

Progress on DOE Vehicle Technologies Light-Duty Diesel Engine Efficiency and Emissions Milestones

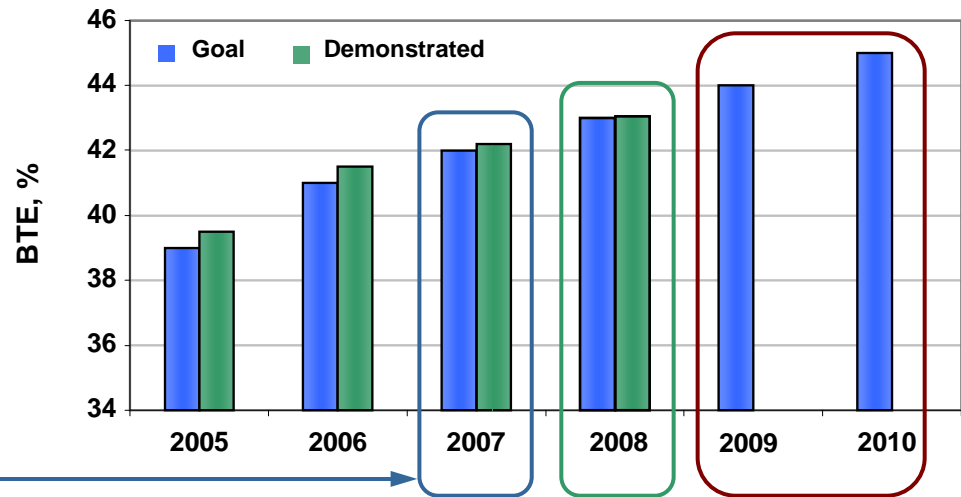


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Poster Location P-17

Objective: To demonstrate technology path to 45% peak BTE, 31% road-load BTE, and Tier 2 Bin 5 emissions levels in FY 2010.

Path to 45% peak BTE in FY 2010 includes modern base engine *plus* enabling technologies demonstrated in FY 2008 *plus* the recovery of thermal energy from the exhaust and EGR systems.



Base engine upgraded in FY 2007 to more advanced GM 1.9-L engine; increase in peak BTE for the base engine from 39% to 41%.



Re-optimization of Engine Operation
Turbo-machinery and fuel parameters.

Fuel Properties
High cetane within range US market fuels.

Electrification of Auxiliaries
Engine coolant pump.

Advanced Lubricants
Low viscosity oils.



Thermal Energy Recovery
Modeling complete and experiments in progress.

Turbine expander under development with an organic Rankine system to recover thermal exhaust/EGR energy and convert to electricity to improve peak BTE from 43% to 45%.

