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Resource conservation GSCC Priok: Blowdown water utilization as absorption chiller energy source for air conditioning in office building

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Energy efficiency and sustainable environment are important key of performance indicators for nowadays Indonesian Power Plant Company. Recovery and conservation of thermal waste to usable energy is one example that could be conducted for supporting these goals. As gas and steam combined cycle power plant (GSCC), operation of Priok GSCC produces continue and discontinue blowdown water and steam in order to maintain the good quality of waste heat recovery boiler water. With the total capacity of power plant of 1,300 MW (Block 1-2), Priok GSCC produces big amount of blowdown water where its temperature varies from 100 to 250 oC. This thermal waste could be used as the source of electricity production as well as absorption chiller for building air conditioning system. This paper presents the energy conservation implementation of blowdown water from Priok GSCC Power Plant utilization as the main source of the absorption chiller for air conditioning in office building. The main objective of this project is to reduce electricity consumption of the office building air conditioning. With the cooling capacity of about 20 ton refrigeration (TR) as pilot project, the electricity consumption for air conditioning of the studied office building could be reduced up to 57% compared to the utilization of conventional chiller air conditioning system. In the environmental aspect point of view, this paper introduced an innovation in power plant industry, particularly in energy efficiency, emission reduction and water conservation. The journey to maintain electricity generation and environmental preservation also noticed and will be reported to Ministry of Environment and Forestry, Indonesia as Environmental Compliance and Beyond Assessment (PROPER).

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