

MEETING THE CO₂ CHALLENGE

Douglas Graham

Ricardo, Inc.

With a new California CO₂ law now passed, it is time to think about this soon-to-be regulated greenhouse gas. Adding to the challenge is the fact that many NO_x-PM emissions reduction strategies cause an increase in CO₂ emissions. This presentation outlines a strategy for reducing CO₂ emissions by the use of advanced direct injection diesel engines. Specific methods discussed are increasing diesel engine penetration in the fleet, downsizing the diesel engine, using advanced boosting systems, increasing the specific output of the engines, controlling P_{max}, using light engine structures, and applying diesel engines in hybrid vehicles. The CO₂ reduction using this strategy can reach 50 percent in city driving cycles. The technology involved will be generally available within the next few years. The remaining challenges are in cost and customer value.