within the University of California Office of the President. As Director of Electric Transmission Research, he manages a team of professionals who develop and administer technology research and development for California's future electric transmission system. Dr. Brown has worked for Pacific Gas and Electric and Arizona Public Service, and also at the Pacific Northwest National Lab and the National Renewable Energy Lab. He served as Director of Program Development for Gas-Cooled Reactor Associates, a non-profit research firm involved in the national development of an advanced nuclear reactor technology. Dr. Brown has over three decades of experience in energy. He has managed private and public interest energy technology R&D programs up to \$50 million per year with departments as large as 100 scientists and engineers, and R&D projects as large as \$20 million. He has a comprehensive knowledge of the electric and natural gas industries, and the many emerging energy technologies, such as renewables, that will shape their future. He is trained and experienced in strategic business and scenario planning. Dr. Brown has served on many professional committees, commissions and boards, including the Arizona Solar Energy Commission, the BoD of the American Council for an Energy-Efficient Economy, and as an advisor to EPRI and NREL. He holds BS and PhD degrees in nuclear engineering.

NANCY JEANNE BROWN

LAWRENCE BERKELEY NATIONAL LABORATORY

Dr. Nancy Jeanne Brown is a Senior Scientist and Department Head of the Atmospheric Sciences Department at the Lawrence Berkeley National Laboratory. Her research interests are chemical kinetics, atmospheric science, air quality modeling, model uncertainty and sensitivity, aerosols, high performance computing, combustion, combustion modeling, and emissions. She received a B.S. in Chemistry at Virginia Polytechnic Institute, an M.S. in Molecular Physics and Ph.D. in Chemical Physics at the University of Maryland. Dr. Brown has published numerous scientific papers and served as a principal investigator on many projects. She has held a number of teaching and research positions on the Berkeley campus and remains an Affiliate faculty in the Energy and Resources Group of the University of California at Berkeley. She has been a Professor Invité, Université Pierre et Marie Curie, Paris VI;

SPEAKER AND SESSION CHAIR BIOGRAPHIES

a Governor's Appointee, Scientific Advisory Committee, State of California Acid Deposition Program; and a director of The Combustion Institute. She has also served on numerous State and Federal Advisory Committees

ELAINE CHANG

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Dr. Elaine Chang is the Deputy Executive Officer of Planning, Rule Development and Area Sources. She has more than 20 years of experience in air pollution control, alternative energy technologies and health risk assessment. Since joining the AQMD in 1987, she has managed several planning and rule programs, including control strategy development, air quality-related energy policy development, and criteria pollutant and air toxic rulemaking. Elaine has taken the lead in the development of AQMD's market incentive and credit trading programs. Dr. Chang's responsibilities include providing direction for the agency's goals and policies; preparing and updating the AQMP, overseeing the rule-making process and the agency's climate change activities, developing air toxic control programs, and resolving issues with business and community groups. She holds a doctorate in Public Health from Columbia University, a master's degree in Health Education from New York University, and bachelor's degree in Environmental Health from National Taiwan University.

JOHN COURTIS

CALIFORNIA AIR RESOURCES BOARD

Mr. Courtis, is the manager of the Alternative Fuels Section at the California Air Resources Board where he is responsible for the development of the Low Carbon Fuel Standard. From 1998 to 2007, Mr. Courtis provided consulting services on fuels and air quality issues to governmental and non-governmental organizations in Asia and Europe. Among his clients have been the governments of Thailand, Malaysia, Indonesia, Philippines, India, China, Greece; and the Asian Development Bank, the World Bank, UNEP, and GTZ. From 1978 to 1998, Mr. Courtis served with the California Air Resources Board, as manager of the Fuels Section. He was instrumental in the development and implementation of California's lead phase-out, reformulated gasoline, clean diesel, oxygenate requirements, alternative fuels, fuel additives regulations, and the California predictive model requirements. Mr. Courtis holds a BS degree in Mathematics, a BS degree in Electrical Engineering, and has completed graduate work in Engineering Systems.

DONALD DABDUB

UNIVERSITY OF CALIFORNIA, IRVINE

Donald Dabdub is a Professor of Mechanical and Aerospace Engineering and Professor, Advanced Power and Energy Program at the University of California, Irvine. He completed his Ph.D. in Chemical Engineering at the California Institute of Technology in 1995. Dr. Dabdub's expertise is in mathematical modeling of air pollution dynamics and numerical algorithms using high performance parallel computation. His main research effort is to develop new physics and chemistry for air quality models, to design new algorithms for the numerical solution of the governing equations of air pollution dynamics, and to study the impact of various energy-related scenarios on urban airsheds. He presented the Schiesser distinguished lecture at Lehigh University, and was awarded the Prometheus Teaching award for excellence at the University of California, Irvine. Outside of academia, Dr. Dabdub has served as advisor to various state and federal agencies including: The Air Resources Board of California, the California Energy Commission, John Wayne Airport, Lake Tahoe Science Consortium and the U.S. Department of Defense.

JEREMY FISHER

SYNAPSE ENERGY ECONOMICS

Jeremy Fisher, PhD, is a scientist at Synapse Energy Economics in Cambridge, Massachusetts. Dr. Fisher specializes in global climate change and tracking human-caused and natural carbon exchanges. At Synapse, he has developed cutting-edge techniques to calculate multiple emissions benefits of renewable energy and energy efficiency projects at state, regional, and national scales. Before joining Synapse, he worked on coordinating efforts to track recent climate change in New England. Dr. Fisher holds a doctorate in Geological Sciences from Brown University, and degrees in Geology and Geography from the University of Maryland.

RICHARD HACK

UNIVERSITY OF CALIFORNIA, IRVINE

Mr. Hack serves in the dual roles of the Facilities Manager and Senior Research Engineer for the University of California Irvine's Advanced Power and Energy Program. Mr. Hack has over 25 years of engineering experience and more than 20 years in the arenas of combustion, alternative energy resources, and environmental stewardship. Mr. Hack also has extensive experience in the performance testing of distributed generation combined cooling, heat and power systems (DG-CCHP), helping to develop the initial testing pro-

SPEAKER AND SESSION CHAIR BIOGRAPHIES

to col standards for such systems. Mr Hack's efforts extend beyond the University itself with research programs and activities addressing DG-CCHP integration into new and as-built facilities and post commissioning performance testing of these systems. Mr. Hack has a BS and MS in Mechanical Engineering from the University of California, Irvine. He is a registered Professional Engineer in the State of California. He also has credentials as a Certified Energy Manager (CEM), Distributed Generation Certified Professional (DGCP), and Certified Sustainable Development Professional (CSDP), all from the Association of Energy Engineers.

MICHAEL HERTEL

SOUTHERN CALIFORNIA EDISON

Dr. Hertel has spent more than three decades as a national leader, advisor, and analyst in the field of environmental policy and protection. Currently the Director of Corporate Environmental Policy for Southern California Edison Company, Dr. Hertel manages the Company's programs and activities in the areas of environmental issues, legislation, regulation, and policies. In addition, he oversees the Company's communications with such agencies as the US and California Environmental Protection Agencies, the California Air Resources Board, the South Coast Air Quality Management District, the California Water Resources Control Board, the California Coastal Commission, and the California Department of Fish and Game. From 1971 to 1972, Dr. Hertel was Assistant Professor of Political Science & Government at Pitzer College, a member of the Claremont Colleges. He taught courses in environmental policy, urban planning and American government and is Chairman, Board of Visitors for Claremont Graduate University, School of Politics and Economics. Dr. Hertel is currently a founding member of the California Environmental Dialogue, on the Board of Directors for the California Council for Environmental and Economic Balance. He is a graduate of California State University at San Jose where he received his B.A. (International Relations) in 1967. In 1970, he earned his M.A. (Government) from Claremont Graduate School and his Ph.D. there in 1972.

PEGGY L. JENKINS

CALIFORNIA AIR RESOURCES BOARD

Peggy Jenkins manages the Indoor Exposure Assessment Program in the Research Division of the California Air Resources Board. Her program oversees research on all aspects of indoor air quality and exposure assessment, collaborates with other organizations to reduce indoor pollution, publishes indoor air quality guidelines and other public educational materials, and has prepared two major reports at the request of the

California Legislature on environmental health conditions in California's portable classrooms, and on indoor air pollution in California. Ms. Jenkins has served on many advisory committees and peer review panels, including a National Academy of Sciences Task Force on assessing and preventing exposures of deployed forces to biological and chemical agents. She also served two terms as an elected officer of the International Society of Exposure Analysis. Ms. Jenkins holds a Bachelor of Science degree in Zoology and a Master of Science degree in Ecology and Environmental Policy Analysis, both from the University of California at Davis.

RYAN JOHNSON

CALIFORNIA AIR RESOURCES BOARD

Mr. Johnson works for the Research Division of the California Air Resources Board, in the Indoor Exposure Assessment Section. There, his responsibilities include data analysis of indoor volatile organic compounds (VOC) measurements collected by ARB and management of external research projects, such as the California Energy Commission-funded study to quantify pollutant emissions from office equipment. Mr. Johnson has worked for UC Berkeley analyzing carbon monoxide exposure data from the Chronic Respiratory Effects of Early Childhood Exposure to Respirable Particulate Matter (CRECER) study. He has also interned for the Indoor Air Quality Section at the California Department of Public Health, and has worked for Berkeley Analytical Associates where he assisted with chamber testing of materials for VOC emissions. Mr. Johnson received his B.S. in Chemistry from the University of Minnesota in 2003, and his M.S. in Environmental Health Sciences from the University of California, Berkeley in 2006.

MARTIN KAY

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Mr. Kay is a Program Supervisor for the South Coast Air Quality Management District. His current assignment in the Science and Technology Advancement Office involves Best Available Control Technology, natural gas quality issues, and reciprocating engine rule implementation. Mr. Kay has worked for the District for 34 years and has broad experience in permitting and rule development. Mr. Kay has a bachelors degree in Physics and a masters degree in Civil and Environmental engineering from UC Irvine, and has been a registered professional mechanical engineer in California since 1977.

SPEAKER AND SESSION CHAIR BIOGRAPHIES

ELADIO KNIPPING

ELECTRIC POWER RESEARCH INSTITUTE

Dr. Knipping is a Senior Technical Manager in the Environment Sector of the Electric Power Research Institute (EPRI). His principal research activities focus on evaluating the origin and fate of environmental pollutants, with emphasis on gases, particulate matter and the atmospheric deposition of acids and nutrients. Dr. Knipping is also involved in several cross-discipline initiatives evaluating the impacts of emerging technologies, such as plug-in hybrid electric vehicles and distributed energy resources, on the electric sector and the environment. Dr. Knipping served as a principal researcher and author of the *Big Bend Regional Aerosol and Visibility Observational Study* in collaboration with the US Environmental Protection Agency, National Park Services, Texas Commission on Environmental Quality, and National Oceanic and Atmospheric Administration and the *Environmental Assessment of Plug-In Hybrid Electric Vehicles* in collaboration with the Natural Resources Defense Council (NRDC). Dr. Knipping received his BS degree in Civil Engineering from the Instituto Tecnológico de Santo Domingo (Dominican Republic). He received both his MS degree in Environmental Engineering and his PhD degree in mechanical and aerospace engineering from the University of California, Irvine.

MARTHA KREBS

CALIFORNIA ENERGY COMMISSION

Dr. Martha Krebs is Director of the Energy Research and Development Division for the California Energy Commission. The Division is responsible for the Public Interest Energy Research (PIER) program, which conducts research that seeks to improve the quality of life for California citizens by developing environmentally sound, reliable and affordable electricity and natural gas services and products. Before coming to the Energy Commission, she was President of Science Strategies, an analysis and consulting firm that works with public and private organizations to identify critical issues and opportunities in science and technology. In 2001, she was the founding Director of the California NanoSystems Institute (CNSI), at UCLA and UC Santa Barbara. Dr. Krebs was also a senior Fellow at the Institute for Defense Analysis, where she led studies in R&D management, planning and budgeting. From 1993 to 2000, Dr. Krebs served as Assistant Secretary and Director of the Office of Science at the Department of Energy, responsible for the \$3.5 billion basic research program that underlay the Department's energy, environmental and national security missions. From 1983-1993, she served as an Associate Director for Planning and Development at the DOE's Lawrence Berkeley National Laboratory, where she was responsible for strategic planning for research and facilities,

Laboratory technology transfer, and science education and outreach. From 1977-1983, she served on the House Committee on Science first as a Professional Staff Member and then as Subcommittee Staff Director, responsible for authorizing DOE non-nuclear energy technologies and energy science programs. She received her Bachelor's degree and Ph.D. in Physics from the Catholic University of America.

JAMES LENTS

INTERNATIONAL SUSTAINABLE SYSTEMS RESEARCH CENTER

Dr. Lents is serving as President of the International Sustainable Systems Research Center. Prior to this he served as Director of the Center for Sustainable Suburban Development at the University of California, Riverside and has been involved in environmental and energy research at UCR for eight years. His research involves air quality management policy, the impact of electricity generation policy, and transportation impacts on micro, macro, and global environmental systems. He has served as Executive Officer of the South Coast Air Quality Management District, Director of the Colorado Air Pollution Control Division, and Technical Director of the Chattanooga-Hamilton County Air Pollution Control Bureau. In his 27 years of experience with three air quality management agencies across the United States, Dr. Lents has played an important role in defining and developing today's national environmental/energy decision-making, including emissions inventory development and air quality management planning, enforcement approaches and procedures, and market based regulatory systems. He was significantly involved in the development of the 1990 U.S. Clean Air Act and the 1988 California Clean Air Act, and has served on four national commissions reviewing diesel standards, alternative fuels, automobile global warming emissions, air quality management processes and the recent National Academy of Science review of the U.S. air quality management system. Dr. Lents has received numerous awards and has served or serves on the boards of the Energy Foundation, the Mickey Leland Urban Air Toxics Center, CALSTART-Alternative Fuels Development Corporation, the International Sustainable Systems Research Center, the State and Territorial Air Pollution Program Administrators, and the Association of Local Air Pollution Control Officials.

KIP LIPPER

OFFICE OF CALIFORNIA STATE SENATOR DON PERATA

Mr. Lipper is chief policy advisor on energy, environmental, and natural resources matters to CA State Senate President pro Tempore (Majority Leader) Don Perata (D-Oakland). In December 2008, he will assume that role for pro Tem-Elect Darrell Steinberg (D-Sacramento). He began his career in the 1970's as administrative assistant for Assembly Member Dennis

SPEAKER AND SESSION CHAIR BIOGRAPHIES

Mangers (D-Huntington Beach). From 1980-2004, he was chief of staff for Senator Byron Sher (D-Stanford), staff director to the Senate Committee on Environmental Quality, and chief consultant to the Assembly Natural Resources Committee. Mr. Lipper has drafted legislation on a broad array of environmental issues including the California Clean Air Act, the California Safe Drinking Water Act, the California Beverage Container Recycling Act, and the Integrated Waste Management Act. He also has worked on state budget issues affecting energy, environmental, and resources agencies of CA state government. Mr. Lipper was the lead Senate staffer on the drafting of AB 32, the Global Warming Solutions Act of 2006, and on the law authored by Senator Perata establishing the nation's first greenhouse gas emission performance standard for energy generation (SB 1368). He has been deeply involved in the implementation of GHG laws passed and enacted by the CA Legislature. Mr. Lipper has published papers on a range of environmental issues, and has been a guest lecturer on environmental and energy legislation at the Stanford Law School, Boalt Hall (UC Berkeley) Law School, King Hall (UC Davis) Law School, Loyola Law School (Los Angeles), and at CSU Sacramento. He has received awards for his work on the environment from the CA League of Conservation Voters 2001 "Environmental Hero Award,"; the American Lung Association 2006 "Clean Air Award"; the Coalition for Clean Air 2006 "Clean Air Leadership Award"; and special achievement awards from the CA Council for Land Trusts and the Natural Resources Defense Council.

MARGARET MANN

NATIONAL RENEWABLE ENERGY LABORATORY

Ms. Mann is a Senior Chemical Process Engineer at the National Renewable Energy Laboratory, where she leads a team of engineers in conducting technoeconomic analyses and life cycle assessments of conventional and alternative energy systems. She has over 14 years of experience in process design and simulation, process cost analysis, life cycle assessment (LCA), and technical project management. In 2003, Ms. Mann worked with DOE to form the H2A (for Hydrogen Analysis) group, which established a consistent methodology for conducting analyses on hydrogen systems. She is an expert in analysis of the environmental consequences of various renewable and fossil-based energy conversion systems, including LCAs of coal, natural gas, several biomass power technologies, and hydrogen systems. Ms. Mann is on the executive board of the American Society of Life Cycle Assessment and is an advisory member of the North American Life Cycle Inventory Database Project.

BARBARA MARINER-VOLPE

ENERGY INFORMATION ADMINISTRATION

Ms. Mariner-Volpe is the Senior Technical Advisor on natural gas issues at the Energy Information Administration (EIA), U.S. Department of Energy. She has over 25 years of experience at EIA directing the development of natural gas analytic, forecasting and information programs. Ms. Mariner-Volpe advises key government officials on a variety of natural gas-related issues and is responsible for gas market assessments, infrastructure and regulatory analyses and natural gas information initiatives. She holds a B.A. in Mathematics from the Catholic University of America and an M.S. in Operations Research from George Washington University.

JEFFREY MCKAY

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Dr. McKay is a Deputy Air Pollution Control Officer for the Bay Area Air Quality Management District. Dr. McKay joined the Air District in 2003 where his prior responsibilities have included Finance, Administration, and Information Services. Prior to joining the Air District, Dr. McKay held a variety of management positions including at HMT Technology where he was Chief Information Officer and at IBM where he was a manager. Dr. McKay holds a Ph.D. in Applied Physics from Yale University.

JIM MCKINNEY

CALIFORNIA ENERGY COMMISSION

Mr. McKinney is the California Energy Commission's Team Leader on sustainability issues for the Alternative Renewable Fuel and Vehicle Technology Program. He is responsible for developing sustainability goals and standards for this eight-year, \$1 billion funding program that is intended to spur innovation and the commercialization of new technologies in California's alternative fuel and vehicle markets. Mr. McKinney has nearly 25 years of experience conducting environmental assessments for energy systems in California, including thermal and renewable power generation, natural gas, energy infrastructure, and alternative transportation fuels. He previously served for 8 years as project manager on the *Environmental Performance Report of California's Electrical Generation System*, a legislatively-required biennial assessment of systems-level environmental impacts of power generation in California and the West. Mr. McKinney began his career with Pacific Gas and Electric Company of San Francisco, and transitioned to the public sector to work at the US Environmental Protection Agency's Region 9 Water Division. He has been with the Energy Commission since 2000. He holds a Masters in Public Policy from UC Berkeley.

SPEAKER AND SESSION CHAIR BIOGRAPHIES

DAVE MEHL

CALIFORNIA AIR RESOURCES BOARD

Mr. Mehl is the manager of the Energy Section in the Stationary Source Division at the California Air Resources Board. His section is responsible for distributed generation (DG), combined heat and power (CHP), technical support on electricity sector greenhouse gas emission reduction measures, and general electrical generation issues. Prior to working for ARB, Mr. Mehl spent 11 years working at local air districts.

PHILIP MISEMER

CALIFORNIA ENERGY COMMISSION

Mr. Misemer began his career doing research and development of lubricating oils at Witco Chemical Corp. He also has directed quality control laboratories in the oil refining and hazardous waste industries. Mr. Misemer started with the Energy Commission in 1986 and has worked in the research, development and demonstration of advanced energy technologies. He started working in the PIER program in 1999, where he developed and implemented its Energy Innovations Small Grant Program. To date, the small grant program has funded over 200 projects to examine the feasibility of research for technologies ranging from solar photovoltaics to biologic treatment of power plant emissions. In 2006, Mr. Misemer started as research manager for the PIER Transportation Subject Area. Mr. Misemer has a degree in Chemistry/Biochemistry and a Masters in Business Administration, both from California State University, Bakersfield.

MATT MIYASATO

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Dr. Miyasato is the Assistant Deputy Executive Officer for the Technology Advancement Office at the South Coast Air Quality Management District. Dr. Miyasato leads the groups responsible for research, development, demonstration and deployment of clean, advanced technologies for both mobile and stationary sources. He received his undergraduate degree in Mechanical Engineering, and his Masters and Ph.D. in Engineering, specializing in combustion technologies and air pollution control – all from the University of California, Irvine. Dr. Miyasato has worked at Southern California Edison in the Nuclear Engineering Department, and at General Electric, where he designed burners and combustion modifications for utility boilers. He was a research scientist at UCI, where he managed the industrial burner research program and wrote publications on combustion phenomena, active control, and laser diagnostics. Dr. Miyasato has also been a lecturer at UCI for the undergraduate air pollution control course. In

his current role at the AQMD, Dr. Miyasato leads the Demonstration, Implementation, Best Available Control Technologies (BACT), and Technology Outreach groups, with the overall goal of developing, demonstrating, and accelerating the commercialization and implementation of clean technologies. These technologies include fuel cells, hydrogen, alternative fueled engines, PM and NO_x aftertreatment, hybrid and plug-in hybrid electric vehicles, and other clean alternative technologies. Dr. Miyasato serves as the lead staff support for the California Fuel Cell Partnership, the California Stationary Fuel Cell Collaborative, the California Hydrogen Highway Network, and the Plug-in Hybrid Electric Vehicle Center.

STEVEN MOORE

SAN DIEGO AIR POLLUTION CONTROL DISTRICT

Dr. Moore has been at the San Diego County Air Pollution Control District for 14 years. During this time he has worked as an air pollution control engineer in the rule development section, on various special projects, and in federal (Title V) permitting. He is currently a special project Senior Engineer at the District. His special projects include liquefied natural gas issues, major power plant permitting, and development of local air pollution control rules for San Diego County. Dr. Moore received his B.S. degree in Chemical Engineering from Purdue University and his PhD degree in Chemical Engineering from the University of Minnesota.

MARLA MUELLER

CALIFORNIA ENERGY COMMISSION

Ms. Mueller is a Technical Research Manager with the California Energy Commission's Public Interest Energy Research (PIER) Program, Environmental Area and for the last seven years has lead the Air Quality Research Program. She has a BS in Nuclear Engineering from Kansas State University and an MBA from UC Berkeley and more than 30 years of experience in project management and analysis in areas relating to air quality, global climate change, safety analyses and environmental impact statements. Prior to joining the Energy Commission, she worked for the University of California Office of the President, California Air Resources Board, the Sacramento Municipal Utility District, Burns & Roe Inc., Battelle Pacific Northwest Laboratories and Westinghouse Hanford.

SPEAKER AND SESSION CHAIR BIOGRAPHIES

FRANCIS (BUD) J. OFFERMANN

INDOOR ENVIRONMENTAL ENGINEERING

Mr. Offermann has 28 years of experience as an Indoor Air Quality (IAQ) researcher, sick building investigator, mitigation planner, healthy building design consultant, and expert witness. He is president of Indoor Environmental Engineering (IEE), a San Francisco based IAQ consulting firm. Mr. Offermann directs an interdisciplinary team of environmental scientists, chemists, and mechanical engineers in indoor air quality building investigations and healthy building design projects. Under Mr. Offermann's supervision, IEE has developed both pro-active and reactive IAQ measurement methods and diagnostic protocols. He has supervised more than 2,000 IAQ investigations in commercial, residential, and institutional buildings, and conducted numerous forensic investigations related to IAQ. He has been a recipient of state and federal research grants regarding building air quality and ventilation field studies, tracer gas techniques, *in situ* contaminant emission rate measurements, and the development of indoor air quality measurement instrumentation. He received a B.S. degree in Mechanical Engineering from Rensselaer Polytechnic Institute, in 1976 and a M.S. in Mechanical Engineering from Stanford University in 1985. Prior to starting up Indoor Environmental Engineering, Mr. Offermann was a Staff Scientist with the Building Ventilation and Indoor Air Quality Program, Energy and Environment Division, Lawrence Berkeley Laboratory, Berkeley, CA. He is an active member of the indoor air quality committees associated with ASHRAE, AIHA, ACGIH, ASTM, ISIAQ, USGBC (LEED EQ TAG Member), and Cal-OSHA Indoor Air Quality Advisory Committee.

DAVID RUE

GAS TECHNOLOGY INSTITUTE

Mr. Rue is manager of the Industrial Combustion Processes at the Gas Technology Institute. He has 30 years of research and development experience, including more than 10 years leading teams developing more efficient industrial combustion systems, improved heat recovery technologies, processes to lower emissions, and combustion process sensors. Areas of expertise include fuel gas interchangeability (particularly related to LNG), new burners and furnaces for the glass industry, and oxygen-gas combustion systems. Mr. Rue has five patents and has written more than 50 publications. He holds a BS from Notre Dame and MchE from the Illinois Institute of Technology.

JAMES SADD

OCCIDENTAL COLLEGE

Dr. Sadd is Professor of Environmental Science and Chair of the Environmental Science Program at Occidental College, Los Angeles. His research utilizes spatial analysis, including geographic information systems and remote sensing tools, to evaluate environmental justice questions, particularly those related to disproportionate exposure and health impacts from air pollution in California. He has published extensively in the arena of environmental justice, frequently with co-authors Manuel Pastor of USC and Rachel Morello-Frosch of UC Berkeley, in such journals as *Environmental Health Perspectives*, *Journal of Urban Affairs*, *Environment and Planning*, and *Social Science Quarterly*. He has received support for his work from The California Endowment, the California Wellness Foundation, the California Air Resources Board, and the California Energy Commission.

BRETT SINGER

LAWRENCE BERKELEY NATIONAL LABORATORY

Dr. Singer is a Staff Scientist and Principal Investigator in the Environmental Energy Technologies Division of Lawrence Berkeley National Laboratory. He earned a B.S. in Mechanical Engineering from Temple University (1991), and Masters (1994) and Ph.D. (1998) degrees in Civil and Environmental Engineering from the University of California at Berkeley. Dr. Singer has pursued a broad air quality research agenda ranging from emissions characterization to physical chemical processes impacting indoor air pollutant generation and removal to exposure analysis. He has made substantial contributions in the areas of motor vehicle emission inventories, evaluation of vehicle emission reduction programs including Smog Check, the effects of sorption on environmental tobacco smoke exposures, sorption dynamics of volatile organic compounds in residential rooms, and primary and secondary indoor pollutants resulting from use of cleaning products. He is leading the LBNL portion of a comprehensive evaluation of the potential impacts of increasing liquefied natural gas use in California while simultaneously leading an initiative examining energy efficiency opportunities in hospitals and healthcare buildings.

SPEAKER AND SESSION CHAIR BIOGRAPHIES

HAIDER TAHA

ALTROSTRATUS, INC.

Dr. Taha is President of Altostratus Inc. and an Adjunct Professor of Meteorology at San Jose State University. Previously he was Staff Scientist with the Lawrence Berkeley National Laboratory (LBNL) for 12 years, during part of which he also was a Deputy Leader of LBNL's Heat Island Group. His research interest is urban and regional meteorological and photochemical modeling for studying the interactions and feedbacks among meteorology, energy use, pollutant emissions, and air quality. He also has been focusing on developing and working with new generation, fine-resolution meteorological models. Applications of such models include studying urban heat islands and their mitigation, urban-impacted cloudiness and precipitation, heat waves and mitigation, local impacts of changes at the regional and large scales, and fine-resolution dispersion modeling. His earlier work led to the initial recognition by air quality management districts and the US EPA of the potential for heat island control to be considered in the air-quality regulatory environment. He has published numerous scientific papers, book sections, and encyclopedia articles on these topics.

BILL VAN AMBURG

CALSTART

Mr. Van Amburg is the Senior Vice President for CALSTART, a non-profit, fuel-neutral and member-supported consortium of more than 150 companies worldwide focused on creating and expanding an advanced transportation industry. Mr. Van Amburg oversees teams in four program areas: heavy hybrids; new fuels; fleet analysis and consulting; and industry services. A key role is with the Hybrid Truck Users Forum (HTUF), a national program to speed the commercialization of heavy-duty hybrid trucks, operated in a partnership with the U.S. Army's National Automotive Center (NAC). He also oversees teams working on alternative fuel and hybrid validation projects for the Ports of Long Beach and Los Angeles. Mr. Van Amburg brings more than 30 years of experience in marketing and market development, technology commercialization, communications and environmental markets, including emission credit trading. He has a bachelor's degree in Anthropology from the University of California, Berkeley, a certificate in Brand Management from the Stanford Alumni Association, and is a graduate of the Executive Management Program at the UCLA Anderson School of Management. Prior to joining CALSTART in 1993, he was an Emmy Award-winning broadcast journalist covering science, technology and the environment.

AKULA VENKATRAM

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Dr. Akula Venkatram is a Professor of Mechanical Engineering at the University of California, Riverside. His research interests include short range dispersion, long range transport, comprehensive modeling, model evaluation, and urban micrometeorology. Over the last five years, his research-funded by the California Air Resources Board, the California Energy Commission, and the National Science Foundation-has focused on the air quality impact of pollutant sources located in urban areas. His research involves field studies as well as model development.

PETER WARD

CALIFORNIA ENERGY COMMISSION

Mr. Ward is the Program Manager for the AB 118 Alternative and Renewable Fuel and Vehicle Technology Program to be administered by the California Energy Commission. Prior to this assignment, he served as Policy Advisor to Vice Chair and Commissioner James Boyd at the Energy Commission. He was the Fuel Distribution Program Manager for the California Clean Fuels Infrastructure Program, and served as the state-wide Clean Cities Program Coordinator for five years. Mr. Ward has had extensive experience in the establishment of clean, alternative fuel infrastructure and fuel distribution, including fuel methanol, fuel ethanol, compressed natural gas, liquefied natural gas and propane. Mr. Ward has over 30 years of experience in alternative transportation fuels and renewable energy sources with the Commission. He was responsible for the Alternative Fuels Infrastructure Plan and Program, which included a bi-annual Market Assessment of Alternative Fuels for Transportation and Alternative Fuel Infrastructure project cost-sharing solicitations. He holds a Bachelor's degree in Political Science and Master's degree in Public Administration from California State University, Chico.

V. JOHN WHITE

CENTER FOR ENERGY EFFICIENCY AND RENEWABLE TECHNOLOGIES

Mr. White has been a writer, commentator, advocate, and leader of the clean energy movement in California for 35 years. He is executive director of the Center for Energy Efficiency and Renewable Technologies in Sacramento. He also is principal of the environmental and energy lobbying practice, V. John White Associates, which represent the Clean Power Campaign, Environmental Defense, Natural Resources Defense Counsel, CalEnergy, Fuel Cell Energy, Ballard and other new energy technology organizations. As chief consultant to

SPEAKER AND SESSION CHAIR BIOGRAPHIES

the California Assembly Subcommittee on Air Quality for more than a decade, he became the leading legislative expert on air quality technology and regulation, helping to draft the California Clean Air Act and subsequent landmark clean air and energy statutes. In 1985 he moved full time into environmental advocacy, representing the Sierra Club, SCAQMD, and others in the fight for public health and clean air. In 1990 he co-founded CEERT, which has become the premier energy advocacy voice for key environmental and clean energy technology companies. He serves on a number of official and environmental organization boards and is frequently quoted in the media on matters relating to global warming, air quality, and renewable energy.

Conference Support By:

