



CMTC 2017: Global CCUS Innovation Nexus

July 17-20, 2017
Houston, Texas, USA

CMTC 2017 Technical Program

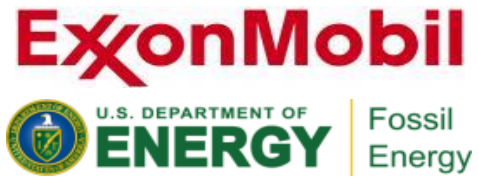
Monday, July 17, 2017

| | | |
|---------|----------|--|
| 9:00 AM | 5:00 PM | Registration |
| 9:30 AM | 12:00 PM | Petra Nova Tour, NRG & JX Nippon |
| 1:00 PM | 5:00 PM | Oyster Bayou Field Tour, Denbury Resources |
| 1:00 PM | 6:00 PM | Port Arthur Refinery Tour, Air Products & Valero |
| 7:00 PM | 8:00 PM | Welcoming Reception |

Tuesday, July 18, 2017

| | | |
|----------------|-----------------|--|
| 7:00 AM | 12:00 PM | Registration |
| 7:30 AM | 8:00 AM | <i>Coffee (sponsored by ExxonMobil)</i> |
| 8:00 AM | 11:50 AM | Tuesday Plenary |
| 8:00 AM | 8:35 AM | Keynote 1 - Greetings from Conference Chairs |
| 8:35 AM | 9:10 AM | Keynote 2 - Charles McConnell Executive Director, Rice University Energy and Environmental Initiative Pathways not Targets. Let's Get Serious. |
| 9:10 AM | 9:45 AM | Keynote 3 - Jeff Erikson General Manager for the Americas, Global CCS Institute Carbon Capture at a Crossroads |
| 9:45 AM | 10:05 AM | <i>Break (sponsored by ExxonMobil)</i> |
| 10:05 AM | 10:40 AM | Keynote 4- Janet Gellici Chief Executive Officer, National Coal Council Charting a Course for Coal's Future |
| 10:40 AM | 11:15 AM | Keynote 5 - Frederick Eames Partner, Hunton & Williams U.S. Direction on CCUS |
| 11:15 AM | 11:50 AM | Keynote 6 - Robert Williams Senior Research Scientist, Andlinger Center for Energy and Environment, Princeton University Negative Emissions Technologies and Strategies Based on Geological Storage of Photosynthetic CO2 |
| 11:50 AM | 1:00 PM | <i>Lunch (sponsored by Mitsubishi Heavy Industries) (Room 335)</i> |
| 1:00 PM | 1:35 PM | Keynote 7 - Jennifer Holmgren Chief Executive Officer, LanzaTech Carbon: The Final Frontier |
| 1:35 PM | 2:20 PM | Keynote 8 - Panel Discussion: Opportunities that Exist for CCU Technologies Chair - Jennifer Holmgren, Chief Executive Officer, Lanzatech Panelist - Matt Carr, Executive Director, Algae Biomass Organization (ABO) Panelist - Robert Sturtz, Vice President of Business Development, World Fuel Services Panelist - Greer Tidwell, Director Environmental Management, Bridgestone |
| 2:20 PM | 2:40 PM | <i>Break</i> |

| | | BOA - C | Room 330 | Room 329 |
|---------|---------|---|--|---|
| | | Session 1 - Solvent-Based CO2 Capture Systems <i>(sponsored by Mitsubishi Heavy Industries)</i> Chair: Ron Munson, Global CCS Institute | Session 2 - EOR 1 Chair: Mehdi Zeidouni, Louisiana State University | Session 3 - Business Frameworks Chair: Dale Keairns, Deloitte Consulting |
| 2:40 PM | 4:20 PM | Kevin O'Brien, Illinois Sustainable Technology Center, UIUC | Robert Balch, New Mexico Institute of Mining and Technology | Ramón Gil-Egui, Bureau of Economic Geology |
| 2:40 PM | 3:05 PM | CCUS As a Regional Economic Development Tool: Planning and Design Considerations | The Intersection of Environment and EOR: How Carbon Capture is Changing Tertiary Recovery | Matching Environmental and Economic Performance of CCUS Systems: An Approach to a Decision-Making Methodology for Sustainable Development |
| 3:05 PM | 3:30 PM | Jonathan V. Pelgen, University of Kentucky | Benjamin Cook, University of Wyoming | Sa'd Shannak, KAPSARC |
| | | Reducing Regeneration Energy and Capital Costs in an Advanced Pccc System | Electricity in the Oil Patch: The Power Costs of Production, CO2-EOR, Electric Lines and Onsite Generators | Could China Meet Its CO2 Reduction Goal By CO2-EOR? |



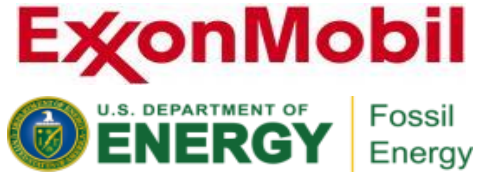
| | | | | |
|---------|---------|---|--|--|
| 3:30 PM | 3:55 PM | Avi Patkar, CCS USA Carbon Clean Solutions Limited Cdrmax® CO2 Capture Technology | David Merchant, Merchant Consulting Enhanced Oil Recovery – the History of CO2 Conventional Wag Injection Techniques Developed from Lab in the 1950's to 2017 | Louis Fradette, CO2 Solutions Inc. Valorisation Carbone Quebec – a Unique CO2 Capture and Reuse Project |
| 3:55 PM | 4:20 PM | Andrew Sexton, Trimeric Corporation Pilot Plant NO2 Removal with Aqueous Sulfite | Edward Ennin Optimizing Reservoir Oil Displacement and CO2 storage in the Texas Farnsworth Unit | Anna Sberegaeva, The National Academies of Sciences, Engineering, and Medicine Developing a Research Agenda for Carbon Removal, Sequestration, and Utilization – Two Studies at the National Academies of Sciences, Engineering, and Medicine |

4:20 PM 4:40 PM Break
 4:40 PM 5:40 PM Rapid-Fire Poster Session
 5:40 PM 6:40 PM Poster Session + Light Reception

Wednesday, July 19, 2017

7:00 AM 12:00 PM Registration
 7:30 AM 8:00 AM Coffee
 7:50 AM 8:00 AM **Remarks from the Chair**
 8:00 AM 11:50 AM **Wednesday Plenary**
 8:00 AM 8:35 AM Keynote 9 - Haroon Kheshgi
 ExxonMobil Research and Engineering Company
 The Potential Role of CCS in Electricity and Liquid Fuel Production Sectors
 8:35 AM 9:10 AM Keynote 10 - Mike Monea
 President and CEO, The International CCS Knowledge Centre
 Introduction to The International CCS Knowledge Centre
 9:10 AM 9:45 AM Keynote 11 - Bill Brown
 Chief Executive Officer, NET Power, LLC
 9:45 AM 10:05 AM Break
 10:05 AM 10:40 AM Keynote 12 - David Greeson
 Vice President, Development, NRG Energy, Inc.
 Clean Coal is a Reality
 10:40 AM 11:15 AM Keynote 13 - TBD
 11:15 AM 11:50 AM Keynote 14 - Juan Anguiano
 Oil and Gas Climate Initiative
 The Oil and Gas Climate Initiative Works Scope in CCUS
 11:50 AM 1:00 PM Lunch (Room 335)

| | | BOA - C | Room 330 | Room 329 |
|---------|---------|--|---|--|
| 1:00 PM | 2:15 PM | Session 4 - Membrane-Based Capture Systems Chair: Samuel Tam, US DOE Office of Fossil Energy | Session 5 - EOR 2 Chairs: Vida Gholami, Advanced Resources International, Inc. & Greeshma Gadikota, University of Wisconsin | Session 6 - Next Generation Capture Technologies 1 Chair: Richard Adamson, Adamson StrAdvisory |
| 1:00 PM | 1:25 PM | Jay Kniep, Membrane Technology and Research, Inc. Pilot Test Results from a Polaris™ Membrane 1 MWe CO2 Capture System | William Ampomah, New Mexico Institute of Mining and Technology Study of CO2-EOR Performance in the Morrow Formation, Ochiltree County, Texas | JinWon Lee, Postech Spray Towers Can Perform Better Than Packed Towers in Capturing CO2 |
| 1:25 PM | 1:50 PM | Shiguang Li, Gas Technology Institute Pilot-Scale Development of a PEEK Hollow Fiber Membrane Contactor Process for Post-Combustion CO2 Capture | Hamed A. Hamed Study of Applying Solar Energy in Enhanced Oil Recovery. | Aaron Sayre, Sustainable Energy Solutions Field Testing of Cryogenic Carbon Capture |
| 1:50 PM | 2:15 PM | Shilu Fu, American Air Liquide Bench Scale Testing of Next Generation Hollow Fiber Membrane Modules | Junjie Yang, Baker Hughes Miscible CO2 Flooding Using Horizontal Multi-Fractured Wells in the San Andres Formation, TX – a Feasibility Study | Soheil Khiaivi, Inventys Can Engineered Structured Adsorbent Alter the Capital Cost Paradigm of Carbon Capture? |

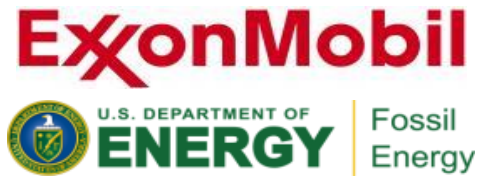


2:15 PM 2:35 PM Break

| | | | | |
|---------|---------|---|---|---|
| 2:35 PM | 4:15 PM | Session 7 - International Test Center Network Panel Chair: Frank Morton, National Carbon Capture Center | Session 9 - EOR 3 Chairs: Jacqi Roueche, Lynxnet LLC, USGS Contractor & Greeshma Gadikota, University of Wisconsin | Session 10 - CO2 Storage Case Studies Chair: David Riestenberg, Advanced Resources International, Inc. |
| 2:35 PM | 3:00 PM | | Christian A Dalton, Louisiana State University | Kyle Worth, PTRC |
| 3:00 PM | 3:25 PM | Panelist: Jesse Thompson, University of Kentucky Panelist: Jon Gibbins, UK CCS Research Centre Panelist: Abdul Qader, CO2CRC | Bayesian Proxy-Based Optimization of Immiscible-CO2 Huff-n-Puff Flooding to Enhance Oil Recovery in Unconventional Shale Oil Reservoirs Japan Trivedi, University of Alberta | Aquistore: the World's Most Comprehensive Industrial-Scale Field Laboratory for the Investigation of CO2 Geological Storage Vello A. Kuuskraa, Advanced Resources International |
| 3:25 PM | 3:50 PM | Session 8 - CCUS Transition Issues: The Legal and Policy Landscape Chair: Mary Ellen Ternes, Earth & Water Law LLC | Evaluating the Potential of CO2 Foam and Polymer Enhanced Foam for Heavy Oil Recovery and CO2 Sequestration Wes Peck, University of North Dakota | The Project ECO2S Phase 2 Carbonsafe Field Project Joseph Swisher, Electric Power Research Institute |
| 3:50 PM | 4:15 PM | Panelist: Frederick Eames, Hunton & William Panelist: Charles McConnell, Rice University Panelist: E. Dennis Griffith, Granherne Panelist: Victor B. Flatt, University of North Carolina | Demonstration of Secure CO2 Geologic Storage Associated with Enhanced Oil Recovery in the PCOR Partnership Region. Nick Jones, University of Wyoming | Techno-economic analysis of extraction, treatment, and distribution of brines as a part of pressure management operations for CO2 storage in saline aquifers Abdul Qader, CO2CRC |
| | | | Wyoming Reservoir Information Tool - a Map and Query Based Web Application for Oil and Gas Reservoirs | Carbon Capture and Storage Demonstration By CO2CRC |

4:15 PM 4:35 PM Break

| | | | | |
|---------|---------|--|---|---|
| 4:35 PM | 5:50 PM | Session 11 - Offshore Storage Chair: Alan Weakly, Society of Mining, Metallurgy and Exploration (SME) | Session 12 - Storage Integrity and Monitoring Chair: Greeshma Gadikota, University of Wisconsin | Session 13 - CO2 Utilization Chair: Kevin O'Brien, Illinois Sustainability Technology Center |
| 4:35 PM | 5:00 PM | Vello A. Kuuskraa, Advanced Resources International | Ahmed Abdulhamid Mahmoud, King Fahd University of Petroleum & Minerals | Ferdinando Tessarolo |
| 5:00 PM | 5:25 PM | Establishing CO2 Utilization, Storage, and Pipeline Systems for Oil Fields in Shallow and Deep Waters of the Gulf of Mexico Jack C. Pashin, Oklahoma State University | Investigation of Nano Clay-Based Cement Alteration and Associated Conductivity Change in CO2-Rich Environments Relevant to Geological Carbon Sequestration Yilin Mao, Louisiana State University | Carbon Farming associated with Solar Energy Dissipation Andres Clarens, University of Virginia |
| 5:25 PM | 5:50 PM | Offshore CO2 Storage Potential of the Mafra Continental Shelf, Eastern Gulf of Mexico Marina Rossi, Virginia Tech | Analytical Temperature Modeling for Early Detection and Rate Estimation of CO2 Wellbore Leakage Muhammad Zulqarnain, Louisiana State University | Life Cycle Implications of Using CO2-Based Fracturing Fluids As a Substitute for Slickwater Brian Tang, Shockwave CO2, LLC |
| | | Carbon Dioxide Storage Resource Assessment of the Mid-Atlantic Ocean Seaboard: Analysis of Geological and Geophysical Vintage Data | Risk Based Approach to Identify the Leakage Potential of Wells in Depleted Oil and Gas Fields for CO2 Geological Sequestration | Shockwave CO2 |



Thursday, July 20, 2017

| | | |
|----------|----------|---|
| 7:00 AM | 9:00 AM | Registration |
| 7:30 AM | 8:00 AM | Coffee |
| 7:50 AM | 8:00 AM | Remarks from the Chair |
| 8:00 AM | 10:20 AM | Thursday Plenary |
| 8:00 AM | 8:35 AM | Keynote 15 - Frank Morton National Carbon Capture Center International Collaboration on CCUS R&D |
| 8:35 AM | 9:10 AM | Keynote 16 - Steve Carpenter Director, Enhanced Oil Recovery Institute, School of Energy Resources, University of Wyoming CCUS, Wyoming, & Non-OECD Economies: ISO Standards as the Common Denominator |
| 9:10 AM | 9:45 AM | Keynote 17 - Anthony Ku Director of Advanced Technologies, National Institute of Clean and low-carbon Energy (NICE), Shenhua Group Carbon Management at Shenhua: NICE R&D initiatives and CCUS Demonstrations |
| 9:45 AM | 10:20 AM | Keynote 18 - Jon Gibbins Director, UK CCS Research Centre |
| 10:20 AM | 10:40 AM | Break |

| | | BOA - C | Room 330 | Room 329 |
|----------|----------|---|--|--|
| | | Session 14 - Analysis and Modeling for CCUS Technologies Chairs: Anne Oudinot, Advanced Resources International & Jacqi Roueche, Lynxnet LLC, USGS Contractor | Session 15 - Storage Characterization Chair: Steven Carpenter, University of Wyoming | Session 16 - Next Generation Capture Technologies 2 Chair: Tim Merkel, Membrane Technology & Research |
| 10:40 AM | 12:20 PM | Dale Keairns, Deloitte Consulting LLP | Ashwin Pasumarti, Battelle Memorial Institute | WS Winston Ho, The Ohio State University |
| 10:40 AM | 11:05 AM | Utilizing Systems Analysis to Inform Carbon Capture Technology Development | Assessing the Effective CO2 Storage Capacity of a Reservoir Using a Geomechanical Framework: A Case Study of a Site in the Arches Province of the Midwest U.S. | New Amine-Containing Membranes for CO2 Capture |
| 11:05 AM | 11:30 AM | Christina Reynolds, University of Michigan | Isis Fukai, Battelle Memorial Institute | Shiguang Li, Gas Technology Institute |
| 11:05 AM | 11:30 AM | Mobile Carbon Dioxide Removal: A Baseline Cost Estimate and Testing Protocol | Characterization of CO2 Storage Resource and Reservoir Feasibility of Deep Saline Cambrian-Ordovician Formations in Eastern Ohio | Graphene Oxide-PEEK Hybrid Membrane Process for CO2 Capture |
| 11:30 AM | 11:55 AM | Seyed Mostafa Safdarnejad, Intech Process Automation | David Riestenberg, Advanced Resources International, Inc. | Mustapha Soukri, RTI International |
| 11:30 AM | 11:55 AM | Performance Comparison of a Cryogenic and Chemical Absorption Carbon Capture Systems in Response to a Dynamic Electricity Load Profile | Project ECO2s: Geologic Characterization and Preliminary Storage Capacity Estimates | Hybrid MOF Solid Sorbent-Based CO2 Capture Process for Power and Industrial Applications |
| 11:55 AM | 12:20 PM | Michael Buckner, Colorado State University | Autumn Haagsma, Battelle Memorial Institute | Amanda Warriner, University of Kentucky |
| 11:55 AM | 12:20 PM | Automotive CO2 Mitigation Via an Onboard Bosch Reactor System | Impact of Geologic Diversity on Static Earth Models in a CO2-EOR Reef Complex | Evaluating the Effect of Aqueous Calcium Chloride Desiccant on Cooling Tower Performance in a Heat-Integrated Post-Combustion CO2 Capture System |
| 12:20 PM | 12:30 PM | Closing Remarks | | |