

## **Operation of reheat steam temperature control concept in sub critical boiler: operational review practices and methodology**

### **ABSTRACT**

In subcritical boilers, spray water system and feed water flow are applied to control the superheated steam temperature. Meanwhile, for reheat steam temperature control, many methods are being adopted namely burner tilt, gas recirculation, and excess air and steam bypass as primary control and feed water is envisaged as an emergency control. In a large boiler operation, the boiler is operated in sliding pressure mode the cold reheat steam temperature is higher compared to constant pressure operation. To ensure the correct temperature control for reheat steam with high pressure, the right method and sufficient mechanism operating the boiler is required. In fact, spray is not used for reheat steam temperature control because the boilers are designed for constant pressure operation since the spray quantity required will be large for an impact on plant heat rate. The boilers used for this study were operated under sliding pressure mode; hence, reheat steam temperature control by spray is a common practice in subcritical boiler operations. This paper dealt with the advantages and disadvantages of using spray by looking at boiler performance for RH steam temperature control in lieu of other control mechanisms.

**Keyword:** Subcritical boiler; Rankine cycle; Superheated steam; Reheat steam.