

# The Potential of Cofiring White Teak Sawdust and Coal in a Power Plant in Indonesia

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**Abstract.** The use of an alternative energy source in steam power plants is a priority to reduce greenhouse gas emissions and dependency on conventional fossil fuel such as coal. White teak (*Gmelina arborea* Roxb) is widely used in Indonesia as a raw material in furniture industries. However, the sawdust of white teak has not been utilized although it has a potential for cofiring in a coal based power plant in Indonesia. This study aims to examine the potential of white teak sawdust as an alternative fuel in cofiring systems with coal in a power plant. The sawdust of white teak is characterized physically and chemically, and is mixed with coal at a maximum ratio of 5% by weight. Tests were carried out in laboratory-scale test Circulating Fluidized Bed (CFB) boilers in a power plant in Indonesia to analyze combustion efficiency, exhaust emissions, and system performance. The results show that the use of sawdust in cofiring contributes to increasing combustion efficiency and reducing emissions of greenhouse gases and other pollutants. The use of white teak sawdust also provides a promising economical alternative with the potential to reduce operational costs. This research contributes to efforts to improve energy sustainability in the steam power plant industry and provides a basis for developing strategies for implementing the use of sawdust as an alternative fuel in a power plant in Indonesia.

**Keywords:** biomass cofiring, coal based power plant, indonesia power, white teak sawdust