

# Annual NETL CO<sub>2</sub> Capture Technology for Existing Plants R&D Meeting

SHERATON STATION SQUARE HOTEL  
PITTSBURGH, PA  
MARCH 24-26, 2009

TUESDAY, MARCH 24, 2009 - GRAND STATION I AND II

7:00 a.m.      **Registration - GRAND STATION II FOYER**  
**Continental Breakfast - GRAND STATION III AND IV**

## SESSION 1

Moderator: *Timothy Fout*, U.S. DOE/NETL

### OPENING/OVERVIEW

8:00 a.m.      **Introduction**

8:05 a.m.      **Opening Remarks**  
*TBA*  
U.S. DOE/NETL

8:15 a.m.      **Overview of DOE/NETL CO<sub>2</sub> Capture R&D Program**  
*Jared Ciferno*, Technology Manager, Existing Plants Program  
U.S. DOE/NETL

### POST-COMBUSTION SORBENT BASED CAPTURE

8:40 a.m.      **“Development of a Dry Sorbent-Based Post Combustion CO<sub>2</sub> Capture Technology for Retrofit in Existing Power Plants” – Progress Update**  
Project NT43089  
*TBD*, Research Triangle Institute

9:10 a.m.      **“CO<sub>2</sub> Removal from Flue Gas Using Microporous Metal Organic Frameworks” – Progress Update**  
Project NT43092  
*Annabelle Benin*, UOP LLC

9:40 a.m.      **“Metal Monolithic Amine-Grafted Zeolites for CO<sub>2</sub> Capture Power Plants” – Progress Update**  
Project NT43086  
*TBD*, University of Akron

10:10 a.m.      **BREAK - GRAND STATION III AND IV**



# Annual NETL CO<sub>2</sub> Capture Technology for Existing Plants R&D Meeting

TUESDAY, MARCH 24, 2009 - GRAND STATION I AND II

## SESSION 2

Moderator: *Andrew O'Palko*, U.S. DOE/NETL

- 10:30 a.m.      **“Low-Cost Sorbent for Capturing CO<sub>2</sub> Emissions Generated by Existing Coal-Fired Power Plants”** – Project Overview  
Project NT0005497  
*TBD*, TDA Research, Inc.
- 11:00 a.m.      **“Development of Novel Carbon Sorbents for CO<sub>2</sub> Capture”** – Project Overview  
Project NT0005578  
*TBD*, SRI International
- 11:30 a.m.      **“Evaluation of Solid Sorbents as a Retrofit Technology for CO<sub>2</sub> Capture from Coal-Fired Power Plants”** – Project Overview  
Project NT0005649  
*TBD*, ADA-ES, Inc
- 12:00 p.m.      **LUNCH - REFLECTIONS**

## SESSION 3

Moderator: *David Lang*, U.S. DOE/NETL

### POST-COMBUSTION SORBENT BASED CAPTURE- CONT'D

- 1:30 p.m.      **NETL Office of Research and Development Sorbent Based CO<sub>2</sub> Capture Research** – Progress Update  
*Henry Pennline and George Richards*, U.S. DOE/NETL - ORD

### POST-COMBUSTION SOLVENT BASED CAPTURE

- 2:10 p.m.      **“Ionic Liquids: Breakthrough Absorption Technology for Post-Combustion CO<sub>2</sub> Capture”**  
– Progress Update  
Project NT43091  
*Dr. Edward Maginn*, University of Notre Dame
- 2:40 p.m.      **“Novel High Capacity Oligomers for Low Cost CO<sub>2</sub> Capture”** – Project Overview  
Project NT0005310  
*TBD*, GE Global Research
- 3:10 p.m.      **BREAK - GRAND STATION III AND IV**

# Annual NETL CO<sub>2</sub> Capture Technology for Existing Plants R&D Meeting

TUESDAY, MARCH 24, 2009 - GRAND STATION I AND II

## SESSION 4

Moderator: TBA

### POST-COMBUSTION SOLVENT BASED CAPTURE - CONT'D

- 3:30 p.m. **“Reversible Ionic Liquids as Double-Action Solvents for Efficient CO<sub>2</sub> Capture”** – Project Overview  
Project NT0005287  
*Dr. Charles Eckert, Georgia Tech Research Corporation*
- 4:00 p.m. **“Development and Evaluation of a Novel Integrated Vacuum Carbonate Absorption Process”**  
– Project Overview  
Project NT0005498  
*TBD, Illinois State Geologic Survey*

### POST-COMBUSTION CAPTURE SYSTEMS ANALYSIS

- 4:30 p.m. **“Screening Analyses of Emerging Post-Combustion CO<sub>2</sub> Capture Technologies”** – Project Overview  
*TBD, U.S. DOE/NETL - OSAP*
- 5:00 p.m. **“Development of Chemical Additives for Use In Solvent Systems for CO<sub>2</sub> Capture Cost Reduction”** – Project Overview  
*TBD, Lawrence Berkley National Laboratory*
- 5:30 p.m. **ADJOURN**
- 5:30 -7:00 p.m. **RECEPTION / POSTER SESSION - REFLECTIONS**

WEDNESDAY, MARCH 25, 2009 - GRAND STATION I AND II

- 7:00 a.m. **Registration - GRAND STATION II FOYER**  
**Continental Breakfast - GRAND STATION III AND IV**

## SESSION 5

Moderator: *Charles Miller, U.S. DOE/NETL*

### ADVANCED OXY-COMBUSTION PROCESSES

- 8:00 a.m. **“Coal Direct Chemical Looping Retrofit to Pulverized Coal Power Plants for In-Situ CO<sub>2</sub> Capture”** – Project Overview  
Project NT0005289  
*TBD, The Ohio State University*

# Annual NETL CO<sub>2</sub> Capture Technology for Existing Plants R&D Meeting

WEDNESDAY, MARCH 25, 2009 - GRAND STATION I AND II

8:30 a.m.            **“Chemical Looping Combustion Prototype for CO<sub>2</sub> Capture from Existing Pulverized Coal-Fired Power Plants”** – Project Overview  
Project NT0005286  
*TBD*, Alstom Power, Inc.

9:00 a.m.            **NETL Office of Research and Development Chemical Looping Research** – Progress Update  
*William Rogers*, U.S. DOE/NETL - ORD

9:30 a.m.            **“Oxygen Transport Membrane Based Oxycombustion for CO<sub>2</sub> Capture from Coal Power Plants”** – Project Overview  
Project NT43088  
*TBD*, Praxair, Inc.

10:00 a.m.           **BREAK - GRAND STATION III AND IV**

## SESSION 6

Moderator: TBA

### OXY-COMBUSTION SYSTEM TESTING AND EVALUATION

10:20 a.m.           **“Development of Cost Effective Oxy-Combustion Technology for Retrofitting Coal-Fired Boilers”** – Progress Update  
Project NT42747  
*TBD*, Babcock & Wilcox Co

10:50 a.m.           **“Oxygen-Fired CO<sub>2</sub> Recycle for Application to Direct CO<sub>2</sub> Capture From Coal-Fired Power Plants”** – Progress Update  
NT42430  
*TBD*, Southern Research Institute

11:20 a.m.           **“Characterization of Oxy-Combustion Impacts in Existing Coal-Fired Boilers”** – Project Overview  
NT0005288  
*TBD*, Reaction Engineering International

12:00 p.m.           **LUNCH - ADMIRAL ROOM**

## SESSION 7

Moderator: *Robert Patton*, U.S. DOE/NETL

1:30 p.m.            **“Jupiter Oxycombustion and Integrated Pollutant Removal for the Existing Coal Fired Power Generation Fleet”**  
Project NT42811  
*Brian Patrick*, Jupiter Oxygen Corporation

# Annual NETL CO<sub>2</sub> Capture Technology for Existing Plants R&D Meeting

WEDNESDAY, MARCH 25, 2009 - GRAND STATION I AND II

2:00 p.m.            **“Oxyfuel Firing System Development for Tangentially Fired Boilers”** – Project Overview  
NT0005290  
*TBD*, Alstom Power, Inc

## OXY-COMBUSTION COMPONENT ANALYSIS

2:30 p.m.            **“Oxy-Combustion Boiler Material Development”** – Project Overview  
Project NT40005262  
*TBD*, Foster Wheeler Corporation

3:00 p.m.            **BREAK - GRAND STATION III AND IV**

## **SESSION 8**

Moderator: *Mike Mosser*, U.S. DOE/NETL

3:20 p.m.            **“Near Zero Emissions Oxy-Combustion Flue Gas Purification”** – Project Overview  
Project NT0005341  
*TBD*, Praxair, Inc.

3:50 p.m.            **“Flue Gas Purification Utilizing SO<sub>x</sub>/NO<sub>x</sub> Reactions during Compression of CO<sub>2</sub> Derived from Oxyfuel Combustion”** – Project Overview  
Project NT0005309  
*Dr. Kevin Fogash*, Air Products and Chemicals, Inc.

## CO<sub>2</sub> COMPRESSION

4:20 p.m.            **“CO<sub>2</sub> Compression Using Super Sonic Shock Wave Technology”** – Progress Update  
Project NT42651  
*TBD*, Ramgen Power Systems

4:50 p.m.            **“Novel Concepts for the Compression of Large Volumes of Carbon Dioxide”** – Progress Update  
Project NT42650  
*TBD*, Southwest Research Institute

5:20 p.m.            **ADJOURN**

5:20 -6:30 p.m.    **Posters available for viewing**

THURSDAY, MARCH 26, 2009 - GRAND STATION I AND II

7:00 a.m.            **Registration - GRAND STATION II FOYER**  
**Continental Breakfast - GRAND STATION III AND IV**

# Annual NETL CO<sub>2</sub> Capture Technology for Existing Plants R&D Meeting

THURSDAY, MARCH 26, 2009 - GRAND STATION I AND II

## SESSION 9

Moderator: TBA

### SYSTEMS STUDIES AND MODELING EFFORTS

- 8:00 a.m. **“Evaluation of CO<sub>2</sub> Capture and Sequestration Using Oxyfuels with AMIGA Economic Modeling”** – Progress Update  
*TBD*, Argonne National Laboratory
- 8:30 a.m. **“U.S. DOE/NETL Office of Research and Development Oxyfuel Combustion Research”**  
– Progress Update  
*David Huckaby and Bernard Covino*, U.S. DOE/NETL - ORD
- 9:10 a.m. **“Assessment of Power Plants that Meet California’s Proposed Greenhouse Gas Emission Performance Standards”**  
*TBD*, U.S. DOE/NETL - OSAP
- 9:40 a.m. **BREAK - GRAND STATION III AND IV**

## SESSION 10

Moderator: *José Figueroa*, U.S. DOE/NETL

### POST-COMBUSTION MEMBRANE BASED CAPTURE

- 10:00 a.m. **“Membrane Process to Capture Carbon Dioxide from Coal-fired Power Plant Flue Gas”**  
– Progress update  
Project NT0005312 and NT43085  
*TBD*, Membrane Technology and Research
- 10:30 a.m. **“Development of Biomimetic Membranes for Near Zero PC Power Plant Emissions”** – Progress Update  
*TBD*, Carbozyme, Inc.
- 11:00 a.m. **“CO<sub>2</sub> Capture Membrane Process for Power Plant Flue Gas”** – Project Overview  
Project NT0005313  
*TBD*, Research Triangle Institute

### LARGE SCALE TESTING

- 11:30 a.m. **Progress Update**  
*TBD*, PSDF
- 12:00 p.m. **Closing Comments**  
*TBD*, U.S. DOE/NETL
- 12:15 p.m. **ADJOURN**