NATIONAL ENERGY TECHNOLOGY LABORATORY

DIRECT AIR CAPTURE VIRTUAL KICKOFF MEETING
Final Agenda
February 24-25, 2021

*All times designated in Eastern Standard Time.

Wednesday, February 24, 2021

Moderator: Dan Hancu, National Energy Technology Laboratory

10:00 am **Introductory Remarks**
Dan Hancu, National Energy Technology Laboratory

10:15 am **MIL-101 (CR)-Amine Sorbents Evaluation Under Realistic Direct Air Capture Conditions**
Ryan Lively, Georgia Tech Research Corporation

10:25 am **Transformational Sorbent Materials for a Substantial Reduction in the Energy Requirement for Direct Air Capture of CO_2**
Ravi Jain, InnoSepra, LLC

10:35 am **Advanced Integrated Reticular Sorbent-Coated System to Capture CO_2 from the Atmosphere (AIR2CO_2)**
David Moore, General Electric (GE) Company

10:45 am **Development Of Advanced Solid Sorbents For Direct Air Capture**
Mustapha Soukri, Research Triangle Institute (RTI)

10:55 am **Capture of Atmospheric Carbon Dioxide**
Codruta Loebick, Precision Combustion, Inc.

11:05 am **Q&A**

Moderator: Krista Hill, National Energy Technology Laboratory

11:20 am **A Combined Water and CO_2 Direct Air Capture System**
Will Kain, IWVC, LLC

11:30 am **Low Regeneration Temperature Sorbents for Direct Air Capture of CO_2**
S. James Zhou, Susteon, Inc.

11:40 am **Novel, Efficient, Low Cost Technology for Direct Air Capture of CO_2 and its Removal from Low Concentration Streams**
Mansour Masoudi, Emissol, LLC

11:50 am **An Advanced Sorbent for Direct Air Capture**
Gokhan Alptekin, TDA Research, Inc.

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12:00 pm **Transformational Sorbent-Based Process for Direct Air Capture**
Ravi Jain, InnoSepra, LLC

12:10 pm **Q&A**

12:30 pm **LUNCH**

Moderator: Katharina R. Daniels, National Energy Technology Laboratory

1:00 pm **DAC TEA Overview (NETL)**
Tim Fout, National Energy Technology Laboratory

1:30 pm **Tunable, Rapid-uptake, AminoPolymer Aerogel Sorbent for Direct Air Capture of CO_2 (TRAPS)**
Mahati Chintapalli, Palo Alto Research Center

1:40 pm **Direct Air Capture of Energy for Carbon Capture, Utilization, and Storage (CCUS) Partnership (Dac Reco2up)**
Kenneth J. Nemeth, Southern States Energy Board (SSEB)

1:50 pm **Gradient Amine Sorbents for Low Vacuum Swing CO_2 Capture at Ambient Temperature**
Steven Chuang, The University of Akron

2:00 pm **Next Generation Fiber-Encapsulated Nanoscale Hybrid Materials for Direct Air Capture with Selective Water Rejection**
Ah-Hyung Park, Columbia University

2:10 pm **Direct Air Capture Using Trapped Small Amines in Hierarchical Nanoporous Capsules on Porous Electrospun Hollow Fibers**
Miao Yu, University at Buffalo

2:20 pm **Q&A**

2:35 pm **BREAK**

Moderator: Nicole Shamitko-Klingensmith, National Energy Technology Laboratory

2:45 pm **LCA Overview (NETL)**
Tim Skone, National Energy Technology Laboratory

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3:15 pm **Membrane Adsorbents Comprising Self-Assembled Inorganic Nanocages (SINCs) for Super-Fast Direct Air Capture Enabled by Passive Cooling**
Haiqing Lin, State University of New York (SUNY)

3:25 pm **High-Performance, Hybrid Polymer Membrane for Carbon Dioxide Separation from Ambient Air**
Maksudul Alam, Innosense LLC

3:35 pm **Electrochemically-Driven Carbon Dioxide Separation**
Brian Setzler, University of Delaware

3:45 pm **Enhanced Depolarized Electro-Membrane System For Direct Capture of Carbon Dioxide From Ambient Air**
Ayokunle Omosebi, University of Kentucky

3:55 pm **Q&A**

Moderator: Carl Laird, National Energy Technology Laboratory

4:10 pm **Optimization of Electrode Material, Morphology and Geometry for Electro-Swing DAC of CO_2**
Sahag Voskian, Verdox, Inc.

4:20 pm **Dual Function Materials for Direct Air Capture of CO_2**
Raghubir Gupta, Susteon, Inc.

4:30 pm **Integrated Process for Direct Air Capture of CO_2 and its Electrochemical Conversion to Ethanol**
Radu Custelcean, Oak Ridge National Laboratory (ORNL)

4:40 pm **Experimental Demonstration of Alkalinity Concentration Swing for Direct Air Capture of Carbon Dioxide**
Daniel Schrag, Harvard University

4:50 pm **Q&A**

5:05 pm **ADJOURN**

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Thursday, February 25, 2021

Moderator: Andy Jones, National Energy Technology Laboratory

10:00 am **Introduction**

10:05 am **Direct Air Capture Using Novel Structured Adsorbents**
Deborah Jelen, Electricore, Inc.

10:15 am **Demonstration of a Continuous-Motion Direct Air Capture (DAC) System**
Eric W. Ping, Global Thermostat, LLC

10:25 am **Demonstration of Direct Air Capture (DAC) of CO_2 with Building Air Handling Equipment**
Kashif Nawaz, Oak Ridge National Laboratory (ORNL)

10:35 am **Q&A**

Moderator: Scott Litzelman, ARPA-E

10:45 am **Mining the Air for Fuels and Fine Chemicals**
Matt Green, Arizona State University

11:00 am **Electro-Swing Adsorption for High Efficiency Direct Air Capture**
Sahag Voskian, Verdox

11:10 am **High-Efficiency, Low-Cost, Additive-Manufactured Air Contactor**
Mike Izenson, Creare

11:20 pm **Wind-driven Direct Air Capture Using 3D Printed, Amine-loaded Adsorption Contactors**
Ryan Lively, Georgia Institute of Technology

11:30 pm **Electrochemical Direct Air Capture of CO_2 using Redox-Active Textiles**
David Kwabi, University of Michigan

Moderator: Dave Babson, ARPA-E

11:40 pm **An Off-Shore, Stand-Alone System For Efficient CO_2 Removal from Oceanwater**
Harry Atwater, California Institute of Technology

11:50 pm **Electrochemically Modulated CO_2 Removal from Ocean Waters**
T. Alan Hatton, Massachusetts Institute of Technology

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12:00 pm **Hydrolytic Softening of Ocean Water for Carbon Dioxide Removal**
Chris Martin, University of North Dakota

12:10 pm **Q&A**

12:30 pm **LUNCH**

Moderator: Daniel Matuszak, Basic Energy Science

1:00 pm **Understanding Degradation Mechanisms of Aminopolymers Used in Direct Air Capture**
Simon Pang, Lawrence Livermore National Laboratory

1:10 pm **From Captured Carbon Dioxide to Value-Added Chemicals: A Photochemical Approach**
Ksenija Glusac, Argonne National Laboratory

1:20 pm **Making an Inorganic Analogue of a Cell for Direct Air Capture of CO_2**
Roger Rousseau, Pacific Northwest National Laboratory

1:30 pm **Direct Air Capture with Aqueous Amino Acids and Crystalline Guanidines**
Radu Custelcean, Oak Ridge National Laboratory

1:40 pm **Q&A**

Moderator: Christy Sterner, Bioenergies Technology Office

1:50 pm **Algae Direct Air Capture of CO2 for Commodities**
David Hazlebeck, Global Algae Innovations

2:00 pm **Marine Algae Industrialization Consortium (MAGIC) – Carbon Capture By and For Algae**
Zackary Johnson, Duke University

2:10 pm **Cultivation of Alkaliphilic Microalgae for Direct Air Capture and Conversion of CO_2 to Fuels and Products**
Sridhar Viamajala, University of Toledo

2:20 pm **ASU's DAC Polymer-enhanced Cyanobacterial Bioproductivity (AUDACity)**
Wim Vermaas, Arizona State University

2:30 pm **Q&A**

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2:40 pm **BREAK**

Moderator: José Figueroa, National Energy Technology Laboratory

3:00 PM **Advanced Manufacturing Office Overview**
Joe Cresko, Department of Energy - Advanced Manufacturing Office

3:30 PM **Department of Defense Overview**
Heather Willauer, U.S. Navy, NRL

4:00 PM **Program Directors Panel Discussion**
Lynn Brickett, Fossil Energy
Joe Cresko, Advanced Manufacturing Office
Devinn Lambert, Bioenergies Technology Office
Scott Litzelman, ARPA-E
Daniel Matuszak, Basic Energy Sciences
Heather Willauer, U.S. Navy, NRL

5:00 PM **ADJOURN**