CALIFORNIA
AIR RESOURCES BOARD

South Coast
AQMD

Aviation Technology Forum

March 13-14, 2025

Coastal Hearing Room
CalEPA Headquarters Building, 2nd Floor
1001 “I” St, Sacramento, CA 95814

Agenda

March 13, 2025

11:30 AM	Registration and Refreshments		
12:30 PM	Forum Logistics	Mo Chen	CARB
12:35 PM	Introduction and Welcome	Steve Cliff	Executive Officer-CARB
12:40 PM	Opening Plenary	Edie Chang	Deputy Executive Officer-CARB
12:50 PM	**On-Airport Operations Management** Introduction from Cindy Yañez, California Air Resources Board		
Session 1: Sustainable Aircraft Taxiing			
1:00 PM	Onboard eTaxiing – An Ecofriendly System	Kyle Schmidt	Safran Landing Systems
1:15 PM	Sustainable Taxiing: Opportunities and Challenges	Frédéric Van Oost Sangita Sharma	Smart Airport Systems Delta Airlines
1:45 PM	Autonomous Electric Aircraft Tugs: Concept and Development	Brett Stone	Utah Valley University
2:00 PM	Panel Discussion and Q&A on Sustainable Taxiing Technology (40 min) *Moderated by Brett Stone, Utah Valley University*		
2:40 PM	Coffee Break (30 minutes)		
Session 2: Reducing Emissions at the Gate			
3:10 PM	APU OFF - Technology and Monitoring Solutions	Frédéric Van Oost	Smart Airport Systems
3:25 PM	E-Mobility: Sustainability Only Works if it Saves Money	Helmuth von Grolman	Colibri Energy
3:40 PM	Powering Forward: SFO's Path to Airfield Decarbonization	Courtney Carroux	San Francisco International Airport
3:55 PM	Reducing Emissions through Monitoring and Predictive Modeling of Gate Operations of Idle Aircraft	Jasenka Rakas	University of California Berkeley
4:10 PM	Silent APUs, Cleaner Skies: Reducing Emissions One Turnaround at a Time	Tim Toerber	Assaia
4:25 PM	ITW GSE Eco-Gate; Exploit Your Excess Gate Power	Doron Milbaum	ITW GSE
4:40 PM	Panel Discussion and Q&A on Reducing Emissions at the Gate (45 minutes) *Moderated by Eric Praske, South Coast AQMD*		
5:45 PM	End of Day 1		

March 14, 2025

8:00 AM

Lowering NOx Emissions from Aircraft and GSE

Introduction from Ramin Tohidi, California Air Resources Board

Session 3: Zero-Emission Ground Support Equipment

8:15 AM	Electrifying Airside GSE at LAX	Amylou Canonizado	Los Angeles World Airports
8:30 AM	US-Produced Lithium Iron Phosphate Batteries for Aviation	Sanjiv Malhotra	Sparkz
8:45 AM	Why is a Car Company Interested in Airport GSE?	Nic Brown	Toyota Tsusho America
9:00 AM	Panel Discussion and Q&A on Zero Emission GSE (30 min) *Moderated by Sang-Mi Lee, South Coast AQMD*		
9:30 AM	Coffee Break (15 minutes)		

Session 4: Advancements in Aircraft Propulsion

9:45 AM	NASA Research on Advancing Sustainable Aviation and Lowering NOx Emissions	Jeff Moder	NASA
10:00 AM	Advanced RQL combustion technology	Timothy S. Snyder	Pratt & Whitney
10:15 AM	Capabilities of Lean Combustion Technology for Future Low-Emission Aircraft Engines	Adam Steinberg	Georgia Institute of Technology
10:30 AM	Future technology to mitigate NOx emissions from aero-gas turbine engines	Prakash Prashanth	Massachusetts Institute of Technology
10:45 AM	Aero Engine Architecture for Low NOx emissions	Arvind Gangoli Rao	Delft University of Technology
11:00 AM	Coffee Break (15 minutes)		
11:15 AM	Innovative Multi-Use High Efficiency Aviation Engines	Dave Gill	DeltaHawk
11:30 AM	Hydrogen Fuel Cell Capabilities for Lowering Emissions: Present and Future	Yury Maximov	ZeroAvia
11:45 AM	Panel Discussion and Q&A on Advancements in Aircraft Design and Propulsion *Moderated by Matt Lakin, Director, Region 9 Air and Radiation Division at U.S. EPA (45 min)*		
12:30 PM	Lunch Break (75 minutes)		

1:45 PM

Operational Practices & Economics of Aircraft Routing

Introduction from Jack Johnson, California Air Resources Board

Session 5: Environmental Considerations for Aircraft Operations and Routing

2:00 PM	Market-based Approaches for Pollution Control in Aviation	Mark Jacobsen	University of California San Diego
2:15 PM	Creating the Flight Plan: Delta's Approach to Routing from Origin to Destination	Anthony Vassiliadis	Delta Airlines
2:30 PM	Operations and Aircraft Routing: Implications for Local Communities	Jasenka Rakas	University of California Berkely
2:45 PM	Panel Discussion and Q&A on Aircraft Routing *Moderated by Matt Lakin, Director, Region 9 Air and Radiation Division at U.S. EPA (30 min)*		
3:15 PM	Final Plenary	David Quiros	CARB
3:45 PM	Coffee and Networking		
4:30 PM	End of event		

Speakers

Kyle Schmidt – Vice President of R&T, Innovation & Eco-Design
Safran Landing Systems

R. Kyle Schmidt, P. Eng., is the Senior Vice President of R&T, Innovation & Eco-Design at Safran Landing Systems. With a career spanning nearly three decades, Kyle has held various technical and leadership roles, including Chief Engineer for multiple landing gear programs and VP of New Product Development and R&T Engineering. He is an internationally recognized expert on landing systems, chairs the SAE International committee on landing gear and associated systems, and has authored several books. Kyle holds a BASc in Mechanical Engineering from the University of Waterloo and an MSc in Safety and Accident Investigation from Cranfield University, and boasts over 60 patents granted and pending.

Frédéric Van Oost – Sales and Operations Director
Smart Airport Systems

After a career in the ground support equipment industry, Frederic joined Smart Airport Systems (SAS) in January 2019. At SAS, Frederic plays a crucial role in supporting airports and airlines in their efforts to significantly reduce ground emissions. He focuses on implementing innovative solutions such as sustainable taxiing and fixed preconditioned air units, which are designed to replace the use of aircraft main engines and auxiliary power units (APU) during ground operations. These advancements contribute to more eco-friendly and efficient airport operations, aligning with the aviation industry's goals for sustainability and environmental responsibility.

Sangita Sharma – Director of Sustainable Skies Lab
Delta Airlines

Sangita Sharma is the Director of the Sustainable Skies Lab, a first-of-its-kind airline innovation lab to accelerate research, design and testing for a more sustainable future of air travel. The Lab collaborates with partners across the industry as well as within Delta's operation to foster transformational change. Sangita has spent over 11 years at Delta, where she's held roles across the operating business units, leveraging data to ask questions and drive innovation and process improvement. She holds a BS in Aerospace Engineering from the Georgia Institute of Technology and an MBA from Emory University.

Brett Stone – Mechanical Engineering Faculty
Utah Valley University

Dr. Brett Stone earned his bachelor's degree in mechanical engineering from Brigham Young University - Idaho. He interned with Idaho National Laboratory for multiple summers working in communications and hybrid-electric vehicle research positions. He then earned his PhD in mechanical engineering from Brigham Young University where he studied design, remote design teams, and modern CAD tools. Before joining UVU, he worked for four years at Northrop Grumman where he helped to analyze and design solid rocket motors, satellite bus structures and test equipment, and aircraft.

Courtney Carroux – Net Zero Lead
San Francisco International Airport

Courtney is San Francisco International Airport's (SFO) Net Zero Lead, where she is responsible for developing, implementing, and reporting on decarbonization strategies to meet the Airport's goal of Zero Net Carbon and enable partners to reduce their emissions. She works with a variety of stakeholders to further airside and landside low-carbon transportation, support campus electrification, and advance other cross-functional decarbonization policies and programs. Prior to her time at SFO, Courtney worked on the Low Carbon Fuel Standard at the California Air Resources Board.

Jasenka Rakas – Deputy Director of Nextor III and CEE Faculty
University of California, Berkeley

Dr. Jasenka Rakas is a faculty member in the Civil and Environmental Engineering Department and affiliated faculty with the Jacobs Institute for Design Innovation, UC Berkeley. She is the deputy director of the UC Berkeley National Center of Excellence for Aviation Operations Research (NEXTOR III), founder of the Airport Design Studio and Aviation Futures Lab, and co-chair of the Sustainable Aviation Symposium. Her research interests are in Advanced Air Mobility, aviation infrastructure and the National Airspace System performance, and their interaction with the environment. She is an AIAA Associate Fellow. She is a recipient of numerous awards, including seven national awards by the FAA/ACRP Airport Design Competition for Universities.

Tim Toerber – President, Americas
Assaia

Tim has spent over 20 years immersed in aviation, both flying and working around aircraft. Based in the Pacific Northwest, he previously managed all scheduled airline activity at Seattle-Tacoma International airport before joining the team at Amazon AIR as it grew to become the fastest growing air cargo operator in the industry. Since 2023 he has been part of the team at Assaia, a Swiss tech startup focused on delivering technology solutions to revolutionize aviation ground operations. ApronAI is their core product which leverages computer vision and machine learning to drive improvements in efficiency, safety, and decarbonization.

Doron Milbaum – North American Sales Manager
ITW GSE

Doron Milbaum is the North Americans Sales Manager for ITW GSE for 10 years specializing in helping airports and airlines with their aircraft ground power and preconditioned air needs. Prior to ITW, Doron worked for United Airlines for 18 years holding several leadership roles in Ground Equipment and Facilities Maintenance, with his last position as the Sr. Manager of Facilities Programs and Engineering. He has a great understanding of the challenges faced at airports across the nation with limited power infrastructure that are working toward their sustainability efforts.

Helmuth von Grolman – Chief Executive Officer
Colibri Energy

Helmuth von Grolman has advised multinational corporations, the German government, various ministries, and other governments on e-mobility for over a decade. In 2012, he founded Colibri Energy, which has since become a world-leading manufacturer of OEM-independent, battery-based energy systems for below-the-wing airport logistics. Today, Colibri Energy collaborates with major industry players to implement sustainable and efficient energy solutions for aviation ground handling.

Amylou Canonizado – Environmental Programs Lead
Los Angeles World Airports

Amylou Canonizado oversees key sustainability initiatives at Los Angeles World Airports, including the Ground Support Equipment (GSE) Emissions Reduction Program and the LAX Alternative Fuel Vehicle Program. LAWA, a leader in aviation sustainability is dedicated to achieving zero carbon neutrality by 2045 and plays a pivotal role in major events hosted by the City of Los Angeles such as the World Cup in 2026, Super Bowl in 2027, and the World Olympics in 2028. Amylou thrives on building partnerships and working alongside diverse groups. She works with over 400 LAX companies, original equipment manufacturers (OEMs), state and local policymakers to drive progress. As part of LAX's electrification team, she supports progressive zero-emission technologies and spearheads the innovative Zero-Emission GSE Policy introduced in 2024. In addition, she manages the first-of-its kind in the nation for LAX's eGSE Incentive Program and the LAX Zero-Emissions Heavy-Duty Vehicle Incentive Program. Amylou attended baccalaureate studies at the University of California, Irvine for Applied Ecology, minor in Information Technology and attended graduate studies at the University of Southern California for Transportation Engineering.

Sanjiv Malhotra– Chief Executive Officer
Sparkz, Inc.

Dr. Sanjiv Malhotra is the founder and CEO of Sparkz — a battery start-up establishing the lithium battery ecosystem and re-engineering the battery supply chain. Malhotra has been a leader in the energy sector for nearly three decades as a founder, investor and executive. Most recently, he served as the first director for Energy Investor Center at the U.S Department of Energy (DOE), serving under both Democratic (Obama) and Republican (Trump) administrations. As an investor and consultant, Malhotra has worked at leading venture capital firms including Kleiner Perkins Caufield and Byers as an advisor on clean energy and advanced materials.

Nic Brown – Senior Project Manager: Business Development and Green Technology, *Toyota Tsusho America, Inc.*

Nic Brown has over 25 years of experience in manufacturing and logistics across numerous industries. He is one of Toyota Tsusho America's "Green Team" leaders. Nic is known for out of the box thinking when it comes to carbon emissions reductions. He's worked on projects across North America promoting both energy resilience and emissions reduction. Currently focused on supporting Toyota Tsusho's e2050 GSE and Industrial vehicle electrification through TAI's universal fossil fuel to electric conversion kit project. He also focuses on off-grid power generation and storage to support operations in operations facing infrastructure challenges including grid reliability and utility cost constraints.

Jeff Moder – Chief of the Engine Combustion branch
National Aeronautics and Space Administration

Dr. Moder is currently Chief of the Engine Combustion branch at NASA's Glenn Research Center where he leads research in the development, testing and modeling of combustion technologies and emissions. During his 34-year career at NASA he also co-lead for the National Jet Fuels Combustion Program, was a lead developer for computational fluid dynamics codes focused on combustion applications and led analysis efforts under several cryogenic fluid management projects. He has a BS from Case Western Reserve University and PhD from Rensselaer Polytechnic institute in aerospace engineering.

Timothy Snyder – Combustor Aerothermal Chief Engineer
Pratt & Whitney

Tim has over 39 years of combustion experience covering a wide range of applications including solid rocket ramjets, industrial dual fuel low NOx combustors capable of operating on natural gas, diesel, and hydrogen fuels, commercial and military combustors and APU's, afterburners, and small engines. Tim most recently has led the design and development of the Advanced RQL combustor in the PW1000G series Geared-Turbofan (GTF) engines. He is a member of the ASME Combustion, Fuels, and Emissions committee, SAE E31 committee for gaseous and particulate measurements, and CAEP Working group 3. Tim is currently the combustor aerothermal chief at Pratt & Whitney and is leading several initiatives on measuring and reducing non-CO2 emissions.

Adam Steinberg – Professor
Georgia Institute of Technology

Adam Steinberg is a professor and the Pratt & Whitney Chair in the Daniel Guggenheim School of Aerospace Engineering at Georgia Tech. Dr. Steinberg's research focuses on overcoming the technical barriers facing future aerospace propulsion and energy conversion devices. Working closely with government and industry, his research group develops and applies advanced laser-based measurement techniques that help unravel the coupled thermal, fluid, and chemical process occurring in these devices. Dr. Steinberg is the chair of the AIAA Propellants & Combustion Technical Committee, an AIAA Associate Fellow, and a Fellow of the Combustion Institute.

Prashanth Prakash – Research Scientist and Executive Officer
Laboratory for Aviation and the Environment at MIT

Prashanth is a Research Scientist and Executive Officer for the Laboratory for Aviation and the Environment at MIT. Prashanth's research focus is to develop systems and technology solutions to create near-zero impact aviation systems with a particular focus on future propulsion technology. He strongly believes that an aviation industry with near-zero environmental impact is not only feasible but *essential* to ensure the sustained growth of aviation's societal and economic benefits. He got his PhD and Master's degrees from MIT and his Bachelor's from the National University of Singapore.

Arvind Gangoli Rao – Chair Professor of Sustainable Aircraft Propulsion
Delft University of Technology

Dr. Arvind Gangoli Rao, is a Chair Professor of Sustainable Aircraft Propulsion at the Faculty of Aerospace Engineering, TU Delft. Dr. Gangoli Rao obtained his masters and PhD in aerospace engineering from the Indian Institute of Technology, Bombay and later worked at Technion, Israel as a post-doctoral researcher. Dr. Gangoli Rao is a specialist in aircraft propulsion and has worked on a variety of problems related to gas turbines and novel propulsion systems for aircraft, especially ones dealing with the usage of alternative energy sources. He has authored around 100 publications. Dr. Gangoli Rao has been involved in several EU projects and Dutch funded projects on sustainable aviation along with the industrial partners. He is the Dutch representative International Society of Air Breathing Engines (ISABE). He is also a member of the ACARE (Advisory Committee for Research and innovation in Europe) working group on Energy and Environment.

Dave Gill – Director of Engineering
DeltaHawk Engines Inc.

Mr. Gill joined DeltaHawk in 2023 as Director of Engineering. He has 45 years of industrial and recreational product engineering design and development experience ranging from hands on design and test engineering to global team and project management. He holds 49 U.S. patents covering a range of aircraft piston engine design features and characteristics, high efficiency bent axis hydraulic pump / motor design and golf sporting goods products and manufacturing processes. Mr. Gill holds a Bachelor's Degree in Mechanical & Production Engineering from the Lincoln University, (formally Lincoln College of Technology), with a minor in Heat Transfer and Applied Thermodynamic. Mr. Gill has been a member of the SAE since 2003 and is now an active member of the SAE Milwaukee Chapter Advisory Board.

Yury Maximov – Chief Special Projects Officer
ZeroAvia

Dr. Yury Maximov is the Chief Special Projects Officer at ZeroAvia, the pioneering producer of practical zero-emission powertrains for aviation. Before joining ZeroAvia in 2023, Yury held leadership positions at Los Alamos National Laboratory, academia, and industry worldwide. At ZeroAvia, Yury leverages his expertise in business development, manufacturing, and research to bridge the gap between cutting-edge scientific advancements and industrial practice accelerating the clean aviation transition.

Mark Jacobsen – Professor of Economics
University of San Diego

Mark Jacobsen is a professor of economics at UCSD and a research associate at the National Bureau of Economic Research. He received his Ph.D. in economics from Stanford University. Jacobsen's research focuses on energy and natural resource economics with emphasis on environmental regulation in the transportation sector.

Anthony Vassiliadis – Air Traffic Manager, West Region
Delta Air Lines

As a member of the Air Traffic Management team at Delta Air Lines, Anthony collaborates with other industry and government stakeholders that operate in the National Airspace System (NAS). He also is an FAA-certificated Aircraft Dispatcher, creating flight plans and routes for domestic and international operations in Delta's network as well as real-time, inflight safety monitoring. With nearly 20 years of experience at Delta, Anthony specializes in aircraft surface movement which uses technology and enhanced data sharing to help improve traffic flow and congestion, as well as reducing fuel usage. Anthony holds a bachelor's degree in aviation management from Purdue University and a master's degree in operations research from the University of Central Florida.