

DIESEL ENGINE WASTE HEAT RECOVERY UTILIZING ELECTRIC TURBOCOMPOUND TECHNOLOGY

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Electric turbocompounding (ETC) is a way to recover exhaust heat energy and return it to the driveline. ETC integrates well into a more electric initiative vehicle and allows a previously unattainable level of control of the engine air system. This level of control allows the engine to be run for optimum fuel consumption and/or emissions. Turbocompounding can also improve performance of a diesel engine equipped with EGR. The ETC provides the engine backpressure needed for EGR, while covering enough energy to more than offset added engine pumping losses.

This presentation will report progress to date on a technology demonstration program. The program goal is to demonstrate the performance of ETC on a heavy-duty diesel truck engine in a lab. An overall systems approach has been taken to develop a well-integrated total engine. The control system will allow the engine to run optimally for fuel consumption and/or emissions, while delivering good driveability. Aero and electric components are selected for maximum overall system efficiency.