



2013 **Title:** **Biomass Combustion Principles and Boiler Optimization**  
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**ABSTRACT:**

This paper presents an overview of solid biomass combustion in stoker grate-fired boilers. Increased interest in improved performance and efficiency has led to a better definition of combustion goals, symptomatic characterization of poor combustion, and identification of opportunities to improve operation. The combustion process is described from fundamentals, performance engineering and problem root cause analysis (including CFD modeling), through providing upgrade elements and typical benefits to improve operational performance in a variety of areas.