

عنوان مقاله:

Exergy Analysis of a Novel Combined System Consisting of a Gas Turbine, an Organic Rankine Cycle and an Absorption Chiller to Produce Power, Heat and Cold

محل انتشار:

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نویسندگان:

Malihe Pashapour - *Department of Engineering, Urmia University, Urmia, Iran*

Samad Jafarmadar - *Department of Engineering, Urmia University, Urmia, Iran*

Shahram Khalil Arya - *Department of Engineering, Urmia University, Urmia, Iran*

خلاصه مقاله:

The current work investigates the exergy analysis of a new system to generate power, heat, and refrigeration. In the proposed system, the heat loss of a gas turbine (GT) is first recovered by a Heat Recovery Steam Generator (HRSD), then by an Organic Rankine Cycle (ORC) to generate warm water and additional power, respectively. In the ORC, reheating is used to increase the output power, the required heat of which is provided by a geothermal resource. Moreover, there is an absorption refrigeration cycle in the system that operates with the remaining geothermal heat. The exergy efficiency of the system were 50.65%; while the coefficient of performance of the refrigeration system was calculated to be 0.5. In this regard in the entire system, the combustion chamber accounted for the major exergy destruction, making the GT/HRSG system have the highest portion of 87.71%. The greatest exergy efficiency was .96%, which was obtained for the gas turbine

کلمات کلیدی:

Exergy, Gas turbine, Organic Rankine Cycle, Absorption Refrigeration, Geothermal

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