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July 11-12, 2011  
Cleveland, Ohio

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# *18<sup>th</sup> APC Round Table & Expo*

**EGU MACT, ESP, Fabric Filter, Scrubber,  
SO<sub>3</sub> Mitigation, and Mercury Control**

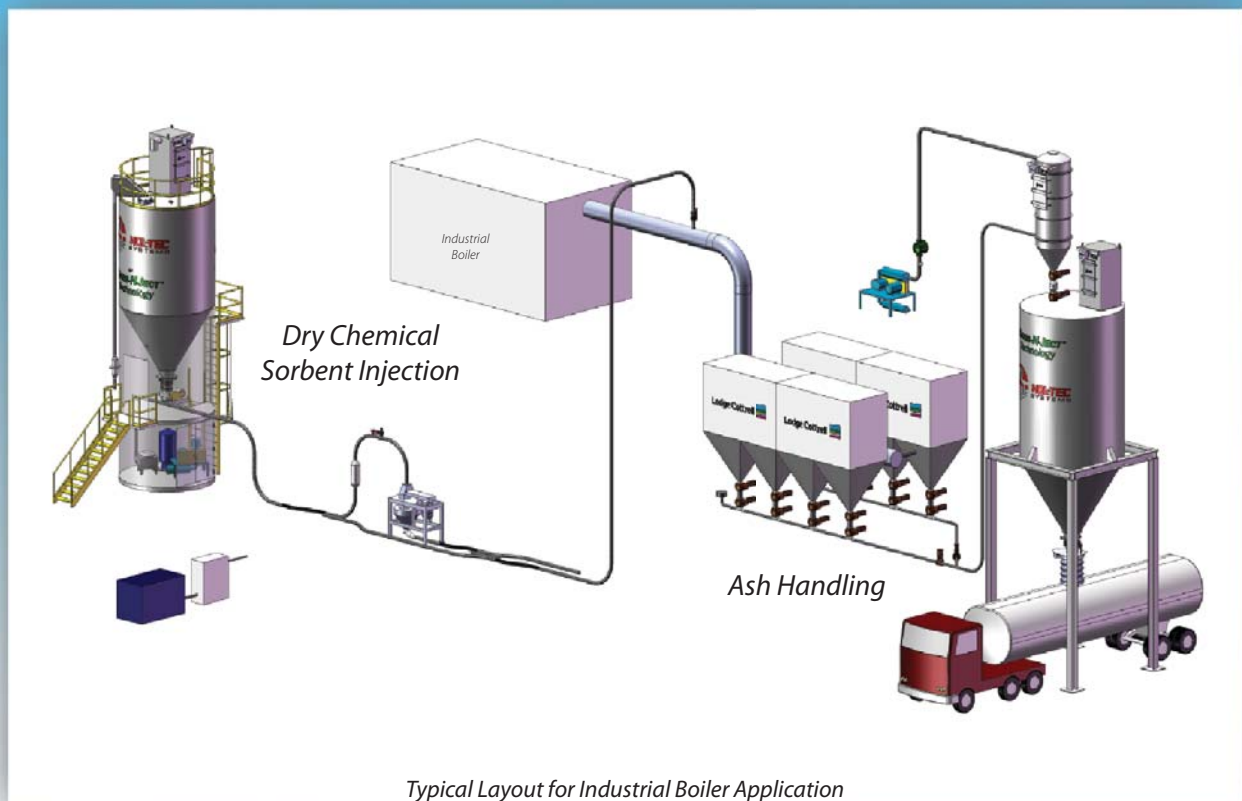
*Show Guide*  
**2011**

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# 2011 APC/PCUG Conference



The 18th Annual APC/PCUG Conference is presented by Reinhold Environmental ([www.reinholdenvironmental.com](http://www.reinholdenvironmental.com)) **FirstEnergy**

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# 2011 APC Round Table Agenda

July 11, 2011 - Monday - APC Round Table

Registration opens at 7:00 am outside of Grand Ballroom / Expo opens at 7:00 am with Continental Breakfast in Grand Ballroom

## Technical Training Classes 8:00-11:30

8:00 - 9:30	<b>Training Class 1-A (Gold Room)</b> Planning and Executing the Refurbishment of a Coal-fired Boiler Baghouse by Bob Taylor and Tim Stark, GE Energy	<b>Training Class 2-A (George Bush Room)</b> ESP Operations I by John Knapik, B&W; Sean McGuinness, Kirk Key; Jason Horn, Stock Equipment	<b>Training Class 3 (Severance Room)</b> Upcoming Utility MACT Discussion by Brian Higgins, Nalco Mobtec	<b>Training Class 4 (Van Aken Room)</b> Monitoring Challenges Related with New Regulations by Keith Crabbe and Ken Greaves, Cemtek	<b>Training Class 5 (Whitehall Room)</b> Wet Scrubber Operations by Gordon Muller, URS; Greg Bielawski, B&W
9:30 - 10:00	<b>Training Class 1-B (Gold Room)</b> Training Class 1-A (cont.): Parts procurement; staging considerations; start-up procedures for new FF; maintenance items for operation Training Class 1-B: The Maturation of PPS Filter Media / Application for Use in Baghouses by Mike Konesky, Alan Smithies, Southern Felt	<b>Training Class 2-B (George Bush Room)</b> ESP Operations II by John Knapik, B&W; Sean McGuinness, Kirk Key; Jason Horn, Stock Equipment	<b>Training Class 6 (Severance Room)</b> Particulate Control Options with Utility MACT Regulations by Sam Kamar and Phil Roberts, B&W	<b>Training Class 7 (Van Aken Room)</b> State of the Art (DFGD): Operating Experience and Best Practices by Phil Rader and Stephen Francis, Alstom	<b>Training Class 8 (Whitehall Room)</b> Wet Scrubber Lessons Learned Discussion Moderator: Steve Wolsjffer, REC / Panelists: M. Allen, TVA; D. Wall, Southern Co.; R. Ferguson, Ameren; M. Golligley, FE; B. Salisbury, APS; R. Fannin, Minnesota Power; R. Laws, Duke; G. Betenson, PacifiCorp; Paul Farber, S&L
11:30 - 1:00	Lunch in Exhibition Hall in Grand Ballroom				
1:00 - 2:30	General Session (Gold Room)				
2:45 - 3:45	<b>Panel I (Gold Room)</b> Mercury and U-MACT / Chairman: Brandon Looney, Southern Company Panelists: Ramsay Chang, EPRI; John Iovino, Alstom Power; Sharon Sjöstrom, ADA-ES; Bob Nicolo, Hitachi Power Systems	<b>Workshop 1 (Severance Room)</b> FGD Waste Water Treatment by Philip Elliott, Steag	<b>Panel II (Whitehall Room)</b> SO <sub>3</sub> Mitigation and U-MACT / Chairman: Dong Ritzenthaler, AEP Panelists: Ron Triscori, REC; Michael Thiel, Nol-Tec; Mark Thomas, Mark Thomas & Assoc.; Joe McCain, SRI; Robert Byrne, FMC		
3:45-4:30	<b>Workshop 2 (Gold Room)</b> Bag Fabric Selection in Integrated Air Quality Control Systems and Baglife Optimization by John McKenna, ETS; Bob Snyder, B&W	<b>Workshop 3 (George Bush Room)</b> Aging ESPs - How to improve performance by Mike Nelson and Gerry Klemm, Southern Company	<b>Workshop 4 (Severance Room)</b> Upgrading DRAFT Fans to Comply with U-MACT Regulations by John Magill, Howden	<b>Workshop 5 (Van Aken Room)</b> Strategy to Improve Air Preheater Performance via SO <sub>3</sub> Mitigation by Sterling Gray, URS; Kevin O'Boyle, Alstom Air Preheater	<b>Workshop 6 (Whitehall Room)</b> Cliffside 6 - Multi AQCS Presentation by Phil Rader, Alstom Power
4:30 - 5:30	Reception in Exhibition Hall (open to all attendees and their families)				
5:30-6:30					
7:00 - 8:30	Registration outside Grand Ballroom				
8:30 - 9:30	<b>Workshop 7 (Gold Room)</b> How to Solve Boiler Derates Caused by Inadequate FF Performance: Lessons Learned at a Midwest Utility Plant by Tim Stark, GE Energy; Michael McManus, KCP&L	<b>Workshop 8 (George Bush Room)</b> Aspects on Very Low Resistivity Dust Operations and on Pulsed Mode Operation by Per Ramstad, Alstom Power	<b>Workshop 9 (Severance Room)</b> Installing Low Capital, High O&M Cost Control Options by Terry Marsh, Shaw Group	<b>Workshop 10 (Van Aken Room)</b> Stack Compliance Testing Techniques Related to the Proposed MACT Limits by Carl Vineyard, Grace Consulting	<b>Workshop 11 (Whitehall Room)</b> Oxidation Reduction Potential in WFGD Systems: Impacts on Corrosion and Trace Metals by Shannon Brown, B&W; Derek Eggett, SRI
9:30 - 10:30	<b>Panel III (Gold Room)</b> ESP/FF Design Considerations for EGU MACT Compliance / Chairman: Morgan Jones, FirstEnergy / Panelists: Russ Ridgeway, Stiel-B E.E.; Scott Williams, Duke Energy; Jim Chaney, Ameren; Stephen Francis, Alstom Power; John Darrow, W.L. Gore; Phil Roberts, B&W	<b>Workshop 12 (Severance Room)</b> Enhanced Mercury Oxidation and Reduction in PM by Bobby Chen, Shaw Group	<b>Panel IV (Whitehall Room)</b> Scrubber Vessel Material Issues / Chairman: Tony Licata, Babcock Power Panelists: Ron Richard, RE Consulting; Josh Smith, Duke Energy; Kim Pfeiffer, Enerfab; Gary Carinci, TMR Stainless; Chuck Dene, EPRI		
10:30-12:00	<b>Workshop 13 (Gold Room)</b> Dry Hydrate Injection for Control of Acid Gas: Comparison Efficiencies & Effects in FFs and ESPs by Jim Dickerman, Lhoist NA	<b>Workshop 14 (George Bush Room)</b> What is the Best Frequency? by Dan Steinhaur, Stein Industries and Paul Ford, Redkoh Industries	<b>Workshop 15 (Severance Room)</b> An Integrated Approach for Meeting the Proposed Mercury Regulations by Scott Hinton, WS Hinton & Assoc.	<b>Workshop 16 (Van Aken Room)</b> How Particle Size Affects SO <sub>2</sub> and SO <sub>3</sub> Removal Performance for a Dry Sorbent Injection System by Keith Day, United Conveyor	<b>Workshop 17 (Whitehall Room)</b> FGD Inspections - Make Corrosion a Manageable Issue Not a Crisis by John Crocki, Advantage Resource Consulting
12:00 - 1:15	<b>Workshop 18 (Gold Room)</b> Options for Upgrading an Existing ESP with Fabric Filter Technology by Phil Roberts, B&W	<b>Workshop 19 (George Bush Room)</b> Flyash Resistivity with Injected Reagents and Predicted Impacts on ESPs by Bob Mastropietro, Lodge Cottrell	<b>Workshop 20 (Severance Room)</b> Triboelectric Oxidation of Mercury in Fabric Filters by Bruce Salisbury, APS	<b>Workshop 21 (Van Aken Room)</b> Controlling HCl and SO <sub>2</sub> Emissions for U-MACT (equipment & sorbents) by Michael Thiel, Nol-Tec Systems	<b>Workshop 22 (Whitehall Room)</b> Evolving FGD Designs and Operation May Require Different Materials of Construction by Ron Richard, RE Consulting
3:30-4:30	<b>Workshop 23 (Gold Room)</b> Enhanced Capture of Mercury in Baghouse by using Novel Filtration Media and Filter Design by Bob Taylor, GE Energy	<b>Workshop 24 (George Bush Room)</b> Cancelled	<b>Workshop 25 (Severance Room)</b> On-Site Optimization of Hg Sorbent Injection with PS 12A Method Compliant Portable Hg CEM by Joseph Siperstein, Ohio Lumex	<b>Workshop 26 (Van Aken Room)</b> Utility MACT PM Control with WESP Technology by Bruce Reynolds, Siemens	<b>Workshop 27 (Whitehall Room)</b> The Use of Polypropylene and Concrete in FGDS by Geza Zirczy, Koch Knight

APC Round Table Conference Event / Great Lakes Science Center - July 12, 2011 - 6:00 - 10:00 pm  
Dinner, IMAX (starts at 8:00), view entire science center

July 13-14, 2011 - Wednesday & Thursday - PCUG Meeting for Users only

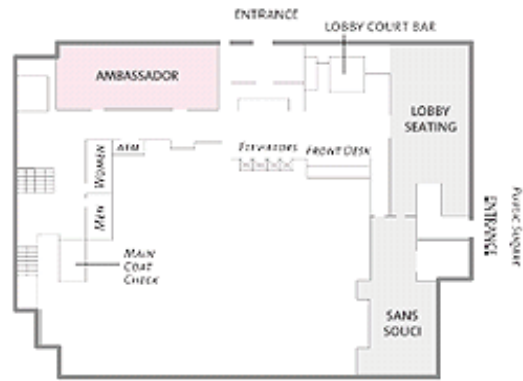


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**Conference Event  
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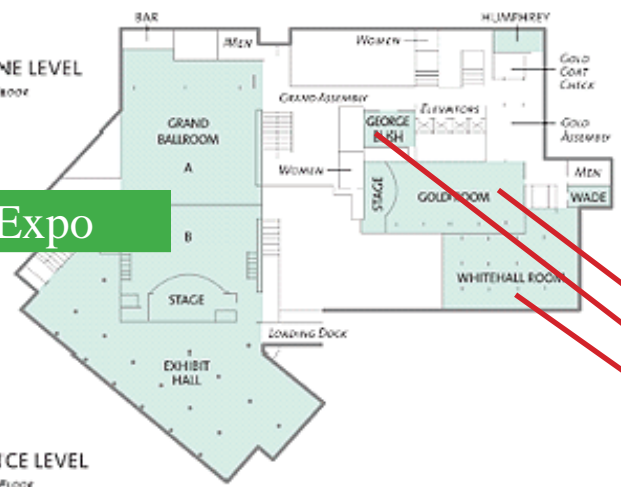
LOBBY LEVEL  
Second Floor



*Hotel  
Floor Plan*

MEZZANINE LEVEL  
Third Floor

**Expo**



**Technical Sessions**

CONFERENCE LEVEL  
Fourth Floor

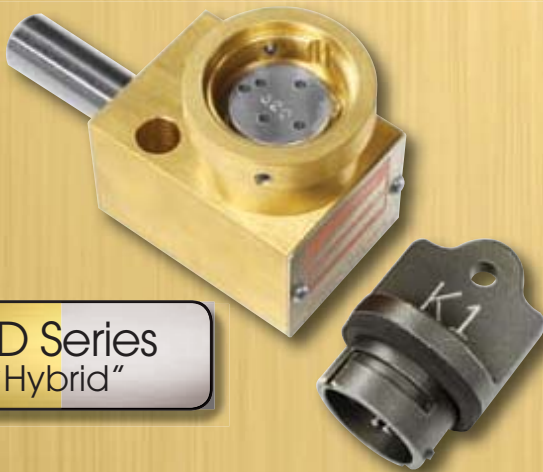


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# Workshops and Panels

Monday, July 11, 2012

8:00 to 9:30 am

**Training Class 1-A: “Planning and Executing the Refurbishment of a Coal-Fired Boiler Baghouse”** by Bob Taylor and Tim Stark, GE Energy (Gold Room)

This training class will review the three main stages of executing the change-out of the filters in a reverse-air and pulse-jet style boiler baghouse: planning, execution and start-up/ongoing maintenance practices. Topics covered will include: On-line versus off-line approach, parts procurement, staging considerations, leak detection, start-up procedures with new filters and important maintenance items to consider during operation.

**Training Class 2-A: “ESP Operations I”** by John Knapik, Babcock and Wilcox; Sean McGuinness, Kirk Key Interlock; Jason Horn, Stock Equipment (George Bush Room)

ESP Operations I covers on-line operational issues including controls, power supplies, rappers & cleaning equipment, safety and isolation during online troubleshooting & maintenance.

**Training Class 3: “Upcoming Utility MACT Discussion”** by Brian Higgins, Nalco Mobetec (Severance Room)

The proposed Utility MACT rule will be reviewed, focusing on work practice standards, DSI solutions for HCl and Hg (including oxidizers). Other issues reviewed include output based limits, emission averaging, low emission EGUs, and malfunctions.

**Training Class 4: “Monitoring Challenges Related with New Regulations”** by Keith Crabbe and Ken Greaves, Cemtek (Van Aken Room)

Cemtek Environmental has built continuous emissions monitoring systems to meet the regulatory requirements on nearly a dozen operating units, employing both wet and dry flue gas desulfurization scrubber technology for coal fired boilers. Learn about the CEMS design lessons learned from each of the completed projects, including information learned regarding particulate and mercury monitoring. This presentation will investigate the unique issues that arose during the CEMS design, installation, commissioning, and operation and the knowledge gained and solutions utilized for each technical issue.

**Training Class 5: “Wet Scrubber Operations”** by Gordon Maller, URS and Greg Bielawski, Babcock and Wilcox (Whitehall Room)

This training class will provide an overview of the chemical and mechanical factors that determine the performance and reliability of wet scrubber operations. A discussion of how to measure and control key process variables and how to recognize and resolve process problems and upsets, along with clear guidelines, will also be provided.

10:00 to 11:30 am

**Training Class 1-B (continuation of Training Class 1-A): “The Maturation of PPS Filter Media in the APC Market and Application for use in Coal-fired Boiler Baghouse Applications”** by Mike Konesky and Alan Smithies, Southern Felt (Gold Room)

This training class details the development of PPS fabric used in today's pulse-jet style filters used in coal-fired boiler applications. Topics covered include history of felt media in hot gas applications, operating characteristics of PPS fiber, and application and performance data on PPS media in coal-fired boiler applications.

**Training Class 2-B: “ESP Operations II”** by John Knapik, Babcock and Wilcox; Sean McGuinness, Kirk Key Interlock; Jason Horn, Stock Equipment (George Bush Room)

ESP Operations II covers transient condition operational issues including startup & shutdown practices, preparation for short & extended outages, common process upsets.

**Training Class 6: “Particulate Control Options with Utility MACT Regulations”** by Sam Kumar and Phil Roberts, Babcock and Wilcox (Severance Room)

This training class will cover the means available for compliance with proposed U-MACT limits for total particulates, which include both filterable and condensables. Major focus of this discussion will be on the utilization and upgrade of existing ESPs on U.S. coal-fired power plants. In this workshop the implications of the control of SO<sub>2</sub>, HCl and mercury on total particulate matter control will be discussed as well as co-benefits and further impacts of SCRs and wet FGDs on total particulates.

# Workshops and Panels

Monday, July 11, 2012 (cont.)

10:00 to 11:30 am

**Training Class 7: “State of the Art DFGD: Operating Experience and Best Practices”** by *Phil Rader and Stephen Francis, Alstom* (Van Aken Room)

This session will provide information on different types of DFGD systems including NID/Circulating Dry Scrubbers, Rotary Atomizer Spray Dryers, and Dual-Fluid Nozzle systems. Designs with and without recycle of sorbent material will be discussed. Key aspects of the associated particulate collection system included in DFGD Systems will also be presented.

**Training Class 8: “Wet Scrubber Lessons Learned Discussion”** moderated by *Steve Wolsiffer, RE Consulting* / Discussion participants: *Melissa Allen, TVA; Daryl Wall, Southern Company; Roger Ferguson, Ameren; Mark Golightley, FirstEnergy; Bruce Salisbury, APS; Rick Fannin, Minnesota Power; Ron Laws, Duke Energy; Greg Betenson, PacifiCorp; Paul Farber, Sargent & Lundy* (Whitehall Room)

This “Lessons Learned” discussion is intended to be interactive with the attendees and solicit answers and comments from a panel of experienced industry professionals. Many years of Wet FGD involvement and specific problem areas encountered from past and recent practice will be presented. Wet FGD design features, operational methods, technical guidelines and performance improvements are typical topics expected during this training session.

**LUNCH in Exhibition Hall (11:30 to 1:00 pm)**

1:00 to 2:30 pm

**Welcome: “Presentation of Round Table Lifetime Awards”** by *Susan Reinhold, Reinhold Environmental* (Gold Room)

The Round Table Awards will be given to Scott Williams of Duke Energy and Tony Licata of Babcock Power.

**Keynote Speech: “Addressing the Challenges of a Changing Electric Industry with Technology”** by *Gary Leidich, FirstEnergy* (Gold Room)

Gary Leidich will discuss meeting the growing demand for electricity through a portfolio of diverse energy sources. He also will present his perspectives on advanced technologies under development, including small modular nuclear reactors, and the regulatory challenges facing the electric industry.

2:45 to 3:45 pm

**Workshop 1: “FGD Waste Water Treatment”** by *Philip Elliott, Steag Energy Services* (Severance Room)

The technological development over the last 10 years in waste water treatment systems have allowed for effective capture of mercury and other heavy metals from the effluent. However, selenium cannot be chemically captured due to its high water solubility which used to require a large capital investment and a sizable footprint for the necessary equipment on the plants property. This workshop will discuss the advancements over the years in the selenium and mercury capture in the waste water.

**Panel I: “Mercury and U-MACT”** Chairman: *Brandon Looney, Southern Company* / Panelists: *Ramsay Chang, EPRI; John Iovino, Alstom Power; Sharon Sjostrom, ADA-ES; Bob Nicolo, Hitachi Power Systems* (Gold Room)

This panel will discuss the technology options available to coal-fired utility plants to achieve the U-MACT emission limit for mercury. The panel will be an open question format to address the proper application for a variety of technologies.

**Panel II: “SO<sub>3</sub> Mitigation and U-MACT”** Chairman: *Doug Ritzenthaler, AEP* / Panelists: *Ron Triscori, RE Consulting; Michael Thiel, Nol-Tec; Mark Thomas, Mark Thomas & Assoc.; Joe McCain, SRI; Robert Byrne, FMC* (Whitehall Room)

This panel will discuss the impact of the newly proposed HAPS rule on unit operation, condensable (SO<sub>3</sub>/HCl) mitigation strategies, and the potential challenges to existing environmental equipment.

4:30 to 5:30 pm

**Workshop 2: “Bag Fabric Selection in Integrated Air Quality Control System and Bag Life Optimization”** by *Robert Snyder, Babcock & Wilcox and John McKenna, ETS Inc.* (Gold Room)

This workshop will cover the selection and experience of filter media in low and high sulfur coal-fired boiler applications. The

# Workshops and Panels

Monday, July 11, 2012 (cont.)

4:30 to 5:30 pm (cont.)

fabric filter choices for integration with SO<sub>2</sub> control technologies of CFB, CDS, DryFGD and WetFGD will be presented. Also an approach to bag life optimization will be addressed by considering the following: causes of premature bag failure, design considerations and trade-offs, preventive maintenance programs, the importance of fabric & bag specifications, as well as follow-up on Quality Assurance/Quality Control, and bag monitoring programs. Case studies showing the importance of keeping the dust out of the “clean side” will be examined.

**Workshop 3: “Aging ESPs – How to Improve Performance”** by *Gerry Klemm and Mike Nelson, Southern Company* (George Bush Room)

This workshop will address various methods of improving performance of existing ESPs. Computer models will be utilized to predict how various improvements, modifications or increases in specific collection area will affect overall performance.

**Workshop 4: “Upgrading Draft Fans to Comply with U-MACT Regulations”** by *John Magill, Howden* (Severance Room)

U-MACT regulations will require flue gas cleaning equipment upgrades that will increase pressure requirements for the ID fans. Options to provide those higher pressures will be presented, and will include upgrades of existing fan rotors, replacement of existing fans, and addition of booster fans. Potential capital and operating costs will be discussed and compared for the different options.

**Workshop 5: “Strategy to Improve Air Preheater Performance via SO<sub>3</sub> Mitigation”** by *Sterling Gray URS; Kevin O’Boyle, Alstom Air Preheater* (Van Aken Room)

SO<sub>3</sub> generation in the boiler and SCR results in many adverse impacts for operating plants. One of the more significant impacts is corrosion and fouling of the air preheater and downstream equipment. To avoid this, many plants have to operate the air preheater at elevated gas outlet temperatures, which reduces the thermal efficiency of the plant. This workshop will discuss a new strategy to capture SO<sub>3</sub> prior to the gas inlet of the air preheater so that the flue gas temperature can be further reduced as it passes thru the air preheater without excessive fouling and corrosion associated with lower operating temperatures. The result is additional thermal energy is removed from the flue gas, thus improving energy efficiency and reducing plant maintenance costs. Lab, pilot, and full-scale results will be discussed that illustrate how a power plant can implement this strategy.

**Workshop 6: “Cliffside 6 Multi AQCS Presentation”** by *Phil Rader, Alstom Power* (Whitehall Room)

This workshop will discuss the Integrated Air Quality Control System (IAQCS) being constructed on Duke Energy’s new 800 MW coal-fired power station. The Cliffside IAQCS combines dry and wet FGD scrubbing technologies in such a way as to provide state-of-the-art emissions control along with zero liquid discharge.

\*\*\*\*RECEPTION in Exhibit Hall (5:30 to 6:30 pm)\*\*\*\*

# Workshops and Panels

Tuesday, July 12, 2011

8:30 to 9:30 am

**Workshop 7: “How to Solve Boiler Derates Caused by Inadequate FF Performance: Lessons Learned at a Midwest Utility Plant”** by *Tim Stark, GE Energy and Michael McMenus, Kansas City Power & Light* (Gold Room)

This workshop will discuss a Midwest Utility equipped with a 550 MW B&W Boiler burning PRB coal, an SCR, an Air-Preheater, two Spray Dry Absorber (SDA) modules, followed by a pulse-jet Fabric Filter unit with 13,520, 8-meter long bag technology experiencing problems of increased pressure dropped which resulted in boiler derates. The problem was solved by upgrading the filtration media to PPS laminated with ePTFE membrane. The results covered in the presentation will include reviews of operational challenges of high hopper levels, cleaning system left off, ammonia slips pressure drop across the system and filterable emission levels.

# Workshops and Panels

Tuesday, July 12, 2011 (cont.)

8:30 to 9:30 am (cont.)

**Workshop 8:** “Aspects on Very Low Resistivity Dust Operations and on Pulsed Mode Operation” by *Per Ranstad, Alstom Power* (George Bush Room)

This workshop will cover two topics. The first one is related to a case study on high sulphur coals, ACI and aggressive electrodes. The second one aims to explain what is possible to measure and what does really happen inside the ESP.

**Workshop 9:** “Installing Low Capital, High O&M Cost Control Options” by *Terry Marsh, Shaw Group* (Severance Room)

Low cost solutions for meeting Hg, SO<sub>x</sub>, and NO<sub>x</sub> reduction requirements expected in the upcoming Utility MACT. These solutions are low cost EPC, but do have significant cost associated M&O for injection materials.

**Workshop 10:** “Stack Compliance Testing Techniques Related to the Proposed U-MACT Limits” by *Carl Vineyard, Grace Consulting* (Van Aken Room)

Pages 300-334 of the new 946 Page EGU MACT of 2011 describes the new stack testing requirements and the continuous compliance requirements put in place by the proposed rule. This workshop will discuss the new requirements and present ideas on ways to comply with the continuous compliance requirements. A discussion of comments on the EGU MACT will be encouraged.

**Workshop 11:** “Oxidation Reduction Potential in WFGD Systems: Impacts on Corrosion and Trace Metals” by *Shannon Brown, Babcock & Wilcox; Derek Eggert, SRI* (Whitehall Room)

This workshop will include discussion on field and laboratory data of WFGD absorber slurry oxidation reduction potential and its impact on phase partitioning of trace metals including mercury, manganese and selenium. The impact on manganese deposition on alloy corrosion will also be included. Field data will be exhibited on changing the ORP in operational WFGD absorbers.

10:30 to 11:30 am

**Workshop 12:** “Enhanced Mercury Oxidation and Reduction in PM” by *Bobby Chen, Shaw Group* (Severance Room)

This workshop will discuss the capabilities of enhanced mercury oxidization to effectively promote mercury emission oxidization in flue gas above 90%, thus facilitates the further flue gas mercury capture.

10:30 to 12:00 am

**Panel III:** “ESP/FF Design Considerations for EGU MACT Compliance” *Chairman: Morgan Jones, FirstEnergy / Panelists: Scott Williams, Duke Energy; Russ Ridgeway, Shel-B EE; Jim Chaney, Ameren; Stephen Francis, Alstom Power; John Darrow, W.L. Gore; Phil Roberts, Babcock & Wilcox* (Gold Room)

With the advent of the proposed EGU MACT rule, and the associated very conservative pollutant limits for mercury, particulate and acid gases, good ESP and FF designs are essential for compliance. The panelists will offer their expert advice on designing, or re-designing, particulate equipment for successful control of target pollutants.

**Panel IV:** : “Scrubber Vessel Material Issues” *Chairman: Tony Licata, Babcock Power / Panelists: Ron Richard, RE Consulting; Josh Smith, Duke Energy; Kim Pfeffer, Enerfab; Gary Carinci, TMR Stainless; Chuck Dene, EPRI* (Whitehall Room)

Corrosion in Wet FGD systems has gained attention throughout the Power Generation industry. Most of the interest has been driven by the use of 2205 alloy material in many recently built FGD vessels. However, many other issues have recently surfaced. This panel will be an open forum for OEMs, plant owners and engineers involved in FGD systems to have a frank and open discussion on these issues.

**LUNCH in Exhibition Hall (12:00 to 1:15 pm)**

1:15 to 2:15 pm

**Workshop 13:** : “Dry Hydrate Injection for Control of Acid Gas: Comparison Efficiencies & Effects in Fabric Filters and ESP’s” by *Jim Dickerman, Lhoist NA* (Gold Room)

This session will present data on the performance of hydrated lime for controlling HCl emissions from coal-fired boilers. The data presented will examine the differences in HCl capture for systems that have an ESP as compared to systems that have a fabric filter for particulate control, and will examine the impacts of hydrated lime injection on emissions of SO<sub>2</sub>, SO<sub>3</sub>, and particulate matter. The data will be collected in the May-June 2011 time frame.

# Workshops and Panels

Tuesday, July 12, 2011 (cont.)

1:15 to 2:15 pm (cont.)

**Workshop 14:** : “What is the Best Frequency” by *Dan Steinhaur, Stein Industries, Inc. and Paul Ford, Redkoh Industries* (George Bush Room)

The question is often raised as to whether SMPS operating at frequencies in the kHz Hz range are required to enhance efficiency, or if SMPS operating in the mid frequency range are equally as effective in enhancing precipitator efficiency. Stein and Redkoh will discuss this issue and provide insight on this subject.

**Workshop 15:** “An Integrated Approach for Meeting the Proposed Mercury Regulations” by *Scott Hinton, WS Hinton & Associates* (Severance Room)

Recently proposed mercury regulations will require most coal-fired plants to either install dedicated mercury controls, or optimize co-benefits using current equipment. Various technologies will be discussed for mercury control in light of the proposed removal requirements, focusing on an integrated approach to meet the regulations in the most efficient and cost-effective manner.

**Workshop 16:** “How Particle Size Affects SO<sub>2</sub> and SO<sub>3</sub> Removal Performance for a Dry Sorbent Injection System” by *Keith Day, United Conveyor* (Van Aken Room)

Particle size is a key and critical factor when applying Dry Sorbent Injection technology. Generally the smaller the particle size the more uniform distribution within the gas stream resulting in higher capture of SO<sub>2</sub>, SO<sub>3</sub> and HCL. Applying milling technology will improve removal of air pollutants well at the same time lowering the amount of sorbent required.

**Workshop 17:** : “FGD Inspections – Make Corrosion a Manageable Issue Not a Crisis” by *John Grocki, Advantage Resource Consulting* (Whitehall Room)

This presentation will provide information on planning and implementing an inspection program to determine if and to what extent corrosion is occurring including: visual examination, scale chemistry and metallurgical testing, monitoring programs, alternate NDT practices, long and short term repair concepts. It will also provide examples of the recently experienced corrosion relative to both the surface scales/deposits and the underlying corrosion.

2:30 to 3:30 pm

**Workshop 18:** “Options for Upgrading an Existing ESP with Fabric Filter Technology” by *Phil Roberts, Babcock and Wilcox* (Gold Room)

This presentation will address the decision making process regarding enhancing or replacing an existing ESP with fabric filter technology. The process described will take into account the impact of the various APC technologies (ACI, DSI, FGD) related to meeting I-MACT and U-MACT regulations, considering complexity, outage duration, existing ash sales etc.

**Workshop 19:** “Fly Ash Resistivity with Injected Reagents and Predicted Impacts on Electrostatic Precipitators” by *Bob Mastropietro, Lodge Cottrell* (George Bush Room)

Electrostatic precipitators are now used as part of the flue gas scrubbing strategy, through dry reagent injection. This session will discuss test results showing the impacts of trona, sodium bicarbonate, hydrated lime, and activated carbon on combined fly ash/reagent resistivity. ESP performance trends with various reagents and injection rates will be predicted.

**Workshop 20:** : “Triboelectric Oxidation of Mercury in Fabric Filters” by *Bruce Salisbury, APS* (Severance Room)

A historical discussion of the oxidation and removal of mercury from the Four Corners Generating Station using triboelectric oxidation in a reverse gas fabric filter, and its implications for mercury control at other coal-fired power plant.

**Workshop 21:** “Controlling HCl and SO<sub>3</sub> Emissions for U-MACT (Equipment and Sorbents)” by *Michael Thiel, Nol-Tec Systems* (Van Aken Room)

This workshop will discuss dry sorbent injection systems for HCl and SO<sub>3</sub> mitigation. What are Dry Sorbent Injection systems? How do the calcium and sodium sorbents work on HCl and SO<sub>3</sub>?

# Workshops and Panels

Tuesday, July 12, 2011 (cont.)

2:30 to 3:30 pm (cont.)

**Workshop 22: “Evolving FGD Designs and Operation May Require Different Materials of Construction”** by Ron Richard, RE Consulting (Whitehall Room)

Since the beginning, there has been continual evolution in FGD system design and operating practices. There have been unpleasant and costly surprises along the way as some materials of construction did not perform well under the new conditions. This continues even today.

4:30 to 5:30 pm

**Workshop 23: “Enhanced Capture of Mercury in Baghouse by using Novel Filtration Media and Filter Design”** by Bob Taylor, GE Energy (Gold Room)

This workshop presents data showing the impact of filter media configuration and flue gas conditions on mercury removal levels. The objective is to quantify factors that improve removal of mercury to minimize the need for activated carbon.

**Workshop 24: Cancelled**

**Workshop 25: “On-site Optimization of Hg Sorbent Injection with PS 12A Method Compliant Portable Hg CEM”** by Joseph Siperstein, Ohio Lumex (Severance Room)

On-Site PS-12A Testing Requirements and QA were completed and passed using the Ohio Lumex IRM-915 Portable Monitor. This system is useful for verification of efficiency of mercury removal, optimization of sorbent injection, and compliance verifications on-site. Raw data from recent field tests will be presented here to inspect the features, performance, and capabilities of the IRM-915 field transportable mercury monitor.

**Workshop 26: “Utility MACT PM Control with WESP Technology”** by Buzz Reynolds, Siemens (Van Aken Room)

With the pending new Utility MACT regulation Wet Electrostatic Precipitators might be a part of your air pollution control strategy to meet the proposed Total PM standard of 0.03 lb/MMBtu. Conventional wisdom may suggest the use of sorbent injection and fabric filters to meet the new mercury standards in existing plants. But will they have enough fan capacity for the increased pressure drop? Perhaps adding a WESP after a WFGD system will make more sense for both PM and mercury capture? Actual WESP operating experience and emission data on coal fired utilities will be presented to consider in mapping out a strategy to comply with U-MACT.

**Workshop 27: “The Use of Polypropylene and Concrete in FGD’s”** by Geza Zirczy, Koch Knight (Whitehall Room)

This workshop will cover thermoplastic-lined vessels which are extremely corrosion resistant and are widely used in new scrubber systems. The advantages and disadvantages of existing technologies will be described by explaining the properties and installation methods of using thermoplastic for lining vessels.

\*\*\*\*Conference Event in Great Lakes Science Center (6:00 to 10:00 pm)\*\*\*\*  
everyone is invited including families



## Bus Schedule

**Buses will loop from the Renaissance Hotel to the Great Lakes Science Center  
from 5:45 pm to 10:00 pm.**

**Loading will be at the Superior Avenue door of the hotel  
on the lower lobby level**



**Tuesday Night  
July 12, 2011  
6:00 - 10:00 PM**

**All attendees &  
families are  
invited**

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- Fabric filters
- Mercury control systems
- Sorbent injection systems
- Low NO<sub>x</sub> burners and overfire air systems
- Selective catalytic reduction systems
- Combustion and post-combustion carbon capture

### Solutions

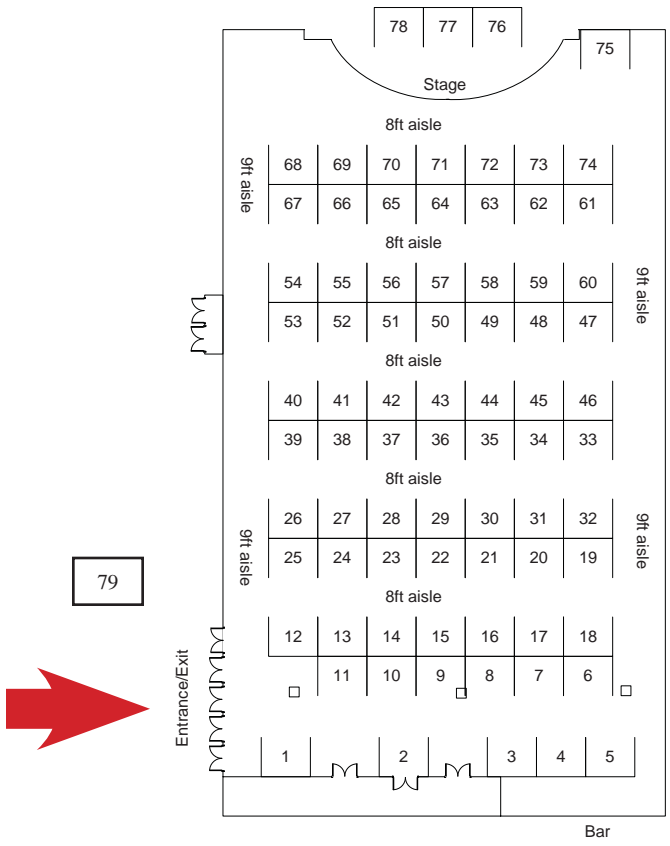
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# 2011 APC Round Table Exhibitors

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Littleton, CO 80120  
Jim Mitchell, Director of Sales  
jamesm@adaes.com  
Business: 303-734-1727; Fax: 303-734-0330  
www.adaes.com



ADA Environmental Solutions (ADA-ES) and ADA Carbon Solutions (ADA-CS) provide the coal-fired industry solutions for meeting emissions compliance. ADA-ES offers: Emissions compliance planning; Baseline emissions testing and technology demonstrations; Activated carbon and dry sorbent injection systems; Flue gas conditioning chemicals and injection systems; CO<sub>2</sub> capture technology development. ADA-CS provides PowerPac activated carbon sorbents for mercury capture. Our innovative products, combined with industry leading expertise, gives ADA-CS the tools to help customers economically achieve mercury compliance.

## Airflow Sciences Corporation.....10&11

12190 Hubbard  
Livonia, MI 48150  
Robert G. Mudry, P.E., President  
rmudry@airflowsciences.com  
Business: 734-525-0300; Fax: 734-525-0303  
www.airflowsciences.com



Experts in CFD, physical flow modeling, and field testing since 1975. Our modeling provides cost-effective designs for ducts, pulverizers, windboxes, SCR's, ESP's, baghouses, scrubbers, and stacks. Custom field test equipment ensures accurate and efficient measurement of flow, temperature, chemical species, and particulate. The combination of modeling, testing, and engineering expertise makes ASC the one-stop shop for all your flow-related needs.

## AirTek.....46

P.O. Box 388, 700 Hudson St.  
Troy, AL 36081  
John Roberts, President  
jr@airtek-troy.com  
Business: 334-566-7400; Fax: 334-566-7496  
www.airtek-troy.com



Since 1988, AirTek has been a leading provider of precipitator services. These services include field service engineering, consulting services, construction management, maintenance, new construction, major rebuilds, and the supply of spare parts. AirTek offers this full range of services, in addition to our own line of ESPs, to all users of air pollution control equipment.

## Alstom Power.....40&41

9737 Cogdill Road, Suite 101 .  
Knoxville, TN 37932  
Tapan Mukherjee, Business Development  
tapan.mukherjee@power.alstom.com  
Business: 678-318-1252; 1-800-966-0554;  
Fax: 678-318-1263  
www.environment.power.alstom.com



Alstom is a global leader in supplying environmental control systems, technical services, and replacement parts for the power generation markets. Alstom's portfolio includes complete systems, equipment upgrades, component rebuilds, replacement parts, construction, commissioning and technical services for SCR systems, wet and dry FGD systems, wet and dry ESPs, fabric filter systems and integrated solutions for mercury control. Alstom's track record spans over 100 years of delivering EXPERIENCE, INNOVATION, TECHNOLOGY, and LOGISTICS.

## Apex Instruments, Inc.....77

204 Technology Park Lane  
Fuquay-Varina, N.C. 27526, USA  
William Howe, President  
whowe@apexinst.com  
Business: 919-557-7300;  
Fax: 919-557-7110  
www.apexinst.com



Apex Instruments is a world leader in the design, manufacturing and distribution of source sampling equipment for measuring emissions from smoke stacks and industrial sources according to US EPA guidelines. Our versatile equipment is designed by experienced source samplers for over 36 gaseous and isokinetic methods and Mercury Sorbent Trap Sampling.

## A.V.C. Specialists, Inc.....5

5146G Commerce Ave.  
Moorpark, CA 93021  
Tom Shideler, President  
Mike Jakstis, General Manager  
sales@avcspecialists.com  
Business: 805-531-8900; Fax: 805-531-8903  
www.avcspecialists.com



A.V.C. Specialists designs and manufactures voltage control and rapper control systems featuring Modbus communication links with plant DCS. A.V.C. also supplies replacement and upgrade components for all precipitators. In addition to providing inspection and maintenance service, A.V.C. solves difficult rapping problems for hoppers, bins and SCR screen systems.

## Babcock Power Inc.....63

5 Neponset St.  
Worcester, MA 01606  
Tony Licata,  
info@babcockpower.com  
Business: 508-852-7100; Fax: 508-854-3800  
www.babcockpower.com



Babcock Power, through its various subsidiaries, is a leading worldwide supplier of technology, equipment, and aftermarket services for heat exchangers, HRSGs, steam generators, and environmental products for the power generation, industrial, biomass, solar and waste-to-energy markets.

## The Babcock & Wilcox Company.....24&25

20 S. Van Buren Avenue  
Barberton, OH 44203  
Amy C. Rossi, Sales Development  
acrossi@babcock.com  
Business: 330-860-1004; Fax: 330-860-1952  
www.babcock.com



B&W is an international leader in the design, manufacture, service and construction of steam generating and environmental equipment. Technologies include dry/wet FGD systems, fabric filters, dry/wet electrostatic precipitators, SCR systems, low NO<sub>x</sub> burners and combustion systems, and solutions for mercury control and carbon capture. As a single-source supplier, B&W also provides environmental equipment upgrades, replacement parts and emissions monitoring systems.

## Blome International.....79

1450 Hoff Industrial Drive  
O'Fallon, MO 63366  
Andy Bernard, Partner  
andy@blome.com  
Business: 636-379-9119; Fax: 636-379-0388  
www.blome.com



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## Biomass Energy Technologies Inc.....59

5531 Eagle Lane  
West Chester, Ohio 45069  
D. Gary Madden, COO  
dgmadden@co2credit.com  
Business: 513-759-0237;  
Fax: 614-388-5538  
www.biomassenergytechnologies.com



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Biomass Energy Technologies (BET) is a biomass fuel supplier offering both unprocessed and processed biomass including pelletized and torrefied biomass products. BET's strategic partnership agreements solve the main issues in biomass utilization: 1) a consistent product 2) long term supply and pricing agreements backed by a Global financial institution 3) professional administration of contracts that maximize credits and subsidies and assure compliance.

## Breen Energy Solutions.....69

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Carnegie, PA 15106  
Chetan Chothani, VP - Technology  
CChothani@BreenES.com  
Business: 412-431-4499  
Fax: 412-431-4104  
www.BreenES.com



Breen Energy Solutions (BES) provides technologies and solutions to Optimize Dry Sorbent Injection Systems to minimize reagent use, plant BOP impacts and meet the strict condensable/filterable PM requirements for Utility-MACT. BES has an installed base of over 100 AbSensor-SO<sub>2</sub> monitors in the industry with a majority of those in closed loop control for SCR/SNCR performance, Heat Rate Improvement, Air heater protection, Blue Plume and Wet/Dry Sorbent injection controls. BES conducts Dry Sorbent Injection demonstrations that deliver a proven closed-loop optimized sorbent injection control system.

## BriskHeat Corporation.....7

1055 Gibbard Ave  
Columbus, OH 43201  
Patrick Doyle  
National Sales Manager  
bhsales1@briskheat.com  
Business: 800-848-7673; Fax: 614-294-3807  
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BriskHeat has been a leader in industrial heating and control since 1949. We offer the widest selection of fly ash hopper heating and control systems available. Examples include one-piece metal-clad heaters, flexible silicone heaters, and individual modular PID controls. We also offer freeze-protection or heating solutions for material handling systems, piping, and tanks/vessels.

## Buell APC.....4

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200 N. 7th St., Suite 2,  
Lebanon, PA 17046  
Tom Lugar, President FKI-Buell-AVC,  
tlugar@cecoenviro.com  
Business: 717-274-7110  
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Buell APC provides air pollution control systems and services for the power utility and industrial process industries. Products and services include custom electrostatic precipitators and baghouses, ESP rebuilds and upgrades, precipitator conversion to pulse jet fabric filter, inspections, technical advisory services, engineering evaluations, and replacement parts for Buell and other OEM design precipitators.

## BWF America..... 30

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Florence, KY 41042  
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jbernstein@bwf-america.com  
Business: 859-282-4550 x 240  
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BWF Envirotec is the world's leading supplier of filter bags to the power generation market. As both a needle felt producer and bag fabricator, BWF Envirotec has the unique ability to match the gas stream characteristics with the properties of the needle felt ensuring maximum bag performance. In addition, BWF also provides baghouse maintenance services; change outs, mechanical inspections and retrofits our standard services.

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ussales@castell.com  
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www.castell.com



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## CE Power Solutions.....60

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Lake Hamilton, FL 33851  
Marty Watson, General Manager  
mwatson@cepowersol.com  
Business: 863-439-2992; Fax: 863-439-2991  
www.cepowersol.com



CE Power Solutions specializes in providing engineering and technical services for the electrical power industry. We provide testing and repair solutions for TR sets, switchgear, circuit breakers, and power transformers. CE Power also provides system solutions facing clients in power generation and distribution, including field testing and maintenance services and repair/replacement options. We also work closely with CKE Composites to provide replacement power modules for TR Set 480V Feeders.

## Certified Constructors' Services, Inc.....8

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Palatine, IL 60067  
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akephart@cleanair.com  
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www.cleanair.com



For over 39 years, CleanAir has been a global leader in stack testing, emissions monitoring, compliance planning, APC performance testing, sampling equipment, and instrument rental. Areas of expertise include flue gas analyses for Hg/SO<sub>2</sub>/SO<sub>3</sub>/NO<sub>x</sub>/NH<sub>3</sub>/HCl and particulates, ash resistivity analysis and cooling tower drift emissions. Today we are assisting our utility clients in providing mercury monitoring solutions, AIG tuning, real-time particulate measurements, particle sizing studies and & more.

## Clyde Bergemann EEC.....57

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Hanover, MD 21076  
Mark Dutchess, Dir. Business Development  
mark.dutchess@clydebergemanneec.com  
Business: 443-695-3842; Fax: 410-368-6721  
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Clyde Bergemann EEC is a leading supplier of fabric filters, ESPs, dry scrubbing and dry injection systems for the control of particulate, acid gas and Hg emissions. We offer a full line of associated OEM and aftermarket parts and maintenance services for these APC systems to the power generation, pulp and paper, waste-to-energy, rock products, metals and petrochemical industries. Clyde Bergemann EEC is a unit of the Clyde Bergemann Power Group, a world leading enterprise providing "Clean Energy Solutions" to the global energy market.

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11707 Steele Creek Road  
Charlotte, NC 28273  
Randy Sadler,  
Director of Marketing and Sales  
rs@coalogix.com  
Business: 704-827-8933; Fax: 704-827-8935  
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600 9th Street  
Golden, CO 80401  
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Business: 303-277-4057; Fax: 303-277-4990  
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CoorsTek removes technological barriers for the power-generation industry by manufacturing advanced 85% alumina ceramic support insulators and ESP components. Now the largest technical ceramics manufacturer in the world, CoorsTek designs, manufactures, assembles, and delivers critical components for technology-leading OEMs worldwide. For engineering assistance or quick-turn service, please contact Ken Petersen at CoorsTek Sales, 303.277.4057

## CORMETECH.....67

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## EPSCO International, Inc.....43

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Carlisle, MA 01741  
Thomas Keeler, President  
Email: epsco@apcnetwork.com  
Business: 978-405-9426; Fax:  
www.escointernational.com



EPSCO International, Inc. is a consulting firm specializing in economically solving air pollution control problems for coal-fired utilities, cement plants, and pulp & paper.

EPSCO promotes a 3-Phase approach to defining a problem before trying to solve it: Online Assessment, Offline Assessment, Analyses & Recommendations. EPSCO's staff of 8 consultants and associates have an average of 25+ years of consulting experience on ESPs, FFs, FGD, O & M support, flue gas conditioning systems, Mercury control, SCRs and Maintenance & Structural Rehab on 400+ successful projects.

## ETS, Inc.....9

1401 Municipal Road, NW  
Roanoke, VA 24012, USA  
John McKenna PhD, Principal  
jmck@etsi-inc.com  
Business: 540-265-0004 ext 293  
Fax: 540-265-0131  
www.etsi-inc.com



Founded 1973, ETS Inc. a testing/training firm specializing in particulate emission control, recognized as the world's leading baghouse consultant, has an independent bag/fabric testing laboratory which participates in the EPA's ETV program verifying baghouse filtration products. The firm has a reputation for successfully troubleshooting APC equipment, providing specification assistance, expert testimony, and its Baghouse Seminar plus Pollution Control Training Programs.

## FLSmith.....62

2040 Avenue C  
Bethlehem, PA 18017-2188  
info-us@flsmith.com  
Business: 610-264-6011  
Fax: 610-264-6857  
www.flsmith.com



FLSmith is a leading supplier of equipment and services to the global cement and minerals industries. We develop and supply Air Pollution Control systems with extensive knowledge on fabric filters, electrostatic precipitators, conditioning towers, scrubber systems, heavy metal removal, and multi-pollution control systems. Furthermore, we provide systems for conveying fly ash and reagents for desulfurization and mercury removal with the ability to perform full-scale pneumatic conveying, rail car loading, as well as pilot-scale demonstrations covering all product lines, on virtually any material.

## FMC Corporation.....61

EnProve Environmental Products  
1735 Market Street  
Philadelphia, PA 19103  
Mike Brubaker, Commercial Development Manager  
mike.brubaker@fmc.com  
Business: 803-317-0447; Fax: 215-299-6387  
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As a leading supplier of trona, soda ash, sodium bicarbonate and other sodium alkali products, FMC's EnProve product line offers the most efficient removal of acid gasses from stack emissions. Trust the experts at FMC for innovation and advanced technology to meet today's tough environmental regulations with low capital investment. Call 877-368-0091 for information or to schedule a test at your site.

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Bob Crynack  
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Mobile: 412-551-0925  
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www.envsolutions.fmc.com



FMC is the exclusive licensee of a novel NOx control technology patented by NASA. Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) is injected into the ducts ahead of the air pre-heater and converts the NO to NO<sub>2</sub>, which is more readily captured by existing downstream pollution control equipment. Low capital, low maintenance, and modest chemical costs make this a cost effective technology for NOx reductions of greater than 50%. Moreover, the technology is flexible and scalable to meet changing requirements for any size boiler and low-cost site demonstrations can easily be performed to validate the technology. As a leading global supplier of hydrogen peroxide, FMC offers unparalleled supply reliability, as well as a full complement of technical services to support the safe and efficient use of its products.

# 2011 APC Round Table Exhibitors

## Fox Equipment.....70

965 Bunker Avenue  
Green Cove Springs, FL 32043  
Bill Beringer, Director of Sales  
bill@foxequipment.com  
Business: 904-531-3150  
Fax: 904-531-3151  
www.foxequipment.com



Fox Equipment designs, engineers and manufactures utility-grade dampers and expansion joints for the power-generation industry. We fabricate in our Fox captive 65,000 sq ft facility in Green Cove Springs, FL and at 25,000 sq ft Paragon Metals in Cincinnati where our Ohio office resides also. Our markets include coal fired power plants, Combined Cycle Natural Gas units, HRSG's, Oil & Gas Refineries, Steel, Concrete, Chemical and process industries.

## Fuel Tech, Inc.....2

27601 Bella Vista Parkway  
Warrenville, IL 60555  
Kevin Dougherty,  
VP Business Dev't & Marketing  
info@ftek.com  
Business: 630-845-4500  
Fax: 630-845-4501  
www.ftek.com



Fuel Tech, Inc. provides technologies for multi-pollutant emission control and advanced combustion technologies. Products include: optimization services, low NOx burners, Over-Fire Air systems, SNCR systems (NOxOUT® and HERT™), ASCR™ Advanced SCR systems, ULTRA™ process, sorbent injection systems, flue gas conditioning systems, and TIFI® Targeted in Furnace Injection programs to improve boiler performance while reducing slagging and emissions.

## GE Energy.....37

8800 E. 63rd St.  
Kansas City, MO 64133  
Timothy (Tim) Stark, Sales Application Engineer  
Timothy.Stark@ge.com  
Business: 800-821-2222 ;Fax: 816-353-1873  
www.ge-energy.com/filtration



GE Energy's Environmental Services team serves energy industry producers worldwide with integrated and flexible emissions control technology and services for fabric filtration systems. GE evaluates your entire process and applies the right technology to help improve the performance of your existing assets and minimize O&M costs

## Grace Consulting Inc.....58

PO Box 58  
Wellington, OH 44090  
Melissa Vineyard, Director of Marketing & Sales  
melissa@gcitest.com  
Business: 888-GCI-TEST  
www.GCITest.com



Grace Consulting, Inc (GCI) is AETB compliant and committed to providing exceptional air sampling services nationwide. Test teams are lead by QSTI's trained in the latest sampling techniques. GCI has developed the multi-probe flow RATA program Precision Flow© that includes the Electronic Flow measurement portions of Methods 2H & 2G. Precision Flow© provides greater accuracy and can greatly reduce emissions credits. GCI has assembled a team to meet the demands of Mercury Testing and on-site sorbent trap analysis.

## Graycor.....36

Two Mid America Plaza, Suite 400  
Oakbrook Terrace, IL 60181 USA  
Kevin Chastain  
Manager of Operations-Power  
kevin\_chastain@graycor.com  
Business: 630-684-7110; Fax: 630-684-7111  
https://www.graycor.com



Graycor Industrial Constructors Inc. and Graycor Blasting Company Inc. provide industrial construction services to the power industry throughout North America, with an expert focus on environmental projects. Graycor Blasting offers power clients leading-edge industrial maintenance technologies which include a number of cleaning services such as explosives deslagging, hydroblasting, vacuuming and grit blasting.

## Hitachi Power Systems America.....56

645 Martinsville Road  
Basking Ridge, NJ 07920  
Bob Nicolo  
robert.nicolo@hal.hitachi.com  
Business: 908-605-2848; Fax: 908-604-6211  
www.hitachipowersystems.us



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## Horn Industrial Services.....71

2205 Ragu Drive  
Owensboro, KY 42301  
Terry Byrnes  
Vice President Sales and Marketing  
terry.byrnes@hornhis.com  
Business: 270-683-6564; Fax: 270-684-4056  
www.hornindustrialservices.com



Horn Industrial Services is the Parent company of Titan Contracting, Titan Fabricating, National Steel Erection, MIM and Milco Companies. The Horn Companies are one of the leading full service contracting and fabricating companies in the Power Industry. Services include New Construction, Existing Plant Modifications and Repair and Maintenance. Specialties include Power and Process Piping, Balance of Plant Disciplines, Turbine and HRSG Installations, ASME boiler and tube repair, Tank Fabrication (Shop and Field Installations), Existing Plant Modifications/Upgrades, Environmental Equipment Installation/ Retrofits, and AQCS installations and Maintenance.

## Hotfoil-EHS Inc.....50&51

2960 East State Street Extension  
Hamilton, NJ 08619  
Neville W. Richards, President  
Neville@HotfoilEHS.com  
Business: 609-588-0900; Fax: 609-588-8333  
www.HOTFOILEHS.com



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## Kiewit/TIC.....20

9401 Renner Blvd.  
Lenexa, KS 66219  
Michael Ross,  
President, Kiewit Power Engineers  
Michael.ross@kiewit.com  
Business: 913-928-7000  
www.kiewit.com



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211 Wetmore Ave S.E.  
Massillon, OH 44646  
Sean McGuinness, VP of Sales  
sean@kirkkey.com  
Business: 330-833-8223; Fax: 330-833-1528  
www.kirkkey.com



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## Krishnan & Associates, Inc./Enstreet.com.....76

1516 Bedford Street  
Stamford, CT 06905  
Ravi Krishnan, Managing Director  
ravi@krishnaninc.com  
Business: 203-921-1800; Fax: 203-854-6758  
www.krishnaninc.com



Krishnan & Associates is a full service consulting firm providing marketing & communication services, market research, recruitment, and mergers & acquisition services specifically tailored to the power industry and to clean energy technology providers. Our clients include OEMs, engineering firms and utilities. We operate in USA and India. We also operate a clean energy web portal, www.enstreet.com, providing the latest energy and emissions information on a daily basis.

## Lechler Inc.....75

445 Kautz Road  
St. Charles, IL 60174-2926  
Robert Van Durme, P.E., Senior Account Manager,  
Wet FGD North America  
environmental@lechlerusa.com  
Business: 800-777-2926 ext. 6812  
Fax: 800-444-7069  
www.LechlerUSA.com



Lechler USA Inc. is a leading supplier of technical solutions in the application of spray nozzle injection systems, pump-valve skids, and controls for SCR, SNCR, Wet FGD, and Semi-dry FGD processes. Our 120 plus years of experience enables us to provide you the best solutions for your chemical/water injection requirements.

## Lhoist North America, Inc.....73

3700 Hulen Street  
Fort Worth, Texas 76107  
Howard B. Fitzgerald  
New Business Development Manager, FGT Solutions  
howard.fitzgerald@lhoist.com  
phone: 1-817-732-8164  
www.lhoist.com



Lhoist North America (Lhoist) was formed with the merger of two of the premier calcium product companies in North America: Chemical Lime Company with the production of high quality quicklime and hydrated lime and Franklin Industrial Minerals with its production of milled chemical grade limestone. Through continued investment in new facilities and through acquisition, Lhoist today is the clear industry leader in the development of calcium-based products in North America. Lhoist currently operates 15 lime production facilities across the U.S. with 33 kilns and 34 product distribution terminals, along with 7 limestone processing facilities. Over the past 43 years, Lhoist's North American production capacity has grown to over 6 million tons of lime and 4.5 million tons of limestone per year. Lhoist Group is the worldwide leader in Calcium products with operating companies in 17 countries on five continents. Lhoist is known to be the industry leader in acid gas control hydrates with its line of Sorbocal® Optimized Hydrated Lime products. Please contact the technical specialists at Lhoist's FGT Solutions Group to discuss how Sorbocal® can benefit you in control of acid gasses and other emissions at your plant

## Lodge Cottrell Inc.....27

2319 Timberloch Place, Suite E  
The Woodlands, TX 77380  
Heather Stephens  
Business Development Manager  
hst@lodgecottrell.com  
Business : 281-465-9498; Fax 281-465-9366  
http://www.lodgecottrell.us http://www.lodge-cottrell.com



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- Full range of Acid Gas Removal Systems from wet scrubber to dry scrubber
- De-NOx system with SCR and SNCR technologies
- Worldwide leader in ESP Upgrading
- Technical consultation on the existing Facilities

## Marsulex Environmental Technologies.....52&53

200 North Seventh Street  
Lebanon, PA 17046  
Richard Staehle,  
VP Business Dev. & Technology  
rstaehle@marsulex.com  
Business:330-668-6202  
Fax: 330-664-0983  
www.met-apc.com



Marsulex Environmental Technologies (MET) provides Wet and Dry FGD solutions and expertise that minimizes pollutants from electric utilities and general industrial plants. Our technologies include Dry CFB-FGD as well as traditional and advanced Wet FGD. MET provides OEM and retrofit systems, engineering studies and upgrades. Solutions. Performance. Relationships.

## Mississippi Lime.....34

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St. Louis, MO 63127  
Eric Van Rens, Vice President,  
Sales and Marketing  
ecvanrens@mississippilime.com  
Business: 314.543.6365; Fax: 314.543.6565  
www.mississippilime.com



Mississippi Lime hydrated lime is a proven high performing sorbent for acid gas mitigation in Dry Sorbent Injection Systems or Circulating Dry Scrubbers. Our quicklime is a high purity, high conversion feedstock for Spray Dry Absorber scrubbing systems. The Reagent Technology Services division of Mississippi Lime will work with you to supply high purity milled limestone for Wet FGD applications. Our production facilities are located in Ste. Genevieve MO, Vicksburg MS, Verona KY, Weirton WV, Chester SC, and Mobile AL, with additional terminals located throughout North America. Please stop by our booth to hear how Mississippi Lime's technical support and supply chain capabilities can help you achieve cost-effective control of acid gas emissions.

## Nalco Mobotec Inc.....17&18

1601 W. Diehl Rd.  
Naperville, IL 60563  
David A. Johnson,  
General Marketing Manager  
Dajohnson2@nalco.com  
Business: 630-305-2419;  
Fax: 630-305-2505  
www.NalcoMobotec.com



Nalco Mobotec helps businesses meet environmental challenges, including the global tightening of air quality regulations and the need to reduce critical pollutants such as NOx, SOx, Hg, CO, acid gases, and particulate matter, among others. The Nalco Mobotec core technology modifies the combustion process and creates a superior mixing environment in the furnace, driving complete, efficient reactions to reduce emissions.

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425 Apollo Drive  
Lino Lakes, MN 55014  
Jerry C. VanDerWerff, National Sales Mgr.  
JerryVanDerWerff@nol-tec.com  
Business: 651-780-8600; Fax: 651-780-4400  
www.nol-tec.com



Sorb-N-Ject Technology®, offered by Nol-Tec Systems, dry bulk sorbent injection systems to mitigate acid gases, Hg, and dioxins/furans emissions effectively and efficiently. We are a global, single-source supplier of custom engineered bulk material handling, pneumatic conveying and integrated control systems – including limestone and fly ash handling systems. Nol-Tec is dedicated to providing the best value in the form of high quality products and unparalleled customer service.

## NoritAmericas Inc.....44

3200 University Ave.,  
P.O. Box 790  
Marshall, TX 75671  
Rob Nebergall,  
Business Manager, Emissions Control Technology  
rob@norit-americas.com  
Business: 903-935-4774  
www.norit-americas.com



Norit Americas Inc. is a worldwide leader in purification. Norit is the largest producer of powdered activated carbon worldwide and leads the power generation industry in activated carbon technology for mercury removal. Norit is also the market leader in supply of activated carbon injection systems.

## Ohio Lumex Company.....6

9263 Ravenna Road, Unit A-3  
Twinsburg, OH 44087  
Alexandra Sipershteyn  
alexandra.sipershteyn@ohiolumex.com  
Business: 330-405-0837; Fax: 330-405-0847  
www.ohiolumex.com



Ohio Lumex offers a market-leading portable Continuous Emissions Mercury Monitor, ideal for Sorbent Injection /Control Efficiency Verifications. The Sorbent Trap Analyzer is an excellent tool for Reference Method 30B RATA and simple to use for Mercury Emissions Compliance Reporting. We manufacture the highest quality Custom Made and Spiked Sorbent Traps as well as Laboratory Services such as sorbent trap analysis and analysis of raw materials.

## Performance Contracting Inc.....33

16047 W. 110th St.  
Lenexa, KS 66219  
Cale Collier  
Cale.Collier@pcg.com  
Business: 877- 707-5747  
www.pciapc.com



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## Pollution Control Services, Inc.....47

5490 Oakmont Dr  
Pace, FL 32571  
Greg Carleton/ Paul Leanza  
greg@pcsesp.com; paul@pcsesp.com  
Business: 850-516-9608; Fax: 866-284-0328  
www.pcsesp.com



PCS provides all levels of post combustion control engineering, consulting, and on-site inspection services for coal and renewable fired electric generators. PCS brings extensive experienced staff, with more than 120 years of combined design, build and up-grade practical experience with SCR's, wet and dry ESP's, Baghouses, Dry Injection

systems & Wet Scrubbers to solve the need to bring further heat rate improvement. PCS, in response to older cold-fired plants' requirements to achieve reduction in their carbon emissions, has a well established cold flow modeling lab which can lower the carbon-fired plant's overall aux power load through scale modeling of the entire gas path from boiler exit through the stack.

## RE Consulting.....29

3850 Bordeaux Drive  
Northbrook, IL 60062  
Gary D. Reinhold, President  
gary.reinhold@reconsulting.info  
Business: 847-562-8556  
Fax: 847-562-8894  
www.reconsulting.info



RE Consulting is a division of Reinhold Environmental Ltd., a corporation which continues to provide numerous O&M services to the coal-burning utility industry since 1993. Using its team of industry experts, RE Consulting's current focus is to provide engineering studies, on-site training, and O&M based troubleshooting and consulting. In addition, RE Consulting provides training via its state-of-the-art, on-line training manuals.

## Redkoh Industries.....16

300 Valley Road  
Hillsborough, NJ 08844  
Paul Ford, President  
paul.ford@redkoh.com  
Business: 908-369-1590  
Fax: 908-369-1594  
www.redkoh.com



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## Shaw Environmental & Infrastructure.....64

2526 Westcott Blvd.,  
Knoxville, TN 37931  
Terry Marsh,  
Vice President, Utility Sector Lead  
terry.marsh@shawgrp.com  
Business: 865.599.3274; Fax: 865.531.9014  
www.Shawgrp.com



Shaw Provides the Total Solution for Electric Utility Clients. Shaw Environmental & Infrastructure, Inc., focuses on building relationships with our utility industry clients, based on trust, integrity, value, and leveraging our legacy of more than 100 years of continuous service to this industry. Our newest innovative technologies for multiple pollutant control for NOX, SOX and Hg are making a significant impact as a low cost alternative to other more expensive solutions.

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 Minneapolis, MN 55438  
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 Business: 952-829-4868; Fax: 952-941-9287  
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## Siemens Environmental Systems & Services.....45

501 Grant Street, 4th Floor  
 Pittsburgh, PA 15219-4429  
 Craig Martin  
 SESS Marketing Manager-NA  
 environmental.pg@siemens.com  
 Business 412-562-7300;  
 Fax 412-562-7308  
 www.siemens.com/energy



Siemens is a world leader in the design and supply of air pollution control systems and services for industrial and utility power generation facilities. Technologies include wet or dry FGD systems, fabric filters, wet or dry electrostatic precipitators, and mercury control technology. Aftermarket Services offers technical support, training, rebuild/ upgrade services and replacement parts.

## Siemens Industry, Inc.....48

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 Alpharetta, GA 30005  
 Roland Metz, Bus Dev Manager  
 roland.metz@siemens.com  
 phone 770-740-3708; Fax 770-740-3398  
 www.usa.siemens.com/industry



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## The SOLVAir® Group.....49

Solvay Chemicals, Inc.  
 3333 Richmond Avenue  
 Houston, TX 77098  
 Mike Wood,  
 Business Mgr, SOLVAir Products  
 mike.wood@solvay.com  
 Business: 713-525-6829; Fax: 713-525-7806  
 www.solvair.us



SOLVAir Products help eliminate SO<sub>2</sub>, SO<sub>3</sub>, NO<sub>x</sub>, HCl, HF and mercury in flue gas emissions in waste-to-energy plants, industrial boilers, and coal-fired power plants. When used in Dry Sorbent Injection systems, SOLVAir® Select 200 trona and SOLVAir® Select 300 sodium bicarbonate provide results that are truly amazing.

## Southern Environmental, Inc.....38&39

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 Michael R. Johnson,  
 Director – Sales and Marketing  
 apcsales@sei-group.com  
 Business: 850-944-4475; Fax: 850-944-8270  
 www.southernenvironmental.com



## Southern Research Institute.....3

Power Systems and Environmental Research  
 P. O. Box 55305  
 Birmingham, AL 35255-5305  
 Ken Cushing,  
 Manager, Environmental Services Group  
 cushing@southernresearch.org  
 Business: 205-581-2381;  
 Fax: 205-581-2333  
 www.southernresearch.org

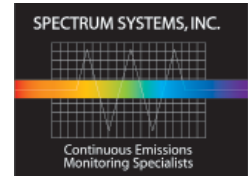


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Southern Research Institute's Power Systems and Environmental Research Department provides air pollution control research, testing and laboratory services for utility, industry, and government clients in the U.S., Europe, and Asia. Our areas of expertise include vapor-phase mercury monitoring, carbon trap mercury measurements, SCR catalyst activity testing, coal combustion research, flue gas analysis for SO<sub>3</sub>, Hg, HCl, FTIR gas analysis, ash resistivity testing, chemical analysis of coals and fly ashes, analysis of FGD scrubber liquids and slurries, and water treatment / remediation technologies.

## Spectrum Systems, Inc.....35

3410 West Nine Mile Road  
 Pensacola, FL 32526  
 Richard Blanchard, Sales Manager  
 ssi.cems@gmail.com  
 Business: 850-944-3392; Fax: 850-944-1011  
 www.spectrumsystems.com



Manufacturer of Continuous Emission Monitoring Systems, Continuous Opacity Monitoring Systems, Data Acquisition and Reporting Systems which comply with Federal, State, and Local regulations, as well as Process Monitoring Systems for SCR, FGD, and Boiler Control. Also provides preventive and emergency service, troubleshooting, training, consulting, repairs, spare parts, and Certification and Compliance testing.

## STEAG Energy Services LLC.....12&13

PO Box 1727 / 304 Linwood Road Suite 102  
 Kings Mountain, NC 28086 USA  
 Dorothee Seidel, Marketing Manager  
 dorothee.seidel@steag.us  
 Business: 704-734-0688; Fax: 704-734-1088  
 www.steag.us



STEAG Energy Services provides a full scope of environmental engineering and consulting service to the N. American energy industry including SCR system design and review, SCR catalyst management services including catalyst data interpretation, catalyst exchange strategies, catalyst cleaning, rejuvenation and regeneration, STEAG's patented/ pleated large particle ash screens, AIG tuning, complete in-house SCR catalyst bench scale testing and XRF testing services, complete SCR on-site installation / removal services, STEAG's patented mercury capture / sequester system and SCR and FGD Training / O&M services.

## Stebbins Engineering.....78

363 Eastern Blvd  
 Watertown NY, 13601  
 Scott Vincent-Barwood, Mgr/FGD Sales  
 SVincent-Barwood@StebbinsEng.com  
 Phone: 315/782-3000 xt 2691;  
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19 Artisans Crescent  
London, Ontario, Canada N5V5E9  
Bill Cooke, Contract Administrator  
info@steinindustriesinc.com  
Business: 519-659-3659  
Fax: 519-659-4269  
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## Stock Equipment.....31&32

16490 Chillicothe Rd.  
Chagrin Falls, OH 44023  
Mike Volker, Regional Sales Manager  
stock.sales@stockequipment.com  
Business: 440-543-6000  
Fax: 440-543-5944  
www.stockequipment.com



Stock Equipment Company, part of Schenck Process Group, is a global supplier of material handling solutions as well as an industry leader in precipitator control and power supply solutions with its Forry AVC XM, ERC, TR set and ModuPower high frequency SMPS products.

## United Conveyor Corporation.....74

2100 Norman Drive W  
Waukegan, IL 60085  
Keith Day, Sales Engineer  
keithday@unitedconveyor.com  
Business: 847-473-5900 Fax: 847-473-5959  
www.unitedconveyor.com



United Conveyor Corporation (UCC) is a global leader in ash handling solutions for the power generation industry and preferred supplier for dry sorbent injection (DSI) and lime handling expertise. UCC is the industry leader in performance-based turnkey solutions for DSI. This includes predictive modeling, testing, demonstration, pneumatic system design, manufacture, installation and on-going service.

## URS Corporation.....54

P.O. Box 201088  
Austin, TX 78720-1088  
Gordon Maller,  
Manager of Air Pollution Control  
gordon\_maller@urscorp.com  
Business: 512-419-5045; Fax: 512-454-8807  
www.urscorp.com



URS is a full-service engineering company. For nearly 30 years, URS, operating as Radian Corporation, has been recognized as a world leader in air pollution and FGD control technology. Today, we are applying our expertise and know-how to upgrade existing FGD systems, build new FGD systems, and design systems to control other pollutants such as mercury and particulate.

## Wahlco, Inc.....19

2722 South Fairview Street.  
Santa Ana, CA 92704  
Barry Southam,  
Vice President of Sales & Marketing  
bsoutham@wahlco.com  
Business: 714-979-7300  
Fax: 714-979-0603  
www.wahlco.com



Wahlco serves the power industry through the manufacture and supply of SO<sub>3</sub> and NH<sub>3</sub> flue gas conditioning (FGC) systems, small NO<sub>x</sub> reduction (SCR and SNCR) systems, ammonia systems for SCR plus urea-to-ammonia "U2A®" (patented process) systems for DeNox and industrial applications.

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