Session Summaries and SHIPS Codes

Additive Injection - 023042 ........................................................................................................ 2
Air & Gas - 016645......................................................................................................................... 2
Ash & Materials Handling - 016647 ............................................................................................. 2
Axial Fans – 016646 .................................................................................................................... 2
Boiler - 016648 ............................................................................................................................. 2
Boiler / Water Chemistry - 016668 ............................................................................................. 3
Condensate/Feedwater/GSW - 016469 ....................................................................................... 3
Cyber Security Forum - 21432 ..................................................................................................... 3
Earth Sciences - 023716 ............................................................................................................... 4
Electrical Equipment - 016650 ...................................................................................................... 4
Environmental Programs Update (Air, Land, & Water) - 21430 ............................................. 4
Fire Protection and Combustible Dust Mitigation - 023717 .................................................... 5
FOT Plant Training - 023560 ....................................................................................................... 5
Fuel Burning - 016651 ................................................................................................................. 5
Fuel Supply - 016652 ................................................................................................................... 5
Gas Turbines / Combined Cycles - 016653 .................................................................................. 6
Generating Technologies Update - 023038 ............................................................................... 6
Generator - 016654 ....................................................................................................................... 6
Generator / Turbine - 016659 ....................................................................................................... 6
HRSG – 21433 ............................................................................................................................. 6
Instruments & Controls - 016656 ............................................................................................... 6
Particulate Control (Precipitator and Baghouse) - 016657 ....................................................... 7
Project Planning & Execution – 22329 ....................................................................................... 7
SCRs - 21428 ............................................................................................................................. 8
Scrubbers - 21427 ....................................................................................................................... 8
Solar Users’ Group - 023715 ........................................................................................................ 8
Turbine - 016658 .......................................................................................................................... 8
Water Chemistry - 016667 .......................................................................................................... 9
Water & Wastewater Systems - 21429 ...................................................................................... 9
Water Chemistry / Water & Wastewater COMBINED - 016667 ............................................ 9
Additive Injection - 023042
Additive Injection System case histories and lessons learned from Technical Services, System Owners, and System engineers will be presented to update the fleet regarding ongoing activities to improve Operations, Maintenance, Reliability, and Performance of Additive Injection Equipment. Additive products and their application especially as they relate to MATS compliance will be discussed as well.

Air & Gas - 016645
The Air & Gas session is a forum to discuss equipment and systems under the responsibility of an Air & Gas system owner. Systems and equipment that are typically discussed in the session include: Air Preheaters, FD Fans, PA Fans, ID Fans, miscellaneous fans, expansion joints, etc. Presentations typically are centered on best practices, lessons learned, root cause analysis, OIS, and O&M best practices. The Air & Gas session is also an excellent networking opportunity for Air & Gas system owners, Technical Services, and Engineering & Construction Services.

Ash & Materials Handling - 016647
The ash & materials handling session will be separated in two sections: Knowledge Transfer and New Technologies. The Knowledge Transfer section will consist of industry expert updates on current ash handling issues facing our fleet, and discussions in which current ash handling issues are discussed with other Southern Company system owners. Additionally, a focus of this year’s conference will be on the ash conversion projects. The New Technologies section will consist of technical discussion of currently in-progress or recently completed ash handling projects at other utilities by the vendors. This would include discussion of system components, overall systems, as well as lessons learned and operational best practices.

Axial Fans – 016646
The Axial Fan Session will include discussions around variable pitch axial fan operation and maintenance practices, lessons learned, and retrofits for improved reliability and lower maintenance costs. Attendees will include Southern Company personnel, other utility users, and Vendor personnel.

Boiler - 016648
The SCG Boiler Technical Forum is comprised of Boiler System Owners, Boiler Inspection Team Members, and SG Generation Technical Support personnel to discuss boiler maintenance, boiler water chemistry, boiler inspection practices, pressure part procurement, boiler outage restraints (budgets and manpower), boiler outage readiness reviews during the last year and Southern Company boiler issues and changes in boiler operations due to environmental requirements and fuel changes. The session allows all the multi-disciplined boiler teams to interact in the current issues involving our Southern
Company Generation boilers; like new technology utilized for boiler layups, long lead time boiler components, boiler outage schedules, boiler component fabrication issues, current boiler tube failures due to different unit capacity profiles, boiler inspection best practices, high energy piping inspection requirements, best practice sharing among System Sister units. Maintaining future reliability within the current challenges is always a main focus of the session.

**Boiler / Water Chemistry - 016668**
The Boiler/Water Chemistry Combined Session is an opportunity for boiler experts, technical experts and chemists from across Southern Company to hear presentations on topics that affect both disciplines. The combined sessions focus on issues such as: water side induced boiler tube failures, the importance of pre-boiler cleanup and the use of blowdown to control boiler contamination on startup, boiler layup practices and boiler tube samples requirements, as well as a review of Southern Company boiler availability issues.

**Condensate/Feedwater/GSW- 016649**
The Feedwater, Condensate & General Service Water Technical Session is comprised of System Owners, Plant Maintenance Staff and SGG Engineering, Performance and Technical Support personnel. Primary discussion topics center on critical equipment & associated maintenance/operations practices within these systems.

Other topics of discussion are:
- Best Practices in the Systems’ Maintenance and Operations
- Plant Cycle Performance Issues
- Unique Inspection & Repair Practices Utilized During the Year
- Unique Equipment & System Modifications Utilized During the Year
- Maintenance Alliances & Activity
- Boiler Feed Pump User Group Update

**Cyber Security Forum - 21432**
This year’s Cyber Security session will include an update on recent NERC CIP standard developments and an overview of over 20 recently developed Southern Company guidelines, which support our effort to better secure the generating facilities.

We will be receiving an update on the Sophia pilot project. This innovative software is proving to be a valuable tool for understanding the communications network and traffic within the controls environment. Not only does it provide insight of the cybersecurity status, but also affords a clear maintenance view, which may aid in network diagnostic and optimization.
Our guest speaker Brian Singer will demonstrate engineering and cyber skills which might be used to attack and “own” an industrial control system with his popular S4 presentation “The Pragmatic Pwn of ICS”.

We will receive a briefing, “Ukraine Cyber Attack: Implications for U.S. Stakeholders”. This will provide details on how the recent attack was conducted and the responses of the local power companies, which were affected. This is a real eye opener of what can happen when our own maintenance and support paths are used, with minimal effort, to become an attack vector.

Our Southern Company control system Principals will walk us through the revised backup and recovery procedures for our major control systems. Experience gained through testing at the Cyber lab has provided a proven and more efficient process.

We will conduct a round table discussion of the Incident Response and Disaster Recovery actions which would be used during an event.

**Earth Sciences - 023716**
The Earth Sciences session will include discussions of both ongoing and upcoming site activities, primarily related to compliance with the federal CCR rule. Presentations during the morning will focus on land and groundwater compliance, including such topics as the October 2017 deliverables deadline, high resolution site characterization, and alternate source demonstrations. During the afternoon, the focus will shift to pond closure and construction updates, with potential topics including pond closure lessons learned, cover systems, and advanced ash handling / dewatering research.

**Electrical Equipment - 016650**
The Electrical Equipment session will cover basic station service equipment including motors, switchgear, DC systems, relaying, and other related items. Presentations typically include general interest topics, root cause analysis of specific equipment failures, maintenance practices and techniques, safety issues, and “how stuff works”. Presentations will generically tie in to actual plant events where possible and lean toward the practical and away from the analytical.

**Environmental Programs Update (Air, Land, & Water) - 21430**
The Environmental Programs Update session will be a combined session of personnel from the Fans & Draft Systems, SCRs, Scrubbers, Particulate Control, Ash Handling, Ash Ponds and Water Chemistry sessions.

Our keynote address will be delivered by EPA Region 4 Administrator Heather McTeer Toney and followed by air, water and land strategy updates from our environmental systems group.
Fire Protection and Combustible Dust Mitigation - 023717
Fire protection for generation. We will discuss the more common methods of protecting our people and generation assets, plus see some of the newer technologies on the market. Recommendations from our corporate group and our insurance carriers will also be presented.
Combustible Dust in the power plant. Dangers of combustible dust explosions and ways to protect our employees from harm.

FOT Plant Training - 023560
The Fleet Operations and Trading Plant Training presentation is designed to cover the applications used by Southern Company Generation to manage our generating fleet. Topics to be covered include Overview of Fleet Operations and Trading, Fleet Flexibility, AGC and AGC Scorecard, GENISYS, SYSTAT/Commercial Availability, GenComm and GDIS Toolkit. The information covered should not only be useful for plant leadership and new employees, but also for veteran employees, covered employees, and anyone who is responsible for communicating with fleet.

Fuel Burning - 016651
The Fuel Burning session of the SCG Technical conference is a forum to discuss equipment and systems under the responsibility of a Fuel Burning system owner. This session is open to the system owners, engineers, maintenance planners, maintenance supervisors, operations supervisors, plant managers, operators and mechanics. Systems and equipment that are typically discussed in the session include: Pulverizers, Exhausters, Feeders, Fuel Transport Piping, Burners, Igniters, and Flame Scanners. Presentations typically are centered around; best practices, lessons learned, root cause analysis, OIS, combustion optimization, operations, testing, and wear materials. The Fuel Burning session is also an excellent networking opportunity for Fuel Burning system owners and Technical Services personnel.

Fuel Supply - 016652
The Fuel Supply session of the SCG Technical conference is a forum covering equipment and systems for solid fuel supply to the plant and associated material handling systems. This session is open to the system owners, engineers, team leaders, maintenance planners, maintenance supervisors, operation supervisors, plant managers, operators, equipment operators, heavy equipment operators and mechanics. Systems and equipment discussed will include coal transportation, receiving, unloading and stock-out systems and coal yard reclaim systems from the coal yard to the tripper floor. Typical equipment topics would include feeders, conveyors & components, chutes, dust control and coal yard rolling stock. The fuel supply session is an excellent networking opportunity to compare best practices in fuel and material handling and discuss the additional issues for those plants that handle PRB coal.
Gas Turbines / Combined Cycles - 016653
This is a Joint Session open to both wholesale and retail CC/Cogen/CT O&M personnel and CT related SMEs to discuss practical issues that involve and affect unit operation, maintenance and reliability, both from the industry and the SoCo the fleet. Separation Protocol will be in effect.

Generating Technologies Update - 023038
The generating technologies update session will focus on the latest advancements in power generation technology including siting and project development aspects of renewable technologies including solar, wind, and energy storage technologies. Presentations will include overviews of the latest advancements in gas turbine technologies, overviews of recent solar and wind projects in which Southern Company has been involved, and views of what the future in power generation may bring. This session is anticipated to include discussion of both Retail Generation and Southern Power projects, therefore Separation Protocol will be in effect.

Generator - 016654
The overall intent of the generator session is to discuss practical issues that involve and affect unit operation, maintenance, and reliability. Specific areas of focus will be on the following primary topics:
- Current status updates on known major issues that affect units within Southern Company’s fleet.
- Fleet status relative to recent OEM TILs / TAs.
- Discussion of shaft voltages, bearing insulation, and shaft grounding.
- Review of generator high voltage testing including explanation of purpose and methods of performing these tests.
- Discussion of recent hydrogen system modifications.
- Review of major generator events within the system.
- Review of recent hydrogen cooler issues.

Generator / Turbine - 016659
This is a combined session to discuss issues of common interest to both Generator and Turbine system owners and subject matter experts. The session will include discussion of practical issues that involve and affect unit operation, maintenance, and reliability.

HRSG – 21433
The HRSG session will discuss operations, maintenance and reliability issues and concerns for the fleet. We will discuss lessons learned from new construction and from long term operations of some of our older units. The attendees of the HRSG session are expected to be from system owners, maintenance personnel to managers from both the Operating Companies and SPC. Separation Protocol will be in effect.
Instruments & Controls - 016656
The SCGen I&C Technical Forum is a unique opportunity for I&C personnel from across Southern Company Generation to hear presentations on I&C subjects and to discuss I&C Lessons Learned and Best Practices while networking with their counterparts from other locations. This forum is targeted towards plant control system specialists, I&C technicians, and their SCGen corporate counterparts to facilitate the sharing of information among individuals working in the I&C area. The format this year is new with all day on Tuesday being a joint I&C session. Wednesday afternoon (following the Combined Innovation Session) the group will break up into three groups in three rooms for User Group meetings associated with GE Turbine Control Systems, Siemens Turbine Control Systems and PLC/PAC Systems. Thursday morning there will be three more User Group meetings associated with ABB-Bailey, Emerson Ovation and Schneider Foxboro DCS platforms. The User Group meetings will each be a combination of presentations and open discussions with the vendors present for only a portion of each meeting. The agenda for the joint session on Tuesday, among other topics, includes a Keynote presentation on Power Industry Control Systems as well as presentations on the I&C Impact on Unit Heat Rate, Plant Justification approaches for I&C Upgrades, Event Diagnostics at a Combined Cycle Unit, Kurz Flow meter implementations for Boiler Airflow, and a Control System UPS maintenance strategy.

Particulate Control (Precipitator and Baghouse) - 016657
The Particulate Control sessions will span 1.5 days with one day (Tuesday) devoted to Electrostatic Precipitators and a half day (Wednesday afternoon) devoted to Fabric Filters. Each session will feature a balance of both instructional content as well as discussions of important case histories. Case histories will be presented by both Technical Services personnel as well as plant delegates. Guest speakers from outside utilities are also expected to participate.

The half day Fabric Filter Session will have a high level introductory overview leading into Plant case histories and lessons learned.

Project Planning & Execution – 22329
Regardless of size or complexity, all project outcomes can be improved through early planning. The Project Planning & Execution Session will give insight into successful planned projects and principles based on industry best practices that you can apply to your projects. The focus of this session is improving project performance and achieving greater results through early project planning. Examples from both internal and external industry data will be provided.

This session is for anyone wanting greater results for their plant projects while networking with peers who are working toward similar goals.
**SCRs - 21428**

The SCR session is a forum to discuss equipment and systems under the responsibility of SCR systems owners. The session is open to process owners, process engineers, maintenance planners and supervisors, operations leaders and others with interest and/or expertise in selective catalytic reduction. Topics typically discussed include ammonia safety and storage systems, ammonia forwarding and vaporization, catalyst management, NOx sampling systems, dampers, sootblowers and sonic horns, LPA screens, case histories and best practices.

**Scrubbers - 21427**

The Scrubbers session of the Southern Company Technical Conference is a forum to discuss FGD Scrubber equipment and systems, including:

- JBR Vessels
- DCFS Vessels
- Pumps, Blowers and Valves
- Oxidation Air
- Gypsum & Limestone Handling
- Return and Make-up Water
- Process Optimization

Presentations and discussions will cover best practices, lessons learned, O&M practices, operations, testing and potential changes. This session is also an excellent opportunity for Scrubber System and Process Owners, Technical Field Services and scrubber component vendors to network.

**Solar Users’ Group - 023715**

The first annual Solar User’s Group session is a forum for all of the solar owners to discuss various topics. This will be a great opportunity for interested employees to learn more about the acquisition and construction, due diligence, and operation of solar assets. Network with the staff who pioneered Southern’s renewable expansion since its beginning in 2010.

The session will focus on the rapid growth of solar in Southern Company’s energy portfolio, E&CS’s role – Technical support and project management, Safety, Best Practices and Lessons Learned. Participants will be E&CS and all the OPCOs.

**Turbine - 016658**

The Turbine Session is a forum to discuss issues and lessons learned from the SC steam turbine fleet. Topics will include repair options, retrofit projects, major overhaul discoveries and solutions, Turbine Component Team updates, training needs, Technical Information Letters/Bulletins reporting and update, Southern Company Technical Recommendation (SCTR) update, EPRI technical reports update, Outage Readiness Review preparation, roundtable discussions, and turbine testing update. There will be
one day of combined discussion with SPC personnel in the room, all other time within the session will be devoted to regulated discussion topics only.

**Water Chemistry - 016667**
The Water Chemistry Session is an opportunity for chemists, technical experts and system owners from across the Southern Company to hear presentations on topics related to water chemistry. This session will focus on steam/water cycle chemistry, water treatment equipment, wastewater treatment equipment, cooling towers, condensers, FGD chemistry, corporate contracts and lessons learned presentations from Southern Company plants.

**Water & Wastewater Systems - 21429**
The Water & Wastewater Systems session will include regulatory discussions on EPA federal land and water regulations, including Coal Combustion Residual Standards, Effluent Limitation Guidelines, and the 316(b) section of the Clean Water Act. Presentations will illustrate how these rules and regulations directly affect the Southern Company system and demonstrate current efforts towards compliance. Operating company and plant specific case studies of various Land & Water projects will be presented.

**Water Chemistry / Water & Wastewater COMBINED - 016667**
The Water Chemistry / Water & Wastewater Combined Session is an opportunity for plant engineers, chemists and technical experts from across Southern Company to hear presentations on topics that affect both the plant lab teams along with other plant departments. The combined session is an effort to allow the attendees to hear the latest efforts within the fleet and how this could affect them.