

Thermoelectric power for automobiles arrives in Europe

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Exhaust waste heat recovery system attached to the underside of a Volkswagen. The Thermoelectric generating system is reproduced in artwork on the side of the vehicle.

The first demonstration in Europe of a family sized Volkswagen car fitted with a thermoelectric generator was unveiled at the Thermoelektrik-Eine Chance Fur Die Atomobillindustrie meeting held in Berlin, October 2008. Under motorway driving conditions a 600W(e) output is claimed. The additional electrical power serves to meet around 30% of the car's electrical requirement. This reduces the engine's mechanical load such as that due to the alternator and results in a reduction in fuel consumption of more than 5%.

Also on show was an exhaust powered thermoelectric generator developed by BMW in co-operation with DLR(German Aerospace) which conference delegates could drive on a test run. It achieves 200 W maximum and has been used successfully for more than 12,000 km road use. In the BMW the TG system consists of 24 BiTe modules between the hot exhaust side and the cold side which is provided by an extra coolant loop. The cool loop operates at 60C and heat is dissipated by two extra radiators in the wheel housings. The TEGs are prevented from overheating and the engine back pressure limited by locating the generator in an exhaust bypass.

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