

**Design of a Waste Heat Energy Conversion System into Electrical Energy
based on a Thermoelectric Generator on an LPG Gas Stove**
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ABSTRACT

Along with the development of technology, the use of technology as an effort to maintain energy availability has begun to be started a lot. One of the examples is the application of a reflector casing to increase the efficiency of the LPG gas stove by minimizing the process of combustion, and the application of a thermoelectric generator to convert waste heat energy into electricity directly. This research aimed to do a heat energy conversion system design to be an electric based on a thermoelectric generator as an effort utilization of waste heat in the use of an LPG gas stove, and combined with the application of a reflector casing to increase the efficiency of the LPG gas stove. The waste heat energy conversion system into electrical energy based on a thermoelectric generator that has been made consists of several main components, they are water block, reflector casing, thermoelectric generator, and LPG gas stove that has been modified. The tests carried out include the power and efficiency of the energy conversion system, as well as the efficiency test of the LPG gas stove. The test results that have been carried out show that the highest power that can be generated by the waste heat energy conversion system into electrical energy based on a thermoelectric generator on an LPG gas stove is 0.0614 watts, which is the test of the thermoelectric generator configuration in series with a 27 ohm resistor load. While the highest efficiency of the energy conversion system is 0.1706%, which is the test of the thermoelectric generator configuration in series with a 27 ohm resistor load. The LPG gas stove with the application of an waste heat energy conversion system to electrical energy based on a thermoelectric generator has the highest position of 75.09% at the third test. Meanwhile, the 511C RI LPG gas stove had the highest score of 68.98% at the time of the second test.

Key words: waste heat, refelctor casing, thermoelectric generator, LPG gas stove.