



**CALIFORNIA ENERGY  
RESEARCH CENTER**  
CSU BAKERSFIELD™

**CARBON SEQUESTRATION  
SYMPOSIUM**  
AT CSU BAKERSFIELD

**Thursday, April 28**  
**from 3:30 p.m. to 6:30 p.m.**  
**and**  
**Friday, April 29**  
**8 a.m. – 5 p.m.**

**PROGRAM AND AGENDA**



**CALIFORNIA ENERGY  
RESEARCH CENTER**  
CSU BAKERSFIELD™

# **CARBON SEQUESTRATION SYMPOSIUM: OPPORTUNITIES AND CHALLENGES**

## **P R O G R A M**

### **INTRODUCTION**

**Dr. Vernon Harper,**  
*Provost & Vice President for Academic Affairs*

**Dr. Todd McBride,**  
*Interim Dean, Natural Sciences, Mathematics  
and Engineering*

**Dr. Anthony Rathburn,**  
*Interim Director, California Energy Research Center*

### **WELCOME**

**President Lynnette Zelezny**  
*California State University, Bakersfield*

# CARBON SEQUESTRATION SYMPOSIUM: OPPORTUNITIES AND CHALLENGES

HOSTED BY THE

California Energy Research Center  
California State University, Bakersfield

**Welcome and Mixer: April 28, 3:30 to 6 p.m.**

**Main event: April 29, 8 a.m. to 3:30 p.m.**

**HYBRID EVENT**

**Limited In-Person Participation and FREE LIVE WEBINAR**

**TO REGISTER FOR THE WEBINAR:**

[https://csub.zoom.us/webinar/register/WN\\_YpdXHsXVSW6z\\_wfhziwbsw](https://csub.zoom.us/webinar/register/WN_YpdXHsXVSW6z_wfhziwbsw)

*For more information contact Tony Rathburn at [arathburn@csub.edu](mailto:arathburn@csub.edu)*

## **Symposium Organizing Committee**

**DR. LUIS CABRALES,**

*Associate Professor, Department of Physics and Engineering*

**DR. TODD MCBRIDE,**

*Interim Dean, Natural sciences, Mathematics, and Engineering*

**DR. ANTHONY RATHBURN,**

*Interim Director, California Energy Research Center*

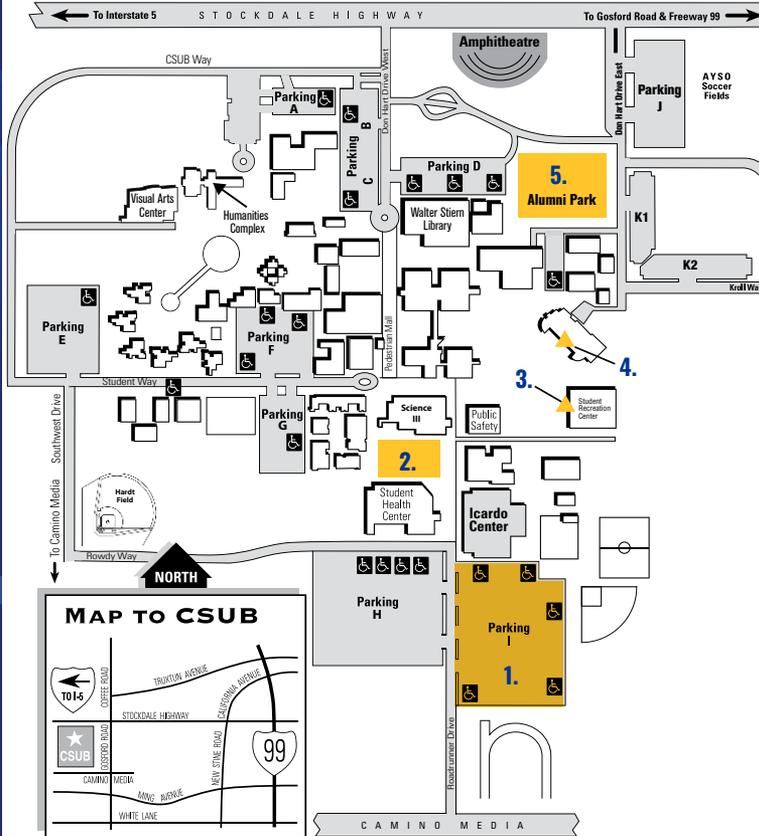
**DR. LIAOSHA SONG,**

*Assistant Professor, Department of Geological Sciences*



CALIFORNIA STATE UNIVERSITY  
**BAKERSFIELD**

CSUB Map - Map not to scale



## Campus Map

- 1) Parking in Lot I
- 2) Future site of the Energy Research Center
- 3) Solaria Room in the Student Rec Center
- 4) Student Union Building (Multi-Purpose Room)
- 5) Alumni Park



## OPPORTUNITIES AND CHALLENGES

The purpose of the event is to engage the community, industry, policymakers, and academia in the topic of carbon sequestration. According to several studies, Kern County has been identified as a prime location for the geological sequestration of carbon dioxide.

California State University, Bakersfield is committed to serving as a catalyst for regional energy innovation and this symposium will increase awareness of the opportunities, benefits, and challenges of carbon sequestration. Our goal is to accelerate innovation and the use of novel technologies for sequestering carbon within the region. We hope to highlight the importance of data-based decision-making in sustainably and safely using carbon sequestration as a viable option to mitigate climate change.

Designed to foster both learning and conversation, the symposium will allow stakeholders and experts to discuss how we can sustainably and safely support increased use of carbon sequestration to benefit the region. All stakeholders are welcome, including scholars, research scientists and engineers, government agencies, environmental organizations, nonprofits, oil industries, agriculture, students, teachers, and community members.

# AGENDA

Thursday, April 28, 2022

- 3:30-4:30 p.m. Poster session:**  
 Student Research and Booths  
*Location: Solarium*
- 4 p.m. Welcome and Introductions:**  
**Dr. Todd McBride**, *Interim Dean, Natural Sciences, Mathematics, and Engineering*  
*Location: Solarium*
- 4:30-6 p.m. Mixer**  
*Location: Alumni Park*

# AGENDA

Friday, April 29, 2022

- 8a.m.-4:30 p.m. Poster session**  
 Student Research and Booths  
 Location: Solarium (open all day)
- 8 a.m. Welcome and Introductions**  
**President Lynnette Zelezny**, *California State University, Bakersfield*  
**Dr. Vernon Harper**, *Provost & Vice President for Academic Affairs*  
**Dr. Todd McBride** *Interim Dean, Natural Sciences, Mathematics, and Engineering*  
**Dr. Anthony Rathburn** *Interim Director, California Energy Research Center*  
*Location: Multipurpose Room Student Union Building*
- 8:20 a.m. Title: Carbon Dioxide at Scale: Working Fast for an Equitable Future**  
 Speakers: **Roger Aines**, *Energy Program Chief Scientist; Carbon Management Partnerships;*  
 and **Kim Mayfield**, *Staff Scientist, LLNL*

9:10 a.m.

**Title: CCS in California and the San Joaquin Valley**

Speaker: **Ken Haney**: *Strategic Advisor - Carbon Management Organization California Resources Corporation, Bakersfield, CA*

9:40 a.m.

**Coffee Break.**

During symposium breaks we will be featuring student public service announcements, or PSA's on climate change, carbon neutrality as well as mitigation and removal ideas. These short videos were created by Kern County high school and college students participating in the inaugural *Carbon Cleanup Initiative* education program. This is a pilot project from the **Livermore Lab Foundation**, offering interactive science engagement materials matching Next Generation Science Standards (NGSS) to help local communities understand carbon capture and California's neutrality goals. In Kern County, 15 educators were selected as part of the initial cohort. Their students created these videos as part of those science units. The Livermore Lab Foundation, a 501c3 nonprofit, supports the fundamental science and research at Lawrence Livermore National Lab - one of the nation's premier national security facilities. This free program, the Carbon Cleanup Initiative, engages the community and students on the ideas and solutions found in *Getting to Neutral*, the lab's seminal research publication showcasing how the state of California can reach carbon neutrality by 2045. CSUB is proud to have sponsored the inaugural Kern County cohort of teachers accessing these materials.

10 a.m.

**Panel Title: Carbon Capture & Storage: The what, why, & how**

Moderator: **James Lawler**, *Founder and host, Climate Now*

**PANELISTS:**

**Ken Haney**: *Strategic Advisor - Carbon Management Organization California Resources Corporation, Bakersfield, CA*

**Lorelei Oviatt**, *Director of Kern County Planning and Natural Resources*

**Sarah Saltzer**, *Managing Director for Stanford Center for Carbon Storage and the Stanford Carbon Initiative*

11 a.m.

**Title: Regulatory, Compliance, Monitoring and Verification Challenges in Carbon Capture, Use and Sequestration Projects**

Speaker: **Bill Bartling**: *Consultant; Former Inland District Deputy, Division of Oil, Gas and Geothermal Resources, California Department of Conservation*

11:30 a.m.

**A conversation with Kate Gordon**: *Senior Advisor to the Energy Secretary, U.S. Department of Energy*

12 to 1 p.m.

**Lunch**

During the lunch break we will feature Climate Now's Carbon Capture and Storage videos. These videos were created by Climate Now which is a multimedia resource on the science and economics of climate change, covering the key scientific theories underpinning our understanding of how and why the climate is changing, clean energy technologies, important research, and policies relevant to the climate crisis and the energy transition. Climate Now's mission is to provide policy makers, business leaders, investors and journalists with the scientific and economic context necessary to make good decisions about policy formulation, capital allocation, and narrative focus.

1 p.m.

**Title: Carbon-Negative Hydrogen from Waste Biomass**

Speaker **Josh Stolaroff**: *Co-founder and Chief Technology Officer, Mote Hydrogen*

1:30 p.m.

**Panel title: CCS: Challenges & implementation**

Moderator: **John Thompson**, *Senior Science Officer*

**PANELISTS INCLUDE:**

**Jennifer Haley**, *President and CEO of Kern Oil & Refining Company*

**Colin Murphy**, *Deputy Director, Policy Institute for Energy, Environment, and the Economy, UC Davis*

**George Peridas**, *Director, Carbon Management Partnerships, LLNL*

- 2:30 p.m.**      **Final Remarks**  
**President Lynnette Zelezny**, *California State University Bakersfield*  
**Dr. Anthony Rathburn** *Interim Director, California Energy Research Center*
- 2:50 p.m.**      **Poster Session Student Research Presentations on site; Booths**  
*Location: Solarium*
- 2:50 p.m.**      **Interactive displays: Augmented Reality Sandbox; Fab Lab display**  
*Location: Site of the new Energy Research Center (Lawn between Science III and the Student Health Center)*
- 2:50 p.m.**      **Optional tours on site**

# SPONSORS

*We are sincerely grateful to our partners for this event:*



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The California Energy Research Center

# SPEAKER ABSTRACTS

**ROGER AINES AND KIM MAYFIELD**

## **Carbon Dioxide at Scale: Working Fast for an Equitable Future**

Lawrence Livermore National Labs (LLNL) is a world leader in carbon dioxide removal (CDR) methods, conducting research on all facets of carbon dioxide removal. The lab's research focuses on how to scale up carbon dioxide removal methods from the lab to industry and what it will take for these CDR methods to meet ambitious climate commitments. In this talk, we will discuss outcomes of recent reports written by LLNL's Carbon Initiative, including the Getting to Neutral report for the state of California, the Carbon Negative by 2030 report written for early corporate buyers, and the report in preparation for the Department of Energy on nationwide carbon negative emissions, which includes a trade-off analysis for each carbon negative emission method, tailored to benefit communities with environmental justice concerns. The outcomes of these reports highlight the combined benefits of natural, engineered, and interdisciplinary strategies for carbon dioxide removal. A common thread amongst all methods, however, is the important role that geologic carbon storage plays, which Bakersfield is uniquely poised to benefit from.

**KEN HANEY**

## **CCS in California and the San Joaquin Valley**

Carbon capture and storage (CCS) processes will play a crucial role in our energy future. Top scientific bodies – including the Intergovernmental Panel on Climate Change (IPCC) and the National Academy of Sciences – make clear that we cannot address climate change without a massive abatement of greenhouse gases (GHG). In addition to renewables and emissions reductions, California needs a “smart mix” of both natural approaches such as reforestation and technology solutions such as CCS, which removes excess carbon dioxide (CO<sub>2</sub>) from industrial sources or the air and safely stores it deep underground

California is well positioned to lead the nation in CCS given its leadership in the clean technology arena and on climate policies; prominent business and investment framework; and legacy energy industry with important technical capabilities and proven geology for carbon storage. California's implementation of the Low Carbon Fuel Standard (LCFS), coupled with the Federal Internal Revenue Service 45Q tax credits for CO<sub>2</sub> storage, provide substantial economic incentives for CO<sub>2</sub> management projects. Mandatory GHG reduction targets in California and these incentives represent opportunities for helping expand carbon capture technologies. The Southern San Joaquin Valley is a prime environment to lead development of at-scale climate solutions such as CCS. Safe and secure permanent underground storage of CO<sub>2</sub> in California will present unique challenges, advantages and opportunities. California needs to leverage natural and technology solutions, coupled with effective project experience and execution to achieve the state's ambitious societal goals around carbon neutrality. With

thoughtful deployment, the CCS sector can be a source of opportunity for communities by abating polluting industries and delivering a socially just transition to a cleaner energy future.

## **BILL BARTLING**

### **Regulatory, Compliance, Monitoring and Verification Challenges in Carbon Capture, Use and Sequestration Projects**

Carbon Capture, Use and Sequestration (CCUS) is one of the important strategies for reduction of atmospheric carbon dioxide (CO<sub>2</sub>) emissions. This practice has been the topic of many technical studies and field demonstrations in academic and industrial settings that have evaluated the optimum reservoir and operational conditions for placement and operation of injection wells. Sequestration has been studied for both pure CCUS, and as CO<sub>2</sub> has a long history of application to EOR, for hybrid enhanced oil recovery (EOR) and sequestration applications..

There remain many challenges to initiating, operating, and maintaining sequestration projects including those presented by Federal, State and Local permitting agencies, ensuring compliance with these regulations for the duration of the sequestration period, often 100 years, and accurately monitoring and verifying that the sequestered CO<sub>2</sub> remains sequestered during the permit period.

Responsibility for permitting and enforcing regulations (so called Primacy) of Class VI injection wells (wells intended to be used for CO<sub>2</sub> injection) remains an active discussion between the US Environmental Protection Agency and States. Once permitted and operational, the reach of the CO<sub>2</sub> gas/liquids/solids in the subsurface reservoir and other reservoir effects resultant from the injection such as elevated pressure must be demonstrated by the operator to remain within the permitted area. Remote sensing, modeling and direct reservoir measurements are proposed to be used for this.

Leakage or potential leakage to the surface must also be monitored and remediated. Especially when the targeted injection reservoirs are depleted or abandoned oilfields, the presence of often hundreds of legacy oil wells presents additional challenges to ensuring that CO<sub>2</sub> does not leak from the injection zone to shallower geology or the surface.

This talk will review the challenges to meeting the regulatory and compliance requirements for the life cycle of CCUS and EOR projects.

## **JOSH STOLAROFF**

### **Carbon-Negative Hydrogen from Waste Biomass**

Mote, Inc. has a process to convert woody waste biomass into hydrogen for transportation and CO<sub>2</sub> for storage. By selecting biomass that would otherwise decompose or burn, we take carbon that trees and crops removed from the air and put it underground for geologic time. By creating multiple value streams of clean

hydrogen, carbon removal, and waste disposal, we can sell hydrogen at market prices and permanently remove CO<sub>2</sub> at costs down to \$40–60/ton. Our technology can operate economically wherever geologic storage sites, biomass supply, and hydrogen demand are in proximity, making western Kern County an ideal place to start.

Mote's technology, spun out of work at Lawrence Livermore National Laboratory, is to integrate proven process components in a novel way, leveraging technologies that have been developed for other applications, such as coal gasification and fossil hydrogen production. This talk covers the motivation for Mote's strategy, stemming from analysis for California on how to achieve the state's target of carbon neutrality by 2045, and Mote's plans to build a commercial demonstration facility to remove 150,000 tons per year of CO<sub>2</sub>.

# SPEAKER BIOGRAPHIES



## **Roger Aines, Ph.D.**

*Chief Scientist, Energy Program, LLNL*

### **BIO**

Roger Aines leads and manages Lawrence Livermore National Lab's Carbon Initiative which seeks to understand, develop, and implement technologies for the removal of carbon dioxide from the atmosphere and negative emissions technologies. Roger's career has involved a close coupling of scientific research, engineering, field demonstration, and assessment of future development needs for technology. Research interests include the chemistry of natural and engineered processes, including carbon dioxide separation and water treatment and current research includes application of 3-D printing to chemical reactors and gas separations, development of catalysts for carbon dioxide capture, management of pressure in geologic sequestration through brine withdrawal and treatment, and encapsulation of carbon dioxide capture solvents.

Previously, Roger led LLNL's Carbon Management Program, providing an integrated view of the energy, climate, and environmental aspects of carbon-based fuel production and use. He is the co-author of *Championing Science*, a book that helps scientists communicate more effectively with decision makers. He has a Ph.D., in Geochemistry from CalTech and a BA in Chemistry from Carleton College.



## **Kimberley Kanani Mayfield, Ph.D.**

*Staff Scientist, LLNL*

### **BIO**

Kimberley Mayfield is a staff scientist at Lawrence Livermore National Laboratory (LLNL). She is a member of LLNL's Energy Group and principal investigator for Lawrence Livermore's Energy Flow Charts. She also works with the Carbon Initiative, which aims to understand, develop, and implement technologies for the removal of carbon dioxide from the atmosphere. Her areas of focus are carbon accounting for carbon sequestration projects and environmental justice analysis for negative carbon emissions projects. Kim currently leads the Environmental Justice chapter on the national *Getting to Neutral* report – an investigation into large-scale carbon dioxide removal for the United States to meet climate goals. She approaches this challenge through trade-off and geospatial analyses related to the potential costs and benefits of each carbon dioxide removal method.

Kimberley holds a BS in Global Environmental Science from the University

of Hawaii at Mānoa and a Ph.D. in Ocean Sciences from the University of California, Santa Cruz. Her research background is in environmental chemistry, with an emphasis on non-traditional stable isotope geochemistry in hydrologic systems. Prior to joining LLNL, Kimberley worked in the algal biofuels industry, innovating safe and economically viable ways to extract oil and protein from microalgae.



**Ken Haney**

*Strategic Advisor Carbon Management*

**BIO**

Ken Haney is the Strategic Advisor - Carbon for California Resources Corporation (CRC). Ken has 37 years of experience in upstream exploration and production with CRC, Chevron, Occidental Petroleum

and Texaco. He has worked as a technical engineer, manager and asset VP on projects and reservoirs in California, West Texas, New Mexico, Alberta (Canada) and Columbia. His breadth of technical focus includes miscible and immiscible gas injection, thermal EOR, and water flood and primary operations in shale, clastic and carbonate reservoirs.

Specifically related to carbon management, Mr. Haney was the Reservoir Management Team Leader overseeing the Elk Hills CO2 target reservoirs for the 2010-12 Hydrogen Energy California (HECA) Carbon Capture, Utilization and Storage (CCUS)/EOR joint project between Occidental Petroleum and SCS Energy LLC. Ken has worked in his current role, developing CRC's Carbon Management business and energy management/transition opportunities, since January 2018.

Mr. Haney holds a B.S. in Geology from California State University, Bakersfield and an M.S. in Petroleum Engineering from the University of Southern California.



**Bill Bartling**

*Consultant*

**BIO**

Bill Bartling is a retired geoscientist and executive. Prior to retirement in November 2020, Bill was the Chief Deputy for the State of California Department of Conservation, California Geologic Energy Management Division (CalGEM) with offices in Bakersfield and Sacramento California.

Prior to this assignment, he was the Deputy for the Inland District which includes all or portions of Kern, Kings, Tulare, Inyo, Fresno and Madera Counties, which accounts for over 80% of oil and gas production in California.

Prior to joining CalGEM in October, 2015, Bill was General Manager of Borehole

Imaging for OptaSense Ltd, President and CEO of SR2020, Sr. Director of Market Strategy at Silicon Graphics, CEO of SciFrame, Inc., Manager of Technical Computing at Occidental Oil and Gas, Sr. VP of Software Engineering at CogniSeis Development and Earth Scientist/Manager in exploration, production and research at Chevron.

Bill has a BA in Biological Sciences from UC Santa Barbara and a MS in Geology from San Diego State University, is Vice President of SEG Pacific Section and sits on the Advisory Board of the San Diego State University Center for Computational Sciences.

Member of SPE, AAPG and SEG



## Kate Gordon

*Senior Advisor to the Secretary of Energy*

### BIO

Kate Gordon has spent the past two decades working at the intersection of climate change, energy policy, and economic development. Most recently, Gordon served under California Governor Gavin Newsom as the Director of the Governor's Office of Planning and Research and Senior Policy Advisor to the Governor on Climate. Trained as a community organizer, and later in law and regional economic development, her focus has long been on bringing diverse groups together to work toward a more sustainable, inclusive economy. Prior to being appointed OPR Director, Gordon was the founding director of the Risky Business Project, which focused on quantifying the economic impacts of climate change on key U.S. regions and sectors. Gordon has served in senior leadership positions at several nonpartisan think tanks including the Henry M. Paulson Institute, the Center for the Next Generation, the Center for American Progress, and the Center on Global Energy Policy at Columbia University. Gordon got her start on energy and climate issues working at the national Apollo Alliance, where she ultimately served as co-Executive Director until the merger with the Blue-Green Alliance in 2011. Under her leadership, the Apollo Alliance drafted key parts of the American Recovery And Reinvestment Act of 2009 (ARRA) including the Advanced Manufacturing Tax Credit, and also partnered with the AFL-CIO to draft "just transition" proposals for several key energy and climate bills.

Gordon earned a J.D. and a Masters in City and Regional Planning from the University of California-Berkeley, and an undergraduate degree from Wesleyan University.



## Joshuah Stolaroff

*Chief Technology Officer and co-founder of Mote, Inc.*

### **BIO**

Joshuah Stolaroff is the Chief Technology Officer and co-founder of Mote, Inc. He previously spent over a decade at Lawrence Livermore National Laboratory, as a staff scientist and Carbon Capture Technology Manager, leading projects in carbon capture, advanced manufacturing, and clean energy. Prior to joining LLNL, Josh held a AAAS Science and Technology Fellowship at the U.S. EPA doing climate policy research and a post-doctoral fellowship at Carnegie Mellon's Climate Decision Making Center. Josh has a PhD in Engineering & Public Policy and Civil & Environmental Engineering from Carnegie Mellon University and a B.S. in Environmental Engineering Science from the University of California, Berkeley. His thesis on the feasibility of direct air capture, under Greg Lowry and David Keith, formed the groundwork for the company Carbon Engineering.

## *Morning Panel*

# Carbon Capture & Storage: The what, why and how



**James Lawler**

*Moderator*

**BIO**

James Lawler is the founder of Climate Now. James started Climate Now as a way to learn about climate change and our energy system. Climate Now's mission is to distill and communicate the science of our changing climate, the technologies that could help us avoid a climate crisis, and the economic and policy pathways to achieve net zero emissions globally. James is also the founder of Osmosis Films, a creative studio.



**Ken Haney**

*Strategic Advisor Carbon Management*

**BIO**

Ken Haney is the Strategic Advisor - Carbon for California Resources Corporation (CRC). Ken has 37 years of experience in upstream exploration and production with CRC, Chevron, Occidental Petroleum and Texaco. He has worked as a technical engineer, manager and asset VP on projects and reservoirs in California, West Texas, New Mexico, Alberta (Canada) and Columbia. His breadth of technical focus includes miscible and immiscible gas injection, thermal EOR, and water flood and primary operations in shale, clastic and carbonate reservoirs.

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Mr. Haney holds a B.S. in Geology from California State University, Bakersfield and an M.S. in Petroleum Engineering from the University of Southern California.



## Lorelei Oviatt

*Director for the Kern County Planning and Natural Resources Department*

### BIO

Lorelei Oviatt, AICP, is Director for the Kern County Planning and Natural Resources Department in California and has worked in both the public and private sector of land development. Her years of professional planning experience in the public and private sectors focuses on project management of large scale, multiagency planning, moving extremely complex projects through the system under accelerated timeframes to streamline business permitting and support quality of life for communities. She has permitted over 18,600 MW of renewable energy wind and solar projects with over 2500 MWh of battery storage in operation and 4000 MWh in progress of permitting. She led the team that produced the first comprehensive Environmental Impact Report for over 2.8 million acres of oil and gas operations and developed an ordinance that provides enhanced environmental protection for communities while providing certainty for timelines for the oil industry. Currently she is working on four Carbon Capture and Sequestration (CCS) projects in Kern County for permitting with a total capacity of over 78 million tons of CO<sub>2</sub> capacity as well as new carbon management industries. Her work on natural resources land use for renewable energy, mining, alternative fuels and oil and gas production as well as streamlining industrial and housing projects has made Kern County a center for business development in the U.S, while ensuring environmental protections for communities and certainty for investors. She has a Master's Degree in Public Administration from CSUB Bakersfield and is an Lecturer in public administration policy and urban planning.



## Sarah Saltzer

*Managing Director of the Stanford Center for Carbon Storage and the Stanford Carbon Removal Initiative*

### BIO

Dr. Sarah Saltzer is the Managing Director of the Stanford Center for Carbon Storage and the Stanford Carbon Removal Initiative. Sarah spent 25 years at Chevron where she held a series of scientific, managerial, and executive roles. She has a diversity of experience in positions of increasing responsibility, including geology research and teaching, petroleum engineering, leading exploration teams, competitor analysis and business planning, executive responsibilities for all business operations for Chevron's multi-national environmental remediation company, and responsibility for SEC-mandated reserves reporting for a quarter of the globe. Dr. Saltzer holds a M.S. and B.S. from the Massachusetts Institute of Technology and a Ph.D. from Stanford University.

## *Afternoon Panel*

# Carbon Capture & Storage: Challenges and Implementation



### **John Thompson**

*Moderator*

#### **BIO**

John Thompson is a Senior Science Officer covering Partner Engagement. Prior to working for CCST, John was a consultant with the Senate Office of Research, where he provided research support for the California State Senate on a wide variety of topics, including banking, cannabis, occupational licensing, taxation, and technology. He was previously a CCST Science and Technology Policy Fellow in the office of Assemblymember Jay Obernolte.

John received his PhD in Materials Science and Engineering from Northwestern University, modeling processes that take place during the production of high strength turbine engine blades. Prior to that, he earned a BA in Physics with a minor in Music from New York University.



### **Jennifer Haley**

*President & CEO of Kern Oil & Refining Co.*

#### **BIO**

Jennifer Haley is President & CEO of Kern Oil & Refining Co., an independent, transportation fuel producer strategically located in Kern County. As a renewable fuel pioneer with more than a decade of renewable diesel production experience, Kern has long-embraced addressing the threats of climate change.

Haley joined Kern in 2012 as Vice President – Legal and Government Affairs with a fresh perspective and passion for continuous improvement. Recognizing her drive to embrace opportunities and evolve, Haley was elevated to President & CEO in 2018. Under Haley's leadership, Kern has honed its "small but mighty" culture to drive collaborative innovation toward low-carbon and renewable fuels, and demonstrate the critical role their industry must play to meet California's clean energy goals.

Haley earned her undergraduate degree from the University of San Diego and her JD from University of San Diego School of Law. She serves on the Board for the California Chamber of Commerce, the Foundation Board for the California Science Center, and co-chairs the Better Bakersfield & Boundless Kern (B3K) Energy Work Group.



**Colin Murphy**

*Deputy Director of the UC Davis Policy Institute for Energy, Environment, and the Economy, and Co-Director of the UC Davis Institute of Transportation Studies' Low-Carbon Fuel Policy Research Initiative*

**BIO**

Colin is the Deputy Director of the UC Davis Policy Institute for Energy, Environment, and the Economy, and Co-Director of the UC Davis Institute of Transportation Studies' Low-Carbon Fuel Policy Research Initiative. He has a decade of experience at the nexus of science and public policy as a researcher, advocate and speaker; working on low carbon fuel policy and technology, carbon markets, sustainable transportation, renewable energy, and scientific engagement with public policy. Prior to returning to UC Davis he worked on climate and transportation policy for the NextGen Policy Center, and was a Science Policy Fellow in the California Legislature with the California Council on Science and Technology. He holds a B.S. in Biological Systems Engineering from UC Davis, a M.S. in Science, Technology and Public Policy from the Rochester Institute of Technology, and a Ph.D. in Transportation Technology and Policy from UC Davis.



**George Peridas, Ph.D**

*Director, Carbon Management Partnerships, LLNL*

**BIO**

George Peridas is responsible for Lab and industry partnerships that result in the advancement and deployment of carbon management solutions and technologies, including the removal of carbon dioxide from the atmosphere, or so-called negative emissions. With background in energy markets consulting and scientific research in an academic environment, as well as more than a decade of experience in the environmental NGO world, he is well versed in the fields of policy, legislation and regulation relevant to climate change, carbon management and energy, and keenly aware of the spectrum of views that need to be reconciled in order to reach meaningful consensus in this field. He holds a Ph.D. in Mechanical Engineering from the University of Oxford and Masters in both Environmental Technology and Engineering Science from Imperial College and the University of Oxford, respectively.





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