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**IMPACT OF THERMOELECTRICITY IN SCIENCE AND  
TECHNOLOGY**

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**ABSTRACT**

Rapid economic growth of the emerging and developing countries combined with non-implementation of the Kyoto protocol by many nations poses serious concerns about increase in energy consumption and pollution. The fuel deficit and huge power demand have compelled the researchers for a paradigm shift inclined to non-conventional sources. The urge for alternative energy resources leads to an important domain of research dealing with the direct retrieval of waste heat and its conversion into useful electricity. Most of the heat generated from different sources is wasted and thermoelectricity can exploit this unutilized energy. Thus, the field of thermoelectric (TE) is outstanding, as it is associated with power generation and refrigeration, which directly couples thermal and electrical phenomena. The TE device's function either as a pump to transport heat when an electric current is applied or as a generator while it is placed in a temperature gradient. They facilitate more efficient use of energy and have the option of utilizing unused heat from industrial process and domestic appliances. Environmental friendliness due to the absence of fluorinated cooling agents, compactness, quietness, reliability as well as scalability are the advantages of solid-state TE conversion and it enables the substitution of compression-based refrigeration with Peltier coolers. Automobile industries are exploring the possibilities of electrical power generation using heat from the radiator and exhaust (Bang et al. 2016). Well-established radioactive thermoelectric generators (RTG) are used in space technologies (Bathula et al. 2015).