CALIFORNIA AIR RESOURCES BOARD

50TH ANNIVERSARY TECHNOLOGY SYMPOSIUM

May 17, 2018
The UC Riverside College of Engineering – Center for Environmental Research and Technology (CE-CERT) is hosting the California Air Resources Board (CARB) 50th Anniversary Technology Symposium and Showcase to highlight achievements that have resulted in California’s leadership in air quality and climate change and discuss how we can continue the course to achieve a truly sustainable California. Panels will focus on lessons learned from the past and how to position ourselves in a rapidly changing landscape; the critical role of independent research; and leveraging emerging technologies to achieve our vision. The technical showcase will display technologies of our past, present, and future, including an interactive virtual reality experience of the new Riverside CARB facility.

webcast available at cal-span.org
**Agenda**

**10:30AM**  **Welcome & Opening Remarks**  
Matt Barth · UCR CE-CERT Director  
Richard Corey · CARB Executive Officer  
Wayne Nastri · SCAQMD Executive Officer

**10:45AM**  **Cleaning up the Air: Technology & Policy Game Changers**  
Margo Oge · former EPA Office of Transportation & Air Quality Director  
John Wall · former Cummins Chief Technology Officer  
**Moderator:** Barry Wallerstein · UCR Senior Policy Fellow · former SCAQMD Executive Officer

**11:30AM**  **The Role of Research- Major Game Changers**  
*History of UCR’s Statewide Air Pollution Research Center* ·  
Barbara-Finlayson-Pitts · Professor & Director AirUCI Institute, UCI  
*Linking Air Pollution & Health Effects* · Michael Kleinman · UCI Professor, Department of Medicine  
*Importance of Collaboration Between Industry, Regulatory & Academic Worlds* · Robert Sawyer · former Chairman, CARB  
*How Research Results Translate into Policy & Real World Impact* · Alan Lloyd · former Chairman, CARB  
*Climate Change Beginnings* · Charles Kennel · Professor Emeritus, Scripps Institution of Oceanography  
**Moderator:** Ron Loveridge · UCR Professor of Public Policy

**12:30PM**  **Lunch**

**1:00PM**  **Lunch Keynote Events**  
*California's Air Quality & Climate Change Future* ·  
Mary D. Nichols · Chair, CARB  
**Introduction:** Barbara Riordan · CARB Board Member  
**Interviewer:** Drew Story · UCR Environmental Engineering & Policy Ph.D. Student  
*The Role of the Media in the Development, Acceptance & Uptake of Innovative Technology* · Michael Hiltzik · Business Columnist, Los Angeles Times  
**Introduction:** Mary D. Nichols · Chair, CARB
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<td>1:45PM</td>
<td><strong>To the Finish Line: Predicting Upcoming Game Changers</strong></td>
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<td><em>Smart Cities: Clean Electric Transportation</em> · Lauren Faber,</td>
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<td>Chief Sustainability Officer, City of Los Angeles</td>
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<td><em>Role of the Community Scientist: AB 617 Rollout</em> · Luis Olmedo ·</td>
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<td>Executive Director, Comite Civico Del Valle</td>
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<td><em>New Approaches to Goods Movement</em> · Jonathan Rosenthal ·</td>
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<td>CEO, Saybrook Management</td>
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<td><em>Future Mobility &amp; New Methods of Vehicle Testing</em> · Matt Barth ·</td>
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<td>CE-CERT Director, UCR</td>
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<td><strong>Moderator:</strong> Janea Scott · Commissioner, California Energy Commission</td>
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<td>2:45PM</td>
<td><strong>Closing</strong></td>
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<td><em>Reflections on Symposium</em> · Sandy Berg · Vice Chair, CARB</td>
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<td><em>Closing Remarks</em> · Mary D. Nichols · Chair, CARB</td>
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<td>3:00PM</td>
<td><strong>Technology Showcase Introduction</strong></td>
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<td>Matt Barth · UCR CE-CERT Director</td>
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<td>Kai Voigt · Executive Vice President Innovations and Technology, AVL</td>
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<td>3:10PM</td>
<td><strong>Technology Showcase &amp; Sponsored Social Hour</strong></td>
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<td>Zero-Emission Battery Electric Transit Buses, Motorcoaches,</td>
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<td>Class 8 Trucks, Tractors, &amp; Monorail</td>
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<td>Fuel Cell Technology</td>
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<td>Vehicle Automation Technologies, Advanced Chassis Designs</td>
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<td>Vehicle Emission Research Laboratories</td>
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<td>Student Renewable Energy &amp; Vehicle Demonstration Projects</td>
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<td>Renewable Energy Management Programs</td>
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<td>Solar Hot Water Heater Systems</td>
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<td>Air Quality Monitoring Systems</td>
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<td>Data Portal &amp; Big Data-Smart and Connected Programs</td>
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<td>Virtual interactive model of the new Riverside CARB facility</td>
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<td>And much, much more!</td>
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#CARB50
Matthew Barth is the Yeager Families Professor at the College of Engineering, UC Riverside. He is part of the intelligent systems faculty in Electrical and Computer Engineering and also serves as Director of CE-CERT, UCR’s largest multi-disciplinary research center. Dr. Barth’s research focuses on applying engineering system concepts and automation technology to transportation systems, with a focus on how it relates to energy and air quality issues. His current research interests include Intelligent Transportation Systems and the Environment, Transportation/Emissions Modeling, Vehicle Activity Analysis, Advanced Navigation Techniques, Electric Vehicle Technology, and Advanced Sensing and Control.

Dr. Barth received his B.S. in Electrical Engineering/Computer Science from the University of Colorado, and M.S. and Ph.D. degrees in Electrical and Computer Engineering from UC Santa Barbara.

As President & CEO of the Berg Family of Companies, Chairman of the Board of American Coatings Association, and a member of the California Air Resources Board, Sandra Berg’s leadership has successfully combined two worlds that are often seen as oil and water – the chemical industry and air quality public policy. Berg Family of Companies has two cornerstone businesses: Ellis Paint Company, a specialty paint manufacturer, celebrating 126 years in business, and Pacific Resource Recovery Services, an EPA-permitted Treatment Storage and Disposal Facility that recycles paint-related waste streams. In 2004, Ms. Berg was appointed by then-Governor Arnold Schwarzenegger to CARB, the state’s lead air quality agency responsible for protecting public health by reducing air pollution. CARB is recognized nationally and internationally as a leader in policy, innovative technology, and driving business in California to develop clean air solutions. In addition to her service with CARB and the American Coatings Association, Ms. Berg is a past Board Member of the Hollenbeck Police Activity League and has served eight years on the 34th Congressional District Student Art Competition board. She is a member the World Presidents’ Organization City of Angels Chapter, and C-200, a leading philanthropic organization of businesswomen.
Richard Corey

Executive Officer, California Air Resources Board

Mr. Corey has 28 years of professional experience in the air pollution field including more than 20 years in a management capacity at CARB. Prior to his appointment as Executive Officer, he served as Deputy Executive Officer and Chief of the Stationary Source Division.

Mr. Corey’s team of over 1400 professional managers and staff are responsible for a broad range of programs including those concerning fuels, climate, incentives, and air toxics. Some of the key programs that his team is responsible for implementing include the low carbon fuel standard, cap-and-trade regulation, reducing emissions from freight transportation sources, and measures to reduce emissions from stationary and portable diesel engines as well as several strategies to reduce toxic air contaminants from a wide variety of sources. In addition, Mr. Corey oversees the Board’s administrative services and information technology operations.

Mr. Corey has an undergraduate degree in Environmental Toxicology and an M.B.A. from UC Davis.

Lauren Faber

Chief Sustainability Officer, Office of Mayor Eric Garcetti, City of Los Angeles

Lauren Faber is the Deputy Chief Sustainability Officer to Los Angeles Mayor Eric Garcetti. In her role as Deputy CSO, she is helping to both drive the implementation of and advance climate policies in LA’s Sustainable City “pLAn,” and to ensure the City directs benefits to improve disadvantaged communities in Los Angeles, as well as engage other cities around the world.

Prior to joining the Garcetti Administration, Ms. Faber served for four years as the West Coast Political Director for the Environmental Defense Fund in San Francisco. At EDF she worked on building successful strategies and constructive partnerships to win support from governmental leaders, business, and environmental counterparts on climate, clean energy, land, water and wildlife. In 2010, Ms. Faber was appointed Assistant Secretary for Climate Change Programs at CalEPA, where she was dedicated to the design and implementation of California’s landmark Global Warming Solutions Act.

Ms. Faber sits on the Board of the California League of Conservation Voters, is a Catto Fellow for environmental leadership at the Aspen Institute, and a member of the Truman National Security Project Political Partnership. She has a B.A. in Earth Systems and Economics from Stanford University, and an M.A. in Climate and Society from Columbia University.
Dr. Barbara Finlayson-Pitts  
*Distinguished Professor and Co-Director, AirUCI, UC Irvine*

Dr. Finlayson-Pitts is a Distinguished Professor of Chemistry, and the founder and Co-Director of the AirUCI Institute at UC Irvine. Her research focuses on elucidating the kinetics, mechanisms, and photochemistry of chemical reactions and processes at the surfaces of airborne particles, particularly the reactions of organic (gasoline-like) compounds and nitrogen oxides that collect on surfaces of these particles and on structures, vegetation, and other objects. These reactions are not well understood, yet might be quite important since they occur close to the earth’s surface where we live and breathe.

Dr. Finlayson-Pitts earned her Ph.D. in Chemistry from UC Riverside.

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Michael Hiltzik  
*American Business Columnist, Los Angeles Times*

Pulitzer Prize-winning journalist Michael Hiltzik writes a daily blog appearing on latimes.com. His business column appears in print every Sunday, and occasionally on other days. As a member of the Los Angeles Times staff, he has been a financial and technology writer and a foreign correspondent. He is the author of six books, including “Dealers of Lightning: Xerox PARC and the Dawn of the Computer Age” and “The New Deal: A Modern History.” Hiltzik and colleague Chuck Philips shared the 1999 Pulitzer Prize for articles exposing corruption in the entertainment industry. Other honors include the 2004 Gerald Loeb award for outstanding business commentary and the Silver Gavel from the American Bar Association for outstanding legal reporting.

Mr. Hiltzik has degrees from Colgate University and Columbia University.

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Charles F. Kennel  
*Distinguished Professor, Vice Chancellor, Director Emeritus  
Scripps Institution of Oceanography, UC San Diego*

Charles F. Kennel is Distinguished Professor, Vice Chancellor, and Director Emeritus at the Scripps Institution of Oceanography at UC San Diego. Educated in astronomy and astrophysics at Harvard and Princeton, after a post-doctoral year at the International Centre for Theoretical Physics, Trieste, he joined UCLA’s Department of Physics and its Institute for Geophysics and Planetary Physics. There he worked in theoretical and experimental space plasma physics and astrophysics, eventually chairing the Physics Department. He served as UCLA’s Executive Vice Chancellor, its chief academic officer, from 1996 to 1998.
From 1994 to 1996, Kennel was Associate Administrator at NASA, leading Mission to Planet Earth, the world’s largest Earth science satellite program. NASA influenced him to go into Earth and climate science, and he became the ninth Director and Dean of the Scripps Institution of Oceanography and Vice Chancellor of Marine Sciences at UC San Diego. He now teaches climate science and policy at Scripps. He has been a Distinguished Visiting Scholar at Christ’s College, Cambridge, for more than a decade.

Kennel is a member of the US National Academy of Sciences, the American Philosophical Society, and the American Academy of Arts and Sciences. He was the longest-serving member of the NASA Advisory Council. He has chaired it and the National Academies’ Space Studies Board and presently chairs the California Council on Science and Technology.

Professor Michael Kleinman

Co-Director, Air Pollution Health Effects Laboratory, Department of Medicine, UC Irvine

Dr. Michael T. Kleinman is a Professor of Occupational and Environmental Medicine in the Department of Medicine at UC Irvine where he has been since 1982. He was previously employed by the U.S. Atomic Energy Commission as an environmental scientist and directed the Aerosol Exposure and Analytical Laboratory at Rancho Los Amigos Hospital in Downey, California. He is a toxicologist and has been studying the health effects of exposures to environmental contaminants 40 years. Dr. Kleinman has published more than 100 articles in peer-reviewed journals dealing with environmental contaminants and their effects on cardiopulmonary and immunological systems and on global and regional distribution of environmental contaminants, including heavy metals and radioactive contaminants from nuclear weapons testing and manufacture.

Dr. Kleinman holds an M.S. in Chemistry (Biochemistry) from the Polytechnic Institute of Brooklyn and a Ph.D. in Environmental Health Sciences from New York University. He is also the Co-Director of the Air Pollution Health Effects Laboratory in the Department of Medicine at UC Irvine.
Dr. Alan Lloyd

Senior Research Fellow
Energy Institute, University of Texas at Austin
President Emeritus, International Council on Clean Transportation

Alan C. Lloyd is currently a Senior Research Fellow at the Energy Institute, University of Texas at Austin. The focus of his research is the role of hydrogen in a sustainable society, fuel cells, electric drive vehicles, renewable energy and policies to promote zero-emissions vehicles.

Dr. Lloyd served as the President of the International Council on Clean Transportation from 2006 to 2013 and is one of its founding members. In 2004, he was appointed Secretary of CalEPA by Governor Arnold Schwarzenegger. Dr. Lloyd also served as CARB chair, first appointed by Governor Gray Davis in 1999 and re-appointed by Governor Arnold Schwarzenegger in 2004, prior to becoming CalEPA Secretary.

Before joining CARB, Dr. Lloyd was the Executive Director of the Energy and Environmental Engineering Center for the Desert Research Institute at the University and Community College System of Nevada, Reno, and the chief scientist at the South Coast Air Quality Management District in Southern California from 1988 to 1996.

Dr. Lloyd earned both his B.S. in Chemistry and his Ph.D. in Gas Kinetics at the University College of Wales, Aberystwyth, UK.

Dr. Ronald O. Loveridge

Associate Professor of Political Science; UC Riverside
Director, Center for Sustainable Suburban Development, UC Riverside

Ron Loveridge has 33 years of public service - as a Riverside City Council Council member from 1979 to 1994, and as Mayor from 1994 to 2012. A highly regarded regional, state and national leader, he served on the executive committee and board of the National League of Cities, where he also served as the organization’s President in 2010. He is a member of the National Academy of Public Policy, and his statewide and regional service includes leadership roles with CARB, California Forward Action Fund, California Competes, South Coast Air Quality Management District, Southern California Association of Governments, Western Riverside Council of Governments, and Inland Empire Economic Partnership.
Mary D. Nichols
Chair, California Air Resources Board

Mary D. Nichols is Chair of the California Air Resources Board, a post she has held since her appointment by Governor Arnold Schwarzenegger in 2007. She previously served as CARB Chair from 1979-1983 as an appointee of then-Governor Jerry Brown.

Ms. Nichols has devoted her entire career in public and nonprofit service to advocating for the environment and public health. In addition to her work at CARB, she has served as Assistant Administrator for the U.S. EPA’s Air and Radiation program under President Clinton, Secretary for California’s Resources Agency from 1999 to 2003 and Director of the Institute of the Environment at UCLA.

Her priorities as Chair include moving ahead on the state’s landmark climate change program (AB 32), steering the Board through numerous efforts to curb diesel pollution at ports and continuing to pass regulations aimed at providing cleaner air for Southern California and the San Joaquin Valley. She values innovation, partnerships and common-sense approaches to addressing the state’s air issues.

Ms. Nichols earned her B.A. at Cornell University and her J.D. at Yale Law School.

Margo Oge
Distinguished Fellow, ClimateWorks
Author of “Driving the Future: Combating Climate Change with Cleaner, Smarter Cars”
Former Director of the Office of Transportation Air Quality, U.S. EPA

Margo Oge served the U.S. EPA for more than 30 years, from 1980 to 2012. She is widely recognized as having been a key architect of the EPA’s efforts to reduce air pollution and greenhouse gas emissions.

During her recent 18-year tenure as Director of the Office of Transportation and Air Quality, Ms. Oge led the EPA’s first-ever national greenhouse gas emission standards for cars and heavy-duty trucks to double fuel efficiency by 2025, reduce GHG emissions by 50%, and save consumers $1.7 trillion at the pump. In parallel, she also helped to establish the renewable fuels standard, which will significantly increase the volume of biofuels in our nation’s fuel supply. Under her leadership, the EPA addressed indoor air pollution and developed the scientific findings that raised the world’s awareness about the health dangers of second-hand smoke and radon.

Ms. Oge earned her M.S. in Engineering from the University of Massachusetts, Lowell. She also attended George Washington University and the John F. Kennedy School of Government at Harvard University.
Luis Olmedo is the Executive Director of Comite Civico del Valle, an organization whose mission focuses on addressing environmental health-related problems in the Imperial and Coachella Valleys. A community activist who advises local, regional, and state programs on environmental health issues affecting Imperial County and Eastern Coachella Valley, Mr. Olmedo is a member of various state and national networks that focus on environmental policy and regulation. His organization has partnered with academic research institutions to expand environmental research in Imperial County.

Examples of collaborative projects with the California Department of Public Health include the Border Asthma and Allergies Study, Perchlorate Biomonitoring Study, and Agricultural Burning Study.

Barbara Riordan

*Board Member, California Air Resources Board*

In addition to serving on the California Air Resources Board, Mrs. Riordan serves as a public member of the Board of Directors for the Mojave Desert Air Quality Management District representing San Bernardino County’s high desert area. In December 1996, Mrs. Riordan retired from elective office after 13 years on the San Bernardino County Board of Supervisors, two years of which she served as Chairwoman, and four years as a member of the Redlands City Council.

Mrs. Riordan, a California native, graduated from the University of Redlands in 1961 and has attended San Francisco State University and Stanford University for graduate work. She also holds a general secondary and lifetime teaching credential from the State of California.

Dr. Robert F. Sawyer

*Former Chairman, California Air Resources Board*

*Professor Emeritus, UC Berkeley*

An active member of the scientific and academic communities, Dr. Sawyer is Class of 1935 Professor of Energy Emeritus at UC Berkeley, where he conducted extensive research and taught air quality science, emissions control, energy conversion, fire safety, and rocket and jet propulsion since 1966. He also is a visiting Professor of Energy and Environment at University College, London. Further scientific and professional accomplishments include membership on the National Research Council Board on Environmental Studies and Toxicology and
past service with the Health Effects Institute as chair of its Special Committee on Emerging Technologies. Dr. Sawyer was appointed CARB chair in December 2005 by Governor Arnold Schwarzenegger.

Dr. Sawyer holds a Ph.D. in aerospace science and an M.A. in aeronautical engineering from Princeton University. In addition, he earned a B.S. and M.S. in mechanical engineering from Stanford University.

Jonathan Rosenthal
CEO, Saybrook Management

Jonathan Rosenthal is a serial entrepreneur. He has repeatedly conceived of a world different than that which existed, and launched companies to harness macro industry change. Each new venture was designed to capture opportunity, as consumers adapted to transformation. Rosenthal currently serves as Chairman of TTSI, one of the largest port trucking companies in the Los Angeles / Long Beach Harbor; Taylored Logistics, a bi-costal mid-size third party logistics provider (3PL) operating approximately 1.5 million square feet of warehouse, and Accretive Solutions, a finance and accounting staffing and consultancy firm with approximately 800 professionals in 11 cities. He is the Founder / Chairman of the Los Angeles Harbor Performance Enhancement Center, and a technology data management start-up, WherehouseIT.com. Rosenthal was recently appointed by the U.S. Transportation Secretary to the Marine Transportation System National Advisory Committee, and by the Mayor of Los Angeles to the Los Angeles Sustainable Freight Advisory Board. Mr. Rosenthal was elected by his peers to the International Board of Trustees of the Turnaround Management Association.

Janea A. Scott, J.D.
Commissioner, California Energy Commission

Janea A. Scott is one of five Commissioners on the California Energy Commission, the state’s primary energy policy and planning agency. Ms. Scott was appointed by Governor Jerry Brown in 2013 and reappointed in 2016 to serve as the Commission’s public member, and serves as the lead Commissioner on transportation. Ms. Scott chairs the Western Interconnection Regional Advisory Body and is on the public policy board of Veloz, a nonprofit founded by the public and private sector to advance the electric car movement. She is also a member of the California Fuel Cell Partnership and the U.S. Department of Energy’s Hydrogen and Fuel Cell Technical Advisory Committee. Prior to joining the Energy Commission, Ms. Scott worked at the U.S. Department of
the Interior in the Office of the Secretary as the Deputy Counselor for Renewable Energy, and at the Environmental Defense Fund as a senior attorney. Ms. Scott earned her J.D. from the University of Colorado Law School, and her M.S. and B.S. in Earth Systems from Stanford University.

**Drew Story**

*Ph.D. Candidate, UC Riverside*

S. Drew Story is currently completing his Ph.D. in Chemical and Environmental Engineering at UC Riverside. In addition to conducting research on the aggregation mechanisms and morphology of engineered nanomaterials, Mr. Story spearheaded the development of the university’s Designated Emphasis in Public Policy and will become the campus’ first graduate to earn the distinction. In September of this year, he will begin a Congressional Science and Engineering Fellowship in Washington, D.C. sponsored by the American Chemical Society.

Mr. Story has served as an advocate for science and public policy with the California Natural Resources Agency as a Salton Sea Management Program committee member for public outreach. In 2015, he served as Editor in Chief for SaltonSeaSense.com, an online science education and public engagement resource, and as vice chair of the Gordon Research Seminar, Environmental Nanotechnology Conference in 2017. He was recently appointed to the editorial board of the Journal of Science Policy & Governance.

Mr. Story earned a B.S. in Physical Science Education along with a Texas Educator Certification from LeTourneau University in Longview, TX in 2011 where he was named Student Teacher of the Year, Secondary Level.

**Dr. John C. Wall**

*Former Cummins Chief Technology Officer*

Dr. John C. Wall has more than 35 years of industry experience in internal combustion engine technology, fuels and emissions, and in global engineering organization development. Most recently, Dr. Wall served as Chief Technical Officer of Cummins Inc., the world’s largest independent manufacturer of diesel engines and related technologies, retiring in 2015. He led the growth of Cummins’ technical organization from 1000 engineers, mostly centered in the U.S., to more than 6000 engineers globally, establishing new technical centers in India and China.

Prior to joining Cummins in 1986, Dr. Wall led Diesel and Aviation Fuels Research for Chevron. He is currently an advisor to the Department of Energy Joint BioEnergy Institute and Co-Optima Program, the Cyclotron Road energy incubator at Lawrence Berkeley Laboratory, the International Council of Clean Transportation and to the Institute of Transportation Studies at UC Davis. He
has been recognized for his technical contributions by election to the National Academy of Engineering and as a Fellow of the Society of Automotive Engineers. Among his many accolades, he has received CARB’s Haagen-Smit Clean Air Award and the U.S. EPA Thomas W. Zosel Individual Achievement Award for career accomplishments in diesel emission control.

Dr. Wall studied mechanical engineering at the Massachusetts Institute of Technology, where he received his S.B. and S.M. degrees from the Mechanical Engineering Honors Program in 1975 and ScD in 1978.

Wayne Nastri was unanimously appointed by the SCAQMD Governing Board as Executive Officer in 2016. Previously he served from 2001 to 2009 as U.S. EPA’s Regional Administrator for Region 9 – Southwest Region, which has jurisdiction over California, Arizona, Nevada, Hawaii and the Pacific Islands. In that position, he was responsible for policy development and operations, exercising management oversight for nearly 1,000 employees and an annual budget exceeding $700 million. He worked closely with the public, industry, and all levels of government in a wide variety of voluntary pollution prevention and energy conservation programs, including development of diesel emission reduction efforts through the West Coast Diesel Collaborative, in which SCAQMD actively participates. Mr. Nastri also focused Region 9 efforts on development of strategies to address emissions associated with ocean-going vessels and marine ports.

Mr. Nastri holds a B.S in Biochemistry from UC Irvine.
Dr. Barry Wallerstein is a Senior Policy Fellow at UCR’s School of Public Policy, where he works closely with faculty and students across campus, including the Center for Environmental Research and Technology, the Bourns College of Engineering, and the College of Natural and Agricultural Sciences. Dr. Wallerstein served for nearly two decades as executive officer of the South Coast Air Quality Management District – an agency charged with protecting the health of 17 million people in the nation’s smoggiest region. He has served on numerous committees and advisory boards, including those associated with the U.S. Environmental Protection Agency, National Research Council, CalEPA and CARB. Dr. Wallerstein has testified before numerous state and federal committees on the environment, energy and power, as well as city and county decision-makers, and has authored, co-authored or edited more than 150 technical reports, regulatory documents, policy analysis papers and regional plans related to air pollution control and environmental policy.

Dr. Wallerstein holds B.S. and M.S. degrees in biological science from the University of Southern California, and a doctorate (D.Env.) in environmental science and engineering from UCLA.

Kai Voigt holds a degree in Controls Engineering from Technical University Darmstadt. Initially, he worked for Schenck in Germany where he was in charge for the Business Segment Powertrain Testing - after holding several positions in product development and marketing. Then he was responsible for the North American business of Schenck Automotive Test Systems with operations in Troy, Michigan and Oakville Ontario. After the acquisition of the Schenck business by Horiba Automotive Test Systems, he joined AVL List GmbH in Graz in Austria in 2007 and assumed responsibility for the Global Business Unit Powertrain Test Systems where he drove the expansion towards full powertrain competence and electrification. In September 2010 he was appointed Executive Vice President Technology and Operations in the strategic business unit Instrumentation and Test Systems.
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