

2008 **Title:** **Boiler Upgrades to Increase In-House Power Generation**
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ABSTRACT:

Pulp and paper mills operate industrial boilers that burn fossil fuels and/or waste fuels such as sawdust, bark, hog fuel, tires, clarifier sludge, municipal and agricultural waste, etc., to generate steam for manufacturing processes. With increased fossil fuel and power costs, more emphasis is being placed on minimizing fuel cost and maximizing mill in-house power generation. Typically, in-house electricity is generated in steam turbine generators from high pressure steam which requires raising steam to pressures and temperatures higher than required by the process users. All or a portion of the steam leaving the turbine can then be used at lower pressure as process steam for paper making.

In this paper, boiler modifications are discussed that can increase power generation in turbine generators by raising steam temperature, operating pressure, and/or boiler steaming rate. Cases are presented showing how superheater, economizer, and firing rate upgrades can impact boiler steam conditions and improve net power output. All cases represent either recently implemented modifications or studies that show economical promise.