

Thermal process, technical review and performance improvement for operational of ultra-supercritical coal fired power plant

ABSTRACT

In most Asian, a country such as China, India, Indonesia and Malaysia, thermal coal plant plays the roles in providing electric power. As reported in International Energy Agency (IEA) 2018, is forecasting until year 40 percent of energy supply until the year 2040. In fact, look up at the energy security and sustainability of the energy supply, majorities of the countries still operating the coal thermal power plant as baseload. Realizing the importance and criticality, there is a need to maintain and sustain the operational process of a thermal coal plant. Therefore, this research is studying the technical process, mechanism, operation procedure, machine technologies, issues, and challenges faced at one of the supercritical coal plants located in Asia country. Thermal operational process monitored and observed in six-month performances; two-pass ultra-supercritical, pulverized fuel, steam generator, and one double flow intermediate-pressure and two double-flow low-pressure turbines. Operator log sheet, parameters performing, and recording were recorded during the observation period. The management tools, SWOT was applied in scrutinizing and analyzing the input from this study. The study categorizes the barriers based on four elements which are Resources and Management, Material and Machine Technologies, Process Methodology and Environment Work Culture. Besides, this study recommends the strategy to enhance the operational excellent on optimizing the power plant performance.