ABSTRAK

Pada tahun 2022, kebutuhan listrik di Indonesia mencapai 1.172 kilowatt-jam per penduduk, dan diperkirakan akan meningkat seiring dengan pertumbuhan ekonomi yang diharapkan mencapai 5,3% pada tahun 2023. PLTGU Jawa 1 merupakan salah satu pembangkit yang menggunakan teknologi evaporative cooler. penulis mencoba melakukan analisis perbandingan unjuk kerja dari PLTGU Jawa 1 block 11 apabila dioperasikan dengan dan Tanpa Teknologi Evaporative Cooler. Dari pengamatan, pengumpulan data, perhitungan dan analisis uji unjuk kerja maka diperoleh nilai heat rate pada saat evaporatif cooler on 6.036,011 kJ/kW-hr dengan output power 893090,5207 kW dan heat consumption 5390704291,4533 kJ/hr. sedangkan pada saat evaporative cooler off di dapat 6003,3231 kJ/kW-hr dengan output power 857.895,2525 kW dan heat consumption 5150222376,0000 kJ/hr. Terdapat kenaikan power output sebesar 35.195,2682 kW tetapi kenaikan power output ini juga di ikutin dengan kenaikan heat consumption sebesar 240481915,4533 kJ/hr dan heat rate sebesar 32,6879 kJ/kW-hr.

Kata kunci: PLTGU, Heat Rate, Evaporative cooler, Heat Consumptio, Power output

ABSTRACT

In 2022, electricity demand in Indonesia reached 1,172 kilowatt-hours per population, and is expected to increase along with economic growth which is expected to reach 5.3% in 2023. PLTGU Jawa 1 is one of the plants that uses evaporative cooler technology. The author tries to analyze the comparison of the performance of PLTGU Jawa 1 block 11 when operated with and without Evaporative Cooler Technology. From observations, data collection, calculations and analysis of performance tests, the heat rate value is obtained when the evaporative cooler is on 6,036.011 kJ / kW-hr with output power 893090.5207 kW and heat consumption 5390704291,4533 kJ / hr. while when the evaporative cooler is off it gets 6003.3231 kJ / kW-hr with output power 857,895.2525 kW and heat consumption 5150222376,0000 kJ / hr. There is an increase in power output of 35,195.2682 kW but this increase in power output is also followed by an increase in heat consumption of 240481915.4533 kJ/hr and a heat rate of 32.6879 kJ/kW-hr.

***Keywords**: PLTGU, Heat Rate, Evaporative Cooler, Heat Consumption, Power Output*