EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Electrostatic Precipitators Working Group

ESP Systems and Components across worldwide fleet

- Technology transfer forum for Electrostatic Precipitator (ESP) system owners and subject matter experts
- Define issues affecting ESP particulate control systems under frequent startup/shutdown and cyclical modes of operation
- Discuss known solutions or work-arounds to enable reliable system performance
- Develop best practice guidelines and methods to inform plant personnel of latest technology practices
- Assist with the development of expertise and knowledge to generate efficient training materials required by the industry

Key Research Question

EPRI has supported fundamental research for the operation and performance of ESP systems at coal-fired utility boilers for several decades. Research for ESPs continues to advance in areas such particle charging, electrode design, control strategies, numerical modeling and advanced hybrid systems. New learnings with respect to ESP design strategies have also been recently demonstrated on systems outside the US. ESP technology continues to improve towards reducing particulate emission levels of PM2.5.

Objectives

The objectives of the ESP Working Group (ESPWG) are to:

- Provide a continual forum for system owners where operating experiences can be discussed
- Identify technology gaps or research needs based on current user experiences and operating trends
- Foster technical exchange of ideas and learn from highly experienced system owners

Approach

The ESPWG will meet in-person once per year, and through EPRI hosted technical webcasts during the project year. The working group may also identify areas that may require further research by EPRI such as:

- Identification of strategies for reduction of air or moisture infiltration
- Practices to avoid hopper issues: fires, pluggage
- Solutions for the reduction of dust re-entrainment
- Identification of solutions to reduce sorbent impacts
- Further development of diagnostic and modeling tools such as the EPRI Electrostatic Precipitator Model (ESPM)
- Understanding the capabilities of ESP systems as multi-pollutant control devices
- Reduction of the impacts of ESPs on downstream air pollution control (APC) equipment (such as flue gas desulfurization units (FGD))

In addition, with the departure of increased retirement of experienced engineers from the workforce, development of training materials and knowledge has become a greater necessity for the industry. This project intends to develop training materials that can be targeted towards new engineers and can also develop materials on more advanced topics of interest. EPRI has developed a significant knowledgebase over the past several years which could be customized to address the current industry needs.

Research Value

Working group participants will have a means to discuss topics of interest with peers in the industry. In addition, the collective knowledge from these meetings will be recorded and produced into a knowledge resource either via white papers or a report for each project participant.

Deliverables

- Periodic webcasts throughout the year
- An annual in-person meeting
- Summary of meeting topics and presentations
- Training materials for knowledge transfer as prioritized by EPRI and the members

Price of Project

The cost of participation is $15,000/year. This project qualifies for both Tailored Collaboration (TC) and Self-Directed Funding (SDF) participant.

Project Schedule

Membership in the ESP Working Group is based on a calendar year. An annual meeting will happen in the 3rd quarter and webcasts will be held periodically throughout the year.

Who Should Join

ESP system owners seeking ways to maintain and maximize collection efficiency and system reliability, understand the integration of ESPs as a multipollutant control system. In addition, the ESPWG aims to foster a learning environment for less experienced engineers to interact with more experienced industry experts.

Contact Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com).

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