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CCUS

CARBON CAPTURE, UTILIZATION, AND STORAGE

THE INDUSTRY'S LEADING EVENT FOR CCUS MANAGEMENT AND DEVELOPMENT

TECHNICAL PROGRAM

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GEORGE R. BROWN CONVENTION CENTER

11-13 MARCH 2024

HOUSTON, TEXAS

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#CCUS2024

LETTER FROM THE CO-CHAIRS

Dear Friends,

A growing desire for lower emissions and a sustainable energy future has unleashed record levels of private sector investment and government funding creating an unprecedented concentration of carbon capture, utilization, and storage (CCUS) projects across the United States.

Leveraging the technical geologic knowledge and data related to CCUS that has been cultivated over the past two decades, combined with more recent policy instruments, such as the expanded 45Q tax credits, CarbonSAFE initiative, and carbon credit mechanisms, have presented opportunities to offset the costs of CCUS development making it more attainable for many companies.

As the industry continues to grow, so does the need for highly skilled professionals to guide the pathway for safe and economical management of carbon developments, challenges, and opportunities. At a time of rapid change, the importance of integrating innovative geoscientists and engineers to lend their expertise and skills plays a critical role in defining the future of carbon.

As hosts of **Carbon Capture, Utilization, and Storage (CCUS) 2024**, *11-13 March in Houston, Texas*, the Society of Petroleum Engineers (SPE), the American Association of Petroleum Geologists (AAPG), and the Society of Exploration Geophysicists (SEG), have joined forces to gather leading technical experts to demonstrate the ongoing need for petroleum geoscientists and engineers in our CCUS arena.

Much like our industry, the CCUS event has sparked exponential growth doubling in size year over year since its inception in 2021. CCUS 2024 builds upon this success and looks to bring together more than 1,500 global attendees and participants. Keynote speakers, panelists, and presenters from ExxonMobil, OXY, Shell, SLB, U.S. Department of Energy, and many other organizations will facilitate discussion on current CCUS work and tackle related challenges across these themes:

- Theme 1: Subsurface Storage and Site Selection
- Theme 2: Subsurface Modeling and Geomechanics
- Theme 3: Subsurface Risk Assessment
- Theme 4: Infrastructure and Well Design
- Theme 5: EOR, Injection, Utilization
- Theme 6: Subsurface Monitoring
- Theme 7: Financial, Economics, and Regulatory Framework
- Theme 8: ESGs and Stakeholder Engagement
- Theme 9: ML and Data Analytics Applications
- Theme 10: Case Studies

Alongside a dynamic technical program of talks, panels, and posters, CCUS 2024 will have pre- and post-event short courses on well logging and petrophysics for geologic carbon sequestration, the introduction into CCUS whole core acquisition, CCUS fit-for-purpose casing and tubing analysis, monitoring novel storage plays optimized for saline reservoirs, and the business behind CCS and SRMS, as well as a post-event field trip to explore Galveston's coastal processes. Informative topical luncheons, engaging networking opportunities, and interactive student activities will provide an added level of experience for attendees that are sure to not be missed.

The exhibition will highlight the latest innovations, services, and emerging technologies at the forefront of a sustainable development initiative from companies such as Baker Hughes, CGG, Core Laboratories, Geostock Sandia, and more.

CCUS 2024 is an influential platform where professionals engage in all aspects of the carbon capture lifecycle to innovate, integrate, and advance understanding to create value. This meeting continues to be the leading event for CCUS management and development and is the best chance you'll have to gain insights into the technical and business aspects surrounding CCUS.

We invite you to participate at CCUS 2024 and hope to see you all in Houston!

Sincerely,

Autumn Haagsma
CCUS 2024 Technical Program Co-Chair

David Riestenberg
CCUS 2024 Technical Program Co-Chair

Scott Singleton
CCUS 2024 Technical Program Co-Chair

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TABLE OF CONTENTS

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Nihal Darraj, *Imperial College London*

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Seyyed Hosseini, *University of Texas BEG*

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Michel Verliac, *TotalEnergies*

Caroline Wachtman, *Oxy*

Kris Walker, *Chevron*

Katerina Yared, *Orka Switch Solutions LLC*

SCHEDULE AT A GLANCE

Sunday, 10 March

7:00 am–4:00 pm	Registration
8:00 am–5:00 pm	SC-01: The Techniques and Business Aspects of Carbon Capture, Utilization, and Storage and the CO_2 Storage Resources Management System (SRMS)
8:30 am–5:00 pm	SC-02: Well Logging and Petrophysics for Geologic Carbon Sequestration
8:00 am–6:00 pm	FT-01: Texas Coastal Processes – Brazos River Delta to Galveston Island
1:00 pm–5:30 pm	Communications and CCUS Career Development Workshop for Students and Early Career Professionals

Monday, 11 March

6:30 am–5:30 pm	Registration
8:15 am–8:25 am	Welcome Remarks
8:25 am–9:05 am	Keynote
9:20 am–12:00 pm	Technical Sessions
9:00 am–6:00 pm	Exhibition Open
10:00 am–11:00 am	Refreshment Break
10:55 am–12:00 pm	Panel Session: Policies for Success in CCUS
12:10 pm–1:20 pm	Topical Luncheon: Why Community Engagement Matters
12:10 pm–1:20 pm	Topical Luncheon: EPA Permitting Process for UIC Class VI Injection Wells (CCUS) and Current Industry Status
1:35 pm–5:00 pm	Technical Sessions
3:00 pm–4:00 pm	Refreshment Break
5:00 pm–6:00 pm	Networking Reception

Tuesday, 12 March

7:00 am–5:30 pm	Registration
8:15 am–9:00 am	Keynote
9:20 am–12:00 pm	Technical Sessions
9:00 am–6:00 pm	Exhibition Open
10:00 am–11:00 am	Refreshment Break
10:55 am–12:00 pm	Panel Session: Challenges Across the CCUS Value Chain
12:00 pm–1:30 pm	Students/Young Professional Lunch and Learn
12:10 pm–1:20 pm	Topical Luncheon: Unlocking Resources through Advancing Mineral Carbon Storage in Mafic Rocks
12:10 pm–1:20 pm	Women's Network Luncheon: Working Across the Carbon Value Chain
1:35 pm–5:00 pm	Technical Sessions
3:00 pm–4:00 pm	Refreshment Break
5:00 pm–6:00 pm	Networking Reception

Wednesday, 13 March

7:00 am–2:30 pm	Registration
8:15 am–9:00 am	Keynote
9:20 am–12:00 pm	Technical Sessions
9:00 am–3:30 pm	Exhibition Open
10:00 am–11:00 am	Refreshment Break
10:55 am–12:00 pm	Panel Session: CCUS Lessons Learned
12:00 pm–1:00 pm	Exhibition Luncheon
12:00 pm–1:55 pm	Poster Session
1:55 pm–3:20 pm	Technical Sessions

Thursday, 14 March

8:00 am–12:00 pm	SC-03: Introduction into CCUS Whole Core Acquisition
8:30 am–5:00 pm	SC-04: CCUS Fit-for-Purpose Casing and Tubing Analysis for CO_2 with Impurities
8:30 am–5:00 pm	SC-05: Characterizing, Permitting, and Monitoring Novel Storage Plays Optimized for Saline Reservoirs

KEYNOTE SPEAKER

CHRIS KENDALL

President and CEO Denbury Inc.

CCUS – The Opportunity and the Challenges

CCUS is at a crossroads. Against a backdrop of continued growth in energy demand, driven by both increasing global population as well as improving living standards in developing countries, atmospheric CO2 emissions continue to increase, even while renewable energy supply is growing at an unprecedented rate.

CCUS is clearly an essential part of the solution to reduce GHG emissions, particularly for hard-to-decarbonize industries. CCUS policy support in the US has never been stronger than it is today. The technology and capabilities to significantly scale CCUS exist today, and great minds and significant investments are aimed at further improving the efficiency and reducing the costs of capture technology, with meaningful progress made in recent years.

On the other hand, CCUS faces multiple challenges, including opposing forces on both ends of the political spectrum, uncertain public acceptance, increasing cost of capital, and rising cost inflation, among others.

Notwithstanding these challenges, it is clear that CCUS has a major role to play in any conceivable 1.5 C scenario. For example, the IEA's 'Net Zero Roadmap' shows CCUS exceeding five billion tons per year by mid-century and sustaining at that level through 2100, over a 125-fold increase from where CCUS stands today.

Numerous skills and technologies developed in the E&P industry are directly adjacent to those needed in the CCUS industry, and in many cases are completely complementary. It is imperative that we as an industry take a leadership role to advance this essential technology.

PANEL SESSIONS

Policies for Success in CCUS

Date: Monday, 11 March
Time: 10:55 am–12:00 pm
Location: George R. Brown Convention Center
Fee: Included with registration
Moderator: Nihal Darraj, CCS Researcher, Imperial College London

This panel discussion goes beyond mere identification of challenges, pivoting towards proactive solutions within Carbon Capture, Utilization, and Storage (CCUS) policies. It takes a full view, addressing diverse regional perspectives rather than being exclusively focused on the United States. The discussion probes deeply into the pivotal function of policy frameworks in steering effective CCUS initiatives. It navigates through the landscape of regulatory architectures, financial incentives, technological advancements, and the imperative of global collaboration. Not solely content with highlighting obstacles, the panel of experts seeks to underscore successful strategies and groundbreaking approaches. The overarching goal is to cultivate an environment conducive to expediting CCUS deployment, thereby making substantial contributions to the collective global efforts in combating climate change.

Challenges Across the CCUS Value Chain

Date: Tuesday, 12 March
Time: 10:55 am–12:00 pm
Location: George R. Brown Convention Center
Fee: Included with registration
Moderator: Oumer Tahir, Regional Manager: OCTG & Energy Transition, Hunting Energy Services

This panel delves into the intricate landscape of Carbon Capture, Utilization, and Storage (CCUS) and the multifaceted challenges embedded in its value chain. As the imperative to mitigate carbon emissions intensifies, understanding the hurdles in the entire CCUS process—from capture to containment—becomes paramount. This panel seeks to unravel the complexities associated with each stage of the CCUS value chain. Starting with the challenges of efficient carbon capture technologies, we will explore the evolving regulatory frameworks that shape CCUS implementation. The discussion will extend to the logistical intricacies of transportation, addressing the obstacles faced in moving captured carbon to suitable storage sites. Storage and containment, the final steps in the value chain, pose unique challenges that require a nuanced understanding. The session aims to dissect these challenges, examining issues related to site selection, integrity monitoring, and public perception. Join us as experts in the field navigate through the nuances of CCUS, shedding light on the obstacles faced in capturing, regulating, transporting, and securely storing carbon. This panel promises an insightful exploration into the challenges hindering the seamless execution of CCUS technologies and strategies.

Panelists:

Fred Majkut, Senior Vice President – Carbon Solutions, SLB

George J. Koperna, Vice President, Advanced Resources International, Inc.

Rob Cordray. Senior Vice President, Consulting, Rystad Energy

CCUS Lessons Learned

Date: Wednesday, 13 March
Time: 10:55 am–12:00 pm
Location: George R. Brown Convention Center
Fee: Included with registration
Moderator: Ross Harrison, Geologist, Energy Investment Banking, Truist Securities

This panel discussion seeks to provide a collaborative and open discussion of past, recent, and ongoing projects within the Carbon Capture, Utilization, and Storage (CCUS) industry. The focus will be to address some of the key challenges and lessons learned from projects, including the technical and explicit implementation of such projects as well as lessons learned as we progress through the very real-time development of the CCUS value chain and maturation of the carbon markets themselves (including regulation, economics, and financing).

Panelists:

Sam Krevor, Reader and Royal Academy of Engineering Senior Research Fellow, Department of Earth Science & Engineering, Imperial College London

Sandhya Sundar Ram, Senior Front-End Development Manager for CCS U.S. Growth Projects, Shell

Traci Rodosta, Senior Program Manger for Carbon Storage Infrastructure Office of Fossil Energy and Carbon Management, U.S. Department of Energy

TOPICAL LUNCHEONS

Why Community Engagement Matters

Date: Monday, 11 March
Time: 12:10 pm–1:20 pm
Location: George R. Brown Convention Center
Fee: $75
Speaker: **Nicole M. Parra,** Vice President, Community Affairs, California Resources Corporation (CRC) and Carbon TerraVault (CTV)

There is a place in California that is one of the top petroleum and renewable energy producing regions in the United States: Kern County. This is where companies like California Resources Corporation (CRC) are producing some of the lowest carbon intensity production in the US and leading decarbonization efforts by developing carbon capture and storage (CCS) and other emission reducing projects. In this region, over 40 consortium members from industry, academia, labor, local government, national labs, and community organizations came together to develop a community benefits plan (CBP) and were awarded one of the Department of Energy's Regional Direct Air Capture Hub Grants. How did this consortium come together? How was the CBP designed and developed and how will it be executed?

EPA Permitting Process for UIC Class VI Injection Wells (CCUS) and Current Industry Status

Date: Monday, 11 March
Time: 12:10 pm–1:20 pm
Location: George R. Brown Convention Center
Fee: $75
Speaker: **Gregory Schnaar,** Principal Hydrogeologist, Daniel B. Stephens & Associates, Inc.

Dr. Schnaar will review state of the practice in Class VI permit content and the application process including demonstration of site suitability for geologic storage, modeling in support of defining the project Area of Review, development of monitoring plans compliant with Class VI requirements, and response to EPA technical review comments. Current EPA reported timelines for permits under review will be evaluated, and each stage of the permit review will be explained with direction on how this information is shared and is publicly available.

Unlocking Resources through Advancing Mineral Carbon Storage in Mafic Rocks

Date: Tuesday, 12 March
Time: 12:10 pm–1:20 pm
Location: George R. Brown Convention Center
Fee: $75
Speaker: **Claire Nelson,** Co-Founder and CTO, Cella

Carbon capture and storage is a critical tool to meet global climate goals, and access to permanent carbon storage is currently a bottleneck. Carbon storage in basalt is a safe and effective means of permanent geologic carbon storage due to the potential for mineralization. This method involves in-situ injections of carbon into basaltic formations, where carbon is sequestered first in aqueous phase via dissolution, then in mineral form through carbonate precipitation. Mineral carbon storage in basalt has been proven as an effective means of durable and verifiable geologic carbon storage in two successful pilot-scale field demonstrations where two injection strategies were employed: a water-dissolved approach and a free-phase CO_2 only injection. The water-dissolved approach is the only form of carbon storage in basalt in commercial operation today, however key limitations exist with this method, namely high water use and low per-well injection capacity. Cella is an early-stage technology start-up working on a novel method of subsurface mineralization employing injections of free-phase CO_2 (e.g., supercritical). Injections of supercritical CO_2 ($scCO_2$) into basalt can minimize water demand, increase per-well injection capacity, expand the feasible range of basalt carbon storage, and leverage the deep expertise and off-the-shelf infrastructure from the enhanced oil recovery industry. Cella's patent-pending technology offers a low-cost solution that has the potential to optimize carbon mineralization in basalt and substantially advance the scalability of this technology.

Women's Network Luncheon: Working Across the Carbon Value Chain

Date: Tuesday, 12 March
Time: 12:10 pm–1:20 pm
Location: George R. Brown Convention Center
Fee: $75
Speakers: A panel of prominent women in CCUS

This session will feature leaders and innovators who are working across the carbon value chain including: capture, transport, storage, and utilization. The panel will explore similarities and differences among each part of the technical-business phase, and highlight opportunities for collaboration to drive efficiency, effectiveness, and project value. Come away with a broader perspective on how your work fits into the broader CCUS ecosystem and learn tangible insights to drive value creation.

Exhibition Luncheon

Date: Wednesday, 13 March
Time: 12:00 pm–1:00 pm
Location: George R. Brown Convention Center
Fee: Included with registration

Enjoy a complimentary lunch while visiting with exhibitors.

NETWORKING EVENTS

Networking Receptions

Dates: Monday, 11 March–Tuesday, 12 March
Time: 5:00 pm–6:00 pm
Location: George R. Brown Convention Center

End each day at CCUS and unwind with a drink and light hors d'oeuvres as you network with exhibitors and industry colleagues.

Refreshment Breaks

Dates: Monday, 11 March–Wednesday, 13 March
Times: 10:00 am–11:00 am (Monday, Tuesday, and Wednesday)
3:00 pm–4:00 pm (Monday and Tuesday)
Location: George R. Brown Convention Center

Grab a cup of coffee or tea in-between sessions and check out some of the exhibitor presentations to learn about the latest products and services.

STUDENTS AND YOUNG PROFESSIONALS ACTIVITIES

Communications and CCUS Career Development Workshop for Students and Early Career Professionals

Date: Sunday, 10 March
Time: 1:00 pm–5:30 pm
Location: George R. Brown Convention Center
Fee: $50 (space is limited)

Elevate your career with our exclusive Communications and CCUS Career Development Workshop for Students and Early Career Professionals! The agenda features seasoned professionals that will guide you through Elements of a Good Presentation with opportunities to demonstrate your learnings, gaining a comprehensive overview of the technical, social, legal, political, environmental justice, and financial aspects of CCUS, sharpening your practical interviewing skills with mock sessions for diverse industries, and lots more. If you are a student or Young Professional (<30), don't miss this golden opportunity. A requirement of attendance is to provide your personal laptop.

Students/Young Professionals Lunch and Learn

Date: Tuesday, 12 March
Time: 12:00 pm–1:30 pm
Location: George R. Brown Convention Center
Fee: $30

This lunch and learn planned for students and young professionals (YP) will offer the opportunity to learn from seasoned professionals about different aspects of CCUS. Students and YPs will be assigned to focus groups led by professionals. Towards the end of the program, students/YPs will present what they have learned to the wider audience. Students/YPs will build their network and develop skills relevant to CCUS.

Individual Mentoring Sessions for Students and Young Professionals

Date: Wednesday, 13 March
Time: 8:00 am–1:00 pm
Location: George R. Brown Convention Center
Fee: Included with registration

Students and Young Professionals (YPs), are you interested in a career related to the energy transition? Join an energy professional to ask questions and gain insight regarding careers and pathways in the energy industry. Students/YPs will meet one-on-one with a mentor for 20 minutes. As a student or young professional, you will build your network and learn more about CCUS and energy transition careers.

SHORT COURSES AND FIELD TRIP

Pre-Event Short Courses

	Title:	Instructor(s)	Date and Time	Fees	Limit
SC 01	The Techniques and Business Aspects of Carbon Capture, Utilization, and Storage and the CO_2 Storage Resources Management System (SRMS)	**Rawdon Seager** and **Nicholas Fulford**, GaffneyCline	Sunday, 10 March 8:00 am–5:00 pm	Professionals $600	30
SC 02	Well Logging and Petrophysics for Geologic Carbon Sequestration	**Shuvajit Bhattacharya**, Bureau of Economic Geology, The University of Texas at Austin	Sunday, 10 March 8:30 am–5:00 pm	Professionals $500	40

Post-Event Short Courses

	Title:	Instructor(s)	Date and Time	Fees	Limit
SC 03	Introduction into CCUS Whole Core Acquisition	**Blake Mock** and **Ryan Rupert** Canamera Coring; **Susan Hovorka,** Gulf Coast Carbon Center/BEG; **Carlos Uroza,** Bureau of Economic Geology; **Daisy Gallagher,** Geostock Sandia, LLC	Thursday, 14 March 8:00 am–12:00 pm	Professionals $425	40
SC 04	CCUS Fit-for-Purpose Casing and Tubing Analysis for CO_2 with Impurities	**John A. Howard**; **Albert McSpadden**; and **Ruggero Trevisan**, Altus Well Experts	Thursday, 14 March 8:30 am–5:00 pm	Professionals $600	40
SC 05	Characterizing, Permitting, and Monitoring Novel Storage Plays Optimized for Saline Reservoirs	**Alexander Bump** and **Susan Hovorka**, University of Texas at Austin	Thursday, 14 March 8:30 am–5:00 pm	Professionals $600	30

Pre- and post-event short courses will be located at the George R. Brown Convention Center.

Field Trip

	Title:	Leader	Date and Time	Fees	Limit
FT 01	Texas Coastal Processes – Brazos River Delta to Galveston Island	**Erik Scott**, Rice University and Vecta Oil & Gas	Sunday, 10 March 8:00 am–6:00 pm	Professionals $250 Students $30 (space is limited)	18

TECHNICAL PROGRAM AT A GLANCE

Monday Morning	Welcome Remarks & Keynote Speaker			
	Theme 10: CarbonSAFE and other DOE Funded Projects	Theme 3: Caprock Integrity and Risk I	Theme 9: Data Integration and Assessment	Theme 4: Well Sizing and Material Selection Considerations
	Theme 3: Caprock Integrity and Risk II	Panel: Policies for Success in CCUS	Theme 5: Field and Laboratory Studies for CCUS	Theme 6: Monitoring Plan Optimization
Monday Afternoon	Theme 1: Reservoir Characterization	Theme 3 : Caprock Integrity and Risk III	Theme 2: Dynamic Simulations I	Theme 1: Geochemistry Rock/Brine/Contaminant Interaction
	Theme 1: Storage and Site Selection	Theme 4: Drilling/ Cementing Lessons Learned and Repurposing Existing Wells	Theme 2: Dynamic Simulations II	Theme 6: Low-Cost Monitoring
Tuesday Morning	Keynote Speaker			
	Theme 1: Injectivity Challenges	Theme 10: New Insights and Lessons Learned	Theme 3: Leakage Assessment I	Theme 9: Novel Machine Learning Approaches in CCS
	Theme 2: Analytical Models	Panel: Challenges Across the CCUS Value Chain	Theme 3: Leakage Assessment II	Theme 7: CCUS Projects' Risk: Financial, Regulatory, and Subsurface Ownership
Tuesday Afternoon	Theme 6: Integrated Monitoring	Theme 1: Storage Resources and Capacity I	Theme 8: ESG and Stakeholder Engagement	Theme 2: CO_2 Rock Interaction/Geochemistry
	Theme 2: Integrated Modeling: Geomechanics and Monitoring	Theme 1: Storage Resources and Capacity II	Theme 4: Surface-Subsurface Integration	Theme 6: Emerging Technologies
Wednesday Morning	Keynote Speaker			
	Theme 7: Class VI Permitting: Lesson Learned to Reach Sequestration Goals	Theme 10: CCUS Innovation and Challenges	Theme 3: Caprock Integrity and Risk IV	Theme 5: Economic and Modeling Studies for CCUS
	Theme 5: Reservoir Dynamics for CCUS	Panel: CCUS Lessons Learned	Theme 10: CCUS Applications in Industry Worldwide	Theme 7: Maximizing Returns: Enhancing Profitability in CCUS Projects
Wednesday Afternoon	Theme 1: Containment and Regional Assessment	Theme 4: CO_2 Transport Considerations	Theme 2: Static Earth Models of Reservoirs and Confining Systems	Theme 5: EOR Reservoir Simulation Modeling

POSTER SESSION: Wednesday, 12:00 pm–1:55 pm, George R. Brown Convention Center

MONDAY TECHNICAL PROGRAM

Monday Morning Oral Presentations

Theme 10: CarbonSAFE and other DOE Funded Projects

Co-Chairs: I. Ruiz and K. Yared

9:20 **Introductory Remarks**

9:25 **Carbon Storage Assurance Facility Enterprise (Carbon SAFE): Catalyzing Carbon Storage for a Sustainable Future:** G. Rosen, T. Rodosta, W. Aljoe (US Department of Energy)

9:45 **Balancing Existing Well Density and Data for Site Characterization With Increased Leakage Risk: Finding Solutions from a Prior U.S. DOE Carbon Storage Project:** M. Cuilik[1], R. Monson[1], V. Kuuskraa[1], R. Choquette[2], B. Wernette[3] (1. Advanced Resources International; 2. Tenaska; 3. Southern States Energy Board)

10:05 **Navigating the NEPA and EA Process: Wyoming CarbonSAFE Project at Dry Fork Station as a Case Study:** C. Sowecke[1], J. Honeycutt[1], J. McLaughlin[2], S. Quillinan[2] (1. Trihydro Corporation; 2. University of Wyoming)

Theme 3: Caprock Integrity and Risk I

Co-Chairs: G. Myers and D. Ning

9:20 **Introductory Remarks**

9:25 **Investigation of Mudrock Capillary Sealing Performance for CO_2 Geological Storage Through Wettability and Breakthrough Pressure at High Pressure and Temperature:** M. M. Awad, D. Espinoza (University of Texas at Austin)

9:45 **Risk-Based Area of Review Delineation for San Juan Basin CarbonSAFE Site:** S. Chu[1], B. Chen[1], R. Pawar[1], J. Tu[2], N. Moodie[3], W. Ampomah[2] (1. Los Alamos National Laboratory; 2. New Mexico Institute of Mining & Technology; 3. University of Utah)

10:05 **Stochastic Leakage Estimates from a Carbon Storage Reservoir using NRAP Open-IAM:** S. Moopen[2], P. Suryanarayana[1], J. Jephson[2], H. Chan[1] (1. Blade Energy Partners; 2. California Resource Corporation)

Theme 9: Data Integration and Assessment

Co-Chairs: S. Bhattacharya and Y. Yuan

9:20 **Introductory Remarks**

9:25 **CO_2 Plume Imaging with Accelerated Deep Learning-based Data Assimilation Using Distributed Pressure and Temperature Measurements at the Illinois Basin-Decatur Carbon Sequestration Project:** M. Nagao[1], T. Sakai[1], C. Chan[1], A. Datta-Gupta[1], C. Yao[2] (1. Texas A&M University; 2. ExxonMobil Corporation)

9:45 **Machine Learning Assisted Legacy Well Assessment for CO_2 Storage Site Selection:** I. Folmar, Z. Dong, Q. Su, J. Chen, L. Lu, L. dos Santos (Shell USA, Inc.)

10:05 **Carbon Storage Technical Viability Approach and National Data Assessment:** M. Mark-Moser[1], C. G. Creason[1], J. Mulhern[2], J. Shay[2], A. Lara[3], K. Rose[1] (1. National Energy Technology Laboratory, U.S. DOE; 2. NETL Support Contractor; 3. Oak Ridge Institute for Science and Education)

Theme 4: Well Sizing and Material Selection Considerations

Co-Chairs: G. Casanova and M. Valluri

9:20 **Introductory Remarks**

9:25 **Elastomer Compatibility in CCUS Environments for Legacy Completions Tools Equipment:** C. Glaesman[1], S. Thatathil[2] (1. SDSM&T; 2. Cusat)

9:45 **Vibrational Assessment of Injection Well Tubing:** W. Davies[1], Z. Owens[1], I. Hur[1], A. Ajdari[1], V. Nirankari[1], D. Datta[1], A. Vytiniotis[2] (1. Exponent; 2. Geocomp)

10:05 **Assessment of Stainless Steels for CCUS Well Applications:** K. Krishnan[1], C. C. Lum[1], A. Verma[1] (1. Halliburton)

Theme 3: Caprock Integrity and Risk II

Co-Chairs: E. Ay and S. Bakhshian

10:55 **Introductory Remarks**

11:00 **Risk-based Legacy Well Modelling Provides Subsurface Risk Assessment and Leak Quantification in CO_2 Storage.:** M. Sefat[2], S. Degroote[1], S. Patterson*[1], S. Degroote[1], R. Lang[1] (1. TotalEnergies; 2. Heriot Watt University)

11:20 **Wells CO_2 Leak Prediction & Quantitative Risk Assessment (QRA):** D. A. Vazquez Anzola, S. Sousa*, D. Camilleri, S. Baines, H. R. Smyth (Halliburton)

11:40 **Establishing Triggers for Shallow Aquifer Impairment Identification:** B. McAlexander, C. Sowecke, M. Van Amburg, B. Pekas (Trihydro Corporation)

Panel: Policies for Success in CCUS

10:55 am–12:00 pm

See page 6 for more information.

Theme 5: Field and Laboratory Studies for CCUS

Co-Chairs: L. Paz and C. Wachtman

10:55 **Introductory Remarks**

11:00 **CO_2-Soluble Foamers for Enhanced CO_2 Sweep, CO_2 Storage and Oil Recovery:** R. Singh[1], A. Katiyar[1], A. Hassanzadeh[1], P. Akhade[1], M. Crosley[1], E. Groothuis[1], P. Rozowski[1], Q. Nguyen[2] (1. The Dow Chemical Company; 2. The University of Texas at Austin)

11:20 **The Impact of Depositional Environment on Reservoir Quality for CO_2-EOR and CO_2 Storage Potential within a Residual Oil Zone, Salt Creek Oil Field, Wyoming:** R. Ness[1], L. Fritz[1], B. Roth[1], D. Riestenberg[1], G. J. Koperna[1], E. Robertson[2] (1. Advanced Resources International, Inc.; 2. Enhanced Oil Recovery Institute)

11:40 **Novel CO_2 Foamed Fracturing Fluid for Acid Fracturing: From Lab to Field Deployment:** P. Karadkar[1], A. Malik[1], A. Ali[1], T. Shehri[1] (1. Saudi Aramco)

Theme 6: Monitoring Plan Optimization

Co-Chairs: B. Cey and J. Le Calvez

10:55 **Introductory Remarks**

11:00 **Risk-based Adaptive Monitoring Plan Framework:** E. Gasperikova[1], V. Vasylkivska[2], X. Yang[3], Y. Tian[3], L. Huang[5], B. Chen[5], A. Hanna[4], A. Kirol[4] (1. Lawrence Berkeley National Laboratory; 2. NETL; 3. LLNL; 4. PNNL; 5. LANL)

11:20 **Informing Monitoring Strategies through Modelling: Fluid Identification using Borehole Methods:** G. Papageorgiou, M. Chapman (University of Edinburgh)

11:40 **Geology and Reservoir Simulation-guided Time-lapse Seismic Modeling for CO_2 Plume Detection in an Onshore CCS Site: Lessons Learned:** S. Bhattacharya, S. Bakhshian, B. Gremillion (The University of Texas at Austin)

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MONDAY TECHNICAL PROGRAM

Monday Afternoon Oral Presentations

Theme 1: Reservoir Characterization
Co-Chairs: J. McGehee and E. Vence

1:35 **Introductory Remarks**
1:40 **Quantitative Characterization of Subsurface Triassic Sandstone Reservoirs for CO_2 Storage - Case Study of the P18 Field, The Netherlands:** H. Alwagdani[1], F. Nader[2] (1. Saudi Aramco; 2. IFP Energie Nouvelles)
2:00 **Enhancing CO_2 Storage Complex Characterization in the Williston Basin: An Integrated Approach of Petrophysical Evaluation and Core Analysis:** S. Djezzar, A. Boualam, C. Barajas-Olalde, T. Richards, B. Kurz (University of North Dakota)
2:20 **Bow Valley Carbon Hub: A Test of Geological Storage in Canada's Devonian Carbonate Platforms:** D. J. Hills (Entropy Inc.)
2:40 **DOE's Carbon Transport and Storage Program: Supporting Storage Infrastructure Build-Out Critical for Decarbonization:** S. Forbes[1], T. Rodosta[1], W. Aljoe[2], D. Damiani[1], K. Dooley[1], M. McKoy[2], R. Pawar[1], G. Rosen[1], R. W. Smith[1] (1. U.S. Department of Energy; 2. National Energy Technology Laboratory)

Theme 3: Caprock Integrity and Risk III
Co-Chairs: E. Ay and D. Ning

1:35 **Introductory Remarks**
1:40 **Environmental and Financial Risk Assessment of Leakage in Geologic CO_2 Storage:** S. Bakhshian, A. Farhadinia, S. Hovorka (University of Texas at Austin)
2:00 **Probabilistic Assessment of Caprock Integrity during CO_2 Injection using Response Surface Method and Multilaminate Model:** S. Lee[1], F. R. Mohamed[1], K. Lee[1], B. McPherson[2], R. Balch[3], S. Yoon[1] (1. SLB; 2. University of Utah; 3. New Mexico Tech)
2:20 **The Implementation Underground CO_2 Sequestration: Caprock Integrity Analysis on the Todilto Shale of San Juan Basin:** I. Primasari, W. Ampomah, J. Tu (New Mexico Institute of Mining and Technology)
2:40 **Wyoming DF CarbonSAFE Project Leakage Risk Assessment:** S. Chu[1], Z. Jiao[2], M. Johnson[2], Q. Kang[1] (1. Los Alamos National Laboratory; 2. University of Wyoming)

Theme 2: Dynamic Simulations I
Co-Chairs: S. Hosseini and E. Okoroafor

1:35 **Introductory Remarks**
1:40 **Impact of Small-Scale Heterogeneity on Field-Scale Simulations of CO_2 Geologic Storage:** J. E. Ubillus[1], H. Ni[2], S. Bakhshian[2], D. DiCarlo[1], T. Meckel[2] (1. University of Texas at Austin; 2. Bureau of Economic Geology)
2:00 **Simulation of CO_2 Plume in the Arbuckle Group Utilizing Pressure Monitoring Wells and Historical Production/Injection Records:** B. Milad[1], B. Allen[1], N. Hayman[1], R. Moghanloo[1] (1. University of Oklahoma)
2:20 **Carbon Storage Simulation near the Saturation Pressure and Critical Point of CO_2:** L. Nghiem, S. E. Gorucu, V. Shrivastava, G. Zhang (CMG Ltd)
2:40 **Assessment of Approaches to Manage Area of Review for CCUS Projects:** M. Zulqarnain[1], M. Valluri[1], Z. Freund[1], A. Duguid[1], M. Godec[1] (1. Advanced Resources International)

Theme 1: Geochemistry Rock/Brine/Contaminant Interaction
Co-Chairs: J. Bloxson and G. Zhang

1:35 **Introductory Remarks**
1:40 **Sequestration in Volcaniclastics: In-situ Rock-Fluid Interactions:** J. Omma, M. Flannery*, I. Faoro, E. Krukowski, R. Schulze, M. Green, N. Garcia, W. Dorsey, R. Watson, R. Mendoza, K. Jenkins (Stratum Reservoir)
2:00 **Assessing the Influence of Reservoir Geochemistry, Pore Structure, and Reservoir Fluids on CO_2 Diffusion and Leakage in Organic-Rich Mudrocks and Seal Rocks:** I. Gomaa, Z. Heidari (The University of Texas at Austin)
2:20 **Carbonated Brine Injection as a Low-Risk CO_2 Storage Strategy: A Case Study for Inyan Kara Sandstone Reservoir:** W. Xiong[1], Z. Belarbi[1], R. Thomas[1], D. Crandall[1], M. Tesfu[2], M. Taunton[2], R. Klapperich[2], M. Kurz[2] (1. National Energy Technology Laboratory; 2. University of North Dakota)
2:40 **Physiochemical and Mechanical Aspects of CO_2 Storage in Sandstone Reservoirs: Experimental Study:** M. Ahmed[1], B. Dindoruk[1], S. Gautum[2] (1. University of Houston; 2. Computer Modelling Group (CMG))

Theme 1: Storage and Site Selection
Co-Chairs: C. Dumitrescu and A. Sanchez

3:35 **Introductory Remarks**
3:40 **Nationwide Cost and Capacity Screening for Geologic CO_2 Storage in Onshore and Offshore Saline Formations:** J. Ogland-Hand, B. Adams, J. Bennett, P. Johnson, E. Middleton, C. Talmsa, R. Middleton (Carbon Solutions LLC)
4:00 **Developing the First Commercial Carbon Storage Project in the Virginia Valley and Ridge – Wildcat Exploration in the Fold-and-thrust Appalachians:** L. Koehn[1], P. Prince[1], U. Orivri[1], R. Pollyea[1] (1. Virginia Tech)
4:20 **Looking for Storage in Non-Traditional Places – Exploring the Alabama Valley and Ridge Carbonates for CO_2 Storage Potential:** J. W. Koster[1], G. J. Koperna[1], D. Riestenberg[1], R. Esposito[2], B. Wernette[3] (1. Advanced Resources International; 2. Southern Company; 3. Southern States Energy Board)
4:40 **Mapping Small-scale Fractures for Geological Carbon Storage Site Selection using Elastic P and S Waves with Double-beam Neural Network (DBNN) Method:** Y. Zheng[1], J. McNease[1], L. Huang[2], B. DeVault[3] (1. University of Houston; 2. Los Alamos National Lab; 3. Vecta Oil and Gas, Ltd.)

Theme 4: Drilling/Cementing Lessons Learned and Repurposing Existing Wells
Co-Chairs: G. Casanova and R. Jasser

3:35 **Introductory Remarks**
3:40 **Investigation of Scale Deposition and Wellbore Corrosion in Carbonated Brine Injection: A Simulation Study:** Z. Belarbi[1], M. Tesfu[2], M. Taunton[2], R. Klapperich[2], M. Kurz[2], R. Hall[3], D. Crandall[1], R. Thomas[1], W. Xiong[1] (1. National Energy Technology Laboratory; 2. University of North Dakota; 3. NGL Energy Partners)
4:00 **A Screening Framework for Evaluating Legacy Offshore Wells in the Gulf of Mexico for Geologic Carbon Storage:** G. Lackey[1], S. Pantaleone[1], J. Montgomery[2], K. Busse[2] (1. National Energy Technology Laboratory; 2. ExxonMobil)

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4:20 **Case Study: Completion of the Blue Flint Injection Well MAG1: Fiber Optic Orientation and Mapping in a Wellbore Containing Chrome Casing Using a High-resolution Acoustic Evaluation System:** J. Cron[1], W. Armstrong*[1], Z. Liu[2], C. Stevens[2] (1. Geostock Sandia, LLC; 2. Harvestone Low Carbon Partners)

4:40 **A Method of Completion Technology Evaluation, Adaption, and Qualification for the CCS Well Environment:** F. Murray (Halliburton)

Theme 2: Dynamic Simulations II

Co-Chairs: S. Hosseini and L. Lun

3:35 **Introductory Remarks**

3:40 **Understanding Thermal-Induced Risks on CO_2 Storage Capacity and Caprock Integrity Integrating Real World CCS Data and Geomechanical Modeling of a Saline Aquifer in Central Alberta:** X. Wang[1], Z. Chen[1], M. Gillrie[1], S. Chen[1] (1. GLJ Ltd.)

4:00 **Thermo-Hydro-Mechanical Workflow to Investigate Near-Wellbore Stress Changes in Carbon Sequestration:** A. P. Indro, E. R. Okoroafor (Texas A&M University)

4:20 **Commercial Scale CO_2 Injection into Faulted Depleted Naturally Fractured Reservoirs:** J. M. Hershberger, P. Ravi Ganesh, B. Petras, J. Sminchak, N. Gupta (Battelle Memorial Institute)

4:40 **SEAM CO_2: Advancing CO_2 Storage Monitoring through Integrated Reservoir, Geomechanical and Geophysical Simulation:** I. Barranco[1], L. Zhuo[1], J. Stefani[3], S. Yoon[5], R. Prioul[5], D. Thornton[1], W. Abriel[4], A. Rodriguez-Herrera[5], M. Fehler[6], W. Bailey[5], M. Branston[5], R. Birchwood[5] (1. Chevron; 3. Graywacke Geophysics; 4. Orinda Geophysical; 5. SLB; 6. Fehler Consulting, LLC)

Theme 6: Low-Cost Monitoring

Co-Chairs: J. Le Calvez and M. Verliac

3:35 **Introductory Remarks**

3:40 **Toward More Efficient and Cost-effective CO_2 Monitoring Using a Sparse Surface Seismic Array: Example From an Industrial Site in North Dakota:** C. Barajas-Olalde[1], D. Adams[1], J. Kovacevich[1], T. Richards[1], D. Burns[2], Z. Xue[3], K. C. Connors[1], J. Bos[4], N. Tranter[5] (1. University of North Dakota; 2. Red Trail Energy, LLC; 3. Research Institute of Innovative Tech. for the Earth; 4. Seismic Mechatronics; 5. STRYDE Limited)

4:00 **Surface Gravity Monitoring and Excess Mass Estimation of CO_2 Stored in Deep Saline Aquifers:** M. Milano, M. Fedi (University of Naples Federico II)

4:20 **Continuous Seismic Monitoring with Distributed Acoustic Sensing and Surface Orbital Vibrators: Case Study from the Red Trail Energy Project:** J. Correa[1], T. Wood[1], B. M. Freifeld[4], Z. Xue[3], T. Miyoshi[3], T. Nakajima[3], T. Richards[5], C. Barajas-Olalde[5], D. Burns[2] (1. Lawrence Berkeley National Laboratory; 2. Red Trail Energy; 3. Research Institute of Innovative Technology for the Earth; 4. Class VI Solutions, Inc.; 5. University of North Dakota)

4:40 **Continuous Probing of CO_2 Plume Properties using In-situ Strain-rate Measurements:** S. Glubokovskikh[1], B. Gurevich[2], O. Collet[2], P. Shashkin[2], R. Pevzner[2] (1. Lawrence Berkeley National Laboratory; 2. Curtin University)

TUESDAY TECHNICAL PROGRAM

Tuesday Morning Oral Presentations

Theme 1: Injectivity Challenges

Co-Chairs: S. Bakhshian and Q. Chen

9:20 **Introductory Remarks**

9:25 **The Role of Injection Method on Residual Trapping from Pore-Scale Samples to Core-Scale Samples:** C. Spurin[1], S. Ellman[2], T. Bultreys[2], S. Benson[1], H. Tchelepi[1] (1. Stanford University; 2. Ghent University)

9:45 **Impact of Well Geometry and Stimulation on CO_2 Injectivity Into Saline Aquifers with Challenging Underlying Geological Properties:** S. Raziperchikolaee, W. G. Payne, M. Sheahan (Battelle)

10:05 **TBD**

Theme 10: New Insights and Lessons Learned

Co-Chairs: D. Riestenberg and I. Ruiz

9:20 **Introductory Remarks**

9:25 **New Insights into CO_2 Migration Behaviour from Analysis of Monitoring Data at the Illinois Basin – Decatur Project:** I. Bukar, R. Bell, A. Muggeridge, S. Krevor (Imperial College London)

9:45 **Aquistore: Key MMV Learnings from 8 Years of CCS in a Deep Saline Aquifer:** E. Nickel, Z. Movahedzadeh (PTRC Sustainable Energy)

10:05 **An Insight into the Future of CCS: Overview of Current Class VI Permit Applications:** B. Petras, S. Chundur, R. Tracy, J. Hawkins, S. Mishra, J. L. Barrios (Battelle)

Theme 3: Leakage Assessments I

Co-Chairs: C. Kelley and A. Uvwo

9:20 **Introductory Remarks**

9:25 **Effect of Fault Geometry and Top Seal Stratigraphy on Fault Migration of Sequestered CO_2 in the Miocene section, Gulf of Mexico:** L. Salo-Salgado[1], J. Silva[2], L. Lun[2], C. M. Rogers[2], R. Juanes[1] (1. MIT; 2. ExxonMobil)

9:45 **Periodic Risk Updating for Geologic CO_2 Sequestration by Assimilating Monitoring Data:** B. Chen[1], R. Pawar[1], E. Gasperikova[2], T. Chen[1] (1. Los Alamos National Laboratory; 2. Lawrence Berkeley National Laboratory)

10:05 **Induced Seismicity Risk Management in CCS Projects: Best Practices from Oil And Gas Experience:** H. Mandler, D. Baturan, L. Hutton (Nanometrics Inc.)

Theme 9: Novel Machine Learning Approaches in CCS

Co-Chairs: S. Hosseini and M. Imhof

9:20 **Introductory Remarks**

9:25 **Ensemble Machine Learning Proxies for Large-Scale Geological Carbon Storage:** T. Kadeethum[1], B. Jha[2], S. Verzi[1], H. Yoon[1] (1. Sandia National Laboratories; 2. University of Southern California)

9:45 **Using Artificial Neural Networks to Model the Reactive Transport of Carbon Mineralization:** E. Demirer[1], E. Coene[1], E. Abarca[1], F. Grandia[1], A. Idiart[1], A. Nardi[1], A. Iraola[1], G. De Paola[2], N. Rodriguez[2] (1. Amphos 21; 2. Repsol Techlabs)

10:05 **Digital Technologies Applications in CCS Modelling and Monitoring:** I. Barranco (Chevron Technology Center)

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TUESDAY TECHNICAL PROGRAM

Theme 2: Analytical Models
Co-Chairs: S. Bakhshian and S. Hosseini

10:55 **Introductory Remarks**
11:00 **Assessment of Pressure Interference in Alberta's Proposed Carbon Storage Hubs:** R. Pockar[1], G. MacMilan[2], J. Duer[3], N. Sweet[1], A. Gibbs[1], N. Giraldo[2] (1. Canadian Discovery Ltd; 2. Fluid Domains Inc; 3. Shell Global Solutions)
11:20 **Assessing the Applicability of Analytical Equations for Predicting CO_2 Pressure Build-Up and Plume Migration for Real Geological Conditions:** A. Watson, E. R. Okoroafor (Texas A&M University)
11:40 **Well Integrity Analysis during CO_2 Injection using Thermoporoelastic Model:** M. Meng[1], Y. Chen[3], O. Omosebi[2], L. Frash[1], M. Mehana[1], B. Chen[1] (1. Los Alamos National Laboratory; 2. Berkeley Lab; 3. LSU)

Panel: Challenges Across the CCUS Value Chain
10:55 am–12:00 pm
See page 6 for more information.

Theme 3: Leakage Assessment II
Co-Chairs: E. AY and C. Uroza

10:55 **Introductory Remarks**
11:00 **Caprock Integrity Analysis Utilising Legacy Cores and Drill Cuttings: A Case Study from the Vienna Basin, Austria:** K. Dasgupta, W. Hujer, T. Gumpenberger, A. Metz, E. Mekonnen (OMV Energy)
11:20 **The U.S. Department of Energy's National Risk Assessment Partnership: Delivering Tools to Support Risk-Based Decision Making for Geologic Carbon Storage Deployment:** R. Dilmore[1], D. Appriou[2], D. Bacon[2], T. Chen[3], A. Cihan[4], E. Gasperikova[4], J. K. Iyer[5], K. Kroll[5], M. Mehana[3], D. J. Morgan[1], B. Strazisar[1] (1. U.S. DOE, National Energy Technology Laboratory; 2. Pacific Northwest National Laboratory; 3. Los Alamos National Laboratory; 4. Lawrence Berkeley National Laboratory; 5. Lawrence Livermore National Laboratory)
11:40 **Risk Based and Proportionate Measure, Monitoring and Verification (MMV) Plans that Meet Key Regulations:** D. A. Vazquez Anzola, S. Baines (Halliburton)

Theme 7: CCUS Projects' Risk: Financial, Regulatory, and Subsurface Ownership
Co-Chairs: N. Darraj and R. Harrison

10:55 **Introductory Remarks**
11:00 **Navigating Pore Space Leasing: Essential Provisions and Pitfalls for Effective Carbon Capture Utilization & Sequestration:** J. L. Graves[1], P. V. Franke[2] (1. Graves & Co. Consulting LLC; 2. Polsinelli PC)
11:20 **Permissibility of Offshore Storage Under International and Regional Conventions:** L. Østgaard, I. Ombudstvedt (IOM Law)
11:40 **Public Loans for Carbon Capture Utilization and Storage: An Innovation Success Story of the Application Process:** M. Costello (DoE)

Tuesday Afternoon Oral Presentations

Theme 6: Integrated Monitoring
Co-Chairs: M. Verliac and K. Walker

1:35 **Introductory Remarks**
1:40 **Automating Geophysical Feasibility Studies for CCS Monitoring:** M. Paydayesh, A. Shamsa*, M. Perezhogina (SLB)
2:00 **True Fiber Optic Point Receivers as Vector Sensors for Downhole Array Applications:** J. B. Bunn[1], P. E. Murray[2] (1. Geospace Technologies; 2. FIP Geophysical Services)
2:20 **Active Seismoelectric Monitoring of CO_2 Injection:** K. MacLennan, T. Richards, K. McBride, C. Barajas-Olalde, D. Adams (University of North Dakota)
2:40 **Early Detection of CO_2 Leakage from Onshore Carbon Capture and Storage Sites: Creating a Threshold Curve Based on Site Measurement:** H. Q. Phung (Asia Pacific Energy Research Centre)

Theme 1: Storage Resources and Capacity I
Co-Chairs: M. Pacheco and F. Veenstra

1:35 **Introductory Remarks**
1:40 **How Close is Too Close? The Importance of Pressure Space for Storage Project Development:** A. Bump (University of Texas at Austin)
2:00 **Calibrating Performance Prediction for Large-Scale Injection:** C. C. Okezie[1], A. Bump[2], S. Hovorka[2] (1. University of Texas at Austin; 2. Bureau of Economic Geology)
2:20 **Applying Boundary Conditions for Large Aquifer Models in Geological CO_2 Storage Projects; Why and How?:** Y. Ghomian, M. Bennett, I. Petrovska Marchiano (Chevron Corp USA)
2:40 **Advanced CO_2 Storage Capacity Estimation with EASiTool V.5:** Z. W. Wang, S. Hosseini (UT Austin)

Theme 8: ESG and Stakeholder Engagement
Co-Chairs: C. Wachtman and D. Ning

1:35 **Introductory Remarks**
1:40 **Building Trust: How to Handle the Challenging Conversations with CCUS Stakeholders:** D. J. Hills (Advanced Resources International, Inc)
2:00 **Stakeholder Support Through Testing and Monitoring Strategies:** C. Mack, S. Fuchs, C. Adkison, E. Lovenduski, E. Torres (Geosyntec Consultants)
2:20 **Impact of Societal Risks on CO_2 Storage Capacity of Proposed Storage Sites:** R. Gil-Egui[2], J. E. Ubillus[1], S. Hovorka[2] (1. University of Texas at Austin; 2. Bureau of Economic Geology)
2:40 **US Department of Energy Community Benefit Plans for Carbon Management Projects: Discussing Guidance and Lessons Learned:** K. F. Roemer (U.S. Department of Energy)

TUESDAY TECHNICAL PROGRAM

Theme 2: CO_2 Rock Interaction/Geochemistry
Co-Chairs: S. Bakhshian and M. Formolo

1:35 **Introductory Remarks**
1:40 **Quantification of the Dynamics of Fluid Flow in CO_2 Injection Zones Through Laboratory Testing on Multiple Rock Types:** S. Drylie[1], B. Dindoruk[2], R. Fyfe[1] (1. Core Laboratories; 2. University of Houston)
2:00 **Impact of Relative Permeability Hysteresis and Capillary Pressure on Trapping Mechanisms During CO_2 Sequestration in Saline Aquifers:** A. Khanal[1], M. Khan[1], R. Singh[2](1. The University of Texas at Tyler; 2. Indian Institute of Technology)
2:20 **Mineral Precipitation and Implications for CO_2 Injection in the Near-Wellbore Region:** E. R. Okoroafor (Texas A&M University)
2:40 **Impact of Mineralogy on CO_2 Storage in Calcareous Shales:** M. Mura, M. Sharma (UT Austin)

Theme 2: Integrated Modeling: Geomechanics and Monitoring
Co-Chairs: J. Barrios and E. Okoroafor

3:35 **Introductory Remarks**
3:40 **Revisiting Geomechanical Controls on the Safety and Efficacy of Basin-scale CO_2 Storage:** S. Glubokovskikh, Y. Guglielmi, J. Rutqvist, A. Cihan, M. Reagan, P. Jordan, H. Tounsi, U. Mital, M. Cao, J. Birkholzer (Lawrence Berkeley National Laboratory)
4:00 **Multi-Resolution Simulation for Efficient Pressure & Stress Calculation in Large-Scale CO_2 Storage Using Pseudosteady State Pressure as Spatial Coordinate:** K. Terada, A. Datta-Gupta, M. J. King (Texas A&M University)
4:20 **Interpreting Strain Tensor Data to Characterize and Monitor Reservoirs for CO_2 Storage and other Applications:** L. Murdoch[1], S. DeWolf[2], L. Germanovich[1], S. Roudini[1], R. Moak[2] (1. Clemson University; 2. Tensora)
4:40 **CCS Predictive Maintenance Enabled by Active Focused Seismic Monitoring:** H. AL[1], T. Roth[2], A. Szabados[2], J. Grobys[2] (1. SpotLight; 2. Wintershall DEA)

Theme 1: Storage Resources and Capacity II
Co-Chairs: K. Iltaf and C. Uroza

3:35 **Introductory Remarks**
3:40 **Capillary Heterogeneity Trapping: The Importance of Pressure-Dependent Interfacial Tensions and Contact Angles:** B. Ren[1], J. Littlefield[1], H. Ni[2], C. Jia[2] (1. Aramco Americas; 2. The University of Texas at Austin)
4:00 **Coupled Carbon Mineralization and Critical Mineral Recovery in Ultramafic Rock Reservoirs:** A. Nagurney[1], E. Kutsienyo[1], Q. R. Miller[1], N. Lahiri[1], G. Gadikota[2], J. Thakurta[3], B. Gooch[4], T. Schaef[1] (1. Pacific Northwest National Laboratory; 2. Cornell University; 3. Natural Resources Resource Institute; 4. California Geologic Survey)
4:20 **CO_2 Re-injection into Depleted Natural CO_2 Domes: A Sheep Mountain Case Study, Colorado, USA:** D. Ning[1], A. Tura[1], E. Deal[1], J. B. Carmichael[1], E. Guiltinan[2], R. Pawar[2] (1. Colorado School of Mines; 2. Los Alamos National Laboratory)
4:40 **Classifying and Categorizing Storage Resources at a North-Central Illinois Basin Storage Site:** R. Okwen[2], F. Yang[2], C. Blakley[1], S. Frailey[2] (1. One Earth Energy LLC; 2. University of Illinois at Urbana-Champaign)

Theme 4: Surface-Subsurface Integration
Co-Chairs: G. Casanova and M. Valluri

3:35 **Introductory Remarks**
3:40 **Predicting Pure CO_2 Pipeline, Wellbore and Reservoir Behavior to Enable Reliable Storage in Depleted Reservoirs:** R. Fazlyeva, V. Pathak (Computer Modelling Group)
4:00 **Zero-emission Surface Facility for Recycling CO_2+NGL to Maximize Carbon Sink in Unconventional Plays:** E. Aronoff (Pioneer Energy)
4:20 **Designing 'Operability' into a CCS Cluster:** J. Barnes, B. Magumise, P. Farias, M. Healey (Pace CCS)
4:40 **Surface Facility Concept Selection for Optimal Carbon Dioxide Injection Using Integrated Modeling Approach:** S. Hwang, D. Jeong (SLB)

Theme 6: Emerging Technologies
Co-Chairs: M. Verliac and K. Walker

3:35 **Introductory Remarks**
3:40 **Advancing Areal CCUS in Complex Desert Environment: Smart DAS Uphole Acquisition with Vertical Arrays:** A. Bakulin, I. Silvestrov*, E. O. Alfataierge (Saudi Aramco)
4:00 **Assessing the Feasibility of Surface-to-Surface and Borehole-to-Surface Electromagnetic Techniques for CO_2 Monitoring: A Numerical Simulation Study:** T. Alyousuf[1], D. Colombo[1], E. Turkoglu[1], M. Almajid[1], M. Shawaf[1], M. Ali[1] (1. Saudi Aramco)
4:20 **Viability of Subsurface Monitoring Using Electromagnetic Methods: Measurements and Modeling from the Wyoming CarbonSAFE Site:** S. Helvig[1], D. Alumbaugh[2], E. Um[2], G. Moe[1], S. Urquhart[1] (1. Zonge International Inc; 2. Lawrence Berkeley National Laboratory)
4:40 **TBD**

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WEDNESDAY TECHNICAL PROGRAM

Wednesday Morning Oral Presentations

Theme 7: Class VI Permitting: Lesson Learned to Reach Sequestration Goals
Co-Chairs: N. Darraj and K. Ryan

9:20 **Introductory Remarks**
9:25 **Subsurface Data Analysis of 23 Class VI CCS Programs in the United States: Insights and Trends for Regulatory Compliance and Industry Best Practices:** J. Eleson (GeoIntegra Consulting, LLC)
9:45 **Discussion on the Common Deficiencies and Issues Observed with Class VI Applications: A Focus on EPA Region 6 Submittals:** D. Gallagher (Geostock Sandia, LLC)
10:05 **Optimizing Testing and Monitoring Plans for Permitting Parity – EPA Class VI and CARB LCFS:** S. Fuchs, C. Mack, C. Adkison, E. Torres (Geosyntec Consultants)

Theme 10: CCUS Innovation and Challenges
Co-Chairs: K. Denommee and C. Knapp

9:20 **Introductory Remarks**
9:25 **The First Successful Pilot Test of Subsurface Mineralization of CO_2 in Basalt in Saudi Arabia:** S. Arkadakskiy[1], Z. Ahmed[1], N. Kunnummal[1], J. Fedorik[1], A. Shamrani[1], E. Oelkers[2], S. Gislason[2], G. Bjornsson[4], A. M. Afifi[3], H. Hoteit[3], T. Finkbeiner[3], M. Addassi[3], A. Omar[3], N. Menegoni[3], D. Berno[3], O. Shouakar-Stash[5], M. Marchesi[6] (1. Saudi Aramco; 2. University of Iceland; 3. King Abdullah University of Science and Research; 4. Warm Arctic ehf; 5. Isotope Tracer Technologies Inc; 6. Isotope Tracer Technologies Europe Srl)
9:45 **Meeting the Challenges of CCS Well Completion: The Northern Lights Project:** W. Wijayaseelan, F. Murray (Halliburton)
10:05 **US Midwest CO_2 Pipelines: Factors Increasing Likelihood of Delays – A Case Study:** B. Cooke (Rystad Energy)

Theme 3: Caprock Integrity and Risk IV
Co-Chairs: H. Quevedo and A. Tura

9:20 **Introductory Remarks**
9:25 **Assessing and Modeling CO_2 Leakage Scenarios for CCS Risk Assessment and Monitoring Plans:** S. Yoon[1], J. Stefani[2], R. Prioul*[1], L. Zhuo[3], A. Rodriguez-Herrera[1], W. Bailey[1], R. Birchwood[1], M. Branston[1] (1. SLB; 2. Graywacke Geophysics; 3. Chevron)
9:45 **Carbon Storage Volume Assessment Screening Tool and Methodologies:** M. Neumaier[2], K. Bannister[1], M. G. Imhof[1] (1. ExxonMobil; 2. ArianeLogiX)
10:05 **Applying Groundwater Protection Evaluation and Management Tools for Class VI Well Site Selection and Monitoring:** J. F. Bolakas, S. Murphy, J. Jackson, M. J. Teeling (Environmental Standards)

Theme 5: Economic and Modeling Studies for CCUS
Co-Chairs: P. Patil and L. Paz

9:20 **Introductory Remarks**
9:25 **The Status of CO_2 Enhanced Oil Recovery and Carbon Utilization in the U.S. for End of Year 2022:** M. Wallace (Advanced Resources International)
9:45 **Risk Considerations of Transitioning CO_2-EOR Field:** G. Liu[1], M. Mehana[2], R. Dilmore[1], B. Strazisar[1], G. Lackey[1], D. J. Morgan[1], L. Cunha[1] (1. NETL; 2. Ianl)
10:05 **Carbon Dioxide Storage in a Natural Gas Reservoir under Strong Water Drive:** Z. Li, D. Hatzignatiou, C. Ehlig-Economides (University of Houston)

Theme 5: Reservoir Dynamics for CCUS
Co-Chairs: G. Baechle and L. Paz

10:55 **Introductory Remarks**
11:00 **The Impacts of Miscible Degree and Pore-scale on the Seepage Capacity of Fluids in the Oil Reservoirs Due to the CO_2 Injection:** X. Liu, H. Chen, M. Zuo, W. Cheng (China University of Petroleum, Beijing)
11:20 **Carbon Mineralization in Geochemically-reactive Formations: NMR-informed Multimodal Quantification of Carbonate Precipitation:** S. Kelly[1], Z. Kou[1], P. Kelemen[2], J. Tielke[2], J. Leong[2], D. Veselinovic[4], M. J. Dick[4], J. Howard[3] (1. Columbia University; 2. Lamont-Doherty Earth Observatory; 3. DigiM Solution; 4. Green Imaging Technologies)
11:40 **Demonstration of Sequestration of Carbon Dioxide in a Simulated Coal Bed through Injection of Dissolved Gas:** J. M. Pope[2], W. A. Bard[2], G. A. Myers*[1] (1. WellDog dba Gas Sensing Technology Corporation; 2. Carbon GeoCapture)

Panel: CCUS Lessons Learned
10:55 am–12:00 pm
See page 6 for more information.

Theme 10: CCUS Applications in Industry Worldwide
Co-Chairs: C. Knapp and K. Yared

10:55 **Introductory Remarks**
11:00 **Sequestration of Carbon Dioxide from a Refinery/Nitrogen Fertilizer Manufacturing Complex, Montgomery County, Kansas, and Osage County, Oklahoma:** S. McCormick (CVR Energy, Inc)
11:20 **A New Wind for Standardization:** I. Ombudstvedt, L. Østgaard* (IOM Law)
11:40 **New Repeatability Measures Applied to Sleipner:** B. Russell, B. Roure (GeoSoftware)

Theme 7: Maximizing Returns: Enhancing Profitability in CCUS Projects
Co-Chairs: R. Harrison and K. Ryan

10:55 **Introductory Remarks**
11:00 **Pathways for Reducing CCUS Costs and Scaling a Carbon Management Industry:** C. Seto (S&P Global)
11:20 **Modeling the Cost of Onshore CO_2 Pipeline Transport and Onshore CO_2 Saline Storage:** D. J. Morgan, A. Sheriff, M. Mark-Moser, G. Liu, T. Grant, C. G. Creason, D. Vikara, L. Cunha (National Energy Technology Laboratory)
11:40 **Identifying Opportunities and Cost for CO_2 Capture at Power and Industrial Facilities in the United States:** J. Bennett, K. Sale, D. Rodriguez, C. Talmsa, C. Gilhooley, V. Lubeck, E. Middleton, R. Middleton (Carbon Solutions LLC)

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WEDNESDAY TECHNICAL PROGRAM

Wednesday Afternoon Oral Presentations

Theme 1: Containment and Regional Assessment
Chair: J. Bloxson

1:55 **Introductory Remarks**

2:00 **Caprock Remains Water Wet Under Geologic CO_2 Storage Conditions:** A. Goodman[1], D. Tapriyal[1], F. Haeri[1], D. Crandall*[1], W. Horn[2], L. Lun[2], A. Lee[2] (1. U.S. DOE NETL; 2. ExxonMobil)

2:20 **Seal Capacity Assessment using NMR Technology:** J. Burger[1], M. J. Dick[2], D. Veselinovic[2], D. Green[2] (1. Chevron; 2. Green Imaging Technologies, Inc.)

2:40 **Regional Subsurface Stress Assessment for CO_2 Storage in Candidate Basal Reservoirs within the Plains CO_2 Reduction Partnership Region of North America:** B. Fossum, T. Jo, W. Peck, A. Livers-Douglas (Energy and Environmental Research Center)

3:00 **New FECM Initiatives to Facilitate the Rapid Expansion of Geologic Carbon Storage Deployment:** D. Damiani[1], M. McKoy[2], W. Aljoe[2], R. Pawar[1] (1. U.S. DOE; 2. National Energy Technology Laboratory)

Theme 4: CO_2 Transport Considerations
Co-Chairs: R. Jasser and M. Valluri

1:55 **Introductory Remarks**

2:00 **A Cost Estimate Tool for Transporting CO_2 by Rail or Truck in the United States:** C. Myers[1], R. W. Smith[2], K. Dooley[2], G. Markham[1] (1. Lawrence Livermore National Laboratory; 2. DOE/FECM)

2:20 **CO_2 Blowdown – More Complex Than it First Seems:** S. KV, G. Hegde*, D. Erickson (Wood PLC)

2:40 **Predicting the Formation of Corrosive Liquids in CO_2 Transportation:** L. Miller, D. Miller (OLI Systems Inc)

3:00 **Design Considerations for Large Capacity Carbon Capture and Storage (CCS) Hubs:** G. Hegde, S. KV, D. Erickson (Wood PLC)

Theme 2: Static Earth Models of Reservoirs and Confining Systems
Co-Chairs: M. Kent and E. Hixon

1:55 **Introductory Remarks**

2:00 **Characterization of the San Juan Basin CarbonSAFE Site Using 3D Seismic Inversion and Attribute Analysis for Improved Large Scale CO_2 Storage:** A. Amosu[1], W. Ampomah[1], D. Ulmer-Scholle[1], L. Martin[2], J. Tu[1], G. El-kaseeh[1] (1. New Mexico Tech; 2. New Mexico Bureau of Geology & Mineral Resources)

2:20 **Comprehensive Geological and Geomechanical Characterization and Modeling of Mt. Simon Storage Complex for Commercial CO_2 Storage in North-Central Illinois:** O. O. Babarinde, F. Yang, M. Khosravi, N. Grigsby, S. Frailey, R. Okwen, Z. Askari, C. Carman (Ilinois State Geological Survey)

2:40 **Re-assessment and Simulation of the Illinois Basin Decatur Project: Integration of New Geological Insights into the Carbon Capture and Storage Evaluation:** J. C. Mejía Fragoso, N. Cordoba Castillo, B. K. Herrera Hernandez, A. D. Roman Ortega, M. A. Santos González, S. G. Peñaranda González, J. G. Barrera, R. Bernal-Olaya (Universidad Industrial de Santander)

3:00 **Geological Carbon Sequestration Modeling in a Depleted Gas Reservoir on the Outer Continental Shelf, Offshore California:** K. Baldwin, E. Huchzermeyer, N. Mondegari, C. Ojukwu, O. Racicot, K. Smith (Bureau of Ocean Energy Management)

Theme 5: EOR Reservoir Simulation Modeling
Co-Chairs: L. Paz and P. Patil

1:55 **Introductory Remarks**

2:00 **A 3D Geological and Computational Model for Integrated Geochemical Reactions Effects on CO_2-EOR and Associated Storage Performance in the Bakken Petroleum System (Sanish Field):** B. Sennaoui[1], H. Pu[1], R. Dommisse[2] (1. University of North Dakota; 2. The University of Texas at Austin)

2:20 **A Comparative Study of Supercritical Injection and WAG-CO_2 in CO_2 Geological Storage:** T. C. Mineiro[1], I. GOMES[1], M. Lima[1], D. A. Assis[1], L. Guimarães[1], J. A. Barbosa[1] (1. UFPE)

2:40 **Enhancing Oil Recovery in Heterogeneous Reservoirs with CO_2 Flooding: A Simulation Study:** H. Ebaid, M. Gasser, T. Yehia, E. R. Okoroafor (Texas A&M University)

3:00 **CO_2 Storage in Carbonates: Saturation and Trapping in Edwards Brown Dolomite:** N. Darraj[1], C. Spurin[2], S. Manoorkar[4], R. Pini[1], S. Krevor[1], M. Blunt[1], S. Berg[3], C. Taberner[3] (1. Imperial College London; 2. Stanford University; 3. Shell Global Solutions; 4. Ghent University)

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POSTER PRESENTATIONS

Wednesday Afternoon Poster Presentations

George R. Brown Convention Center
12:00 pm–1:55 pm

Theme 1: Subsurface Storage and Site Selection

- **Characterizing Depositional Variability in the Frio Sandstone through Detailed Sedimentological Core Description: Insights for Carbon Capture, Utilization, and Storage (CCUS):** N. Foote[1], A. Lochan[2], B. Kostic[1], A. Neal[1] (1. Badley Ashton; 2. bp)
- **Characterization of a Saline Aquifer Unit as a Prime Candidate for CCS: Case Study of the Basal Cambrian Sandstone, Canada:** D. Herbers[1], T. Hauck[1], J. Gordon[2] (1. Alberta Geological Survey; 2. Spectrum Geosciences)
- **The Effect of Natural Fractures on the CO_2 Injection and Storage Capacity in a Tight Sandstone Reservoir, Implication for the Identification of New Geological Storage Zones, St. Lawrence Platform, Quebec:** E. Konstantinovskaya[2], J. Marcil*[1], J. Rivero[3], V. Vallega[3] (1. Utica Resources; 2. University of Alberta; 3. SLB)
- **Estimation of CO_2 Storage Capacity in Colorado:** D. Ning[1], J. Boak[2], A. Tura[1], M. Prasad[1](1. Colorado School of Mines; 2. Colorado Geological Survey)
- **Midwest CCUS - Pore Space vs Pipelines:** B. Johnston (Enverus)
- **CO_2 storage in Offshore Spain: Pore Space Assessment in Untested Saline Aquifers:** F. Pángaro, D. García Fernández-Valderrama, M. Mañas Fernández, A. Carrasco, L. Pujianto, M. Ron Martín, A. Martín Monge, L. Mozetic Meaglia, O. De Mena Begay (Repsol Exploración S.A.)
- **Development of the Class VI Mapping Inquiry Tool and Class VI Data Tool Geodatabase:** C. Schooley, P. Morkner, S. Pantaleone, J. Shay, J. Bauer, B. Strazisar (National Energy Technology Laboratory)
- **Novel Reconnaissance Methodologies for CO_2 Site Feasibility: An Early Appreciation of Risk:** K. Evans[1], J. Mukherjee[1], M. Kuhn[1] (1. Halliburton)
- **Solvent Regeneration for Carbon Capture through Mineralization:** C.V. Oeiyono[1], R. Ratnakar[2], K. Mohanty[1] (1. University of Texas at Austin; 2. Shell International)
- **External and Internal Controls on Petrophysical Heterogeneities of the Wilcox Group, Onshore Texas: Implications on Safe CO_2 Storage:** S. Bhattacharya, C. A. Uroza, Y. Li, S. Hovorka (The University of Texas at Austin)
- **Carbon Storage Feasibility Assessment of the Vermilion Leasing Block, Central Gulf of Mexico, USA: Opportunities for Depleted Field and Saline Reservoir Storage:** L. Koehn[1], M. Tascione[1], A. Ajibona[1], E. Conley[1], S. Karim[1], J. Ogunleye[1], U. Orivri[1], A. Talapatra[1] (1. Virginia Tech)
- **Effect of Viscosity Modification on CO_2 Storage Efficiency: A Numerical Study:** P. Krishnamurthy, L. Lun, A. Lee, P. Patel (ExxonMobil)
- **Understanding Impacts of Variability in Regional Carbon Storage Formations: Mount Simon Case Study:** P. Ravi Ganesh, M. Kelley, J. M. Hershberger, A. Collie, S. Skopec, S. Chundur (Battelle)
- **Statewide Assessment of CO_2 Storage Capacity for the Cambrian-Ordovician Arbuckle Group and Selected Ordovician Formations, Oklahoma:** A. Turnini (University of Oklahoma)
- **Measurement of Water Content in Carbon Dioxide at Reservoir Conditions:** T. Zhainakov, E. Hoffmann, J. Wegner (HOT Microfluidics GmbH)
- **Assessing the Potential for CO_2 Sequestration in the Chandeleur Sound Area, Offshore Louisiana, USA:** C. A. Uroza, Y. Li, S. Hovorka (Bureau of Economic Geology)

Theme 2: Subsurface Modeling and Geomechanics

- **Integrating Pore Space and Confining Intervals to Maximize Dynamic CO_2 Injection Modeling:** J. Bynum[1], C. Wethington[2] (1. Baker Hughes; 2. Department of Interior)
- **Numerical Assessment of the Potential CO_2 Management Scheme Available in a Colombian Field Through Its Injection into Deeper Formations of the Same Field:** G. Maya[1], C. Delgadillo[1], J. Martinez[2], J. Sandoval[1], C. Ariza[2], E. Trigos[1], H. Cubillos[1] (1. Ecopetrol; 2. TIP)
- **CO_2 Enhanced Oil Recovery and Storage Potential in a Tight and Fractured Greenfield Residual Oil Zone:** F. Yang, S. Frailey, N. Grigsby, N. Webb (Illinois State Geological Survey)
- **Advancing Carbon Storage in Offshore Louisiana: Evaluation and Modeling Potential of Two Major Depleted Reservoirs in Vermilion014 Field:** A. K. Eleslambouly[1], M. Zeynalli[1], A. F. Moncada[1], M. S. Aboushanab[1], S. Rouxel[1], S. A. Adeosho[1] (1. Khalifa University)
- **Effect of Compositional Phenomena, Solubility, Molecular Diffusion, and Changes in Relative Permeabilities Due to Interfacial Tension Reduction in the Performance of CO_2 Injection Processes:** G. Maya[1], C. Ariza[2], J. D. Aristizabal[3], C. Cundar[1], C. Delgadillo[1], J. Martinez[2] (1. Ecopetrol; 2. TIP; 3. Meridian Consulting)
- **Integrating Geomechanics and Geophysical Methods for Field-Scale Modeling and Characterization of Microseismic Events and Induced Seismicity at FWU:** S. Acheampong, W. Ampomah (New Mexico Institute of Mining and Technology)
- **Geomechanical Analysis of Caprock and Fault Stability Under H-M/T-H-M Coupling During CO_2 Geological Storage:** E. Yu, Y. Di, H. Wu, S. Liu (Peking University)
- **Assessing Geochemical Reactions of CO_2/Brine/Rock Geo-System under the Influence of Impurities: Application for CO_2 Storage:** J. Mouallem[1], A. Raza[2], M. Mahmoud[2], M. Arif[1], S. Iglauer[3] (1. Khalifa University; 2. King Fahd of Petroleum and Minerals; 3. Edith Cowan University)
- **The Effect of The Physical State of CO_2 at Surface on the Maximum Well Head Injection Pressure Design for CO_2 Injectors:** M. H. Alali, M. Shawaf, H. Qahtani, A. Tubayyeb (Saudi Aramco)
- **Optimizing CO_2 Injection Well Locations for Enhanced Residual Trapping and Dissolution Using Analytical Methods, A Case Study from the Middle East:** M. Valderrama, A. Ghamdi (Aramco)
- **An Integrated Reservoir Simulation and Geomechanical Modeling of CO_2 Injection at the Wyoming Dry Fork CarbonSAFE Geologic Storage Complex:** T. Bai[1], Y. Yu[1], P. Li[1], Z. Jiao[1], M. Johnson[1], C. Nye[1], J. McLaughlin[1], S. Quillinan[1] (1. University of Wyoming)
- **Comparison of Computational Modeling Approaches: Depleted Oilfield Versus Saline Aquifers:** N. H. Nsude, S. Tangirala, B. Sirianni, E. Torres (Geosyntec, Inc.)
- **Impact of Model Boundary Conditions on CO_2 Injectivity Prediction:** M. C. Nguyen, D. C. Brock, S. Raziperchikolaee, A. Seitchik, H. Qualman (Battelle Carbon Services)
- **Tracking CO_2 Plume in Deep Aquifers through Distributed Temperature Responses along Vertical Monitoring Wells:** Y. Liu, L. Liang, S. Zeroug (Schlumberger-Doll Research)
- **Coupled Simulation of SC-CO_2 Fracturing, Gas Production and CO_2 Storage in Shale Gas Reservoir with Multi-Component DFM-DDM Method:** H. Tang, H. Teng, C. Bu, L. Zhang (Southwest Petroleum University)
- **Chemostratigraphic Analysis as a Powerful Tool for Real-time Reservoir Characterization of Injection Wells: Enhancing Data Acquisition for EPA Class I and Class VI Permit Applications:** A. Liborius[1], A. Simone[2], D. Tonner[1], C. Mayorga[1] (1. Diversified Well Logging; 2. Geostock Sandia)
- **Selected Recommended Practices for Increasing the Efficiency and Accuracy of CO_2 Sequestration Models:**J. A. Benavides Arancibia[1], B. Dindoruk[1], A. Cherry[2] (1. University of Houston; 2. SCA)
- **Optimizing Pressure Management Strategies for Stacked Producing Reservoirs with Concurrent CO_2 Sequestration in Aquifers:** K. Alokla, J. Lee, T. Blasingame, E. R. Okoroafor (Texas A&M University)

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POSTER PRESENTATIONS

Theme 3: Subsurface Risk Assessment

- **Environmental and Financial Risk Assessment of Leakage in Geologic CO_2 Storage:** S. Bakhshian, A. Farhadinia, S. Hovorka (University of Texas at Austin)
- **Paradigm Shift to Ensemble-based Modeling for Risk Mitigation in CO_2 Storage Projects:** J. Mukherjee, A. Skorstad, H. R. Smyth (Halliburton)
- **Key Findings of the One Earth Energy 3D Seismic Survey Near Gibson City, Illinois:** K. Taft (Illinois State Geological Survey)
- **Assessing Geomechanical Risk with Multiple CO_2 Injectors on the Basin Scale: An Application of NRAP Tools:** R. Haagenson, J. de Toledo Camargo, D. Bacon, D. Appriou (Pacific Northwest National Laboratory)
- **Using Sand Tank Experiments to Model and De-Risk CO_2 Geological Storage:** H. Ni[1], A. Feitz[2], E. Tenthorey[2], H. Nourollah[3], S. Hovorka[1] (1. The University of Texas at Austin; 2. Geoscience Australia; 3. CO_2CRC Limited)
- **Simulating CO_2 Leakage During Well Blowouts in Geologic Carbon Storage (GCS):** P. Bhuvankar[1], A. Cihan[1], R. Dilmore[2] (1. Lawrence Berkeley National Laboratory; 2. National Energy Technology Laboratory)
- **New Workflow for Uncertainty-Based Delineation of Area of Review for a Carbon Storage Project Using Pseudo Wells and NRAP Open-IAM:** Z. Printz, S. Lee, R. Salter (SLB)
- **A Web-based Tool (NRAP-wSOSAT) for Geomechanical Risk Assessment for Subsurface Fluid Injection Applications:** W. Wang, J. Burghardt, D. Appriou, S. Saxena, R. Haagenson (Pacific Northwest National Laboratory)
- **Enhancing Wellbore Leakage Risk Assessment for Geological Carbon Sequestration using AI within an Integrated Assessment Model:** S. Baek, M. K. Mudunuru, D. Bacon, N. J. Huerta (Pacific Northwest National Laboratory)
- **Method for Identification of Types and Amounts of Salts That May Precipitate Due to Brine Dry Out and Application to UK Southern North Sea Candidate CO_2 Stores:** A. O. Badejo, O. M. Ogundipe, E. Mackay (Heriot-Watt University)
- **CCUS: Critical Analysis of Past, Present and Future Technologies as Enabler for Achieving the 2050 Net Zero Ambition:** D. I. Ipinniwa[1], P. O. Obeta[2] (1. TotalEnergies; 2. Africa Centre of Excellence in Oil Field Chemicals Research-University of Port Harcourt)
- **Strategic Application of Model Simulation to Assess Risk Associated with CO_2 Injection:** C. Mok, P. Li, B. Carrera, S. Panday, H. Hort, D. Kingham (GSI Environmental Inc.)
- **Vertical Equilibrium Approach for CO_2 Injection Simulation:** A. P. Nurdina, A. Abdillah, M. R. Dayana (Institut Teknologi Sepuluh Nopember)
- **Measurement, Monitoring & Verification (MMV) Framework to Enhance Sustainability of Decarbonization Plan in the North Sea Area:** D. Ralanarko, W. Puspita Ningrum, H. Fathan, A. Badri, I. Untung, M. Maulana, I. Pradana, F. Darmawan, E. Sunardi, I. Syafri, B. Adhiperdana (Universitas Padjadjaran)

Theme 4: Infrastructure and Well Design

- **Recent Updates on SimCCS Development and Applications:** B. Chen, Z. Ma, B. Ahmmed, M. Mehana, M. Meng, R. Pratt, R. Pawar (Los Alamos National Laboratory)
- **Meeting Class VI CCS MRV Requirements Using Unified Subsurface and Surface Measurement Technologies:** K. C. Oren (GeoStar Energy Partners)
- **Integrated CCS Storage Modeling for Optimization of CO_2 Storage Development Planning under Reservoir Uncertainty:** M. Evazi[1], M. Babaei[2] (1. ESGWAY; 2. University of Manchester)
- **Developing a Nationally Integrated and Publicly Available Oil and Gas Well Database to Inform Safe Carbon Storage and Infrastructure Reuse Opportunities:** L. Romeo, I. Pfander, D. C. Amrine, M. Sabbatino, M. Sharma, D. Tetteh, J. Bauer, K. Rose (National Energy Technology Laboratory)
- **End-to-End Workflow for Managing Large Volume Data from CCUS:** J. B. Kozman[1], S. Lowery[1], J. Lamb[2](1. Katalyst Data Management)

Theme 5: EOR, Injection, and Utilization

- **Pore-scale Characterization of Fines Migration Effect Induced Geochemical Interaction during CO_2 Utilization in EOR and Storage in Unconventional Reservoirs:** B. Sennaoui, H. Pu (University of North Dakota)
- **Dynamics of Swelling and Phase Behavior in CO_2-Oil and CO_2-Brine Systems under HPHT Conditions: Valuable Insights Derived from PVT and IFT Experiments:** M. Hiba, S. Yao, S. Sagar, B. Dindoruk (University of Houston)
- **Stress Sensitivity Modeling During CO_2 Flooding and Storage in Tight Sandstone Core:** Y. Jia (Sinopec)
- **Experimental Study of Brine Compatibility on Water-Alternating-CO_2 Injection in Low-Permeability Morrowan Sandstone Reservoir:** A. Morgan, W. Ampomah, R. Czarnota, S. Wang, R. Grigg, J. Tu (New Mexico Tech)
- **Enhanced Gas Condensate Recovery by CO_2 Injection as Enabler for CCUS in a Heavily Depleted Rich Gas Condensate Field in the Sultanate of Oman:** R. Nasralla (PDO)
- **Non-Reactive Tracers in Mineral CO_2 Storage: Effect of Temperature, pH, and Adsorption:** A. Omar[1], M. Addassi[1], S. Arkadakskiy[2], E. Oelkers[1], H. Hoteit[1] (1. King Abdullah University of Science and Technology (KAUST); 2. Saudi Aramco)
- **Aqueous Nanobubble Dispersion of CO_2 in Formate Solution for Enhanced Carbon Mineralization Using Basaltic Rocks:** H. Wang[1], O. A. Carrasco-Jaim[1], R. Okuno*[1] (1. The University of Texas at Austin)
- **A Review of the Application of Olivine Micro-Particles for Offshore Carbon Storage Cement Plugs:** T. E. Dada (University of Liverpool)
- **CO_2 Storage in Saline Aquifers: Influence of the Variation of Static and Operational Parameters on the Storage Capacity and Plume Behavior:** M. Lima[1], T. C. Mineiro*[1], D. A. Assis[1], I. Gomes[1], L. Guimarães[1], J. A. Barbosa[1] (1. UFPE)
- **Effect of CO_2 Pressure on Microemulsion Phase Behavior:** D. Hachem, Q. Nguyen (University of Texas at Austin)

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POSTER PRESENTATIONS

Theme 6: Subsurface Monitoring

- **Development of Seismic Sources for Coastal CCS/CCUS Projects Considering Underwater Noise Issues:** N. Aoki[1], F. Murakami[1], E. Asakawa[1], T. Kozawa[1], S. Abe[1], T. Miura[3], T. Nibe[3], K. Yoshioka[3], T. Tsuji[2] (1. JGI, Inc.; 2. The Univ. of Tokyo; 3. JAPEX)
- **Surface DAS as an Emerging MMV Tool in CCS: New Insights from sim2seis Workflows on a Southern North Sea Simulation Model:** R. Bachrach, M. Branston*, S. Harrington (SLB)
- **The AGI Technique for CO_2 Monitoring in the Saline Aquifer of Krechba Field Algeria:** Z. Fayçal (University Mentouri Constantine)
- **A Low-Cost Seismic Acquisition System with Permanent Controlled Linear Vibratory Sources and Autonomous Seismic Sensors for Site Characterization, Plume Front Mapping, and Real-Time Seismicity Monitoring for CCUS:** S. Li[1], T. Chen[1], X. Fang[1], N. Brooks[1], G. Knapo[1], H. Wilkinson[2] (1. SensorEra; 2. GPUSA)
- **Harnessing the Shallow Strain Tensor for Reservoir Characterization and Pressure Monitoring: Novel Instrumentation and Results from Field Experiments:** S. DeWolf[1], R. Moak[1], L. Murdoch[2], L. Germanovich[2] (1. Tensora, Inc.; 2. Clemson University)
- **Geology and Reservoir Simulation-guided Time-lapse Seismic Modeling for CO_2 Plume Detection in an Onshore CCS Site: Lessons Learned:** S. Bhattacharya, S. Bakhshian, B. Gremillion (The University of Texas at Austin)
- **Design of an Autonomous, Integrated, Modular (AIM) Network for Monitoring Geologic Carbon Storage Projects:** J. Hunt, B. Botnen, T. Richards (University of North Dakota)
- **Borehole Gravity for Cost Competitive CCS Monitoring:** K. Walker, A. Posenato Garcia, J. Nunn, G. Lyman, T. Richardson, B. Dujardin (Chevron)
- **Enhancing Microseismic Monitoring with Machine Learning for Multiple Borehole Sensors: A Case Study of Illinois Basin Decatur Site:** J. Woo, T. Chen, A. Delorey (Los Alamos National Lab)
- **Real-Time Microseismic Data Simulator for the Qualification of DAS Passive Seismic CCUS Monitoring Systems:** T. Mizuno[1], J. Le Calvez[1] (1. SLB)

Theme 7: Financial, Economics, and Regulatory Framework

- **CCS Project Development and Pemitting: Remaining Nimble for the Next Generation of Sequestration Targets:** B. Roth, D. Riestenberg (Advanced Resources International, Inc)
- **Pitfalls in US EPA UIC Class VI Permitting:** T. Eggeman (New Phase Energy II, LLC)
- **Economic Evaluation of 40+ Historical CO_2 EOR Projects from Life-Cycle Carbon Perspective: Implications to 45Q Credits:** B. Ren[1], J. Littlefield[1], W. Long[2] (1. Aramco Americas; 2. Stanford University)
- **Applying the Perspective of the Insurance / Reinsurance Industry into the Risk Management Process in CarbonSafe Phase II Projects:** J. L. Barrios (Battelle)
- **The Regulatory Last Frontier: The Road to CCUS a Regulatory Structure in Alaska:** H. Beat, R. Fitzpatrick* (Alaska Department of Natural Resources)
- **A Quantitative Approach for Demonstrating Plume Stabilization under CCS Policy Frameworks:** J. Regorrah, J. Hunt, J. Templeton, N. Dotzenrod*, N. Azzolina, C. Dalkhaa, W. Peck, A. Livers-Douglas, K. C. Connors (University of North Dakota)
- **The Potential for Evolving From State Funded Investement in Geologic Carbon Stores to a Self-sustaining Carbon Storage Commodity Market:** A. Kirchin, V. Markouizou (RPS Energy Limited)
- **Modeling Cost of Offshore Carbon Storage in Saline Reservoirs:** M. Mark-Moser[1], T. Grant[1], D. J. Morgan[1], M. Marquis[2], K. Bello[2], A. Sheriff[2], D. Vikara[2], G. Liu[1], L. Cunha[1] (1. National Energy Technology Laboratory, U.S. DOE; 2. NETL Support Contractor)
- **An Emitter's Bottom-Up Approach to Carbon Capture Market Outlooks: Bridging the Substantial Gap Between Project Reality Versus Policy Rhetoric:** Y. Li, P. Perez Pena, E. Wright, E. Zoco (S&P Global Commodity Insights)
- **The Bread and Butter of Building a Framework for CCS Applied to the U.S. Offshore:** I. Ombudstvedt[1], G. J. Koperna (1. IOM Law; 2. Advanced Resources International, Inc.)
- **Sensitivity of Carbon Storage Costs for Hydrogen Generated by Steam Methane Reforming with Carbon Capture (SMRCC) in the United States:** P. Liu, C. Ehlig-Economides (University of Houston)

Theme 8: ESG and Stakeholder Engagement

- **The CCS-EJ-SJ Database: A Tool for Addressing Justice Challenges in Carbon Capture and Storage:** M. Sharma[1], C. White*[1], J. Bauer[1], K. Rose[1], D. C. Amrine[1], C. Cleaveland[1], L. Romeo[1] (1. National Energy Technology Laboratory)
- **Carbon Capture Energy Requirements:** G. Bain (Enverus)
- **Energy Calculator as a New Tool for Monitoring Energy Concsumption:** S. Ishutov (Concordia University of Edmonton)

Theme 9: ML and Data Analytics Applications

- **Prediction/Assessment of CO_2 EOR and Storage Efficiency in Residual Oil Zones Using Machine Learning Techniques:** A. Abdulwarith, M. Ammar, B. Dindoruk (University of Houston)
- **A Deep Learning-Based Surrogate Model for Rapid Assessment of Geomechanical Risks in Geologic CO_2 Storage:** F. Zheng, B. Jha, B. Jafarpour (University of Southern California)
- **Optimizing CO_2 Sequestration in Geological Formations: A Data-Driven Approach with Machine Learning:** M. Khan, A. Khanal* (The University of Texas at Tyler)
- **Application of Physics Informed Fourier Neural Operator (PI-FNO) for High-Fidelity Rapid Forecast of Geological Carbon Storage:** Y. Falola, A. Calvo Nunez, S. Misra (Texas A&M University)
- **Using MeshGraphNets to Predict Geologic Behaviors of the Illinois Basin – Decatur Project (IBDP):** C. Shih[1], P. S. Holcomb[2], G. Liu[2], H. Siriwardane[2] (1. NETL/Leidos; 2. NETL)
- **SMART-Fault Imaging: A Toolkit of Machine Learning Techniques Informed by Physics for Characterizing Induced Faults and Fractures:** Y. Lin[1], C. Chai[2], J. Harding[3], A. Kumar[4], H. Wang[1], H. Yoon[3], J. Morris[5], D. Alumbaugh[6] (1. Los Alamos National Laboratory; 2. Oak Ridge National Laboratory; 3. Sandia National Laboratories; 4. National Energy Technology Laboratory; 5. Lawrence Livermore National Laboratory; 6. Lawrence Berkeley National Laboratory)
- **De-risking Saline Aquifer-type CO_2 Storage Resources via Machine Learning-based Reservoir Modelling. Case Study, Bunter Sandstone Formation, Southern North Sea:** E. J. Tillero[1], J. L. Mogollon[1], F. Tillero[1] (1. Movus Energy Solution)
- **3D CO_2 Monitoring using 2D Seismic Data – Deep Learning Solutions:** W. Hu, C. Li, S. Phan, A. Abubakar (SLB)
- **Prediction of CO_2 Adsorption on Shale using Machine Learning for CCUS Applications:** A. Ibrahim (King Fahd University of Petroleum & Minerals)
- **Prediction of CO_2 Solubility in Deep Eutectic Solvents using Adaptive Neuro-Fuzzy Inference Systems:** Z. Hamdi (Heriot-Watt University)
- **An Insight-Centric Paradigm for Data Reduction and Inference Speed Improvement at the Scurry Area Canyon Reef Operator's Committee (SACROC) Unit:** C. Shih[1], X. Wu[1], G. Liu[2], H. Siriwardane[2] (1. NETL/Leidos; 2. NETL)

** Denotes the presenter other than first author*

POSTER PRESENTATIONS

Theme 10: Case Studies

- **Generating a Regional Data Inventory to Accelerate CCUS Deployment in the Midwestern and Eastern United States:** S. Skopec[1], S. Mawalkar[1], M. Kelley[1], A. Conner[1], S. Chundur[1], S. Pool[2] (1. Battelle; 2. West Virginia Geological & Economic Survey)
- **Carbon Sequestration Risks and Rewards in Washington State:** W. Gallin, L. Florea (Department of Natural Resources)
- **Evaluating the Potential for CO_2 Storage in Federal Waters of Gulf of Mexico Shelf:** I. Faruqi, A. Bump, S. Hovorka, C. A. Uroza (University of Texas at Austin)
- **Results and Analysis from a CO_2 Foam Pilot in the Permian Basin, West Texas:** Z. P. Alcorn[1], H. Halsøy[1], S. L. Biswal[2], M. Puerto[2], G. Hirasaki[2], A. Graue[1] (1. University of Bergen; 2. Rice University)
- **International Offshore Geologic Carbon Storage Inventory and Meta-analysis:** J. Mulhern[1], M. Mark-Moser[1], A. Choisser[1], K. Rose[1] (1. National Energy Technology Lab)
- **Engineering and Drilling Colorado's First CCS Stratigraphic Well: A Case Study:** J. Jacobsen (Montana Tech)
- **Industrial CCS in Nigeria: Workflows for Subsurface Assessment in a Developing Nation:** K. Evans[1], C. Yallup[1], S. Stanton[1], O. Olonode[1], S. Baines[1] (1. Halliburton)
- **Unlocking Carbon Capture and Storage Potential in a Depleted Hydrocarbon Reservoir of Neuquen Basin: A Pre-Feasibility Assessment:** A. C. Ortiz[1], G. S. Vila[1], M. E. Patamia[1], C. Ferlaza[1], D. Lenge[2], M. C. Rodriguez[1], W. E. Arias[1] (1. Net Zero Carbon Solutions; 2. Oilstone Energía S.A.)
- **Implementing Broadband Processing for Improved CO_2 Monitoring Based on Snøhvit Field Study:** M. B. Wilk-Lopes[1], B. Osdal[2], M. Haverl[2], D. Fischer[2], C. Trede[1], H. Abd El Malak[1], H. Neffati Rouai[1] (1. SLB; 2. Equinor)
- **Business Model and Feasibility of Carbon Capture and Storage in Depleted Fields and Large Subsurface Geological Sites in Pakistan:** W. Habib (Oil and Gas Development Company Limited)
- **Towards the Development of a Carbon Capture and Storage Hub in Trinidad and Tobago: PART 1:** D. Alexander[3], R. Hosein[1], A. Jupiter[1], P. Bradshaw-Niles[2] (1. University of the West Indies; 2. Ministry of Energy and Energy Industries; 3. University of Trinidad and Tobago)
- **Benefits of the Relative Geological Time Model in All Phases of a CO_2 Storage Project:** A. Fernandez, C. Carvajal, J. Marson (Eliis Inc.)
- **Project WyoTCH: Developing a Roadmap for a Sustainable Carbon Hub:** R. Middleton, M. Hannon, J. Bennett, C. Gilhooley, M. Hernandez-Lara, A. Mayer, E. Middleton, J. Prehn, K. Sale, J. Taylor, T. Ziev (Carbon Solutions)

** Denotes the presenter other than first author*

EXHIBITION INFORMATION

Looking to find the latest innovations, emerging technologies, and services that will deliver results for your business? The exhibition features more than 50 exhibiting companies and operators, as well as a variety of global service providers and innovators. Make plans to connect face-to-face with the companies leading the way for successful net-zero operations, developments, and opportunities.

Exhibition Location

George R. Brown Convention Center

Exhibition Hours

9:00 am–6:00 pm **Monday, 11 March**
9:00 am–6:00 pm **Tuesday, 12 March**
9:00 am–3:30 pm **Wednesday, 13 March**

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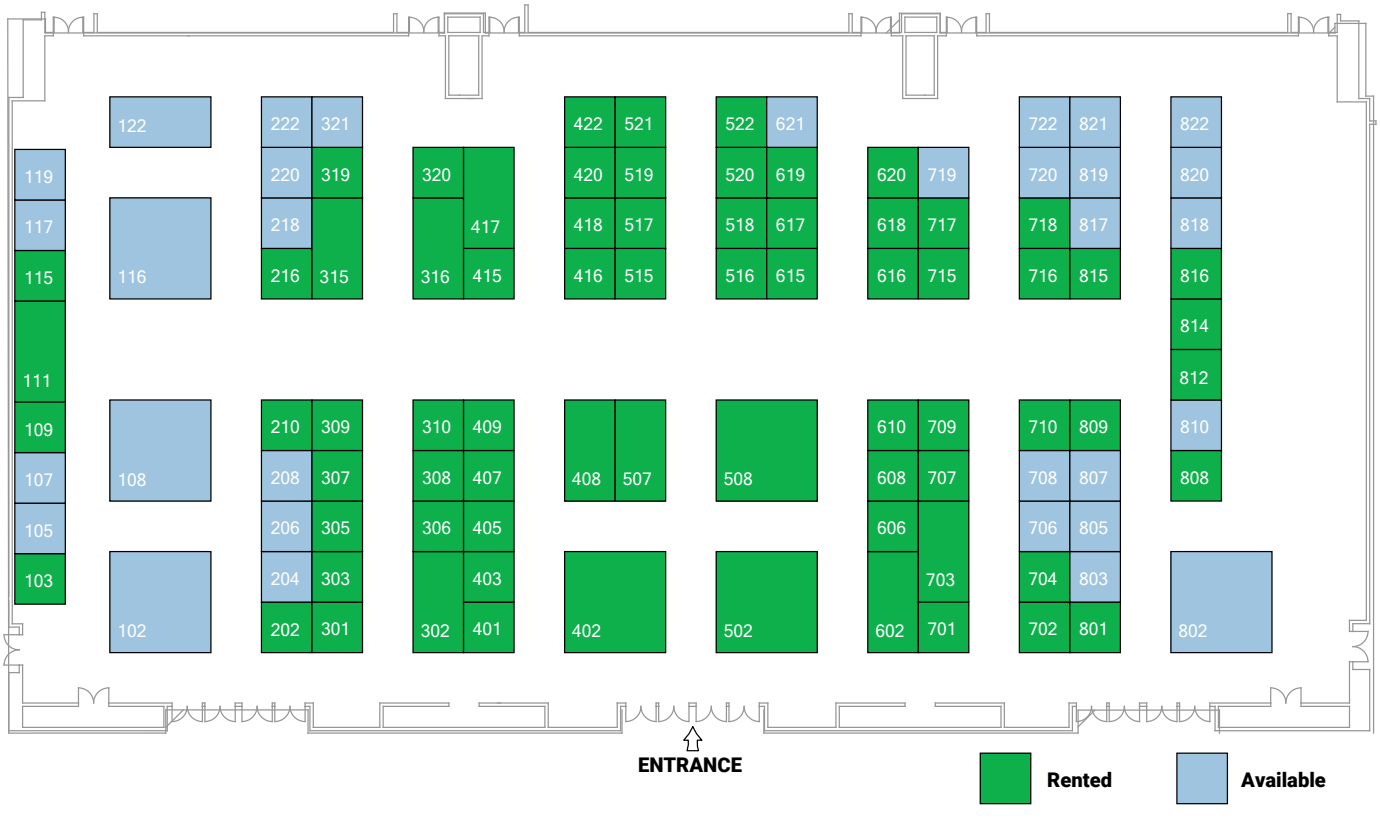
- Badley Ashton ... 710
- Battelle Memorial Institute ... 518
- Burns & McDonnell Engineering Company, Inc ... 704
- Carbon Seismic LLC ... 718
- CGC ... 507
- Chinook Consulting Services ... 416
- Core Geologic ... 707
- Daedalus Innovations LLC ... 115
- DataCan USA ... 620
- Earth Signal Processing, Ltd ... 615
- Eastern Energy Services, Inc ... 417
- EasyCopy Company (AutoGraph International Inc) ... 309
- Ellington Geological Services ... 420
- Fugro ... 308
- Geoex MCG Ltd ... 701
- Geophysical Society of Houston (GHS) ... 519
- GeoSoftware LLC ... 305
- Geospace Technologies ... 610
- Geostock Sandia, LLC ... 408
- Green Imaging Technologies ... 608
- Haas Engineering ... 617
- Hydrocarbon Data Systems, Inc ... 715
- HOT Microfluidics GmbH ... 422
- Ikon Science ... 517
- Instrumental Software Technologies Inc ... 303
- Intertek Westport Technology Center ... 402
- IPT Well Solutions ... 522
- Kobelco Compressors America, Inc ... 407
- Li-COR Environmental ... 702
- Lonquist Sequestration LLC ... 602
- MBA Energy & Industrial ... 520
- MicroSeismic, Inc ... 415
- Mineral Resources Partners ... 206
- Nanometrics, Inc ... 809
- Oil and Gas Global Network ... 103
- OLI Systems Inc. ... 405
- OpenGoSim LTD ... 801
- Paragon Geophysical Services, Inc ... 814
- PE Limited ... 216
- Pelican Energy Consultants ... 403
- Premier Corex ... 111
- ProDirectional - Coring Service ... 515
- PTRC Sustainable Energy & Int'l CCS Knowledge Center ... 708
- Rose & Associates, LLP ... 418
- S&P Global Commodity Insights ... 606
- SageRider Inc ... 202
- SensorEra Inc ... 516
- Silixa ... 618
- SPOTLIGHT ... 619
- STATS Group International ... 521
- Stratum Reservoir ... 315
- Subsurface Consultants & Associates, LLC ... 716
- Tejas Research & Engineering ... 706
- Tensora, Inc ... 109
- Tetra Tech, Inc ... 409
- TGS ... 301
- Tracerco ... 210
- TRE-Altamira Inc ... 812
- University of Wyoming School of Energy Resources ... 816
- US Coring ... 808
- Vallourec ... 815



REGISTRATION INFORMATION

Note: All Prices USD	Registration Types	On or before 29 January 2024 Midnight EDT	After 29 January 2024 Midnight EDT
Conference Registration	Member - Full Conference	$725	$925
	Non Member - Full Conference	$875	$1075
	Government/Educator – Full Conference	$525	$675
	Conference Registration includes: Access to all three days of the event, oral and poster session, refreshment breaks, networking receptions, exhibition, and program book.		
	One Day - Conference	$375	
	One Day - Conference Registration includes: Access to specific day's event including oral and poster session, refreshment breaks, networking receptions, exhibition, and program book.		
	Member - Student	$75	
	Non Member - Student	$100	
	Student Registration includes: Access to all three days of the event, oral and poster session, refreshment breaks, networking receptions, exhibition, and program book.		
	One Day - Exhibition Only	$150	
	One Day - Exhibition Only includes: Access to specific day's event in the exhibition hall, refreshment breaks, and receptions.		
Non Conference Registration	Registration for Short Course(s) and/or Field Trip only.	$30 + Cost of the Ticketed Event	
	Non Conference Includes: Access to the chosen Short Course(s) and/or Field Trip for which you registered. You will not receive access to conference sessions, networking receptions or exhibition.		

Corporate / Group Registrations

Share the benefits and save on registration fees with group packages. Group registration provides a lower-than-member-rate cost for participants regardless of their membership status. Full conference Group Registrations are priced at $625/per person with a minimum group requirement of 10.

Custom packages are available beyond the minimum group requirement. Enter the additional quantity of registrations when completing the Group Registration Form. https://fs3.formsite.com/AAPGevents/vmnpjjnplt/index.html

Confirmations

A detailed confirmation, including information about the registration type, payment information, receipt, etc. will be emailed to you upon completion of registration. Please retain this acknowledgement for your records. Should you not receive a confirmation, please contact the AAPG Customer Experience Center by email at customerservice@aapg.org, or at 1 918 584 2555 or 800 364 2274 (toll free - U.S. & Canada only).

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Cancellations can be made by following instructions on your confirmation or contact the AAPG Customer Experience Center by email at customerservice@aapg.org, or at 1 918 584 2555 or 800 364 2274 (toll free - U.S. & Canada only) by 16 February. Cancellations received on or before 16 February will be fully refunded less a $75 processing fee.

Registration Hours:

- 7:00 am–4:00 pm **Sunday**
- 6:30 am–5:30 pm **Monday**
- 7:00 am–5:30 pm **Tuesday**
- 7:00 am–2:30 pm **Wednesday**

ACCOMMODATIONS AND TRAVEL

Accommodations

Hilton Americas-Houston
1600 Lamar Street
Houston, TX 77010, USA

Please book your rooms directly with Hilton Americas – Houston. New hotel reservations must be reserved by **15 February**.

The hotel is smoke free and includes a restaurant on the property, a lounge, pool and fitness center, business center, complimentary Wi-Fi in public areas and available guest room internet. Hotel rates do not include taxes. Information listed above is subject to change at hotel's discretion.

**Parking rates are subject to change and subject to hotel specifications.*

Single/Double	Extra Person Charge	In-Room Dining	Parking* (Daily)	Guest Room Internet
$259/$259	$25	6:00 am–11:00 am 5:00 pm–10:00 pm	$38.00/Self $62.00/Valet (*all parking rates are subject to change)	$12.95/Standard $16.95/Premium (Free with Hilton Honors)

ACCOMMODATIONS AND TRAVEL (CONT'D)

Booking Online

Online booking of accommodations allows you to immediately know the availability of your required nights. To receive the CCUS rate, all hotel reservations must be made through this Hilton Americas – Houston.

Deposits

All reservations will require a valid credit card, along with a first night's deposit, refundable up to two days in advance of arrival, to guarantee the reservation. Your credit card may be charged immediately for your first night's stay, including taxes. The hotel may cancel your room reservation without notification if the deposit cannot be processed with a valid credit card prior to your scheduled arrival.

Changes/Cancellations

Changes and cancellations to existing reservations may be made online or by contacting the Hotel. Any changes or cancellations must be sent directly to the hotel without guarantee of refunds. At many hotels, any guaranteed room reservations not cancelled 24-72 hours prior to arrival and not used will subsequently be billed by the hotel to the credit card on file and any deposits will be forfeited.

Early Departure Fee

If a guest who requested a room within the room block checks out prior to the guest's reserved check out date, the Hotel will add an early departure fee to the guests individual account equal to 1 Nights Room and Tax. Guest wishing to avoid the fee should notify the Hotel at or before check-in of any changes to the length of stay.

Airport Information

William P. Hobby Airport (HOU)
7800 Airport Blvd.
Houston, Texas 77061
Phone: +1 713 640 3000
fly2houston.com

Distance from the convention center: 12 miles
Drive time: 20 minutes
Taxi: $26-32*
Uber/Lyft: $15-25*
Shuttle: $23 one way*

George Bush Intercontinental Airport (IAH)
2800 North Terminal Road
Houston, Texas 77032
Phone: +1 281 230 3100
airport-houston.com

Distance from the convention center: 20 miles
Drive time: 30 minutes
Taxi: $55-70*
Uber/Lyft: $25-30*
Shuttle: $25 one way*

Public Transportation

Taxis

$6 Cab Fare Anywhere Downtown. The City of Houston has authorized a flat taxi fare of $6 for all trips in the downtown area. This $6 fare will apply anywhere within the Central Business District, bounded by Interstate 45, Interstate 10 and U.S. 59. No surcharges will apply to the fare, which can accommodate multiple riders under the $6 total rate.

METRORail System

METRORail offers convenient and accessible service within the heart of the city between downtown Houston and several of Houston's top destinations and districts. You can purchase a day pass for use on METRORail and METRO buses for just $3. Visit ridemetro.org for more route and fare information.

METROBus System

METRO also offers bus service throughout Houston. Local service runs mostly on city streets, stopping at every other corner along its route. Oneway fare is $1.25. Visit ridemetro.org for more route and fare information.

CONVENTION CENTER INFORMATION

George R. Brown Convention Center
1001 Avenida de las Americas
Houston, Texas 77010
Main Line: 713-853-8000
Toll Free: 800-427-4697
Fax: 713-853-8290
Email: ccinfo@houstonfirst.com
Website: www.grbhouston.com

Convention Center Parking
There are 1,425 parking spaces in the **South Avenida Garage** (Hilton Americas-Houston) parking garage connected by a Level 2 skywalk to the convention center for up to $24 daily. Address: 1710 Polk Street.

There are 1,846 parking spaces in the **Avenida North Garage** (Partnership Tower) connected by a Level 2 skywalk to the convention center for up to $24 daily. Address: 701 Avenida de las Americas.

There is an additional 663 parking spaces in **Avenida Central Garage** (Discovery Green underground parking facility) across the street from the George R. Brown Convention Center for $18. Address: 1002 Avenida de las Americas.

Tundra Garage (by Toyota Center) is an additional 2,478 parking spaces with a cost range of $5 to $10 on non-game/concert days. Address: 1506 Jackson Street.

The privately owned surface parking lots and garages. Rates vary from $10 to $30 in these privately owned areas.