

## Technology status of biomass power generation in Korea

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### **Abstract**

RPS (Renewable Portfolio Standard) system was initiated in 2012 to promote the use and supply of renewable fuel and to activate renewable energy industry in Korea. Currently, 21 selected suppliers must supply a certain percentage of total power generation capacity using renewable energy. The percentage is 5% in 2018, but it will gradually increase over time, reaching 10% in 2023. To meet the requirement, power suppliers have to either produce electricity using renewable energy to acquire REC (Renewable Energy Certificate) or purchase additional REC in the market to fill the quota. Different renewable power production methods have different weight factors for REC. For renewable fuels, REC of boilers co-firing biomass are 1.0 while dedicated biomass boilers can receive REC of 1.5. Power suppliers preferred biomass or waste co-combustion technology rather than solar and wind power because co-firing of renewable fuels with conventional coals can be carried out with simple facility modifications without significant changes to existing plants. KEPCO Research Institute has lots of experiences to combust the renewable fuels such as wood chip, wood pellet, and RDF (Refused Derived Fuel) as blended fuel in coal-fired plants.

This presentation will discuss the biomass utilization status and some examples in power plants in Korea. In detail, the presentation will consist of four parts : renewable fuel in power plants, experimental data in a pilot test rig, demonstration experiences in commercial boilers, and direction of power generation technology. Especially, co-firing experiences in large scale (Donghae 200 MWe, Yeosu 340 MWe) CFB (Circulating fluidized bed) boilers will be focused on. Operational problems of dedicated biomass boiler will be also covered. Furthermore, KEPCO R&D activities to develop technology of high efficiency power generation will be introduced.