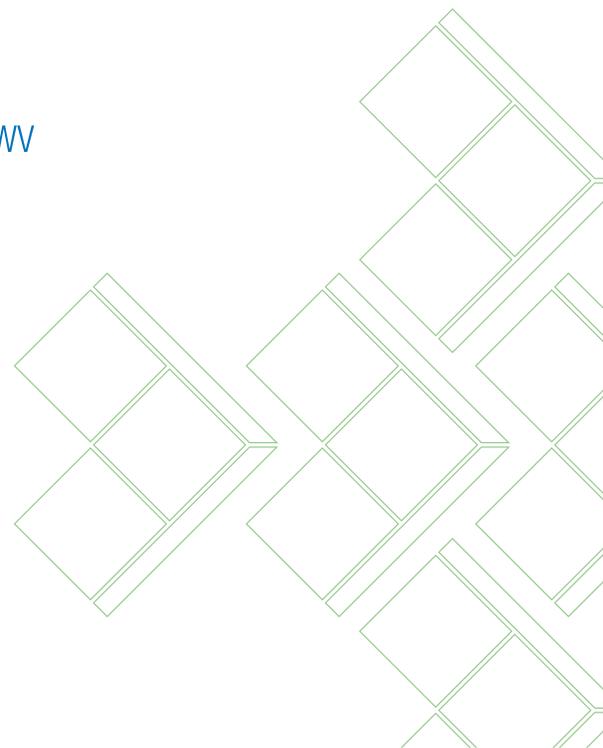


2015
GASIFICATION
SYSTEMS
and
COAL &
COAL-BIOMASS
TO LIQUIDS
WORKSHOP

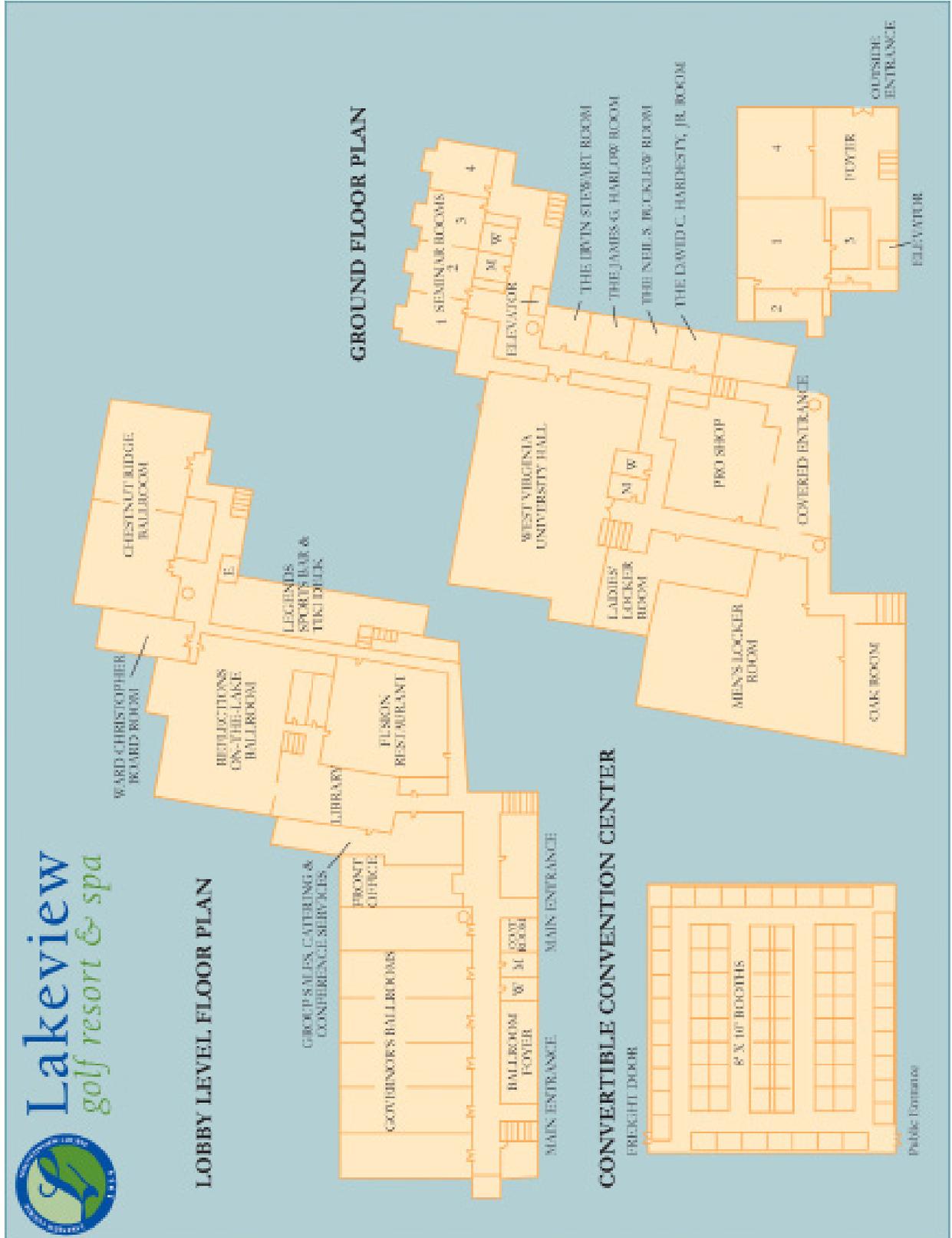
Lakeview Conference Center, Morgantown, WV
August 10–11, 2015



U.S. DEPARTMENT OF
ENERGY



LAKEVIEW CONFERENCE CENTER FLOOR PLAN



DETAILED PROGRAM

MONDAY, AUGUST 10TH

7:30-8:30 am

REGISTRATION-BALLROOM FOYER
CONTINENTAL BREAKFAST-GOVERNOR'S BALLROOM FOYER

GENERAL SESSION-GOVERNOR'S BALLROOM 1-3

KEYNOTE SPEAKER

MODERATOR:

Jenny Tennant, U.S. Department of Energy, National Energy Technology Laboratory

8:30-9:00 am

Welcome and Introduction

Jenny Tennant, Technology Manager for Gasification and C&CBTL
U.S. Department of Energy, National Energy Technology Laboratory

Wyoming Coal's Role in the World-Recent Past, Present and Future (20 minutes)

Don Collins, CEO of the Western Research Institute

SESSION I

MODERATOR:

Steve Richardson, U.S. Department of Energy, National Energy Technology Laboratory

9:00-10:00 am

Chemical Looping Gasification for Hydrogen Enhanced Syngas Production (25 minutes)

Liang-Shih Fan, The Ohio State University

Limestone Chemical Looping (25 minutes)

Armand Levasseur, Alstom Power, Inc.

10:00-10:15 am

BREAK – Governor's Ballroom Foyer

SESSION II

MODERATOR:

Darryl Shockley, U.S. Department of Energy, National Energy Technology Laboratory

10:15-11:45 am

Radically Engineered Modular Systems (25 minutes)

George Richards, U.S. Department of Energy, National Energy Technology Laboratory

Praxair's Oxygen Transport Membrane Technology for Syngas and Power Applications (25 minutes)

Juan Li, Praxair, Inc.

Advanced Reactor Design for Integrated WGS/Pre-Combustion CO₂ Capture (25 minutes)

Gokhan Alptekin, TDA Research, Inc.

DETAILED PROGRAM

MONDAY, AUGUST 10TH

11:45-1:15 pm

LUNCH—GOVERNOR'S BALLROOM 5-6
POSTERS—GOVERNOR'S BALLROOM 5-6

SESSION III
MODERATOR:

Arun Bose, U.S. Department of Energy, National Energy Technology Laboratory

1:15-2:45 pm

Sorbent-Based Oxygen Production for Energy Systems (15 minutes)
Vijay Sethi, Western Research Institute

Cost-Effective Air Separation Systems (15 minutes)
Gokhan Alptekin, TDA Research, Inc.

A Cost-Effective Oxygen Separation System Based on Open Gradient Magnetic Field by Polymer Beads (15 minutes)
Raghuvir Singh, ITN Energy Systems, Inc.

Production of High-Purity Oxygen via Membrane Contactor with Oxygen Carrier Solutions (15 minutes)
Shiguang Li, Gas Technology Institute

Intermediate Temperature Nano-Structured Ceramic Hollow Fiber Membranes for Oxygen Separation (15 minutes)
Xingjian Xue, University of South Carolina

2:45-3:15 pm

BREAK—GOVERNOR'S BALLROOM FOYER
POSTERS—GOVERNOR'S BALLROOM 5-6

SESSION IV
MODERATOR:

Dave Lyons, U.S. Department of Energy, National Energy Technology Laboratory

3:15-5:00 pm

Advanced Gasifier and Water Gas Shift Technologies for Low-Cost Coal Conversion to High Hydrogen Syngas (20 minutes)
Tim Saunders, GTI

Scale-Up of High Temperature Syngas Cleanup Technology (30 minutes)
Raghubir Gupta, RTI International

Dry Solids Pump Coal Feed Technology (20 minutes)
Don Stevenson, GTI

Breakthrough Hybrid CTL Process Integrating Advanced Technologies for Coal Gasification, NG Partial Oxidation, Warm Syngas Cleanup, and Syngas-to-Jet Fuel (20 minutes)
John Carpenter, RTI International

5:00-7:00 pm

POSTERS/RECEPTION—GOVERNOR'S BALLROOM 5-6

DETAILED PROGRAM

TUESDAY, AUGUST 11TH

7:30-8:30 am

REGISTRATION—BALLROOM FOYER
CONTINENTAL BREAKFAST—GOVERNOR'S BALLROOM FOYER

GENERAL SESSION—GOVERNOR'S BALLROOM 1-3

KEYNOTE SPEAKER

MODERATOR:

Heather Quedenfeld, U.S. Department of Energy, National Energy Technology Laboratory

8:30-9:00 am

Introduction

Heather Quedenfeld, Division Director, Advanced Energy Systems Division
U.S. Department of Energy, National Energy Technology Laboratory

Coal Conversion – A Global Perspective (20 minutes)

David Denton, Gasification Technologies Council and RTI International

SESSION I

MODERATOR:

James Fisher, U.S. Department of Energy, National Energy Technology Laboratory

9:00-10:00 am

Indirect Liquefaction of Coal-Biomass Mixtures for Production of Jet Fuel with High Productivity and Selectivity (15 minutes)

Santosh Gangwal, Southern Research Institute

Technology for Cost-Competitive Jet Fuel Production Using CTL (15 minutes)

Joseph Hartvigsen, Ceramatec, Inc.

New Advances for Fischer-Tropsch Catalysis (15 minutes)

Christopher Matranga, U.S. Department of Energy, National Energy Technology Laboratory

10:00-10:15 am

BREAK—GOVERNOR'S BALLROOM FOYER

SESSION II

MODERATOR:

Jenny Tennant, U.S. Department of Energy, National Energy Technology Laboratory

10:15-12:00 am

Application of Chemical Looping with Spouting Fluidized Bed for Hydrogen-Rich Syngas Production From Catalytic Coal Gasification (20 minutes)

Kunlei Liu, University of Kentucky-Center for Applied Energy Research

Development of Coal to Liquids Pilot Facility and Lessons Learned (20 minutes)

Andrew Placido, University of Kentucky-Center for Applied Energy Research

Coal to Desired Fuels and Chemicals (20 minutes)

Maohong Fan, University of Wyoming

Bio Gasification Panel (35 minutes)

MODERATOR: *Djuna Gulliver*, U.S. Department of Energy, National Energy Technology Laboratory

Yael Tucker, U.S. Department of Energy, National Energy Technology Laboratory

Yanna Liang, Southern Illinois University Carbondale

Matthew Fields, Montana State University

Taylor Sparks, University of Utah

DETAILED PROGRAM

TUESDAY, AUGUST 11TH

12:00-1:30 pm

LUNCH—GOVERNOR'S BALLROOM 5-6
POSTERS—GOVERNOR'S BALLROOM 5-6

SESSION III

MODERATOR:

George Richards, U.S. Department of Energy, National Energy Technology Laboratory

1:30-2:30 pm

Design/Cost Study for Synthetic Jet Fuel Production at a Mississippi Site from Lignite Woody Biomass with CO₂ Capture and Storage via EOR (25 minutes)
Eric Larson, Princeton University

Multiphase Flow Science at The National Energy Technology Laboratory (25 minutes)
William Rogers, U.S. Department of Energy, National Energy Technology Laboratory

2:30-3:00 pm

BREAK—GOVERNOR'S BALLROOM 5-6
POSTERS—GOVERNOR'S BALLROOM FOYER

SESSION IV

BREAK OUT DISCUSSIONS

3:00-5:00 pm

Radical Reactor Concepts—Ballroom 1

Jenny Tennant, U.S. Department of Energy, National Energy Technology Laboratory
George Richards, U.S. Department of Energy, National Energy Technology Laboratory

Performing a Techno-Economic Analysis (TEA)—Ballroom 2

James Fisher, U.S. Department of Energy, National Energy Technology Laboratory

New Coal and Biomass to Liquids Concepts —Ballroom 3

Dushyant Shekhawat, U.S. Department of Energy, National Energy Technology Laboratory

Biogasification Field Site Deployment Goals and Challenges—Ballroom 4

Djuna Gulliver, U.S. Department of Energy, National Energy Technology Laboratory

5:00-5:15 pm

BREAK—GOVERNOR'S BALLROOM FOYER

5:15-5:30 pm

WRAP UP AND OPEN DISCUSSION—GOVERNOR'S BALLROOM 1-3

5:30 pm

WORKSHOP CLOSES

A small meeting room (10 person capacity) will be available for informal breakout discussions throughout the workshop. One-hour reservations may be made at the registration desk.

POSTER PRESENTATIONS

GOVERNOR'S BALLROOM 5-6

Design and Fabrication of Novel Mixed Ion-Electron Conducting Membranes for Oxygen Separation

Jiwen Wang, HiFunda, LLC.

Economic and Environmental Analyses of Coal Biomass to Liquids: A Case Study In West Virginia

Weiguo Liu and Jingxin Wang, West Virginia University

Slag Management in Entrained Bed Gasification

James Bennett, U.S. Department of Energy, National Energy Technology Laboratory

Greenhouse Gas-Reduced Coal-and Biomass-to-Liquid-Based Jet Fuel (GHGR-CBTL) Process

Mehdi Namazian, Altex Technologies Corporation

Breakthrough Hybrid CTL Process Integrating Advanced Technologies for Coal Gasification, NG Partial Oxidation, Warm Syngas Cleanup, and Syngas-to-Jet Fuel

John Carpenter, RTI International

Microwave-Assisted Coal Gasification

Dushyant Shekhawat, U.S. Department of Energy, National Energy Technology Laboratory

Synthesis of the Encapsulated Porous Kaolinite Proppant with Spherification

Kyu-Bum Han, University of Utah

H₂S-Resistant Steam Reforming Catalysts for Upgrading Coal Derived Syngas for Coal-to-Liquids Production

Andrew Lucero, Southern Research Institute

Gasification and Pre-Combustion CO₂ Capture Testing at the National Carbon Capture Center

John Carroll, National Carbon Capture Center–Southern Company

A Cost-Effective Oxygen Separation System Based on Open-Gradient Magnetic Field by Polymer Beads

Raghuvir Singh, ITN Energy Systems, Inc.

Synergy and Inhibition During Co-Gasification of Biomass-Coal Blends

Pradeep Agrawal, Georgia Institute of Technology

Wave Liquefaction™: The Novel Coal-Biomass-to-Liquids Process

George Skoptsov, H Quest Vanguard, Inc.

Direct Coal-to-Liquids (CTL) for Jet Fuel Using Biomass-Derived Solvents

Satya Chauhan, Battelle

NETL Crosscutting Technology Research for Sensors Applicable to Harsh Environments

David Stopek, LTI and Robert Romanosky, U.S. Department of Energy, National Energy Technology Laboratory

NETL Crosscutting Technology Research for High-Performance Materials

David Stopek, LTI and Robert Romanosky, U.S. Department of Energy, National Energy Technology Laboratory

Poster Presentations continued on next page.

POSTER PRESENTATIONS

GOVERNOR'S BALLROOM 5-6

NETL Crosscutting Technology Research for Simulation-Based Engineering

David Stopek, LTI and Robert Romanosky, U.S. Department of Energy, National Energy Technology Laboratory

Producing Methane from Coal Through Biogasification Identifying Suitable Nutrient Solutions for Enhancing Methane Yield

Yanna Liang, Southern Illinois University Carbondale

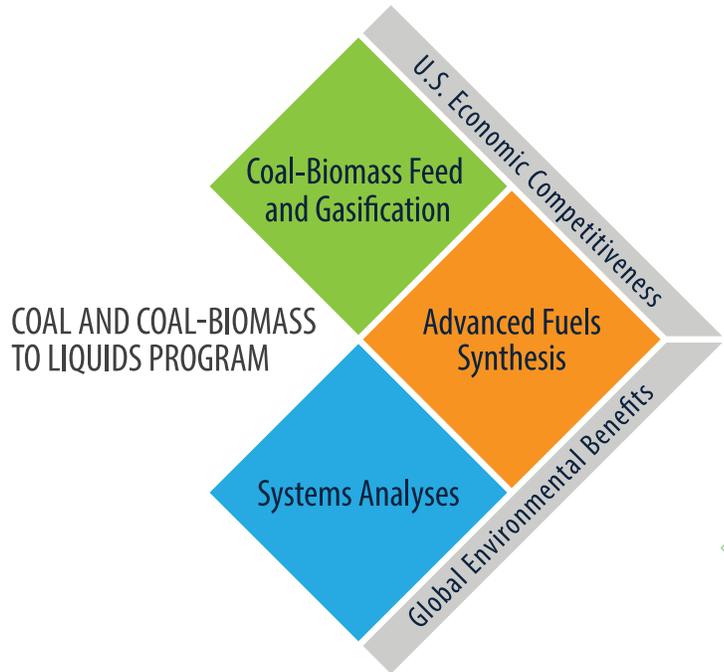
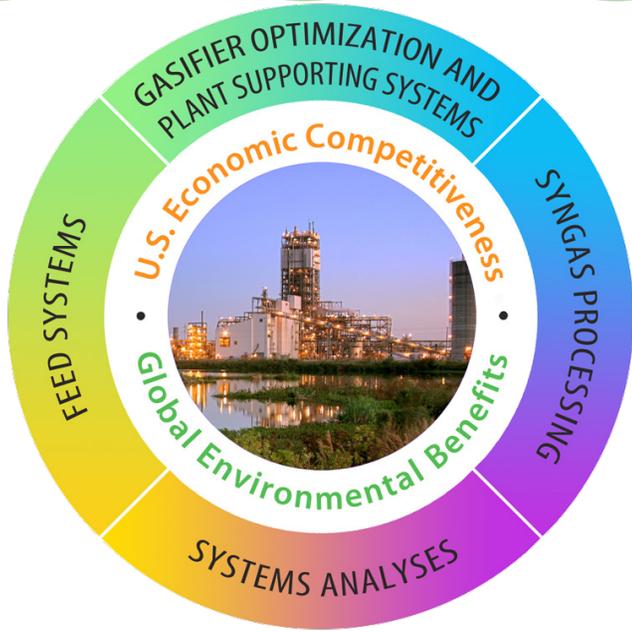
Poison Resistant Water-Gas-Shift Catalyst for Coal and Biomass Co-Gasification

Gokhan Alptekin, TDA Research, Inc.

Unconventional, Novel Coal-to-Liquids Process

Francois Botha, Thermaquatica

NOTES



COAL AND COAL-BIOMASS
TO LIQUIDS PROGRAM

626 Cochrans Mill Road
P.O. Box 10940
Pittsburgh, PA 15236-0940
412-386-4687

420 L Street, Suite 305
Anchorage, AK 99501
907-271-3618

3610 Collins Ferry Road
P.O. Box 880
Morgantown, WV 26507-0880
304-285-4764

1450 Queen Avenue SW
Albany, OR 97321-2198
541-967-5892

13131 Dairy Ashford Road, Suite 225
Sugar Land, TX 77478
281-494-2516

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