

# POTENTIAL THERMOELECTRIC APPLICATIONS IN DIESEL VEHICLES

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## ABSTRACT

Novel thermodynamic cycles developed by BSST provide improvements by factors of approximately 2 in cooling, heating, and power generation efficiency of solid-state thermo-electric systems. The BSST technology is available now and is currently being evaluated in automotive development programs for important new applications. New thermoelectric materials are likely to become available that further increase performance by a comparable factor. These major advancements should allow the use of thermoelectric systems in new applications that have the prospect of contributing to emissions reduction, fuel economy, and improved user comfort.

Potential applications of thermoelectrics in diesel vehicles are identified and discussed. As a case in point, the history and status of the Climate Controlled Seat (CCS™) system from Amerigon, the parent of BSST, is presented. CCS is the most successful and highest production volume thermoelectric system in vehicles today. As a second example, the results of recent analyses on electric power generation from vehicle waste power are discussed. Conclusions are drawn as to the practicality of waste power generation systems that incorporate BSST's thermodynamic cycle and advanced thermoelectric materials.