

Utilization of Exhaust Heat Cold Storage Condenser of UPT SIP POLIJE as Power Generation based on Thermoelectric.

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ABSTRACT

Thermoelectric generators (TEGs) are devices that employ Seebeck effect in thermopile to convert temperature gradient induced by waste heat into electrical power. This research was conducted to test the potential of electric source from peltier modules. These thermoelectric generators were applied in battery charging by using waste heat of cold storage condenser. The experiment has been conducted with variations of peltier module resistances, configuration (series, parallels, and combination), and temperatures. Iron and exhaust gases of cold storage condenser as heat source for thermoelectric generator. The experiment result showed that four of peltier modules highest arranged in series generated power output of 2.07 W with 110°C iron temperature and 33Ω resistance. While using exhaust gases of cold storage condenser as heat source showed that an average temperature of 24.17 K result in power of 0.144 W and effeciencie of 24 %. The power could be used as power source of power bank but thermoelectric generator system must improve their quantity of module in order to generate highest power and stabile current. This experiments reveals that thermoelectric generator system has a good prospect as alternative power generation.

Key words: Thermoelectric Generator, Condenser, Configuration of TEG