

**EXERGY ANALYSIS AND OPTIMATION PLTP PT. PERTAMINA
GEOTHERMAL ENERGY AREA KAMOJANG
DIRECT-DRY STEAM CYCLE**

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ABSTRACT

Energy and exergy analysis at PLTP PT. Pertamina Geothermal Energy Area Kamojang Unit 4 direct-dry steam cycle was done on each component and state, so that known energy and exergy stream and where it happened irreversibility at component. The biggest irreversibility value was happened at turbine and main condensore with respectively value is 21693.890 kW and 21688.148 kW. Total irreversibility off all systems is 58326.201 kW while total exergy inlet systems is 119308.457 kW, so that the value efficiency exergy overall obtained is 51.11%. Based on environment as dead state analysis, an efficiency exergy value is inversely proportional with irreversibility value along with ascending environment temperature. An optimization at systems was done with genetic algorithm method, with variable value at pressure wellhead and inlet turbin for efficiency exergy overall value. The value obtained from optimization is 11.98 bar at wellhead and 10.023 bar at inlet turbine, so efficiency exergy overall value increased by 51.22%.

Keywords: *Exergy, Irreversibility, Efficiency Exergy*