This study involves a modeling of an active linear generator that utilizes waste heat to produce electrical energy by means of electromagnetic induction. The system utilizes Gadolinium (Gd) as an active heat carrier, as well as to cause the change of the magnetic flux in the vicinity of a coil. Gd has been chosen because of its Curie temperature (Tc) and its unique properties near this point where the magnetic and thermal properties change. This system works when there is an enough temperature difference between two surfaces where Gd works to gain the heat from the high level and dissipates it to low level. The Gd movement up and down is caused by magnetic and gravitational forces after a change in its temperature. COMSOL Multiphysics 5.2a software is used in this study to find the simulation results. Results are focused on two axes, the first one is what is the voltage generated in the coil due to Gd movement and the other is how much heat is dissipated by that movement. Voltage induction and heat transfer are achieved in this study through simulation results. This technique is suitable for many applications where heat dissipation improves performance such as engines, electronic devices etc.