

REDUCING CALIFORNIA VEHICLE FUEL CONSUMPTION WITH INCREASED USE OF HIGH-EFFICIENCY CLEAN DIESEL TECHNOLOGY

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California is assessing various options to reduce petroleum consumption over the next several decades. Increased use of diesel vehicles is one such option. Light-duty diesel vehicles use on average about 38 percent less fuel per mile than a comparable gasoline vehicle. However, these vehicles have not been able to meet current California emission standards and do not represent a significant share of the California car market. On the other hand, light-duty diesel vehicles compose up over 40 percent of the current market in Western Europe. These cars comply with European emission standards, which tend to focus on a different set of pollutants, including carbon dioxide. The introduction of ultra low-sulfur diesel fuel in the U.S. market and new emission control technologies may make diesel automobiles a competitive option to reduce fuel use in California by 2007. The potential success of diesel cars may depend on some policy choices related to means of complying with future emission standards.

Under a market scenario allowing for a 25-percent market penetration rate in diesel automobiles, California could save over 530 million gallons of gasoline-equivalent fuel per year by 2030. If diesel automobile and light truck penetration reaches 32 percent, a level akin to that seen today in Europe, then California could save up over 930 million gallons per year by 2030. Given the state's exposure to market risks with the shift from MTBE to ethanol as the oxygenate additive for reformulated gasoline, diesel delivers an even larger benefit in reducing gasoline consumption directly. Under the price-driven scenario, diesel light-duty vehicles could reduce gasoline consumption by 70 million gallons as early as 2010. With early introduction and rapid adoption under the European scenario, savings could rise to 110 million gallons by 2010.