ADDRESSING THE

NATION'S ENERGY NEEDS

THROUGH TECHNOLOGY INNOVATION

2019 Carbon Capture, Utilization and Storage, and Oil and Gas Technologies Integrated Review Meeting

August 26–30, 2019

NATIONAL ENERGY TECHNOLOGY LABORATORY

David L. Lawrence Convention Center

1000 Fort Duquesne Blvd

Pittsburgh, PA 15222

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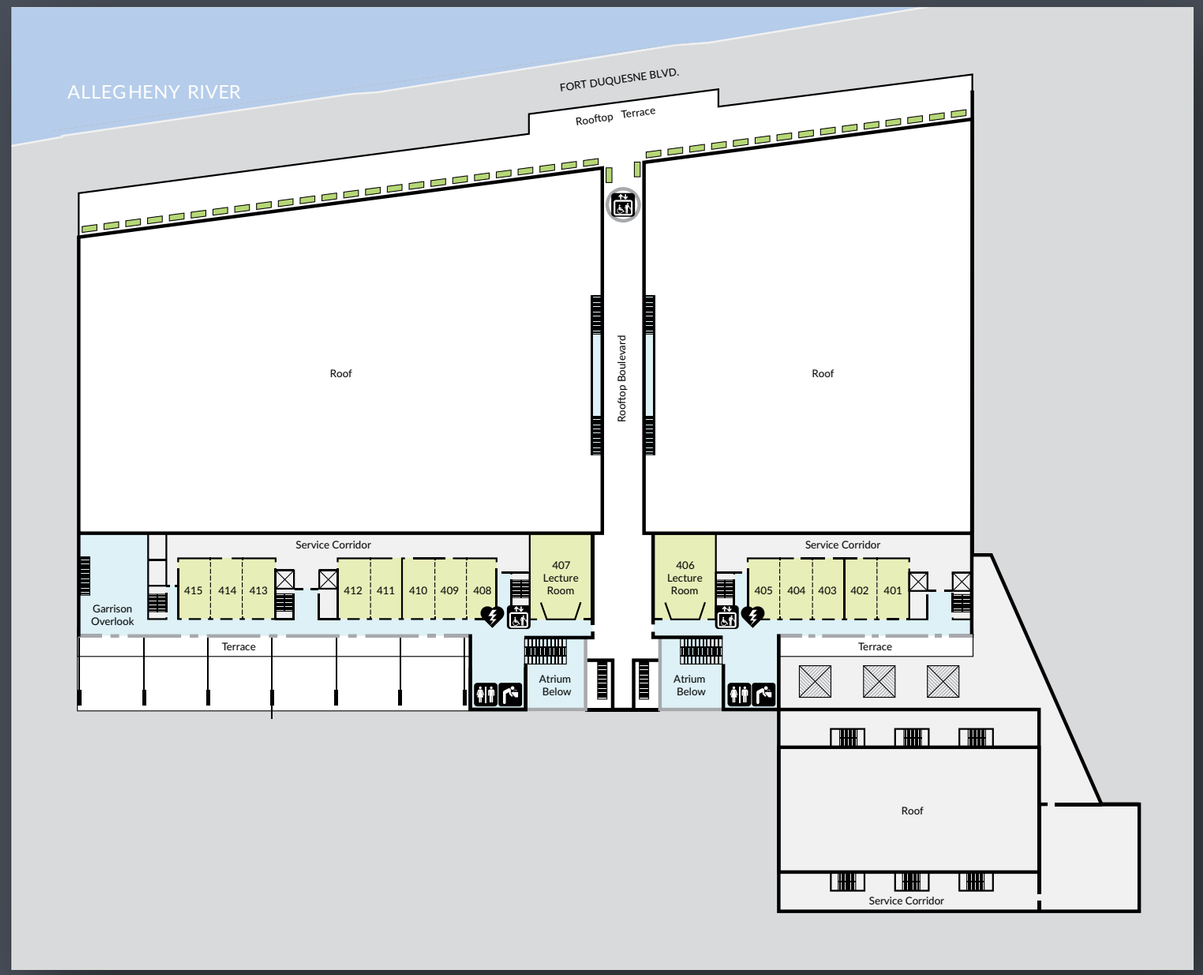
DAVID L. LAWRENCE

CONVENTION CENTER



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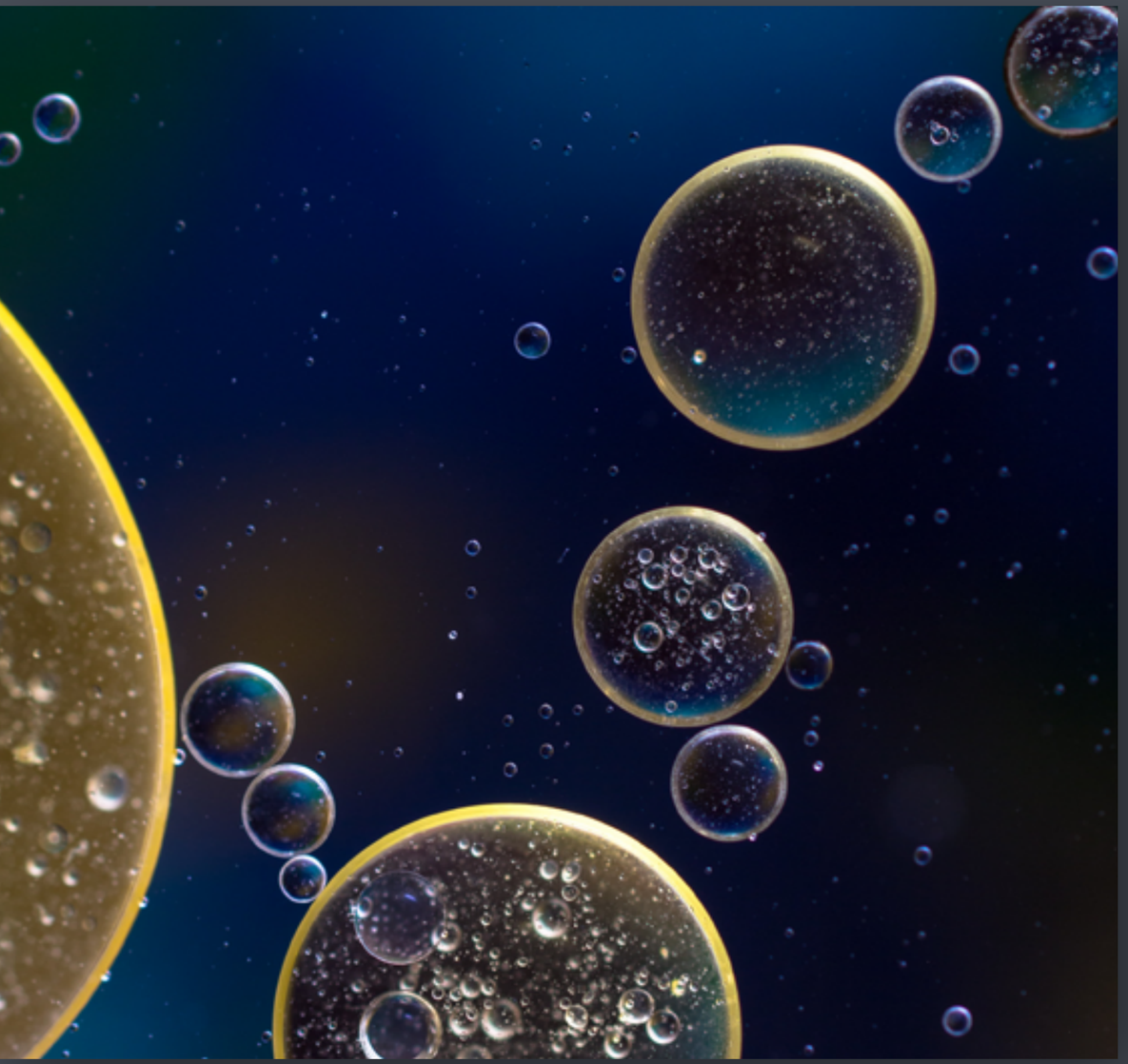

MONDAY

MORNING SESSION

7:00 AM	Meeting Registration/Continental Breakfast
8:00 AM	Welcome/Introduction
8:10 AM	Steven Winberg (Assistant Secretary for Fossil Energy, U.S. Department of Energy)
8:40 AM	Introduction
8:45 AM	Brian Anderson (Director, National Energy Technology Laboratory)
9:15 AM	CCUS: Current Business Cases
10:00 AM	Break

MONDAY

CAPTURE AND UTILIZATION SESSION

CAPTURE – LAB/BENCH-SCALE RESEARCH

10:30 AM Bench-Scale Testing of Next-Generation Hollow-Fiber Membrane Modules (FE0026422)
- Alex Augustine, American Air Liquide Inc.

10:50 AM Energy-Efficient GO-PEEK Hybrid Membrane Process for Post-Combustion Carbon Dioxide Capture (FE0026383)
- Shiquang Li, Gas Technology Institute

11:10 AM Novel Process That Achieves 10 MOL/KG Sorbent Swing Capacity in a Rapidly Cycled Pressure Swing Adsorption Process (FE0026433)
- Ryan Lively, Georgia Tech Research Corporation

11:30 AM Cryogenic Carbon Capture Development (FE0028697)
- Larry Baxter, Sustainable Energy Solutions

11:50 AM Electrochemically Mediated Amine Regeneration in CO_2 Scrubbing Processes (FE0026489)
- Trevor Hatton, Massachusetts Institute of Technology

12:10 PM Rapid Design and Testing of Novel Gas-Liquid Contacting Devices for Post-Combustion CO_2 Capture Via 3D Printing: Modular Adaptive Packing (FE0031530)
- Erik Meuleman, ION Engineering LLC

12:30 PM Lunch

1:30 PM Development and Bench-Scale Testing of a Novel Biphasic Solvent-Enabled Absorption Process for Post-Combustion Carbon Capture (FE0031600)
- Yongqi Li, University of Illinois at Urbana-Champaign

1:50 PM A Process with Decoupled Absorber Kinetics and Solvent Regeneration through Membrane Dewatering and In-Column Heat Transfer (FE0031604)
- James Landon, University of Kentucky

2:10 PM Universal Solvent Viscosity Reduction Via Hydrogen Bonding Disruptors (FE0031629)
- Xu Zhou, Liquid Ion Solutions LLC

2:30 PM ROTA-CAP: An Intensified Carbon Capture System Using Rotating Packed Beds (FE0031630)
- Osman Akpolat, Gas Technology Institute

2:50 PM Mixed-Salt Based Transformational Solvent Technology for CO_2 Capture (FE0031597)
- Palitha Jayaweera, SRI International

3:10 PM Development of Self-Assembly Isoporous Membranes (FE0031596)
- Hans Wijmans, Membrane Technology and Research (MTR) Inc.

3:30 PM Break

MONDAY

SUBSURFACE PLENARY

PLAINS AND NORTHWEST 1

10:30 AM Plains CO_2 Reduction Partnership and Phase III (FC26-05NT42592)
- Charles D. Gorecki, University of North Dakota Energy and Environmental Research Center (Aljoe)

11:00 AM Big Sky Regional Carbon Sequestration Partnership – Phase III (FC26-05NT42587)
- Lee Spangler, Montana State University, Energy Research Institute (Aljoe)

11:30 AM EERC-DOE Joint Program on Research and Development for Fossil Energy-Related Resources; Subtask 3.1: Related Resources: Bakken-Rich Gas EOR Center (FE0024233)
- James Sorensen, University of North Dakota Energy and Environmental Research Center (Covatch)

12:00 PM First-Ever Field Pilot on Alaska's North Slope to Validate the Use of Polymer Floods for Heavy Oil Enhanced Oil Recovery (FE0031606)
- Abhijit Dandekar, University of Alaska - Fairbanks (Cercone)

12:30 PM Lunch

PLAINS AND NORTHWEST 2

1:30 PM North Dakota Integrated Carbon Storage Complex Feasibility Study (FE0029488)
- Wesley Peck, University of North Dakota Energy and Environmental Research Center (O'Dowd)

2:00 PM Integrated Midcontinent Stacked Carbon Storage Hub (FE0031623)
- Andrew Duguid, Battelle Memorial Institute (McNemar)

2:30 PM Commercial-Scale Carbon Storage Complex Feasibility Study at Dry Fork Station, Wyoming (FE0031624)
- Scott Quillinan, University of Wyoming (O'Dowd)

3:00 PM Developing and Validating Pressure Management and Plume Control Strategies in the Williston Basin Through a Brine Extraction and Storage Test (FE0026160)
- John Hamling, University of North Dakota Energy and Environmental Research Center (McNemar)

3:30 PM Break

MONDAY

CAPTURE AND UTILIZATION SESSION

CAPTURE – LAB/BENCH-SCALE RESEARCH

4:00 PM Bench-Scale Development of a Transformational Graphene Oxide-Based Membrane Process for Post-Combustion CO_2 Capture (FE0031598)
- Shiguang Li, Gas Technology Institute

4:20 PM Flue Gas Aerosol Pretreatment Technologies to Minimize PCC Solvent Losses (FE0031592)
- Devin Bostick, Linde LLC

4:40 PM Development of Carbon Molecular Sieves Hollow Fiber Membranes Based on Polybenzimidazole Doped with Polyprotic Acids with Superior H_2/CO_2 Separation Properties (FE0031636)
- Haiqing Lin, State University of New York - Buffalo

5:00 PM Emissions Mitigation Technology for Advanced Water-Lean Solvent-based CO_2 Capture Processes (FE0031660)
- Jak Tanthana, Research Triangle Institute

5:20 PM Adjourn Capture and Utilization Session

6:00 PM End of Day

MONDAY

SUBSURFACE BREAKOUT

MONITORING 1

4:00 PM Task 5: Advances in Large-N Seismic Measurements to Monitor Reservoir Behavior (FWP-FEW0191)
- Eric Matzel, Lawrence Livermore National Laboratory (McNemar)

4:20 PM Task 3: Assessment of Leakage Pathways Using Joint EM-Seismic Borehole and Surface Technologies (FWP-ESD14095)
- Barry Freifeld, Lawrence Berkeley National Laboratory (Carr)

4:40 PM Task 2: 2nd Generation SOV DAS (FWP-ESD14095)
- Barry Freifeld, Lawrence Berkeley National Laboratory (Carr)

5:00 PM Development of High Sensitivity Engineered Optical Fiber for Distributed Acoustic Sensing (FWP-FEW0246/FWP-FP00007226)
- Barry Freifeld, Lawrence Livermore National Laboratory/Robert Mellors, Lawrence Berkeley National Laboratory (Carr)

5:20 PM Task 2: Monitoring for Small Leaks over Large Areas (FWP-FE-890-18-FY18)
- Ting Chen, Los Alamos National Laboratory (Hull)

5:40 PM National Risk Assessment Partnership Task 6: Risk-Based Approach to Post-Injection Site Closure
- Bob Dilmore, National Energy Technology Laboratory (Underwood)

6:00 PM End of Day

NATIONAL LAB FUNDAMENTAL SHALE RESEARCH

Numerical and Laboratory Investigations for Maximization of Production from Tight/Shale Oil Reservoirs (FWP-FP000008115)
- George Moridis, Lawrence Berkeley National Laboratory (Henry)

Fundamentals of Unconventional Reservoirs Research (FWP-FE406-408-409)
- George Guthrie, Los Alamos National Laboratory (Brown)

RIC Tasks 2 and 3: Fundamental Chemical and Mechanical Processes for Unconventional Formations (FWP-1022415)
- Ale Hakala, National Energy Technology Laboratory

Chemical Control of Fluid Flow and Contaminant Release in Shale Microfractures (FWP-100211)
- John Bargar, SLAC National Accelerator Laboratory (Cercone)

Improved Unconventional Reservoir Stimulation Through Understanding and Enhancing Gravity-Assisted Recovery of Fluids (FWP-FP00008256)
- Tetsu Tokunaga, Lawrence Berkeley National Laboratory (Henry)

Controlling Sustainability of Hydraulic Fracture Permeability in Ductile Shales (FWP-FP0008114)
- Seiji Nakagawa, Lawrence Berkeley National Laboratory (Henry)

TUESDAY

MORNING SESSION

7:00 AM	Continental Breakfast
8:00 AM	Introduction/Welcome
8:05 AM	Regulation Discussion – 45Q
8:25 AM	CCUS Federal Financing Mechanisms
9:25 AM	Stakeholder Perspectives – The Future of CCUS
10:10 AM	Break

TUESDAY

CAPTURE AND UTILIZATION SESSION

CAPTURE – LAB/BENCH-SCALE RESEARCH

10:30 AM Advancing Post-Combustion CO_2 Capture Through Increased Mass Transfer and Lower Degradation (FE0031661)
- Jesse Thompson, University of Kentucky

10:50 AM Molecular Refinement of Transformational Solvents for CO_2 Separations (FWP-72396)
- David Heldebrant, Pacific Northwest National Laboratory

11:10 AM Inexpensive and Sustainable Anti-Corrosion Coating for Power Generation Applications (FE0031659)
- John Watkins, Lumishield Technologies Incorporated

11:30 AM Membrane Development for Post-Combustion Carbon Capture
- David Hopkinson, U.S. Department of Energy, National Energy Technology Laboratory

11:50 AM Physical Solvent Development for Pre-Combustion Carbon Capture
- Nicholas Siefert, U.S. Department of Energy, National Energy Technology Laboratory

12:10 PM Discovery of New Materials for Carbon Capture by Computational Screening
- Jan Steckel, U.S. Department of Energy, National Energy Technology Laboratory

12:30 PM Lunch

1:30 PM Novel CO_2-Selective Membranes for CO_2 Capture from less than 1% CO_2 Sources (FE0026919)
- W. S. Winston Ho, The Ohio State University

1:50 PM Zeolite Membrane Reactor for Pre-Combustion Carbon Dioxide Capture (FE0026435)
- Jerry Lin, Arizona State University

2:10 PM Transformational Membranes for Pre-Combustion Carbon Capture (FE0031635)
- W. S. Winston Ho, The Ohio State University

2:30 PM Bench-Scale Development of a Transformative Membrane Process For Pre-Combustion CO_2 Capture (FE0031632)
- Jay Kniep, Membrane Technology and Research Inc.

2:50 PM Development of Pre-Combustion CO2 Capture Process Using High-Temperature PBI (FE0031633)
- Indira Jayaweera, SRI International

3:10 PM A High-Efficiency, Ultra-Compact Process for Pre-Combustion CO_2 Capture (FE0026423/FE0031737)
- Theodore Tsotsis, University of Southern California

3:30 PM Break

TUESDAY

SUBSURFACE PLENARY

SOUTHEAST REGION 1

10:30 AM Tuscaloosa Marine Shale Laboratory (FE0031575)
- Mehdi Mokhtari, University of Louisiana at Lafayette (Brown)

11:00 AM Marcellus Shale Energy and Environment Laboratory (FE0024297)
- Timothy Carr, West Virginia University (Vagnetti)

11:30 AM Southeast Regional Carbon Sequestration Partnership (Cranfield) – Phase III (FC26-05NT42590)
- Kenneth Nemeth, Southern States Energy Board (Sullivan)

12:00 PM Southeast Regional Carbon Sequestration Partnership (Citronelle) – Phase III (FC26-05NT42590)
- Kenneth Nemeth, Southern States Energy Board (Sullivan)

12:30 PM Lunch

SOUTHEAST REGION 2

1:30 PM Establishing an Early Carbon Dioxide Storage Complex in Kemper County, Mississippi: Project ECO_2S (FE0029465)
- Kenneth Nemeth, Southern States Energy Board (Sullivan)

2:00 PM Gulf Coast Field Demonstration at a Flagship Power Plant to Assess Optimal Reservoir Pressure Control, Plume Management and Produced Water Strategies (FE0026140)
- Robert Trautz, Electric Power Research Institute Inc. (Hull)

2:30 PM Offshore Gulf of Mexico Partnership for Carbon Storage – Resources and Technology Development (FE0031558)
- Susan Hovorka, University of Texas at Austin (Sullivan)

3:00 PM Southeast Regional Carbon Storage Partnership: Offshore Gulf of Mexico (FE0031557)
- Kenneth Nemeth, Southern States Energy Board (Sullivan)

3:30 PM Break

TUESDAY

CAPTURE AND UTILIZATION SESSION

CAPTURE – LAB/BENCH-SCALE RESEARCH

4:00 PM High-Temperature Ceramic-Carbonate Dual-Phase Membrane Reactor for Pre-Combustion Carbon Dioxide Capture (FE0031634)
- Jerry Lin, Arizona State University

4:20 PM Sorption-Enhanced Mixed Matrix Membranes for Hydrogen Purification and Carbon Dioxide Capture (FE0026463)
- Haiqing Lin, State University of New York - Buffalo

CARBON CAPTURE SIMULATION FOR INDUSTRY IMPACT (CCSI²)

4:40 PM Maximizing Learning Through Intelligent Test Design
- Christine Anderson-Cook, Los Alamos National Laboratory

5:00 PM Computational Support for Low Aqueous Solvent System Pilot Testing
- Josh Morgan, West Virginia University

5:20 PM Adjourn Capture and Utilization Session

6:00 PM End of Day

TUESDAY

SUBSURFACE BREAKOUT

MONITORING 2

4:00 PM Charged Wellbore Casing Controlled Source Electromagnetics for Reservoir Imaging and Monitoring (FE0028320)
- Yaoguo Li, Colorado School of Mines (Underwood)

4:20 PM New Imaging and CO_2 Storage Technologies for Unconventional Subsurface Reservoirs (FWP-70066)
- Bernard McGrail, Pacific Northwest National Laboratory (Cercone)

4:40 PM Integration of Seismic-Pressure-Petrophysics Inversion of Continuous Active-Seismic Monitoring Data for Monitoring and Quantifying CO_2 Plume (FE0031544)
- Tieyuan Zhu, Pennsylvania State University (O'Dowd)

5:00 PM Joint Inversion of Time-Lapse Seismic Data (FE0031540)
- Shaughn Burnison, University of North Dakota Energy and Environment Research Center (Carr)

5:20 PM Robust Carbon Dioxide Imaging Using Joint Tomographic Inversion of Seismic Onset Time and Distributed Pressure and Temperature Measurements (FE0031625)
- Akhil Dattagupta, Texas A&M Engineering Experiment Station (Hull)

5:40 PM RIC Task 20: Novel Geochemical Signals for Monitoring CO_2 and Brine Impacts in Groundwater Systems
- Christina Lopano and Ale Hakala, National Energy Technology Laboratory (Goodman)

6:00 PM End of Day

HYDRAULIC FRACTURING TECHNOLOGIES

Passive Acoustic Metamaterial Proppants for Advanced Hydraulic Fracture Diagnostics (SC0017738)
- Jacob Pollock, Oceanit Laboratories Inc. (Henry)

Development and Field Testing Novel Natural Gas Surface Process Equipment for Replacement of Water as Primary Hydraulic Fracturing Fluid (FE0024314)
- Griffin Beck, Southwest Research Institute (Renk)

A New Framework for Microscopic to Reservoir-Scale Simulation of Hydraulic Fracturing and Production: Testing with Comprehensive Data from HFTS and Other Hydraulic Fracturing Field Test Sites (FWP-100480/FWP-FEW0250/FWP-FP00008049)
- Jens Birkholzer, Lawrence Berkeley National Laboratory; Joe Morris, Lawrence Livermore National Laboratory (Renk)

Enhancing Unconventional Reservoir Ultimate Recoveries with In-Situ Nano-Catalysts (TCF-18-15390)
- Randall Winans, Argonne National Laboratory (Cercone)

Injection and Tracking of Micro Seismic Emitters to Optimize Unconventional Oil and Gas Development (FE0024360)
- Bjorn Paulsson, Paulsson Inc. (Fincham)

Development of a Low-Noise Optical Interrogator for Interferometric Sensing Technologies (SC0017729)
- Bjorn Paulsson, Paulsson Inc. (Fincham)

Development of a Distributed Optical Sensor Array for Improved Subsurface Characterization and Monitoring (SC0017222)
- Bjorn Paulsson, Paulsson Inc. (Fincham)

WEDNESDAY

MORNING SESSION

7:00 AM	Continental Breakfast

WEDNESDAY

CAPTURE AND UTILIZATION SESSION

DOCCSS WITH CCSI² SUPPORT

8:00 AM High-Efficiency, Integrated Reactors for Sorbents, Solvents and Membranes using Additive Manufacturing (FWP-FEW0225)
- Joshuah Stolaroff, Lawrence Livermore National Laboratory

8:20 AM Novel Geometry Design for Intensified CO_2 Absorbers
- Grigorios Panagakos, Carnegie Mellon University

8:40 AM Low-Viscosity, Water-Lean CO_2-Binding Organic Liquids with Polarity-Swing Assisted Regeneration (FWP-70924)
- David Heldebrant, Pacific Northwest National Laboratory

9:00 AM Low Aqueous Solvent System Optimization
- Zhijie Xu, Pacific Northwest National Laboratory

9:20 AM Amine-Appended Metal-Organic Frameworks as Switch-Like Adsorbents for Energy-Efficient Carbon Capture (FWP-FP00006194)
- Jeffrey Long, Lawrence Berkeley National Laboratory

9:40 AM Contactor Design for Transformational Sorbents
- Debangsu Bhattacharyya, West Virginia University

10:00 AM Break

CAPTURE – LAB/BENCH-SCALE RESEARCH WITH CCSI² SUPPORT

10:30 AM Additively Manufactured Intensified Device for Enhanced Carbon Capture (FWP-FEAA130)
- Xin Sun, Oak Ridge National Laboratory

10:50 AM Computational Design of Intercooled Packing for CO_2 Absorbers
- Grigorios Panagakos, Carnegie Mellon University

CAPTURE – SYSTEMS STUDIES AND MODELING

11:10 AM Cost and Performance Baseline for Fossil Energy Plants, Volume 1: Bituminous Coal and Natural Gas to Electricity , Revision 4
- Alexander Zoelle, Leidos

11:30 AM Market/Systems Analysis of CO_2 Capture
- TBD, U.S. Department of Energy, National Energy Technology Laboratory

WEDNESDAY

SUBSURFACE PLENARY

TEXAS REGION

8:00 AM Hydraulic Fracturing Test Site I, Midland Basin, West Texas (FE0024292)
- Jordan Ciezobka, Gas Technology Institute (Covatch)

8:30 AM Eagle Ford Shale Laboratory South Texas (FE0031579)
- Dan Hill, Texas A&M University (Renk)

9:00 AM Hydraulic Fracturing Test Site II, Delaware Basin, West Texas (FE0031577)
- Jordan Ciezobka, Gas Technology Institute (Covatch)

9:30 AM Southwest Regional Partnership on Carbon Sequestration (FC26-05NT42591)
- Robert Balch, New Mexico Institute of Mining and Technology and the University of Utah (O'Dowd)

10:00 AM Break

MIDWEST REGION

10:30 AM Midwest Regional Carbon Sequestration Partnership (FC26-05NT42589)
- Neeraj Gupta, Battelle Memorial Institute (McNemar)

11:00 AM An Assessment of Geological Carbon Sequestration Options in the Illinois Basin (MGSC) – Phase III (FC26-05NT42588)
- Sallie Greenberg, Illinois State Geological Survey (Aljoe)

11:30 AM Wabash CarbonSAFE (FE0031626)
- Christopher Korose, University of Illinois at Urbana-Champaign (Aljoe)

12:00 PM CarbonSAFE Illinois Christian County (FE0029381)
- Steve Whittaker, Illinois State Geological Survey (Aljoe)

12:30 PM Lunch

WEDNESDAY

CAPTURE AND UTILIZATION SESSION

CAPTURE – PILOT-SCALE RESEARCH

11:50 AM Advanced Carbon Capture Testing at the National Carbon Capture Center (FE0022596)
- Michele Corser, Southern Company

12:10 PM Pilot Test of a Nanoporous, Super-Hydrophobic Membrane Contactor Process for Post-Combustion Carbon Dioxide Capture (FE0012829)
- Shiquang Li, Gas Technology Institute

12:30 PM Lunch

1:30 PM Pilot-Scale Slipstream Testing of Sorbent-Based CO_2 Capture Process (FE0012870)
- Jeannine Elliott, TDA Research Inc.

1:50 PM Pilot Testing of a Highly Effective Pre-Combustion Sorbent-Based Carbon Capture System (FE0013105)
- Gokhan Alptekin, TDA Research Inc.

2:10 PM Application of a Heat-Integrated Post-Combustion Carbon Dioxide Capture System with Hitachi Advanced Solvent into Existing Coal-Fired Power Plant (FE0007395)
- Kunlei Liu, University of Kentucky Research Foundation

2:30 PM Engineering-Scale Demonstration of the Mixed-Salt Process for CO_2 (FE0031588)
- Indira Jayaweera, SRI International

3:00 PM Break

WEDNESDAY

SUBSURFACE BREAKOUT

MONITORING 3

1:30 PM Active Seismic Monitoring of CO_2 Leakage Through a Hydromechanically Reactivated Fault Caprock Integrity Monitoring for a Geological Carbon Sequestration Site Analog: Validating a CASSM Monitoring System (FWP-FP00007630)
- Yves Guglielmi or Jens Birkholzer, Lawrence Berkeley National Laboratory (Carr)

1:50 PM RIC Task 25: Using LPLP Seismic Signals for Monitoring of Seals and Plumes
- Rick Hammack, National Energy Technology Laboratory (Goodman)

2:10 PM National Risk Assessment Partnership: Strategic Monitoring for Uncertainty Reduction
- Erika Gasperikova, Lawrence Berkeley National Laboratory (Underwood)

2:30 PM Monitoring of Geological CO_2 Sequestration Using Isotopes and PF Tracers (FWP-FEAA045)
- David Graham, Oak Ridge National Laboratory (Carr)

3:00 PM Break

OFFSHORE

Field Validation of MVA Technology for Offshore CCS: Novel Ultra-High-Resolution 3D Marine Seismic Technology (P-Cable), (FE0028193)
- Tip Meckel, University of Texas at Austin (Carr)

Hexagonal Boron Nitrate Reinforced Multifunctional Well Cement for Extreme Conditions (FE0031574)
- Rouzbeh Shahsavari, C-Crete Technologies Inc. (Fincham)

In-Situ Applied Coatings for Mitigating Gas Hydrate Deposition in Deepwater Operations (FE0031578)
- Carolyn Koh, Colorado School of Mines (Fincham)

The NETL Oil and Gas Offshore Research Portfolio
- Kelly Rose, National Energy Technology Laboratory

WEDNESDAY

CAPTURE AND UTILIZATION SESSION

CAPTURE – PILOT-SCALE RESEARCH

3:15 PM Scale-Up and Testing of Advanced Polaris Membrane CO_2 Capture Technology (FE0031591)
- Tim Merkel, Membrane Technology and Research Inc.

3:45 PM Engineering Scale Testing of Transformational Non-Aqueous Solvent-Based Carbon Dioxide Capture Process at Technology Centre Mongstad (FE0031590)
- Shaojun "James" Zhou, Research Triangle Institute

4:15 PM Membrane-Sorbent Hybrid System for Post-Combustion Carbon Capture (FE0031603)
- Gokhan Alptekin, TDA Research Inc.

4:45 PM End of presentations

5:00 PM Poster Session

6:30 PM End of Day

WEDNESDAY

SUBSURFACE BREAKOUT

GEOLOGIC STORAGE

3:30 PM National Risk Assessment Partnership Task 2: Containment Assurance
- Dylan Harp, Los Alamos National Laboratory (Underwood)

3:50 PM Task 4: Active Reservoir Management (FEW-0191)
- Thomas Buscheck, Lawrence Livermore National Laboratory (McNemar)

4:10 PM National Risk Assessment Partnership Task 4: Application of Risk Assessment Tools and Methodologies to Synthetic and Field Data
- Diana Bacon, Pacific Northwest National Laboratory (Underwood)

4:30 PM RIC Tasks 2 to 4: Development of Defensible CO_2 Storage Methods and Tools to Quantify Prospective Storage in the Subsurface
- Angela Goodman and Kelly Rose, National Energy Technology Laboratory (Goodman)

5:00 PM Poster Session

6:30 PM End of Day

OFFSHORE

Offshore CO_2 Storage Resource Assessment of the Northern Gulf of Mexico (FE0026083)
- Tip Meckel, University of Texas at Austin (Carr)

Mid-Atlantic U.S. Offshore Carbon Storage Resource Assessment Project (FE0026087)
- Neeraj Gupta, Battelle Memorial Institute (O'Dowd)

Southeast Offshore Storage Resource Assessment (FE0026086)
- Kenneth Nemeth, Southern States Energy Board (Sullivan)

THURSDAY

MORNING SESSION

7:00 AM	Continental Breakfast	
8:00 AM	**International CCS Value Chain Developments Panel**	
	Chair and Global Context	Tim Dixon, General Manager IEAGHG
	TBD	TBD
	TBD	TBD
	TBD	TBD
9:30 AM	Break	

THURSDAY

CAPTURE AND UTILIZATION SESSION

CAPTURE – PILOT-SCALE RESEARCH

10:00 AM Advanced Solvent Testing and Evaluation at TCM (FWP-70814)
- Charles Freeman, Pacific Northwest National Laboratory; Satish Reddy, Fluor

CAPTURE – ENGINEERING DESIGN

10:30 AM Initial Engineering Design of a Post-Combustion CO_2 Capture System for Duke Energy's East Bend Station Using Membrane-Based Technology (FE0031589)
- Desmond Dillon, Electric Power Research Institute Inc.

11:00 AM ION Engineering Commercial Carbon Capture Design and Costing (C3DC) (FE0031595)
- Alfred "Buz" Brown, ION Engineering LLC

11:30 AM Initial Engineering, Testing and Design of a Commercial-Scale, Post-Combustion CO_2 Capture System on an Existing Coal-Fired Generating Unit (FE0031602)
- Jason Laumb, University of North Dakota Energy and Environmental Research Center

12:00 PM Lunch

1:00 PM Large Pilot Testing of the MTR Membrane Post-Combustion CO_2 Capture Process (FE0031587)
- Richard Baker, Membrane Technology and Research Inc.

1:20 PM UKY-CAER Heat-Integrated Transformative CO_2 Capture Process for Pulverized Coal Power Plants (FE0031583)
- Kunlei Liu, University of Kentucky Research Foundation

1:40 PM Large Pilot Testing of Linde-BASF Advanced Post-Combustion Carbon Dioxide Capture Technology at a Coal-Fired Power Plant (FE0031581)
- Kevin O'Brien, University of Illinois at Urbana-Champaign

CAPTURE – NEW RESEARCH PROJECTS LIGHTNING ROUND

2:00 PM Validation of Transformational CO_2 Capture Solvent Technology with Revolutionary Stability (FE0031727)
- Erik Meuleman, ION Engineering LLC

2:05 PM Fog+Froth-Based Post-Combustion CO_2 Capture in Fossil-Fuel Power Plants (FE0031733)
- Heather Nikolic, University of Kentucky Research Foundation

2:10 PM Transformational Sorbent-Based Process for a Substantial Reduction in the Cost of CO_2 Capture (FE0031722)
- Ravi Jain, InnoSepra LLC

2:15 PM Novel Next-Generation Sorbent System for Post-Combustion CO_2 Capture (FE0031734)
- Gokhan Alptekin, TDA Research Inc.

THURSDAY

SUBSURFACE BREAKOUT

SUBSURFACE STRESS 1

10:00 AM Refining Principal Stress Measurements in Reservoir Underburden in Regions of Induced Seismicity Through Seismological Tools, Laboratory Experiments and Theory (FE0031687)
- Laura Chiaramonte, Electric Power Reseach Institute (Hull)

10:20 AM Identification of Faults Susceptible to Induced Seismicity (FE0031685)
- Scott Frailey, University of Illinois Urbana-Champaign (Carr)

10:40 AM A Non-Invasive Approach for Elucidating the Spatial Distribution of In-Situ Stress in Deep Subsurface Geologic Formations Considered for CO_2 Storage (FE0031686)
- Mark Kelley, Battelle Memorial Institute (Aljoe)

11:00 AM Improving Subsurface Stress Characterization for Carbon Dioxide Storage Projects by Incorporating Machine Learning Techniques (FE0031684)
- William Ampomah, New Mexico Institute of Mining & Technology (Underwood)

11:20 AM Development of Thermal Breakout Technology for Determining In-Situ Stress (FE0031688)
- Jay Nopola, Re/Spec Inc. (Henry)

11:40 AM Task 5: U.S.-Japan Collaboration on Fiber Optic Technology (FWP-ESD14095)
- William Ampomah, Lawrence Berkeley National Laboratory (Carr)

12:00 PM Lunch

WELLBORE INTEGRITY AND MITIGATION 1

RIC Tasks 19 and 26: Reactive Flow Through Experiments – A Look at Foamed Cement and CO_2 Resistant Cements
- Barbara Kutchko, National Energy Technology Laboratory (Goodman)

Methods to Enhance Wellbore Cement Integrity with Microbially-Induced Calcite Precipitation (FE0024296)
- Adrienne Phillips, Montana State University (Vagnetti)

Nanoparticle Injection Technology for Remediating Leaks of CO_2 Storage Formation (FE0026514)
- Yunping Xi, University of Colorado (Brown)

Improving Wellbore Integrity and Diagnostics-Scanite for Well Integrity (SC0018836)
- Jacob Pollock, Oceanit Laboratories Inc. (Fincham)

Wellbore Leakage Mitigation Using Advanced Mineral Precipitation Strategies (FE0026513)
- Adrienne Phillips, Montana State University (Aljoe)

Programmable Sealant-Loaded Mesoporous Nanoparticles for Gas/Liquid Leakage Mitigation (FE0026511)
- Rouzbeh Shahsavari, C-Crete Technologies Inc. (Hull)

THURSDAY

CAPTURE AND UTILIZATION SESSION

2:20 PM Advanced Structured Adsorbent Architectures for Transformative CO_2 Capture Performance (FE0031732)
- Deborah Jelen, Electricore Inc.

2:25 PM Transformational Molecular Layer Deposition Tailor-Made Size-Sieving Sorbents for Post-Combustion CO_2 Capture (FE0031730)
- Miao Yu, Rensselaer Polytechnic Institute

2:30 PM Novel Transformational Membranes and Process for CO_2 Capture from Flue Gas (FE0031731)
- W. S. Winston Ho, The Ohio State University

2:35 PM Rational Development of Novel Metal-Organic Polyhedra-based Membranes for CO_2 Capture (FE0031736)
- Haiqing Lin, State University of New York - Buffalo

CO_2 UTILIZATION - NEW RESEARCH PROJECTS LIGHTNING ROUND

2:40 PM Unique Nanotechnology Converts Carbon Dioxide to Valuable Products (FE0031707)
- Bingyun Li, West Virginia University Research Corporation

2:45 PM Novel Modular Electrocatalytic Processing for Simultaneous Conversion of Carbon Dioxide and Wet Shale Gas Into Valuable Products (FE0031709)
- Jason Trembly, Ohio University

2:50 PM An Intensified Electro-Catalytic Process for Production of Formic Acid from Power Plant CO_2 Emissions (FE0031720)
- Jesse Thompson, University of Kentucky

2:55 PM Carbon Dioxide and Renewable Electricity into Chemicals: Chemical Production from Coal Flue Gas (FE0031706)
- Hongzhou Yang, Dioxide Materials Inc.

3:00 PM Break

THURSDAY

SUBSURFACE BREAKOUT

SUBSURFACE STRESS 2

1:00 PM Robust In-Situ Strain Measurements to Monitor Carbon Dioxide Storage (FE0028292)
- Larry Murdoch, Clemson University (Henry)

1:20 PM Task 4: Monitoring for Faults at a Critical State of Stress (FWP-FE-890-18-Y18)
- Ting Chen, Los Alamos National Laboratory (Hull)

1:40 PM Task 6: Geomechanically Protected Caprock (FEW-0191)
- Pencheng Fu, Lawrence Livermore National Laboratory (McNemar)

2:00 PM National Risk Assessment Partnership Task 3: Induced Seismicity Risk
- Joshua White, Lawrence Livermore National Laboratory (Underwood)

WELLBORE INTEGRITY AND MITIGATION 2

Task 7: Well Integrity Atlas (FEW-0191)
- Susan Carroll, Lawrence Livermore National Laboratory (McNemar)

Autonomous Monitoring of Wellbore Integrity Applying Time Reverse Nonlinear Elastic Wave Spectroscopy (TR NEWS) and Fiber Optic Sensing and Communication (FWP-FE-853-17-FY17)
- Paul Johnson, Los Alamos National Laboratory (Underwood)

Embedded Sensor Technology Suite for Wellbore Integrity Monitoring (FWP-1022435)
- Paul Ohodnicki, National Energy Technology Laboratory (Carr)

Predicting the Integrity of Seals and Wellbores During Injection and Post Injection (FWP-FE-890-18-FY18)
- Bill Carey, Los Alamos National Laboratory (Hull)

ASSOCIATED CO_2 STORAGE/EOR

2:20 PM Optimizing CO_2 Sweep Based on Geochemical and Reservoir Characterization of the Residual Oil Zone of Hess Seminole Unit (FE0024375)
- Bo Ren, University of Texas at Austin (Hull)

2:40 PM Stacked Greenfield and Brownfield ROZ Fairways in the Illinois Basin Geo-Laboratory: Co-Optimization of EOR and Associated CO_2 Storage (FE0031700)
- Nathan Webb, University of Illinois at Urbana-Champaign (McNemar)

High-Resolution 3D Acoustic Borehole Integrity Monitoring System (FWP-FE-855-17-FY17)
- Cristian Pantea, Los Alamos National Laboratory (Underwood)

RIC Task 13: Well Integrity for Unconventional Reservoirs (FWP-1022415)
- Barbara Kutchko, National Energy Technology Laboratory

3:00 PM Break

THURSDAY

CAPTURE AND UTILIZATION SESSION

CO_2 UTILIZATION - NEW RESEARCH PROJECTS "LIGHTNING ROUND"

3:30 PM Selective and Efficient Electrochemical Production of Neat Formic Acid from Carbon Dioxide Using Novel Platinum Group Metals-Free Catalysts (FE0031704)
- Syed Mubeen Jawahar Hussaini, The University of Iowa

3:35 PM CO_2 to Fuels Through Novel Electrochemical Catalysis (FE0031716)
- Neal Sullivan, Colorado School of Mines

3:40 PM Design of Transition-Metal/Zeolite Catalysts for Direct Conversion of Coal-Derived Carbon Dioxide to Aromatics (FE0031719)
- Chris Jones, Georgia Tech Research Corporation

3:45 PM Electrochemical Conversion of CO_2 from Coal into Fuels and Chemicals Using a Modified Pem Electrolyzer (FE0031712)
- Kendra Kuhl, Opus 12 Inc.

3:50 PM Novel Process for CO_2 Conversion to Fuel (FE0031714)
- Gokhan Alptekin, TDA Research Inc.

3:55 PM Sustainable Conversion of Carbon Dioxide and Shale Gas to Green Acetic Acid Via a Thermochemical Cyclic Redox Scheme (FE0031703)
- Fanxing Li, North Carolina State University

4:00 PM Synthetic Calcium Carbonate Production by Carbon Dioxide Mineralization of Industrial Waste Brines (FE0031705)
- Bu Wang, University of Wisconsin

4:05 PM A Scalable Process for Upcycling Carbon Dioxide and Coal Combustion Residues Into Construction Products (FE0031718)
- Gabriel Falzone, University of California - Los Angeles

4:10 PM Field-Scale Testing of the Thermocatalytic Ethylene Production Process Using Ethane and Actual Coal-Fired Flue Gas CO_2 (FE0031713)
- Amit Goyal, Southern Research Institute

4:15 PM Beneficial Use of CO_2 from Coal-Fired Power Plants for Production of Animal Feeds (FE0031717)
- Tryg Lundquist, MicroBio Engineering

4:20 PM Novel Algae Technology to Utilize CO_2 for Value-Added Products (FE0031710)
- Frederick Harrington, Helios-NRG LLC

THURSDAY

SUBSURFACE BREAKOUT

ASSOCIATED CO_2 STORAGE/EOR

3:30 PM Developing CO_2-EOR and Associated Storage within the Residual Oil Zone Fairways of the Powder River Basin, Wyoming
- Steven Carpenter, University of Wyoming Enhanced Oil Recovery Institute (Hull)

3:50 PM Williston Basin Associated CO_2 Storage Field Laboratory (FE0031694)
- Robert Klenner, University of North Dakota Energy and Environmental Research Center (O'Dowd)

4:10 PM Task 3: Storage and Trapping of CO_2 in Multiphase Systems (FWP-FE-890-18-FY18)
- Rajesh Pawar, Los Alamos National Laboratory (Hull)

4:30 PM Task 2: PFT Analysis using Capillary Absorption Tubes-Hydrocarbon-Rich Matrix (FWP-FEAA045)
- David Graham, Oak Ridge National Laboratory (Carr)

NATURAL GAS INFRASTRUCTURE TECHNOLOGIES

Remote Methane Sensor for Emissions from Pipelines and Compressor Stations Using Chirped-Laser Dispersion Spectroscopy (FE0029059)
- Mark Zondlo, Princeton University (Vagnetti)

Novel Seal Design for Effective Mitigation of Methane Emissions from Reciprocating Compressors (FE0029021)
- Tim Allison, Southwest Research Institute (Renk)

Emission Inventories from Natural Gas Storage Facilities Using Regional Frequency Comb Laser Monitoring and Aircraft Flyovers (FE0029168)
- Greg Rieker, University of Colorado (Smistad)

Smart Methane Emission Detection System Development (FE0029020)
- Maria Araujo, Southwest Research Institute (Renk)

INTELLIGENT MONITORING SYSTEMS

4:50 PM Development of a Framework for Data Integration, Assimilation and Learning for Geological Carbon Sequestration (FE0026515)
- Alexander Sun, University of Texas at Austin (Brown)

5:10 PM Intelligent Monitoring Systems and Advanced Well Integrity and Mitigation (FE0026517)
- Scott McDonald, Archer Daniels Midland Corporation (Aljoe)

5:30 PM End of Day

In-Situ Pipeline Coatings for Methane Emissions Mitigation and Quantification from Natural Gas Infrastructure (FE0029069)
- Matthew Nakatsuka, Oceanit Laboratories Inc. (Fincham)

Sensor-Enabled Coatings for Methane Release Mitigation (FE0029062)
- Cynthia Kutchko, PPG Industries Inc. (Fincham)

THURSDAY

CAPTURE AND UTILIZATION SESSION

CO_2 UTILIZATION

4:25 PM	Microwave-Assisted Thermal Conversion of CO_2 and Methane over Conductive Metal Oxides • Douglas Kauffman, U.S. Department of Energy, National Energy Technology Laboratory
4:45 PM	Electrode-Driven Microbial CO_2 Utilization • Djuna Gulliver, U.S. Department of Energy, National Energy Technology Laboratory
5:05 PM	Upcycled CO_2-Negative Concrete for Construction Functions (FE0029825) • Gaurav Sant, University of California - Los Angeles
5:25 PM	Adjourn Capture and Utilization Session
5:50 PM	End of Day

FRIDAY

MORNING SESSION

7:00 AM	Continental Breakfast

FRIDAY

CAPTURE AND UTILIZATION SESSION

CO_2 UTILIZATION

8:00 AM CO_2 Mineralization Using Porous Carbon and Industrial Wastes to Make Multifunctional Concrete (FE0030716)
- Rouzbeh Shahsavari, C-Crete Technologies LLC

8:20 AM Beneficial Reuse of Carbon Emissions from Coal-Fired Power Plants Using Microalgae (FE0029623)
- Mark Crocker, University of Kentucky Research Foundation

8:40 AM A New Process for Carbon Dioxide Conversion to Fuel (FE0029866)
- Gokhan Alptekin, TDA Research Inc.

9:00 AM Nano Engineered Catalyst Supported on Ceramic Hollow Fibers for the Utilization of CO_2 in Dry Reforming to Produce Syngas (FE0029760)
- Shiguang Li, Gas Technology Institute

9:20 AM Storing CO_2 in Built Infrastructure: CO_2 Carbonation of Precast Concrete Products (FE0030684)
- Brian Robert Ellis, University of Michigan

9:40 AM Electrochemical Conversion of Carbon Dioxide to Alcohols (FE0029868)
- Feng Jiao, University of Delaware

CO_2 UTILIZATION - SYSTEMS STUDIES AND MODELING

10:00 AM CO_2 Utilization Analysis
- Gregory Hackett, U.S. Department of Energy, National Energy Technology Laboratory

10:20 AM Conclude session

10:30 AM Break

FRIDAY

SUBSURFACE WORKSHOP

MACHINE LEARNING KICKOFF WORKSHOP

8:00 AM Overview of Fossil Energy Machine Learning Initiative

8:20 AM Overview of Subsurface Machine Learning Initiative

9:10 AM Identification of Faults Susceptible to Induced Seismicity: Integration of Forward and Joint Inversion Modeling, Machine Learning and Field-Calibrated Geologic Models – Illinois

9:15 AM Boosting Reliability of the State of Stress Characterization and Prediction in CO_2 Storage Reservoirs Using Machine Learning and Integrated Geomechanics and Geophysical Methods – NMIMT

9:20 AM Autonomous Monitoring of Wellbore Integrity Applying Time Reverse Nonlinear Elastic Wave Spectroscopy and Fiber Optic Sensing and Communication - Los Alamos National Laboratory

9:25 AM Development of a Framework for Data Integration, Assimilation and Learning for Geological Carbon Sequestration – University of Texas at Austin

9:30 AM Development of Intelligent Monitoring System Modules for the Aquistore CO_2 Storage Project – UNDEERC

9:35 AM Task 2: Novel Methods to Detect Small Leaks Over Large Areas
Task 4: Monitoring for Faults at a Critical State of Stress – Los Alamos National Laboratory

9:40 AM Intelligent Monitoring Systems and Advanced Well Integrity and Mitigation – Archer Daniels Midland

9:45 AM Integration of Seismic-Pressure-Petrophysics Inversion of Continuous Active Seismic Monitoring Data for Monitoring and Quantifying CO_2 Plume – Pennsylvania State University

9:50 AM Joint Inversion Of Time-Lapse Seismic Data – UNDEERC

9:55 AM Oil and Gas Project 1

10:00 AM Oil and Gas Project 2

10:05 AM Open Discussion

10:30 AM End of Meeting

FRIDAY

CAPTURE AND UTILIZATION SESSION

CO_2 UTILIZATION

10:45 AM Low Temperature Process Utilizing Nano-Engineered Catalyst for Olefin Production from Coal Derived Flue Gas (FE0029570)
- Amit Goyal, Southern Research Institute

11:05 AM Advanced Manufactured Carbonate Materials for Algal Biomass Production: Joint LLNL SNL Program (FWP-FEW0223)
- Jennifer Knipe, Lawrence Livermore National Laboratory

11:25 AM Improving the Economic Viability of Biological Utilization of Coal Power Plant CO_2 by Improved Algae Productivity and Integration with Wastewater (FE0030822)
- Lance Schideman, University of Illinois at Urbana-Champaign

11:45 AM Harnessing Algae Biomass to Contain Power Plant Emissions (FE0030977)
- Wei Liao, Michigan State University

12:05 PM Novel Catalysts Process Technology for Utilization of CO_2 for Ethylene Oxide and Propylene Oxide (FE0030678)
- Shaojun James Zhou, Research Triangle Institute

12:25 PM High-Energy Systems for Transforming CO_2 to Valuable Products (FE0029787)
- Osman Akpolat, Gas Technology Institute

12:45 PM End of Meeting

POSTERS INVITED

CARBON CAPTURE

A New Sorbent Process for Transformational Carbon Capture Process (SC0018682)
Gokhan Alptekin, TDA Research Inc.

High Capacity, Stable, Low Volatility Water-Lean Solvents for CO_2 Capture (SC0018821)
Erik Meuleman, ION Engineering LLC

Carbon Dioxide Absorption via Ultra-High Surface Area Carbon (SC0018958)
Yudhisthira Sahoo, Vuronyx Technologies LLC

Scalable Polymerized Metal-Organic Frameworks with CO_2-Philic Rubbery Polymers for Membrane CO_2/N_2 Separation (SC0018956)
Ravi Prassad, Helios-NRG LLC

Advanced Bio-Derived Sorbents for CO_2 Capture (SC0018964)
Anthony Richard, Thermosolv LLC

Energy-Efficient Carbon Capture Processes with Adsorbents Displaying Non-Traditional Isotherms (SC0018957)
Thomas McDonald, Mosaic Materials Inc.

Novel CO_2 Sorbent Materials for Advanced Carbon Capture Technologies (SC0018965)
Juan He, Advanced Energy Materials LLC

Integrated Multichannel Water Gas Shift Catalytic Membrane Reactor for Pre-Combustion Carbon Capture (SC0018853)
Zhong Tang, Bettergy Corporation

Validation of Transformational CO_2 Capture Solvent Technology with Revolutionary Stability (FE0031727)
Erik Meuleman, ION Engineering LLC

Fog+Froth-Based Post-combustion CO_2 Capture in Fossil-Fuel Power Plants (FE0031733)
Heather Nikolic, University of Kentucky Research Foundation

Transformational Sorbent-Based Process for a Substantial Reduction in the Cost of CO_2 Capture (FE0031722)
Ravi Jain, InnoSepra LLC

Novel Next-Generation Sorbent System for Post-Combustion CO_2 Capture (FE0031734)
Gokhan Alptekin, TDA Research Inc.

Advanced Structured Adsorbent Architectures for Transformative CO_2 Capture Performance (FE0031732)
Deborah Jelen, Electricore Inc.

Transformational Molecular Layer Deposition Tailor-Made Size-Sieving Sorbents for Post-Combustion CO_2 Capture (FE0031730)
Miao Yu, Rensselaer Polytechnic Institute

Novel Transformational Membranes and Process for CO_2 Capture from Flue Gas (FE0031731)
W. S. Winston Ho, The Ohio State University

Rational Development of Novel Metal-Organic Polyhedra-Based Membranes for CO_2 Capture (FE0031736)
Haiqing Lin, State University of New York - Buffalo

Enriched Amine Sorbent for CO_2 Capture in a Temperature Swing Adsorption Pilot Plant
Thiago de Aquino, Associação Beneficente da Indústria Carbonífera de Santa Catarina

Memzyme Technology for Cost-Effective CO_2 Separations in Enhanced Oil Recovery (TCF-17-13314)
Susan Rempe, Sandia National Laboratories

Carbon Capture Retrofit Tools
Timothy Fout, U.S. Department of Energy, National Energy Technology Laboratory

Preliminary Evaluation of the Design Implications of Membrane Modules into Large Scale Post-Combustion Carbon Capture
Timothy Fout, U.S. Department of Energy, National Energy Technology Laboratory

Update of Greenhouse Gas Reductions in the Power Industry Using Domestic Coal and Biomass with Pulverized Coal Plants
Timothy Fout, U.S. Department of Energy, National Energy Technology Laboratory

Membrane-Integrated Sorbent Adsorption Process for Carbon Capture (SC0011885)
Gokhan Alptekin, TDA Research Inc.

Solid Phase Supports for Flue Gas CO_2 Separation with Molten Electrolytes (SC0017124)
Matthew Merrill, Luna Innovations

High-Efficiency Post-Combustion Carbon Capture System (SC0017221)
Codruta Loebick, Precision Combustion Inc.

CO_2 UTILIZATION

Tailoring Cementitious Materials Toward Value-Added Use of Large CO_2 Volumes (SC0011960)
Anagi Balachandra, Metna Company

Solar Energy-Powered Material-Based Conversion of CO_2 to Fuels (SC0015855)
Jeffrey Weissman, Precision Combustion Inc.

Novel Algae Technology for CO_2 Utilization (SC0017077)
James Maloney, Helios-NRG LLC

Electrochemical Reduction of Carbon Dioxide to Useful Chemical Intermediates (SC0017105)
Philip Cox, Mainsream Engineering Corporation

Microfluidic System for CO_2 Reduction to Hydrocarbons (SC0015173)
Brian Skinn, Faraday Techology Inc.

Plasma-Assisted Catalysis for CO_2 Utilization (SC0019664)
Howard Pearlman, Advanced Cooling Technologies Inc.

Catalytic Plasmonic Ribbon (SC0019657)
Youssef Habib, Aquaneers Inc.

Unique Nanotechnology Converts Carbon Dioxide to Valuable Products (FE0031707)
Bingyun Li, West Virginia University Research Corporation

Novel Modular Electrocatalytic Processing for Simultaneous Conversion of Carbon Dioxide and Wet Shale Gas Into Valuable Products (FE0031709)
Jason Trembly, Ohio University

An Intensified Electro-Catalytic Process for Production of Formic Acid from Power Plant CO_2 Emissions (FE0031720)
Jesse Thompson, University of Kentucky

Carbon Dioxide and Renewable Electricity into Chemicals: Chemical Production from Coal Flue Gas (FE0031706)
Hongzhou Yang, Dioxide Materials Inc.

Selective and Efficient Electrochemical Production of Neat Formic Acid from Carbon Dioxide Using Novel Platinum Group Metals-Free Catalysts (FE0031704)
Syed Mubeen Jawahar Hussaini, The University of Iowa

CO_2 to Fuels Through Novel Electrochemical Catalysis (FE0031716)
Neal Sullivan, Colorado School of Mines

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Chris Jones, Georgia Tech Research Corporation

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A Scalable Process for Upcycling Carbon Dioxide and Coal Combustion Residues Into Construction Products (FE0031718)
Gaurav Sant, University of California - Los Angeles

Field Scale Testing of the Thermocatalytic Ethylene Production Process Using Ethane and Actual Coal Fired Flue Gas CO_2 (FE0031713)
Amit Goyal, Southern Research Institute

Beneficial Use of CO_2 from Coal-Fired Power Plants for Production of Animal Feeds (FE0031717)
Tryg Lundquist, MicroBio Engineering

Novel Algae Technology to Utilize CO_2 for Value-Added Products (FE0031710)
Frederick Harrington, Helios-NRG LLC

Alkanolamines for Acid Gas Removal in Gasification Processes (FWP-72564)
Philip Koech, Pacific Northwest National Laboratory

Incorporating Microencapsulated Sorbents into Bioreactor Chips for CO_2 Capture, Conversion and Air Purification (TCF-18-15781)
Congwang Ye, Lawrence Livermore National Laboratory

A Novel Catalyst for the Synthesis of Electrochemical Fuels (TCF-18-15659)
Adam Rondinone, Oak Ridge National Laboratory

Direct Electrochemical Valorization of Captured Carbon Dioxide (TCF-18-15716)
Luis Diaz Aldana, Idaho National Laboratory

CARBON STORAGE

RIC Tasks 6 through 9: Cost Analysis Associated with Capture, Transport, Utilization and Storage (CTUS) of CO_2
Tim Grant and Tim Skone, NETL RIC

RIC Task 13: Fundamental Reservoir Properties for High Priority Depositional Environments Targeted for CO_2 Storage
Dustin Crandall, NETL RIC

RIC Task 15: Impacts of CO_2-Exposed Microbial Ecology on Reservoir Performance
Djuna Gulliver, NETL RIC

RIC Task 18: Characterizing Shales as Seals for CO_2 Containment and Shales as Reservoirs for Geologic Storage of CO_2
Dustin Crandall and Angela Goodman, NETL RIC

RIC Task 23: Field Tools for Direct Monitoring of CO_2 and Brine Impacts in Groundwater Systems
Paul Ohodnicki, NETL RIC

RIC Tasks 27, 28 and 29: Energy Data eXchange (EDX) and National Carbon Sequestration Database and Geographic Information Systems (NatCarb) for DOE R&D tools
Kelly Rose and Jen Bauer, NETL RIC

OIL & NATURAL GAS

Risk-Based Data Management System: FracFocus, States First and Produced Water Initiative (FE0027702)
Paul Jehn, Ground Water Protection Council

Resident Inline Robot for Leakage Inspection, Repair and Prevention of Methane Emissions (SC0018906)
Aalap Shah, ULC Robotics

Multifunctional Distributed Fiber Sensors for Pipeline Monitoring and Methane Detections (FE0029063)
Hang "Kevin" Chen, University of Pittsburgh

Modeling Fractured Shale Networks for Horizontal Well Development (SC0018816)
Harry Johnson, Intek Inc.

Microbial Ecology of Hydraulic Shale Environments (FWP-1022415 Task 4)
Djuna Gulliver, NETL-RIC

An Analysis of the Natural Fracture Network Surrounding the MSEEL Well and Analog Outcrop Data (FWP-1022415 Task 5)
Jerry Boyle, NETL-RIC

Progress in Modifying NFFLOW for Modeling Temperature Transients Throughout a Fractured Natural Gas Reservoir (FWP-1022415 Task 5)
W. Neal Sams, NETL-RIC

Experimental Study of Barite Scaling in Marcellus Shale During a Simulated Injection and Shut-In Period of Hydraulic Fracturing (FWP-1022415 Task 11)
Christina Lopano, NETL-RIC

Digital Core Characterization (FWP-1022415 Task 2)
Dustin Crandall, NETL-RIC

Characterizing Application of CO_2 as a Recovery Agent to Mobilize Hydrocarbons from Shale (FWP-1022415 Task 9)
Angela Goodman, NETL-RIC

Quantifying Electron Donating and Accepting Capacity of Shales (FWP-1022415 Task 3)
Brandon McAdams, NETL-RIC

NETL RIC Onshore Unconventional Resources Portfolio (FWP-1022415)
Alexandra Hakala, NETL-RIC

Tuscaloosa Marine Shale Laboratory
David Borrok, Missouri University of Science and Technology

**Grid-Scale, Long-Term Energy Storage:
Repurposing Hydrocarbon Reservoirs, Resources, and Infrastructure to Store CO_2 and Heat**
Tom Buscheck, LLNL

Developing Biomineralization Technology for Ensuring Wellbore Integrity
Robin Gerlach, University of Montana

Tailoring Cementitious Materials Towards Value-Added Use of Large CO_2 Volumes
Anagi Balachandra, Metna Company

THANK YOU
FOR ATTENDING

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