Proposed New Members for the California Air Resources Board's Research Screening Committee

December 16, 2022

Summary

The Research Screening Committee provides robust scientific peer review for CARB's research projects. The Committee can have up to eleven members to provide guidance on the wide range of topics relevant to CARB programs. CARB staff have selected the following six candidates for the Board to consider for appointment to the Research Screening Committee (RSC):

- Professor Aly M. Tawfik, PhD, PTP | California State University, Fresno
- Professor Sam Silva, PhD | University of Southern California
- Director Bryan Hubbell, PhD | United States Environmental Protection Agency
- Director Mary Prunicki, PhD | Sean Parker Center for Allergy and Asthma Research, Stanford University
- Professor Francesca Hopkins, PhD | University of California, Riverside
- Professor Roya Bahreini, PhD | University of California, Riverside

The candidates were selected through a public nomination and application process and have demonstrated experience in one or more desired areas of expertise.

Background

As required by State law (Health and Safety Code Section 39700), CARB sponsors a research program guided by the mission to provide sound and timely scientific results to support CARB's policies and programs. CARB's research program was established by the Legislature in 1971 and has formed the basis of CARB's programs since its inception. The research program's goals of informing health-based air quality standards, reducing air pollution exposures, and protecting California from the potential impacts of climate change have been met through a diverse portfolio of projects.

State law also requires that CARB establish the Research Screening Committee (RSC) to review proposed and completed research projects. The RSC provides robust scientific peer review for CARB's research projects and consists of up to eleven members encompassing physicians, scientists, biologist, chemist, engineers, meteorologists, and other subject matter experts that have the knowledge necessary

to effectively advise on CARB's health, environmental justice, air quality, and climate research.

In March 2022, CARB released a public call for nominations and applications to fill positions on the RSC. The nomination period closed in April 2022 and applications were due in May 2022. CARB received applications that covered the 13 areas of expertise listed below. These areas of expertise were identified as priority knowledge gaps to fill with the incoming RSC members.

- Agriculture
- Air emissions measurement, monitoring and modeling
- Big data analytics
- Climate science and impacts
- Community-based research
- Economics, including behavioral and public health economics
- Environmental equity
- Epidemiology
- Expertise in South Coast and/or San Joaquin Valley air quality concerns
- Non-combustion technologies
- Public health particularly in social determinants of health and exposure
- Respiratory Medicine
- Transportation services (public transit/app-based services, etc.) and technology

Staff reviewed and scored all applications. Applications were evaluated based on the following criteria: qualifications for primary expertise area(s); statement of interest; relevant experience; experience in secondary area of expertise; and letter(s) of support. The top candidates were interviewed to identify the most qualified to fill the priority areas of expertise.

This report provides the biographies of the candidates that staff are recommending for appointment to the RSC. The successful applicants have demonstrated experience in one or more areas listed above and met the criteria set forth in this selection process. Board approval of the proposed members will fill the existing vacancies in the RSC and increase the capacity and expertise needed to support CARB's research program.

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Biographies of Recommended Research Screening Committee Candidates

Professor Aly M. Tawfik, PhD, PTP

California State University, Fresno

Dr. Aly Tawfik is an associate professor of transportation systems engineering and director of the Transportation Institute at California State University, Fresno. His area of expertise includes modeling, simulation and optimization of individual travel behavior and of transportation systems; however, he has a particular passion for transportation sustainability and the future of transportation. He is active on research projects and grants focusing on travel data innovations, GIS applications in transportation, and using technology to minimize travel and transportation footprints. His other research projects focus on shared mobility and transportation automation and electrification. He serves on local, national, and international transportation boards and committees. He is the author of many peer reviewed publications, and has given keynote presentations in local, national, and international conferences.

Professor Sam Silva, PhD

University of Southern California

Sam Silva is an assistant professor in the Department of Earth Sciences and the Department of Civil and Environmental Engineering at the University of Southern California. Prior to his current position, he worked as a research data scientist at the Pacific Northwest National Laboratory, a U.S. Department of Energy research laboratory. He received a Ph.D. in Environmental Engineering and Computation from the Massachusetts Institute of Technology, and an M.S. in Atmospheric Science and B.S. in Physics from the University of Arizona. His research is focused on air pollution and climate change, with particular interest in the convergence of traditional computational methods with modern data science and artificial intelligence techniques.

Director Bryan Hubbell, PhD

United States Environmental Protection Agency, Office of Research and Development

Dr. Bryan Hubbell is the National Program Director for the Air, Climate and Energy (ACE) Research Program in the US EPA Office of Research and Development, which provides information critical to improve air quality; reduce the impacts of air pollutants on to human health and ecosystems; reduce environmental and health inequities; and respond to impacts of climate change and transformations of the energy and transportation infrastructure. Dr. Hubbell has worked for the EPA for 24 years as an expert on the health and environmental impacts of air pollution. He led the EPA project team that developed the environmental Benefits Mapping and Analysis Program (BenMAP) which is used around the world to estimate the benefits of clean air. Bryan earned a Ph.D. in economics from NC State University. He is an author on over 50 peer-reviewed publications on a wide variety of topics and disciplines and has presented extensively in the U.S. and internationally on the ACE research portfolio, the health and environmental impacts of air pollution, and economic benefits and costs of air quality regulations.

Director Mary Prunicki, PhD

Sean Parker Center for Allergy and Asthma Research, Stanford University

Dr Mary Prunicki is the senior director of air pollution and health research at the Sean N. Parker Center for Allergy & Asthma Research at Stanford University. She received her PhD from Northwestern University and her medical degree from Southern Illinois University. Her research predominantly focuses on the impacts of environmental exposures associated with climate change, such as wildfires and air pollution, on the immune system. She is passionate about using her research findings to advocate for those who are most vulnerable.

Professor Francesca Hopkins, PhD

University of California, Riverside

Dr. Francesca Hopkins is Assistant Professor of Climate Change and Sustainability in the Department of Environmental Sciences at the University of California, Riverside. Francesca is an environmental scientist studying the effects of human activities on the global carbon cycle, with particular interest in greenhouse gas emissions and feedbacks to climate change. Her research group uses a range of techniques to measure emissions of greenhouse gases and air pollutants across California, including from dairies, vehicles, and oil and gas sources. Francesca is also passionate about communicating the science of climate change. She led the Inland Desert regional report of the Fourth California Climate Assessment, released in 2018.

Originally from Sonoma County, Francesca received Bachelor's degrees in Environmental Science and Spanish at the University of California, Berkeley, and studied abroad at the Pontifical Catholic University in Santiago, Chile. Francesca completed her Ph.D. in Earth System Science at the University of California, Irvine. She also researched at the Max Planck Institute for Biogeochemistry in Jena, Germany during her graduate studies. Francesca was a NASA Postdoctoral Fellow at the Jet Propulsion Laboratory in Pasadena from 2014-2016. In 2016, she was recognized as one of UC Irvine's Top 50 Graduate and Postdoctoral Scholar Alumni.

Professor Roya Bahreini, PhD

University of California, Riverside

Roya Bahreini is a Professor of Atmospheric Science and currently the Vice Chair in the Department of Environmental Sciences at University of California, Riverside. She specializes in airborne, ground-based, and laboratory measurements of aerosol composition and microphysical properties to understand aerosol sources and formation process, influence on air quality, and direct- and indirect-effects on climate. Dr. Bahreini received her B.S. in Chemical Engineering from University of Maryland, College Park (1999), and M.S. (2003) and Ph.D. (2005) degrees in Environmental Science and Engineering from California Institute of Technology. Before joining UC- Riverside, she was a CIRES Visiting Postdoctoral Fellow at University of Colorado- Boulder (2005-2007), a Research Scientist at CIRES and NOAA- ESRL (2007-2012), and University of Denver (2012). She is a recipient of the National Science Foundation CAREER award, the Thomson Reuters Highly Cited Researchers award (2014), as well as The World's Most Influential Scientific Minds award (2014). In 2019-2020, she served on the Owens Lake Scientific Advisory Panel by the National Academies of Sciences, Engineering, and Medicine. She is currently a Board Member of the American Association for Aerosol Research.