A proposed hybrid (internal-combustion/electric) automotive engine system would include as its internal-combustion subsystem, a modified Miller-cycle engine with regenerative air preheating and with autoignition like that of a Diesel engine. The fuel would be ethanol and would be burned lean to ensure complete combustion. Although the proposed engine would have a relatively low power-to-weight ratio compared to most present engines, this would not be the problem encountered if this engine were used in a non-hybrid system since hybrid systems require significantly lower power and thus smaller engines than purely internal-combustion-engine-driven vehicles. The disadvantage would be offset by the advantages of high fuel efficiency, low emission of nitrogen oxides and particulate pollutants, and the fact that ethanol is a renewable fuel.

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