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**Intelligent Soot-blowing of Coal-Fired Utility Boilers – Inferential Determination of
Convection Pass Cleanliness**

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Abstract

This project proposes to develop an inferential approach for the determination of the cleanliness of boiler convection pass sections, and to implement it in the ISA code and test it. Artificial neural networks (ANNs) will be used to correlate processed data, such as steam and flue gas temperatures, flow rates, and section cleanliness data (currently determined by first principles), and to develop ANN models for section cleanliness. ISA results, obtained by using the inferential section cleanliness determination approach, will be compared to the ISA results obtained by using section cleanliness obtained from the first principles. Partner companies include Allegheny Power Supply, PPL, (PA), Detroit Edison, and Ontario Power Generation.