

**The Clearwater Clean Energy Conference  
MONDAY – June 4, 2018**

**8:30 a.m. – Continental Breakfast – Exhibit Center**

**9:00 a.m. – Plenary Session– Palm/Bay Rooms**

- **Call To Order:** *Barbara A. Sakkestad, Clearwater Clean Energy Conference*
- **Welcome & Overview:** *Dr. Lawrence E. Bool, Corporate Fellow, Praxair, Inc.*
- **Keynote Address: Trends in International Coal Power Project Development**  
(*Authors: Scott M. Smouse and Ayaka Jones, U.S. Department of Energy; Babatunde Fapohunda, KeyLogic Systems, Inc.; and Mark Render, West Virginia University Innovation Corporation*) **presented by** *Scott Smouse, Senior Advisor to Deputy Assistant Secretary for Clean Coal & Carbon Management, U.S. Department of Energy, USA*
- **Panel: Emerging International Developments in Power Generation**  
*Moderator: Prof. Terry Wall, University of Newcastle, Australia*
  - *Scott Smouse, Senior Advisor to Deputy Assistant Secretary, for Clean Coal & Carbon Management, U.S. Department of Energy, USA*
  - *Prof. Chuguang Zheng, Huazhong University of Science and Technology, Wuhan, China*
  - *Prof. Dongke Zhang, University of Western Australia, and Deputy Chair, the ATSE Energy Forum, Australian Academy of Technological Sciences and Engineering (ATSE), Australia*
  - *Dr. Won Yang, Korea Institute of Industrial Technology (KITECH), Korea*
  - *Prof. Klas Andersson (Chalmers University, Sweden) Brigham Young University, USA*
  - *Prof. Viktor Scherer, Ruhr-University Bochum, Germany*

**11:45 a.m. – Lunch in the Exhibit Center**

**1:00 p.m. – Plenary Session – Palm/Bay Rooms**

- **Welcome & Overview:** *Dr. Ronald Breault, National Energy Technology Laboratory, U.S. Department of Energy*
- **Panel: U.S. Energy Portfolio Today and in the Future**  
*Moderator: Bonnie Courtemanche, Director of Quality and Safety, BPE/BPS, Babcock Power, Inc.*
  - *Andrew Hlasko, U.S. Department of Energy, USA*
  - *Brad Crabtree, Vice President, Fossil Energy, Great Plains Institute, USA*
  - *Byron T. Burrows, Tampa Electric Co., USA*

**3:00 p.m. Break – Exhibit Center**

**3:30 p.m. – Four Concurrent Technical Sessions – Monday**

|                     | <b>Session 1</b><br><b>Sand Key Room</b><br><b>Biomass Co-Firing</b><br><i>Les Marshall, Ontario Power Generation, Canada</i>  | <b>Session 2</b><br><b>Gulf Room</b><br><b>Innovative Low Carbon Fuels I,</b><br><i>Dongke Zhang, The University of Western Australia, Australia</i>                                      | <b>Session 3</b><br><b>Palm Room</b><br><b>Supercritical CO<sub>2</sub> I</b><br><i>Joshua Stanislawski, UNDEERC and Bhupesh Dhungel, Air Liquide</i>   | <b>Session 4</b><br><b>Bay Room</b><br><b>Carbon Capture Utilization &amp; Sequestration I</b><br><i>Dr. Erik Meuleman, ION Engineering, and Dr. David Hopkinson, National Energy Technology Laboratory, U.S. Department of Energy</i> |
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| <b>Monday, 3:30</b> | <b>86. Demonstration of the Co-firing of Modified Biomass with Pulverized Coal at the Hunter Plant</b><br><i>Prof. Andrew Fry, Department of Chemical Engineering, University of Utah, USA</i>   | <b>12. Ammonia as a Transport Fuel in Internal Combustion Engines: A Technical Review</b><br><i>Zhezi Zhang, Center for Energy (M473), The University of Western Australia, AUSTRALIA</i> | <b>11. Coal-Based Allam Cycle Technology Development Overview</b><br><i>Joshua Stanislawski, Energy and Environmental Research Center, University of North Dakota, USA</i>                                | <b>102. Building Structural and Functional Gradients into Metal-Organic Frameworks for the Selective Transport of Molecular Species</b><br><i>Nathaniel Rosi, University of Pittsburgh, USA (Invited)</i>                              |
| <b>Monday, 3:50</b> | <b>59. The Influence of Fuel Composition on Sulfation and Deposition Rate of Alkali Salts</b><br><i>Dr. Thomas Allguren, Department of Space Earth &amp; Environment, Chalmers University of</i> | <b>33. Iron Particles as Carbon-Neutral Fuel in Spray Roasting Reactors</b><br><i>Martin Schiemann, Department of Energy Plant Technology, Ruhr-University Bochum, GERMANY</i>            | <b>16. Performance and Cost of Closed, Indirect Supercritical CO<sub>2</sub> Brayton Power Cycles with Oxy-Fired Heaters</b><br><i>Dr. Andrew Maxson, Electric Power Research Institute, Inc. (EPRI),</i> | <b>76. Status of Technology Development at the National Carbon Capture Center</b><br><i>Doug McCarty, NCCC Process and Design Engineering Manager, Southern Company, USA</i>   |

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|                     | <i>Technology, SWEDEN</i>  |   | <i>USA</i>  |  |
| <b>Monday, 4:10</b> | <b>30. Impact of Additives on Ash Deposition Rate During Co-firing of Coal and Straw</b><br><i>YongWoon Lee, Thermochemical Energy System R&amp;D Group, Korea Institute of Industrial Technology, KOREA</i> | <b>24. Catalytic Dissociation of Ammonia for Hydrogen Production: A Review</b><br><i>Zhezi Zhang, Centre for Energy (M473), The University of Western Australia, AUSTRALIA</i>  | <b>87. Development of PCHE Off-design Performance Model for Optimizing Power System Control Strategies in S-CO<sub>2</sub> Brayton Cycle</b><br><i>Jinsu Kwon, Department of Nuclear and Quantum Engineering, Korea Advanced Institute of Science and Technology, KOREA</i> | <b>7. Sorption-enhanced Mixed Matrix Membranes for Precombustion CO<sub>2</sub> Capture</b><br><i>Haiqing Lin, Department of Chemical and Biological Engineering, University at Buffalo, The State University of New York, USA (Invited)</i> |
| <b>Monday, 4:30</b> | <b>77. Elucidating the Behavior of a Blend of Prepared Woody Biomass and Utah Bituminous Coal in a Raymond Bowl Mill</b><br><i>Andrew Fry, Brigham Young University, USA</i>                                 | <b>21. A Numerical Investigation into Combustion Characteristics of Ammonia Jet Diffusion Flames</b><br><i>Jian Gao and Dongke Zhang (Centre for Energy (M473), The University of Western Australia) Key Laboratory of Biofuels, Qingdao Institute of Bioenergy and Bioprocess Technology, Chinese Academy of Sciences, CHINA</i> | <b>18. Catalytic Gasifier-Based Direct Supercritical Carbon Dioxide (sCO<sub>2</sub>) System Study</b><br><i>Walter W. Shelton, U.S. Department of Energy, National Energy Technology Laboratory, USA</i>   | <b>100. A Combined Computational and Experimental Approach to Mixed Matrix Membranes for CO<sub>2</sub> Capture</b><br><i>David Hopkinson, National Energy Technology Laboratory, U.S. Department of Energy, USA</i>                         |
| <b>Monday, 4:50</b> | <b>161. Upgrade of Mills and Burners for Biomass Firing</b><br><i>Daniel Harajda, Mitsubishi Hitachi Power Systems Americas, Inc., USA</i>   | <b>38. Carbon Dioxide Hydrogenation over a Metal-Free Carbon-Based Catalyst</b><br><i>Juan Jimenez, Department of Chemical Engineering, University of South Carolina, USA</i>   | <b>136. Modeling and Design Strategies for Direct-Fired sCO<sub>2</sub> Combustors</b><br><i>Prof. Subith Vasu, Center for Advanced Turbo-machinery and Energy Research (CATER), University of Central Florida, USA</i>   | <b>40. U.S. DOE Office of Fossil Energy – CCUS Research Efforts and Major Demonstration Program Update</b><br><i>Andrew Hlasko, U.S. Department of Energy, USA</i>   |

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| <p style="text-align: center;"><b>Monday, 5:10</b></p>  | <p><b>145. A Successful Torrefied Biomass Test Burn Program at the PGE Boardman Station</b><br/> <i>Una Nowling, Black &amp; Veatch, USA</i></p> | <p><b>61. Ignition and Extinction of Ammonia/Methane-Air Combustion</b><br/> <i>Yang Zhang, Key Laboratory for Thermal Science and Power Engineering of Ministry of Education<br/> Department of Energy and Power Engineering,<br/> Tsinghua University,<br/> CHINA</i></p> | <p><b>72. Oxy-Combustion Modeling for Direct-Fired sCO<sub>2</sub> Cycles</b><br/> <i>P.A. Strakey, National Energy Technology Laboratory, U.S.<br/> Department of Energy,<br/> USA</i></p> | <p><b>39. Port Arthur CO<sub>2</sub> Capture - World's First Full-Scale CCUS via CO<sub>2</sub> Adsorption from Syngas: Concept to Commercialization</b><br/> <i>Cory Sanderson, Air Products, USA</i></p> |
| <p><b>5:30 p.m. – Beach Party – Poolside</b> – This is a perfect networking opportunity to join all of the speakers, moderators and panelists from 12 countries: <b>Australia, Canada, China, Germany, Japan, Korea, The Netherlands, Poland, Sweden, Thailand, United Kingdom and USA.</b></p> |  |   |   |  |