

# PRELIMINARY PROGRAM

Monday, August 30, 2010

## Keynote Plenary Session

Chair: C.V. Mathai, *Arizona Public Service Co.*

**8:00 AM** Keynote:  
Robert D. Brenner, *Director, Office of Policy Analysis and Review, U.S. EPA*  
Panel:  
Laura Haynes, *Office of U.S. Senator Tom Carper (Invited)*  
Quinn Shea, *Edison Electric Institute*  
David Doniger, *Natural Resources Defense Council*

**10:00 AM** Refreshment Break

## Session 1a: Carbon Management

Co-Chairs: George Offen, *EPRI*  
Nick Hutson, *U.S. EPA*

**10:30 AM** Department of Energy's Carbon Capture Research and Development Program for Existing Coal-Fired Power Plants (90)  
J. P. Ciferno,<sup>1</sup> L. Brickett,<sup>1</sup> G. Vaux<sup>2</sup>; <sup>1</sup>*U.S. Department of Energy/NETL, Pittsburgh, PA*, <sup>2</sup>*Leonardo Technologies Incorporated, Bethel Park, PA*

**10:55 AM** Challenges to Successful CCS Implementation and Related EPA Research and Regulatory Activities  
F. P. Princiotta, *Office of Research & Development, U. S. Environmental Protection Agency, Research Triangle Park, NC*

**11:10 AM** EPRI's CO<sub>2</sub> Capture R&D Program for Coal-Fired Power Plants  
G. R. Offen, *Electric Power Research Institute, Palo Alto, CA*

**11:25 AM** Utility Scale Deployment of CO<sub>2</sub> Capture Technology - A Phased Approach (62)  
J. N. Irvin, M. A. Ivie; *Southern Company Services, Birmingham, AL*

**11:50 AM** Design Considerations for the Boundary Dam Integrated Carbon Capture Demonstration (86)  
L. E. Miller,<sup>1</sup> D. Cameron,<sup>1</sup> M. Richard,<sup>1</sup> D. Conrad,<sup>1</sup> B. Jacobs<sup>2</sup>; <sup>1</sup>*Stantec Consulting, Regina, SK, Canada*, <sup>2</sup>*SaskPower, Regina, SK, Canada*

**12:15 PM** Lunch

## Session 1b: Carbon Management - Solvents

Co-Chairs: Ravi Srivastava, *U.S. EPA*  
Lynn Brickett, *U.S. DOE*

**1:15 PM** CO<sub>2</sub> Capture and Sequestration at Alabama Power's Plant Barry - Demonstration Project (81)  
M. A. Ivie, N. Irvin; *Southern Company, Birmingham, AL*

**1:40 PM** CO<sub>2</sub> Capture Demonstration Based on Fluor's Econamine FG Plus<sup>SM</sup> Technology Located at E.ON Energie AG's Coal-Fired Power Plant in Wilhelmshaven, Germany (31)  
S. Reddy,<sup>1</sup> D. W. Johnson,<sup>2</sup> H. Zimmermann,<sup>3</sup> D. Meyer<sup>3</sup>; <sup>1</sup>*Fluor Corporation, Aliso Viejo, CA*, <sup>2</sup>*Fluor Corporation, Greenville, SC*, <sup>3</sup>*E.ON Energie AG, Munich, Germany*

**2:05 PM** Field Test Results of a Post-Combustion CO<sub>2</sub> Capture System Pilot (37)  
C. R. McLarnon,<sup>1</sup> M. Jones<sup>2</sup>; <sup>1</sup>*Powerspan Corp., Portsmouth, NH*, <sup>2</sup>*FirstEnergy Corp., Akron, OH*

**2:35 PM** Demonstration and Verification of Post Combustion Capture with Advanced Solvent and TKO<sup>™</sup> Process (40)  
B. Wang, M. D. Maloney, S. Bowden, R. A. Gardiner, D. Fitzgerald; *Doosan Babcock Energy Ltd, Renfrew, United Kingdom*

**3:00 PM** Refreshment Break

## Session 1c: Carbon Management - Solvents / Sorbents

Co-Chairs: Dick Rhudy, *EPRI*  
Tim Fout, *U.S. DOE*

**3:30 PM** Hitachi's Carbon Dioxide Scrubbing Technology with New Absorbent for Coal-Fired Power Plants (60)  
H. Kikkawa,<sup>1</sup> Y. Fukuda,<sup>2</sup> S. Takamoto,<sup>1</sup> T. Katsube,<sup>2</sup> T. Nakamoto,<sup>2</sup> T. Kawasaki,<sup>3</sup> T. Sugiura,<sup>4</sup> S. Wu,<sup>5</sup> W. Schreier,<sup>6</sup> A. Heberle<sup>6</sup>; <sup>1</sup>*Babcock-Hitachi, Higashihiroshima, Japan*, <sup>2</sup>*Babcock-Hitachi, Kure, Japan*, <sup>3</sup>*Hitachi, Tokyo, Japan*, <sup>4</sup>*Hitachi, Ibaragi, Japan*, <sup>5</sup>*Hitachi Power Systems America, Basking Ridge, NJ*, <sup>6</sup>*Hitachi Power Europe GmbH, Duisburg, Germany*

**3:55 PM** Pilot Plant Operational Experience Of An Advanced Amine Process (AAP) For CO<sub>2</sub> Capture From Coal Fired Boiler Flue Gas (142)  
N. B. Handagama,<sup>1</sup> R. Kotdawala,<sup>1</sup> B. Babu Rao,<sup>1</sup> L. Czarnecki,<sup>1</sup> D. Schmidt,<sup>1</sup> C. N. Schubert<sup>2</sup>; <sup>1</sup>*Alstom Power, Knoxville, TN*, <sup>2</sup>*The DOW Chemical Company, Freeport, TX*

**4:20 PM** Solid Sorbents as a Retrofit CO<sub>2</sub> Capture Technology: Results from Field Testing (131)  
S. Sjoström,<sup>1</sup> T. Campbell,<sup>1</sup> H. Krutka,<sup>1</sup> T. Starns,<sup>1</sup> A. O'Palko,<sup>2</sup> R. Rhudy,<sup>3</sup> C. Clark,<sup>4</sup> G. Willis,<sup>5</sup> B. Zimny,<sup>6</sup> F. Morton,<sup>7</sup> G. Liu,<sup>7</sup> W. Peng<sup>7</sup>; <sup>1</sup>*ADA Environmental Solutions, Littleton, CO*, <sup>2</sup>*DOE NETL, Morgantown, WV*, <sup>3</sup>*EPRI, Palo Alto, CA*, <sup>4</sup>*Luminant, Dallas, TX*, <sup>5</sup>*Luminant, Tatum, TX*, <sup>6</sup>*Xcel Energy, Becker, MN*, <sup>7</sup>*Southern Company Services, Wilsonville, AL*

**4:45 PM** A Low Cost, High Capacity Regenerable Sorbent for CO<sub>2</sub> Capture (170)  
G. Alptekin, A. Jayaraman, S. Dietz, L. Brickner; *TDA Research, Inc., Wheat Ridge, CO*

**5:10 - 6:30 PM** Reception, Exhibit Viewing, and Poster Session

# PRELIMINARY PROGRAM

Tuesday, August 31, 2010

## Session 2a: Carbon Management - Oxyfiring (concurrent with Session 3a)

- Chair: Tim Fout, *U.S. DOE*
- 8:00 AM** Demonstration of the Doosan Babcock 40 MW<sub>t</sub> Oxycoal™ Burner (67)  
D. Fitzgerald, E. D. Cameron, D. W. Sturgeon; *Doosan Babcock Energy Limited, Renfrew, United Kingdom*
- 8:25 AM** Technical Considerations for Oxycombustion Flue Gas Conditioning (155)  
B. Musiol, D. McDonald; *Babcock & Wilcox Company, Barberton, OH*
- 8:50 AM** Topics in Oxy-Coal Retrofit of Utility Boilers - Burner Principles and Fire-Side Corrosion (125)  
A. R. Fry,<sup>1</sup> B. R. Adams,<sup>1</sup> K. Davis,<sup>1</sup> M. Cremer,<sup>1</sup> D. Swensen,<sup>1</sup> S. Munson,<sup>1</sup> P. Kazalski,<sup>2</sup> W. Cox<sup>3</sup>; <sup>1</sup>*Reaction Engineering International, Salt Lake City, UT*, <sup>2</sup>*Siemens Environmental Systems & Services, Pluckemin, NJ*, <sup>3</sup>*Corrosion Management, Rugby, United Kingdom*
- 9:25 AM** Refreshment Break

## Session 2b: Carbon Management - Sorbents (concurrent with Session 3b)

- Co-Chairs: C.W. Lee, *U.S. EPA*  
Lynn Brickett, *U.S. DOE*
- 10:20 AM** Scale-Up of the Calera Process for Carbon Capture and Mineralization from Flue Gas from Power Production (118)  
R. Seeker; *Calera Corporation, Los Gatos, CA*
- 10:45 AM** CCS Project with Alstom's Chilled Ammonia Process at AEP's Mountaineer Plant (72)  
B. Sherrick,<sup>1</sup> R. Bollinger,<sup>1</sup> M. Hammond,<sup>1</sup> G. Spitznogle,<sup>1</sup> D. Muraskin,<sup>2</sup> F. Kozak,<sup>2</sup> M. Cage,<sup>2</sup> M. Varner<sup>2</sup>; <sup>1</sup>*American Electric Power, Columbus, OH*, <sup>2</sup>*Alstom Power, Inc., Knoxville, TN*
- 11:10 AM** Activated Carbon Injection Systems: Preparing for Utility and Industrial MACT (139)  
J. Bustard, C. Martin, R. Miller, T. Starns; *ADA Environmental Solutions, Littleton, CO*
- 11:35 AM** BASF Mercury Sorbent ZX™ for Control of Coal-Fired Power Plant Hg Emissions (176)  
W. Hizny,<sup>1</sup> X. Yang,<sup>2</sup> G. Magno<sup>3</sup>; <sup>1</sup>*BASF Corporation, Union, NJ*, <sup>2</sup>*BASF Corporation, Iselin, NJ*, <sup>3</sup>*Xcel Energy, Golden, CO*
- 12:00 PM** Lunch with Speaker - Key Policy NGO (Invited)

## Session 3a: SO<sub>2</sub> - Wet FGD - Field Experience (concurrent with Session 2a)

- Co-Chairs: John Chang, *U.S. EPA*  
Corey Tyree, *Southern Company*
- 8:00 AM** Implementation Strategies for Southern Company FGD Projects (68)  
D. R. Wall, E. C. Healy, J. C. Huggins; *Southern Company, Birmingham, AL*
- 8:25 AM** Emissions Control Performance Achieved in Practice by Electric Utility Flue Gas Desulfurization Systems in the United States (114)  
C. V. Weilert, D. W. Randall; *Burns & McDonnell, Kansas City, MO*
- 8:50 AM** Double Contact Flow Scrubber Start-Up and Operation for Gorgas and Hammond (111)  
T. Ushiku,<sup>1</sup> K. Maeda,<sup>1</sup> T. Shinoda,<sup>1</sup> Y. Nakayama,<sup>1</sup> N. West,<sup>2</sup> J. Schmit<sup>3</sup>; <sup>1</sup>*MHIA, Austin, TX*, <sup>2</sup>*Southern Company, Birmingham, AL*, <sup>3</sup>*URS, Austin, TX*
- 9:15 AM** New Technologies to Improve the Performance and Reliability of Older FGD Systems (129)  
G. Maller,<sup>1</sup> J. Klingspor,<sup>1</sup> M. Denlinger,<sup>1</sup> A. Cottemond<sup>2</sup>; <sup>1</sup>*URS, Austin, TX*, <sup>2</sup>*NRG Texas LLC, Jewett, TX*
- 9:40 AM** Refreshment Break

## Session 3b: SO<sub>2</sub> - Wet FGD - Field Experience (continued) (concurrent with Session 2b)

- Co-Chairs: John Chang, *U.S. EPA*  
Corey Tyree, *Southern Company*
- 10:20 AM** Fayette Unit 3 FGD Upgrade: Design and Performance for More Cost Effective SO<sub>2</sub> Reduction (153)  
C. Frazer,<sup>1</sup> A. Jayaprakash,<sup>2</sup> S. M. Katzberger,<sup>2</sup> Y. J. Lee,<sup>3</sup> B. R. Tielsch<sup>3</sup>; <sup>1</sup>*Lower Colorado River Authority, La Grange, TX*, <sup>2</sup>*Sargent & Lundy, Chicago, IL*, <sup>3</sup>*Babcock & Wilcox Company, Barberton, OH*
- 10:45 AM** Use of High Magnesium Limestone in East Kentucky Power Spurlock Station's Limestone Forced Oxidation Scrubber (83)  
J. K. Mercer,<sup>1</sup> S. Berrett<sup>2</sup>; <sup>1</sup>*Carmeuse Lime and Stone, Pittsburgh, PA*, <sup>2</sup>*East Kentucky Power Spurlock Station, Maysville, KY*
- 11:10 AM** Diagnosing and Solving Operational Issues for Conventional Limestone Forced Oxidation Flue Gas Desulfurization Systems (113)  
M. T. Hoydick,<sup>1</sup> M. Dougherty,<sup>1</sup> R. Glaser,<sup>2</sup> R. Steif,<sup>2</sup> D. Swinson<sup>3</sup>; <sup>1</sup>*Siemens Environmental Systems and Services, Pittsburgh, PA*, <sup>2</sup>*PPL, Pittsburgh, PA*, <sup>3</sup>*Dominion Power, Pittsburgh, PA*
- 11:35 AM** Efficiency Improvements and Operational Cost Reductions of a Dual Loop Wet FGD Scrubber at Muscatine Power & Water Using Twinabsorb® Nozzle Technology (97)  
C. C. Sauer,<sup>1</sup> R. Van Durme,<sup>1</sup> G. Seligman,<sup>2</sup> J. Freeze<sup>2</sup>; <sup>1</sup>*Lechler Inc., St. Charles, IL*, <sup>2</sup>*Muscatine Power and Water, Muscatine, IA*
- 12:00 PM** Lunch with Speaker - Key Policy NGO (Invited)

# PRELIMINARY PROGRAM

## Session 4a: Mercury – Addition/Installation (concurrent with Session 5)

**Co-Chairs:** Ramsay Chang, *EPRI*  
Andy O'Palko, *U.S. DOE*

**1:15 PM** Cost Effective Sorbent Based Solution for Coal Fired Plants with High  $\text{SO}_3$  Concentrations (154)  
N. R. Pollack,<sup>1</sup> B. Fiolek<sup>2</sup>; <sup>1</sup>Calgon Carbon Corporation, Pittsburgh, PA, <sup>2</sup>Nova Scotia Power, Sydney, NS, Canada

**1:40 PM** Full-Scale Testing of the Sorbent Activation Process (14)  
R. Chang,<sup>1</sup> C. Shaban,<sup>1</sup> M. Rostam-Abadi,<sup>2</sup> Y. Lu,<sup>2</sup> T. Ebner,<sup>3</sup> K. Fisher<sup>3</sup>; <sup>1</sup>EPRI, Palo Alto, CA, <sup>2</sup>Institute of Natural Resource Sustainability, University of Illinois at Urbana-Champaign, Champaign, IL, <sup>3</sup>Apogee Scientific, Inc, Englewood, CO

**2:05 PM** Georgia Power Company's Plant Scherer Toxecon Performance Optimization (99)  
B. Looney,<sup>1</sup> D. E. Woodson,<sup>2</sup> R. Merritt<sup>3</sup>; <sup>1</sup>Southern Company, Birmingham, AL, <sup>2</sup>Georgia Power Company, Juliette, GA, <sup>3</sup>Randy Merritt Consulting, Birmingham, AL

**2:30 PM** Field Investigations of Fixed-Structure Sorbents for Mercury Emission Control from Coal Fired Flue Gas (85)  
T. Machalek,<sup>1</sup> C. Richardson,<sup>1</sup> B. Looney,<sup>2</sup> R. Chang,<sup>3</sup> R. Merritt,<sup>4</sup> W. Piulle,<sup>5</sup> A. O'Palko<sup>6</sup>; <sup>1</sup>URS Corporation, Austin, TX, <sup>2</sup>Southern Company, Birmingham, AL, <sup>3</sup>EPRI, Palo Alto, CA, <sup>4</sup>Randy Merritt Consulting, Birmingham, AL, <sup>5</sup>Consultant, Redwood City, CA, <sup>6</sup>U.S. DOE-NETL, Morgantown, WV

**2:55 PM** Refreshment Break

## Session 4b: Mercury – Reagent Addition (concurrent with Session 6)

**Co-Chairs:** Ramsay Chang, *EPRI*  
Andrew Jones, *U.S. DOE*

**3:15 PM** Progress Report on Mercury Control Retrofit at the Colstrip Power Station (91)  
G. Criswell,<sup>1</sup> J. Mahoney,<sup>1</sup> D. Rust,<sup>1</sup> R. LaFlesh,<sup>2</sup> J. Iovino,<sup>2</sup> J. Bittner<sup>2</sup>; <sup>1</sup>PPL Montana LLC, Colstrip, MT, <sup>2</sup>Alstom Power, Windsor, CT

**3:40 PM** Multi-Technology, Mercury Abatement Program Implementation and Performance at Nova Scotia Power (152)  
D. McLellan,<sup>1</sup> B. J. Jankura,<sup>2</sup> T. Rupelli,<sup>3</sup> S. S. Klages<sup>3</sup>; <sup>1</sup>Nova Scotia Power Incorporated, Halifax, NS, Canada, <sup>2</sup>Babcock & Wilcox Company, Barberton, OH, <sup>3</sup>Babcock & Wilcox Canada, Cambridge, ON, Canada

**4:05 PM** Results of Commercial Operation of Alstom's KNX Mercury Control Technology in 2000 MW of Coal-Fired Boilers (103)  
T. Pearson,<sup>1</sup> A. Szafarz,<sup>2</sup> T. Named,<sup>3</sup> A. Welte,<sup>4</sup> B. Vosteen<sup>5</sup>; <sup>1</sup>Alstom Environmental Control Systems, Knoxville, TN, <sup>2</sup>Alliant Energy, Madison, WI, <sup>3</sup>We Energies, Milwaukee, WI, <sup>4</sup>MDU, Bismark, ND, <sup>5</sup>Vosteen Consulting, Cologne, Germany

**4:30 PM** Effects on Halogen Addition and Flue Gas Conditions on SCR Catalyst Mercury Oxidation and Removal (160)  
A. F. Sibley; *Southern Company, Birmingham, AL*

**4:55 PM** Relating Catalyst Properties to the Multipollutant Performance of Full-Scale Selective Catalytic Reduction Systems (19)  
S. Niksa,<sup>1</sup> A. Freeman Sibley<sup>2</sup>; <sup>1</sup>Niksa Energy Associates LLC, Belmont, CA, <sup>2</sup>Southern Company Services Inc, Birmingham, AL

**5:20 – 6:45 PM** Reception, Exhibit Viewing, and Poster Session

## Session 5: SO<sub>2</sub> – Dry (concurrent with Session 4a)

**Chair:** George Offen, *EPRI*

**1:15 PM** Dry Sorbent Injection at the SCR Inlet for SO<sub>3</sub> Mitigation (52)  
J. E. Norman,<sup>1</sup> M. Thomas<sup>2</sup>; <sup>1</sup>UCC, Fayetteville, NY, <sup>2</sup>Duke Energy Corporation, Cincinnati, OH

**1:40 PM** Operating Experience of CFB Semi-Dry FGD with Novel Humidification Technology in China (100)  
X. Gao,<sup>1</sup> Z. Wu,<sup>2</sup> A. P. Evans<sup>3</sup>; <sup>1</sup>ITPE, Zhejiang University, Hangzhou, China, <sup>2</sup>SINOPEC Group, Guangzhou, China, <sup>3</sup>Marsulex Environmental Technologies, Lebanon, PA

**2:05 PM** Influence of Filter Media on Secondary Capture of SO<sub>2</sub> (156)  
R. E. Snyder,<sup>1</sup> B. J. Jankura,<sup>1</sup> V. Schild,<sup>2</sup> J. LaCour<sup>2</sup>; <sup>1</sup>Babcock & Wilcox Company, Barberton, OH, <sup>2</sup>Black Hills Power, Gillette, WY

**2:30 PM** Refreshment Break

## Session 6: SO<sub>2</sub> – Wet FGD – Water (concurrent with Session 4b)

**Co-Chairs:** Nick Hutson, *U.S. EPA*  
Chuck Dene, *EPRI*

**3:30 PM** Siemens Effluent Characterization Study Phase 2 – Impact to Scrubber Operations and Waste Water Treatment (120)  
S. E. Winter, M. Hoydick, M. Sandell; *Siemens Environmental, Pittsburgh, PA*

**3:55 PM** Field Demonstration of a High-Performing Chemical Process for Removing Toxic Metals and Nitrate in the Flue Gas Desulfurization (FGD) Wastewater (136)  
X. Teng,<sup>1</sup> Y. H. Huang<sup>2</sup>; <sup>1</sup>Southern Company, Birmingham, AL, <sup>2</sup>Texas A&M University, College Station, TX

**4:20 PM** Mercury Emissions: Demonstration of Air and Water Quality Management (145)  
B. A. Keiser,<sup>1</sup> G. Finigan,<sup>2</sup> J. Meier,<sup>3</sup> J. Shah,<sup>1</sup> J. Lu<sup>1</sup>; <sup>1</sup>Nalco Company, Naperville, IL, <sup>2</sup>City Water, Power, and Light, Dallman Station, Springfield, IL, <sup>3</sup>Nalco Mobotec, Walnut Creek, CA

**4:45 PM** MHI Wet-FGD Waste Water Treatment Technologies (28)  
S. Honjo,<sup>1</sup> K. Iwakura,<sup>1</sup> B. Welliver,<sup>1</sup> T. Shinoda,<sup>1</sup> Y. Nakayama,<sup>1</sup> Y. Kuroda,<sup>2</sup> H. Miyaniishi,<sup>2</sup> N. Ukai,<sup>3</sup> M. Murakami,<sup>3</sup> T. Nagayasu,<sup>3</sup> M. Kiyosawa,<sup>3</sup> S. Okino,<sup>3</sup> A. F. Sibley,<sup>4</sup> M. S. Berry<sup>4</sup>; <sup>1</sup>Mitsubishi Heavy Industries America, Austin, TX, <sup>2</sup>Mitsubishi Power Systems Americas, Newport Beach, CA, <sup>3</sup>Mitsubishi Heavy Industries, Yokohama, Japan, <sup>4</sup>Southern Company Generation, Birmingham, AL

**5:20 – 6:45 PM** Reception, Exhibit Viewing, and Poster Session

# PRELIMINARY PROGRAM

Wednesday, September 1, 2010

## Session 7a: NO<sub>x</sub> (concurrent with Session 8a)

Co-Chairs: Tony Facchiano, *EPRI*  
Bruce Lani, *U.S. DOE*

**8:25 AM** Parallel Heat Rate and NO<sub>x</sub> Optimization by Innovative Control of Pulverized Coal and Combustion Air Supplies (164)  
F. Rodríguez, E. Tova, M. Morales; *INERCO, S.A., Seville, Spain*

**8:50 AM** Optimization of Constellation Energy SNCR Systems at Crane Units 1 and 2 Using Continuous Ammonia Measurement (13)  
J. Staudt,<sup>1</sup> B. Hoover,<sup>2</sup> S. McCool,<sup>3</sup> J. Frey,<sup>3</sup> P. Trautner<sup>2</sup>;  
<sup>1</sup>Andover Technology Partners, North Andover, MA,  
<sup>2</sup>Constellation Energy, Baltimore, MD, <sup>3</sup>Tourgee and Associates, Owings Mills, MD

**9:15 AM** Selective Decomposition Of Ammonia For Coal-fired Power Plant Selective Catalytic Reduction Application (138)  
C. DiFrancesco, C. Bertole, S. Pritchard; *Cormetech, Inc., Durham, NC*

**9:40 AM** Refreshment Break

## Session 7b: NO<sub>x</sub> (continued) (concurrent with Session 8b)

Co-Chairs: Tony Facchiano, *EPRI*  
Bruce Lani, *U.S. DOE*

**10:20 AM** Impact of Biomass Combustion on SCR Denox Operation (71)  
H. Jensen-Holm,<sup>1</sup> T. N. White,<sup>2</sup> F. Castellino<sup>1</sup>; <sup>1</sup>Haldor Topsoe A/S, Lyngby, Denmark, <sup>2</sup>Haldor Topsoe, Inc., Houston, TX

**10:45 AM** Deactivation of SCR Catalyst by Phosphorous: Proposed Mechanism and Solution (151)  
M. Gadgil,<sup>1</sup> K. Larson,<sup>1</sup> B. Ghorishi,<sup>1</sup> D. Silbaugh<sup>2</sup>; <sup>1</sup>Babcock & Wilcox Company, Barberton, OH, <sup>2</sup>Black Hills Power, Rapid City, SD

**11:10 AM** SCR Catalyst Pluggage Reduction at Progress Energy's Roxboro Station (173)  
R. Mudry,<sup>1</sup> M. Boone<sup>2</sup>; <sup>1</sup>Airflow Sciences Corporation, Livonia, MI, <sup>2</sup>Progress Energy, x, MI

**11:35 AM** Deactivation and Regeneration of High-Dust SCR Catalyst Operated in High Percentage Biomass Co-Fired Coal Units (177)  
E. Huls,<sup>1</sup> J. Broekhuizen,<sup>1</sup> R. Mühlenberg,<sup>2</sup> T. Hoffmann,<sup>3</sup> H. Hartenstein<sup>3</sup>; <sup>1</sup>E.ON Benelux, Rotterdam, Netherlands, <sup>2</sup>Evonik Energy Services LLC, Essen, Germany, <sup>3</sup>Evonik Energy Services LLC, Kings Mountain, NC

**12:00 PM** Lunch

## Session 8a: Mercury – FGD Capture: Field Tests (concurrent with Session 7a)

Co-Chairs: Nick Hutson, *U.S. EPA*  
Andy O'Palko, *U.S. EPA*

**7:35 AM** Mercury Abatement by Existing Pollutant Control Equipment at Multiple Coal-Fired Power Plants (92)  
J. O. Allen,<sup>1</sup> R. Chang,<sup>2</sup> C. A. Tyree<sup>3</sup>; <sup>1</sup>Allen Analytics LLC, Tucson, AZ, <sup>2</sup>Electric Power Research Institute, Palo Alto, CA, <sup>3</sup>Southern Company, Birmingham, AL

**8:00 AM** Results from a Two Week Study to Mitigate Mercury Re-Emissions from a Wet Scrubber (116)  
S. Winter,<sup>1</sup> Z. T. Fuller,<sup>1</sup> J. Lally,<sup>2</sup> K. Frizzel,<sup>3</sup> J. Bivens<sup>3</sup>; <sup>1</sup>Siemens Environmental, Pittsburgh, PA, <sup>2</sup>Evonik Degussa Corporation, Pittsburgh, PA, <sup>3</sup>Owensboro Municipal Utilities, Owensboro, KY

**8:25 AM** Novel Mercury Control Strategy Utilizing Wet FGD in Power Plants Burning Low Chlorine Coal (93)  
P. Elliott,<sup>1</sup> T. Riethmann,<sup>2</sup> B. Vosteen<sup>3</sup>; <sup>1</sup>Evonik Energy Services LLC, Kings Mountain, NC, <sup>2</sup>Evonik Energy Services GmbH, Essen, Germany, <sup>3</sup>Vosteen Consulting GmbH, Cologne, Germany

**8:50 AM** Evaluation of Mercury Control Technologies at a Power Plant without SCR Firing Eastern Bituminous Coal (77)  
K. Dombrowski,<sup>1</sup> B. Looney,<sup>2</sup> A. Sibley,<sup>2</sup> R. Chang<sup>3</sup>; <sup>1</sup>URS Corporation, Austin, TX, <sup>2</sup>Southern Company Services, Birmingham, AL, <sup>3</sup>EPRI, Palo Alto, CA

**9:15 AM** Field Study of Mercury Partitioning and Re-Emissions in Wet FGD Systems (56)  
M. K. Richardson,<sup>1</sup> G. M. Blythe,<sup>1</sup> R. G. Rhudy,<sup>2</sup> P. S. Nolan<sup>3</sup>; <sup>1</sup>URS Corporation, Austin, TX, <sup>2</sup>EPRI, Palo Alto, CA, <sup>3</sup>Nolan Environmental Solutions Analysis, LLC, Fort Worth, TX

**9:40 AM** Refreshment Break

## Session 8b: FGD HAPS Studies (concurrent with Session 7b)

Co-Chairs: George Offen, *EPRI*  
Ravi Srivastava, *U.S. EPA*

**10:20 AM** HAP Emissions Testing in the EPA Pilot-Scale Combustion Research Facility (26)  
N. D. Hutson,<sup>1</sup> W. Linak,<sup>1</sup> C. Lee,<sup>1</sup> J. Ryan,<sup>1</sup> E. Brown,<sup>1</sup> C. Singer<sup>2</sup>; <sup>1</sup>US EPA, Research Triangle Park, NC, <sup>2</sup>Arcadis-US, Inc., Durham, NC

**10:45 AM** The Enrichment of Trace Pollutants in FGD Water Streams from Two Spanish Power Plants (175)  
P. Córdoba-Sola,<sup>1</sup> O. Font,<sup>1</sup> M. Izquierdo,<sup>1</sup> X. Querol,<sup>1</sup> S. Rico,<sup>1</sup> A. Tobías,<sup>1</sup> C. Leiva,<sup>2</sup> M. A. López-Antón,<sup>3</sup> R. Ochoa-Gonzalez,<sup>3</sup> M. Díaz-Somoano,<sup>3</sup> M. R. Martínez-Tarazona,<sup>3</sup> C. Fernandez,<sup>2</sup> P. Gómez,<sup>4</sup> A. Tomás,<sup>4</sup> A. Giménez<sup>4</sup>; <sup>1</sup>Institute of Environmental Assessment and Water Research (IDÆA-CSIC), Barcelona, Spain, <sup>2</sup>Escuela Superior de Ingenieros de Sevilla, Sevilla, Spain, <sup>3</sup>Instituto Nacional del Carbón (INCAR-CSIC), Oviedo, Spain, <sup>4</sup>ENDESA GENERACIÓN, Madrid, Spain

# PRELIMINARY PROGRAM

**11:10 AM** Selenium Speciation and Partitioning in Wet FGD Systems (51)

M. Richardson,<sup>1</sup> G. M. Blythe,<sup>1</sup> P. Chu,<sup>2</sup> C. Dene,<sup>2</sup> K. Searcy,<sup>3</sup> K. Fisher,<sup>3</sup> D. Wallschläger<sup>4</sup>; <sup>1</sup>URS Corporation, Austin, TX, <sup>2</sup>EPRI, Palo Alto, CA, <sup>3</sup>Trimeric Corporation, Buda, TX, <sup>4</sup>Trent University, Peterborough, ON, Canada

**11:35 AM** Behavior of Selenium in Coal-Fired Power Plants: Implications for Multi-Media Emissions (119)

C. Senior, B. Van Otten, A. Sarofim, J. O. L. Wendt; *Reaction Engineering International, Salt Lake City, UT*

**12:00 PM** Lunch

## Session 8c: FGD HAPS Studies (continued) (concurrent with Session 9)

**Chair:** Andrew Jones, *U.S. DOE*

**1:15 PM** Effect of Dryfine Low Temperature Coal Drying Process on Trace Metals Emissions from a Coal-Fired Power Plant (25)

K. Dombrowski,<sup>1</sup> C. Bullinger,<sup>2</sup> G. Archer,<sup>3</sup> M. Ness,<sup>4</sup> R. Chang,<sup>5</sup> N. Sarunac<sup>6</sup>; <sup>1</sup>URS Corporation, Austin, TX, <sup>2</sup>Great River Energy, Bismarck, ND, <sup>3</sup>Great River Energy, Maple Grove, MN, <sup>4</sup>Great River Energy, Underwood, ND, <sup>5</sup>EPRI, Palo Alto, CA, <sup>6</sup>Lehigh University, Bethlehem, PA

**1:40 PM** The Effect of Activated Carbon Injection on Trace Metals Removal across Particulate Capture Devices at Coal-Fired Power Plants (44)

K. Dombrowski,<sup>1</sup> C. Braman,<sup>1</sup> R. Chang<sup>2</sup>; <sup>1</sup>URS Corporation, Austin, TX, <sup>2</sup>EPRI, Palo Alto, CA

**2:05 PM** Refreshment Break

## Session 11: SO<sub>3</sub> (concurrent with Session 10)

**Chair:** Bruce Scherer, *EPRI*

**3:45 PM** Predicting Sulfur Trioxide Levels Along Utility Gas Cleaning Systems (16)

B. Krishnakumar, S. Niksa; *Niksa Energy Associates LLC, Belmont, CA*

**4:10 PM** SO<sub>3</sub> Measurement and Mitigation (78)

C. Chothani; *Breen Energy Solutions, Carnegie, PA*

**4:35 PM** Advances in Hot Side SO<sub>3</sub> Mitigation Technology (69)

C. A. Lockert,<sup>1</sup> R. Kalagnanam,<sup>2</sup> P. Hoeflich,<sup>2</sup> C. Donner,<sup>3</sup> M. Thomas<sup>3</sup>; <sup>1</sup>Breen Energy Solutions, Chagrin Falls, OH, <sup>2</sup>Progress Energy, Raleigh, NC, <sup>3</sup>Duke Energy, Cincinnati, OH

**5:00 PM** Session 11 Adjourns

## Session 9: Particulate (concurrent with Session 8c)

**Co-Chairs:** Bruce Scherer, *EPRI*  
EPRI Member *TBD*

**1:15 PM** Utility Baghouse Site Survey (21)

W. Piulle,<sup>1</sup> R. L. Merritt,<sup>2</sup> R. Chang<sup>3</sup>; <sup>1</sup>Walter Piulle Consulting, Redwood City, CA, <sup>2</sup>Randy Merritt Consulting, Birmingham, AL, <sup>3</sup>EPRI, Palo Alto, CA

**1:40 PM** A New Alternative to Sulfur Trioxide Injection for Flue Gas Conditioning (110)

R. Landreth,<sup>1</sup> D. Lipscomb,<sup>2</sup> D. Smith,<sup>3</sup> K. Wanninger,<sup>4</sup> C. Nagel<sup>4</sup>; <sup>1</sup>Albemarle Corp., Twinsburg, OH, <sup>2</sup>Albemarle Corp., Atlanta, GA, <sup>3</sup>SaskPower, Regina, SK, Canada, <sup>4</sup>Midwest Generation, Chicago, IL

**2:05 PM** An Investigation into the Effects of Activated Carbon Injection on ESP Performance with a Focus on Hopper Reentrainment (127)

V. H. Belba,<sup>1</sup> C. Senior,<sup>2</sup> J. Valentine,<sup>2</sup> B. Scherer,<sup>3</sup> J. Hudspeth,<sup>4</sup> T. Snow,<sup>4</sup> L. Bishop,<sup>4</sup> K. Ploch<sup>4</sup>; <sup>1</sup>BELBA & Associates, Boulder, CO, <sup>2</sup>Reaction Engineering International, Salt Lake City, UT, <sup>3</sup>EPRI, Toledo, OH, <sup>4</sup>NRG Texas, Jewett, TX

**2:30 PM** Pilot-Scale Evaluations of the EPRI PM Screen Technology (36)

K. Fisher,<sup>1</sup> R. Tonkin,<sup>1</sup> R. Chang,<sup>2</sup> M. Looney<sup>3</sup>; <sup>1</sup>Apogee Scientific, Englewood, CO, <sup>2</sup>EPRI, Palo Alto, CA, <sup>3</sup>Southern Company, Birmingham, AL

**2:55 PM** Learnings from Seven Years of Operating the Indigo FPCSystem Fine-Particle Control Technology (61)

R. J. Truce,<sup>1</sup> B. Esdale,<sup>1</sup> M. Berry<sup>2</sup>; <sup>1</sup>Indigo Technologies, Brisbane, Australia, <sup>2</sup>Southern Company, Birmingham, AL

**3:20 PM** Refreshment Break

## Session 10: Multipollutant - Field Results (concurrent with Session 11)

**Chair:** Chuck Dene, *EPRI*

**3:45 PM** Combustion Optimization for Decreased Emissions and Improved Efficiency (17)

J. Estrada,<sup>1</sup> D. Earley,<sup>2</sup> B. Kirkenir<sup>2</sup>; <sup>1</sup>Progress Energy Corporation, St. Petersburg, FL, <sup>2</sup>Combustion Technologies Corporation, Apex, NC, <sup>3</sup>Progress Energy Corporation, Raleigh, NC

**4:10 PM** Performance of the Boswell Energy Center Unit 3 Environmental Improvement Project (57)

K. Burchardt,<sup>1</sup> T. Coughlin<sup>2</sup>; <sup>1</sup>Burns & McDonnell, Kansas City, MO, <sup>2</sup>Minnesota Power, Duluth, MN

**4:35 PM** Full Scale Demonstration of a Plant Wide Multi-Pollutant Control Project 18 Months in Operation (79)

J. W. Mashek,<sup>1</sup> J. B. Gifford,<sup>2</sup> T. O. Miller,<sup>1</sup> V. P. Steiner<sup>1</sup>; <sup>1</sup>Burns and McDonnell, Kansas City, MO, <sup>2</sup>Arizona Public Service, Phoenix, AZ

**5:00 PM** Session 10 Adjourns

# PRELIMINARY PROGRAM

Thursday, September 2, 2010

## Session 12a: Multipollutant – Field: New Applications

Chair: C.W. Lee, *U.S. EPA*

**8:00 AM** Commissioning the Turbosorp Circulating Dry Scrubber (105)  
T. R. Ake,<sup>1</sup> R. Beittel,<sup>2</sup> D. Beck,<sup>3</sup> E. Walters<sup>3</sup>; <sup>1</sup>*Babcock Power, Inc., Charlotte, NC*, <sup>2</sup>*Babcock Power, Inc., Worcester, MA*, <sup>3</sup>*Gainesville Regional Utilities, Gainesville, FL*

**8:25 AM** Modification and Optimization of an Existing CDS FGC System for Biomass Co-Firing (32)  
C. Moser,<sup>1</sup> R. Baege,<sup>1</sup> M. Dickamp,<sup>1</sup> Z. Dongres,<sup>2</sup> J. Knotek<sup>2</sup>; <sup>1</sup>*ENVIROSERV, Essen, Germany*, <sup>2</sup>*Plzenska teplarenska, Plzen, Czech Republic*

**8:50 AM** Development of the Indigo and FMC NO<sub>x</sub> Oxidation Technologies Using Hydrogen Peroxide (48)  
T. Holtz,<sup>1</sup> R. Crynack,<sup>1</sup> J. Rovison,<sup>1</sup> R. S. Steffl,<sup>1</sup> J. Pacinelli,<sup>2</sup> J. Wilkins,<sup>2</sup> R. Truce,<sup>2</sup> M. Berry<sup>2</sup>; <sup>1</sup>*FMC Corporation, Tonawanda, NY*, <sup>2</sup>*Indigo Technologies USA, Pittsburgh, PA*, <sup>3</sup>*Southern Company Generation, Birmingham, AL*

**9:15 AM** Refreshment Break

## Session 12b: Multipollutant – Developments

Chair: John Chang, *U.S. EPA*

**10:00 AM** Multipollutant Control in a Wet FGD Scrubber (47)  
N. D. Hutson,<sup>1</sup> J. Chang,<sup>1</sup> Y. Zhao<sup>2</sup>; <sup>1</sup>*US EPA, Research Triangle Park, NC*, <sup>2</sup>*Arcadis-US, Inc, Durham, NC*

**10:25 AM** Demonstration Test of Iron Addition to an FGD Absorber to Enhance Flue Gas Mercury Removal (66)  
T. E. Higgins,<sup>1</sup> C. DiSante,<sup>2</sup> G. Blythe,<sup>3</sup> M. Richardson,<sup>3</sup> P. Chu,<sup>4</sup> C. Dene,<sup>4</sup> C. Tyree<sup>5</sup>; <sup>1</sup>*CH2M HILL, Chantilly, VA*, <sup>2</sup>*CH2M HILL, Bellevue, WA*, <sup>3</sup>*URS, Austin, TX*, <sup>4</sup>*Electric Power Research Institute, Palo Alto, CA*, <sup>5</sup>*Southern Company, Birmingham, AL*

**10:50 AM** Partitioning, Abatement and Emission of NO<sub>x</sub> and HN<sub>4</sub><sup>+</sup> Species in Large Spanish PCC-FGD Power Plants (174)  
P. Cordoba,<sup>1</sup> O. Font,<sup>1</sup> C. Leiva,<sup>2</sup> M. A. López-Antón,<sup>3</sup> R. Ochoa-Gonzalez,<sup>3</sup> M. Izquierdo,<sup>1</sup> X. Querol,<sup>1</sup> M. Díaz-Somoano,<sup>3</sup> M. R. Martínez-Tarazona,<sup>3</sup> C. Fernandez,<sup>2</sup> A. Giménez<sup>2</sup>; <sup>1</sup>*Institute of Environmental Assessment and Water Research (IDÆA-CSIC), Barcelona, Spain*, <sup>2</sup>*Escuela Superior de Ingenieros de Sevilla, Sevilla, Spain*, <sup>3</sup>*Instituto Nacional del Carbón (INCAR-CSIC), Oviedo, Spain*, <sup>4</sup>*ENDESA GENERACIÓN, Madrid, Spain*

**11:15 PM** Symposium Adjourns

## Poster Sessions

Monday, August 30, 5:10 – 6:30 PM and  
Tuesday, August 31, 5:10 – 6:30 PM

### CO<sub>2</sub> Control

Meeting Requirements for Post CO<sub>2</sub> Removal of Flue Gas Streams; Single or Two Stages of FGD Scrubbing (22)  
K. J. Smith, C. Laird, J. Mercer; *Carmeuse Lime & Stone, Pittsburgh, PA*

CO<sub>2</sub> Beneficial Reuse Technologies – Viability for Power Generation (75)  
J. M. Klobucar, D. Mitas; *HDR|C&B, Ann Arbor, MI*

A Generic Comparison of Absorption- and Adsorption-Based Processes for Post-Combustion CO<sub>2</sub> Capture (95)  
Y. Lu, M. Rostam-Abadi; *UIUC, Urbana, IL*

Water Use for Low-Carbon Environmental Control Systems at Pulverized Coal Power Plants (172)  
H. Zhai, E. Rubin; *Carnegie Mellon University, Pittsburgh, PA*

### Coal Combustion Product (CCP) Issues

Technological Requirements for Controlling MP, SO<sub>2</sub>, and NO<sub>x</sub> Emission in Chilean Coal Fired Power Plants (43)  
P. A. Ulloa,<sup>1</sup> C. G. Contreras,<sup>1</sup> P. Sanhueza<sup>2</sup>; <sup>1</sup>*Chilean Environmental Protection Agency, Santiago, Chile*, <sup>2</sup>*The University of Santiago, Santiago, Chile*

Social Assessment of a New Emission Standard for Thermal Power Plants in Chile (49)  
C. G. Contreras,<sup>1</sup> P. A. Ulloa,<sup>1</sup> P. A. Sanhueza<sup>2</sup>; <sup>1</sup>*Chilean Environmental Protection Agency (CONAMA), Santiago, Chile*, <sup>2</sup>*University of Santiago of Chile, Santiago, Chile*

Air Quality Modelling and Health and Ecological Risk Assessment for New Thermal Power Plant Emission Standard in Chile (50)  
P. A. Sanhueza,<sup>1</sup> C. G. Contreras,<sup>2</sup> P. A. Ulloa<sup>2</sup>; <sup>1</sup>*The University of Santiago of Chile, Santiago, Chile*, <sup>2</sup>*Chilean Environmental Protection Agency (CONAMA), Santiago, Chile*

Comparison of Computational Fluid Dynamic Predictions for FEGT, O<sub>2</sub>, & CO to Field Grid Measured Data at a Horizontal Exit Plane of a Coal Fired Furnace (128)  
Z. El Zahab,<sup>1</sup> T. Chelvan,<sup>2</sup> R. Casserleigh<sup>3</sup>; <sup>1</sup>*Siemens Environmental Systems & Services, Orlando, FL*, <sup>2</sup>*Siemens Environmental Systems & Services, Pluckemin, NJ*, <sup>3</sup>*Gainesville Regional Utilities, Gainesville, FL*

### Mercury/HAPs Controls

Predicting Hg Removals with ACI in Utility Gas Cleaning Systems (15)  
B. Krishnakumar, S. Niksa; *Niksa Energy Associates LLC, Belmont, CA*

Mercury Emission from Flue-Gas-Desulfurization Wastewater Treatment – Causes and Remedies (38)  
H. Koeser,<sup>1</sup> J. Schuetze,<sup>1</sup> S. Weissbach,<sup>1</sup> F. van Dijen<sup>2</sup>; <sup>1</sup>*Martin-Luther-University, Halle/Saale, Germany*, <sup>2</sup>*Laborelec, Linkebeek, Belgium*

UNEP's Mercury Partnership Activities for Reduction of Mercury Emissions from Coal Combustion (45)  
W. Jozewicz,<sup>1</sup> L. Sloss,<sup>2</sup> G. Futsaeter<sup>3</sup>; <sup>1</sup>*ARCADIS, Durham, NC*, <sup>2</sup>*IEA Clean Coal Centre, London, United Kingdom*, <sup>3</sup>*UNEP, DTIE, Geneva, Switzerland*

# PRELIMINARY PROGRAM

## Control of Se<sup>6+</sup> Formation in Wet-FGD Using Mn<sup>2+</sup> (70)

H. Akiho, H. Matsuda, S. Ito; *Central Research Institute of Electric Power Industry, Yokosuka, Kanagawa, Japan*

## Laboratory Regeneration Studies for Fixed Structure Mercury Sorbents (89)

J. L. Paradis,<sup>1</sup> J. Crawford,<sup>1</sup> C. Richardson,<sup>1</sup> R. Chang,<sup>2</sup> M. Rostam-Abadi,<sup>3</sup> H. Lu,<sup>3</sup> Y. Lu,<sup>3</sup> S. Dastgheib<sup>3</sup>; <sup>1</sup>URS, Austin, TX, <sup>2</sup>EPRI, Palo Alto, CA, <sup>3</sup>ISGS, Champagne, IL

## Impact of Sorbent Characteristics on Commercial Mercury Performance (106)

L. Hiltzik,<sup>1</sup> Y. Guo,<sup>1</sup> Y. Zhang,<sup>2</sup> C. Nalepa,<sup>2</sup> S. Nelson<sup>2</sup>; <sup>1</sup>MeadWestvaco Corp., Charleston, SC, <sup>2</sup>Albemarle Corp., Twinsburg, OH, <sup>3</sup>Albemarle Corp., Baton Rouge, LA

## Advanced Mercury Oxidation Catalyst for Coal-Fired Power Plant Application (137)

K. Nochi,<sup>1</sup> M. Kiyosawa,<sup>1</sup> C. DiFrancesco,<sup>2</sup> C. Bertole<sup>2</sup>; <sup>1</sup>Mitsubishi Heavy Industries, Ltd., Hiroshima, Japan, <sup>2</sup>Cormetech, Inc., Durham, NC

## An Assessment of Finely Activated Carbon Agglomeration Using On-Site, In-Flight Laser Analysis (146)

J. DeNigris,<sup>1</sup> K. Dombrowski,<sup>2</sup> N. R. Pollack,<sup>3</sup> R. Chang<sup>4</sup>; <sup>1</sup>Malvern Instruments Inc., Westborough, MA, <sup>2</sup>URS Corporation, Austin, TX, <sup>3</sup>Calgon Carbon Corporation, Pittsburgh, PA, <sup>4</sup>EPRI, Palo Alto, CA

## Study of Destruction of an Organic Hazardous Air Pollutant as a Cobenefit under Simulated SCR NO<sub>x</sub> Control Conditions (161)

C. W. Lee,<sup>1</sup> Y. Zhao<sup>2</sup>; <sup>1</sup>U.S. Environmental Protection Agency, Research Triangle Park, NC, <sup>2</sup>ARCADIS, Research Triangle Park, NC

## Adsorption of Elemental Mercury Using Sulfur and Bromine Enhanced Activated Lignite HOK® (162)

W. Heschel,<sup>1</sup> J. Wirling,<sup>2</sup> J. Bowman<sup>3</sup>; <sup>1</sup>University of Freiberg, Freiberg, Germany, <sup>2</sup>RWE Power, Cologne, Germany, <sup>3</sup>Babcock Power Inc., Worcester, MA

## Testing of Sorbent-Based Technologies for Mercury Control at a Subbituminous Coal-Fired Plant (163)

R. Mac Pherson,<sup>1</sup> J. H. Pavlish,<sup>2</sup> N. B. Lentz,<sup>2</sup> J. P. Kay,<sup>2</sup> L. L. Hamre<sup>2</sup>; <sup>1</sup>RPL Energy Inc., Grand Forks, ND, <sup>2</sup>Energy & Environmental Research Center, Grand Forks, ND

## Advances in Non-Carbon Based Mercury Absorption Reagents (171)

A. Laudet,<sup>1</sup> X. Pettiau,<sup>1</sup> M. Schantz,<sup>2</sup> P. Martin<sup>3</sup>; <sup>1</sup>Lhoist North America, Nivelles, Belgium, <sup>2</sup>Lhoist North America, Louisville, CO, <sup>3</sup>Western Research Institute, Laramie, WY

## Mercury Sorption on Activated Carbon in Flue Gas (179)

E. Sasmaz, J. Wilcox; *Stanford University, Stanford, CA*

## Multipollutant Controls

### Current Status on Electron Beam Flue Gas Treatment Technology Development (46)

A. G. Chmielewski,<sup>1</sup> A. Pawelec,<sup>1</sup> Y. Pelovski,<sup>2</sup> N. Dutzkinov,<sup>3</sup> C. Nikolov,<sup>4</sup> S. Machi,<sup>5</sup> M. H. de O. Sampa,<sup>6</sup> M. Haji Saeid,<sup>6</sup> M. P. Salema,<sup>6</sup> W. Jozewicz<sup>7</sup>; <sup>1</sup>Institute of Nuclear Chemistry and Technology, Warsaw, Poland, <sup>2</sup>University of Chemical Technology and Metallurgy, Sofia, Bulgaria, <sup>3</sup>National Electrical Company, Sofia, Bulgaria, <sup>4</sup>Svilozha Power Plant, Svishtov, Bulgaria, <sup>5</sup>Ministry of Education, Culture, Sports, Science and Technology, Tokyo, Japan, <sup>6</sup>IAEA, Vienna, Austria, <sup>7</sup>ARCADIS, Research Triangle Park, NC

### Next Generation Wet Electrostatic Precipitators (147)

H. G. Shah, J. Caine; *Southern Environmental Inc., Pensacola, FL*

## NO<sub>x</sub> Control

### Modeling of Accidental Releases of Ammonia for Power Plant Environments Using Computational Fluid Dynamics Modeling (18)

G. F. Hoffnagle; *TRC Environmental Corporation, Windsor, CT*

### Use of Hydrocarbon Emulsions as Both a Primary Fuel to Improve Boiler Combustion and for Use as an Amine Enhanced Hydrocarbon Emulsion Return Fuel to Reduce NO<sub>x</sub> Emissions (102)

G. C. Dusatko,<sup>1</sup> R. Bernar<sup>2</sup>; <sup>1</sup>Sargent & Lundy, Milford, CT, <sup>2</sup>Quadrisse Canada Corporation, Calgary, AB, Canada

### Catalyst Management Practices Targeting Fuel Flexibility (159)

J. Cochran, N. Roshia; *CERAM Environmental, Inc., Overland Park, KS*

## Particulate Control

### The Gulf Power Mercury Research Center (9)

A. Sibley,<sup>1</sup> W. Harrison<sup>2</sup>; <sup>1</sup>Southern Company Services, Birmingham, AL, <sup>2</sup>Particulate Control Technologies, Inc, Helena, AL

### Characterizing the Primary Aerosols from a Coal-Fired Power Plant (65)

J. J. Lin; *NTL Kaohsiung First U of Sci & Tech, Kaohsiung City, Taiwan*

### Cost Savings by Retrofitting Rotary Atomizers with Spray Nozzle System for Gas Conditioning in ESPs at a 460 MW Coal Fired Plant in Philippines (94)

A. G. Patni,<sup>1</sup> J. Henry,<sup>2</sup> J. N. Willey<sup>3</sup>; <sup>1</sup>Lechler Inc., St Charles, IL, <sup>2</sup>PAR Alloy, Littleton, CO, <sup>3</sup>Covanta Quezon Power, Las Vegas, NV

### Alabama Power Company's Plant Gadsden Rapid Onset Pulse Energization Demonstration (101)

B. Looney,<sup>1</sup> G. Klemm,<sup>2</sup> B. Scherer,<sup>3</sup> R. Guenther<sup>4</sup>; <sup>1</sup>Southern Company, Birmingham, AL, <sup>2</sup>Southern Company, Smyrna, GA, <sup>3</sup>Electric Power Research Institute, Toledo, OH, <sup>4</sup>NWL, Bordentown, NJ

### Estimating PM<sub>2.5</sub> Emissions from Advanced IGCC and Gas-Fired Combined Cycle Power Plants (133)

G. England,<sup>1</sup> A. David,<sup>2</sup> J. Ruud<sup>3</sup>; <sup>1</sup>ENVIRON International Corporation, Irvine, CA, <sup>2</sup>ENVIRON International Corporation, Los Angeles, CA, <sup>3</sup>Fluor Enterprises, Inc., Irvine, CA

## SO<sub>x</sub> Control

### Furnace Sorbent Injection Demonstration for SO<sub>2</sub> Control (11)

P. Maly, S. Nareddy, W. Zhou, D. Moyeda; *General Electric, Santa Ana, CA*

### Treatment of Wet ESP Effluent Using Magnesium Hydroxide Slurry (12)

S. Leykauf; *Martin Marietta Magnesia Specialties, Baltimore, MD*

### MHI Mercury Removal System with NH<sub>4</sub>Cl Injection (29)

S. Honjo,<sup>1</sup> T. Shinoda,<sup>1</sup> Y. Nakayama,<sup>1</sup> N. Ukai,<sup>2</sup> S. Kagawa,<sup>2</sup> S. Okino,<sup>2</sup> T. Nagayasu<sup>2</sup>; <sup>1</sup>Mitsubishi Heavy Industries America, Austin, TX, <sup>2</sup>Mitsubishi Heavy Industries, Yokohama, Japan

### Wet Position Booster Fans for Reduced Power Consumption and Optimized Environmental Performance of Power Stations with FGD and Wet Stack (34)

A. de Kreijl,<sup>1</sup> C. Acquistapace,<sup>2</sup> M. Rossi,<sup>2</sup> L. Maroti,<sup>3</sup> D. Anderson<sup>3</sup>; <sup>1</sup>Hadek Protective Systems bv, Rotterdam, Netherlands, <sup>2</sup>Alstom Power Italia S.p.A., Sesto San Giovanni, Italy, <sup>3</sup>Alden Research Laboratory, Inc., Holden, MA

# PRELIMINARY PROGRAM

## Wet FGD Wastewater Treatment Options: Planning for the Future Regulatory Environment (73)

I. Brodsky, K. Braunstein, J. Kelly; *URS Corp., Princeton, NJ*

## Carmeuse Limestone Reactivity Testing Using the EPRI B7 and Other Limestone Reactivity Testing Methods (82)

J. K. Mercer, C. Schulz; *Carmeuse Lime and Stone, Pittsburgh, PA*

## Evaluation of Flue Gas Desulfurization-Equipped Coal-Fired Power Plants' Ability to Comply with the Proposed 1-Hour National Ambient Air Quality Standard for Sulfur Dioxide (104)

R. N. Andracsek, D. W. Randall, C. V. Weilert; *Burns & McDonnell, Kansas City, MO*

## Stainless Steel Corrosion Resistance and Selection for Wet Flue Gas Desulfurization Systems (108)

G. Carinci; *TMR Stainless, Pittsburgh, PA*

## Sorbacal®SPS – A Low Capital Acid Gas Emission Control Approach (109)

J. Dickerman; *Lhoist North America, Laguna Beach, CA*

## Wet Scrubbing for PRB Units – A Sensible Approach to the Future (112)

W. Siegfriedt,<sup>1</sup> A. Carstens,<sup>1</sup> R. Gaikwad,<sup>1</sup> S. Tips<sup>2</sup>; <sup>1</sup>*Sargent & Lundy, Chicago, IL*,  
<sup>2</sup>*CPS Energy, San Antonio, TX*

## Utilizing European and US Design Experience for Global Wet FGD Installations (117)

J. L. Murphy,<sup>1</sup> M. T. Hoydick,<sup>1</sup> S. Binkowski<sup>2</sup>; <sup>1</sup>*Siemens Environmental, Pittsburgh, PA*, <sup>2</sup>*Steinmueller Engineering, Gummersbach, Germany*

## Wet FGD Limestone Reactivity Testing (148)

S. R. Brown, R. F. DeVault, P. J. Williams; *Babcock & Wilcox Company, Barberton, OH*

## SO<sub>3</sub> Mitigation Strategies (157)

R. E. Snyder; *Babcock & Wilcox Company, Barberton, OH*