In recent years, there have been growing interests in key areas related to global warming resulting from environmental emissions, and the diminishing sources of fossil fuel. The increased interest has led to significant research efforts towards finding novel technologies in clean energy production. Consequently, the merits of a thermo-electric generator (TEG) have promised a revival of alternative means of producing green energy. It is, however, impractical to account for the cost of thermal energy input to the TEG which is in the form of final waste heat. This is because the technology presents critical limitations in determining its cost efficiency nor its economic disadvantages. This paper reviews the principles of thermo-electric power production, as well the materials use, performance achieved, and application areas. The paper also takes a particular deliberation on TEG heat sinks geometries and categories. The review emphasizes more on the TEG performance while considering a number of heat sink parameters related to its performance.