

The Road to Better Mileage

Corporate Average Fuel Economy standards require every carmaker to increase fuel economy by about 4% each year from 2012 to 2016, bringing the average for all vehicles sold in the U.S. to 35.5 miles per gallon. But that number isn't what you'll see on the window sticker because the Environmental Protection Agency's fuel-economy tests are conducted differently—the real-world average will be 27.5 mpg. Last year, phase-two standards were set at 54.5 mpg, to be achieved by 2025, but the real-world equivalent will be about 40 mpg.

To reach these lofty goals, carmakers will rely on electric vehicles, hybrids and diesels to boost their fleets' average fuel economy. But because "green" vehicles will account for only a small part of the market, manufacturers must squeeze better mileage out of internal-combustion gas engines as well. The changes won't be cheap, and carmakers will certainly pass the cost on to you. The EPA estimates that fuel-saving tech will add about \$3,000 to the price of a new car by 2025. Here's a look at some of the relevant new technologies.

REGENERATIVE BRAKES

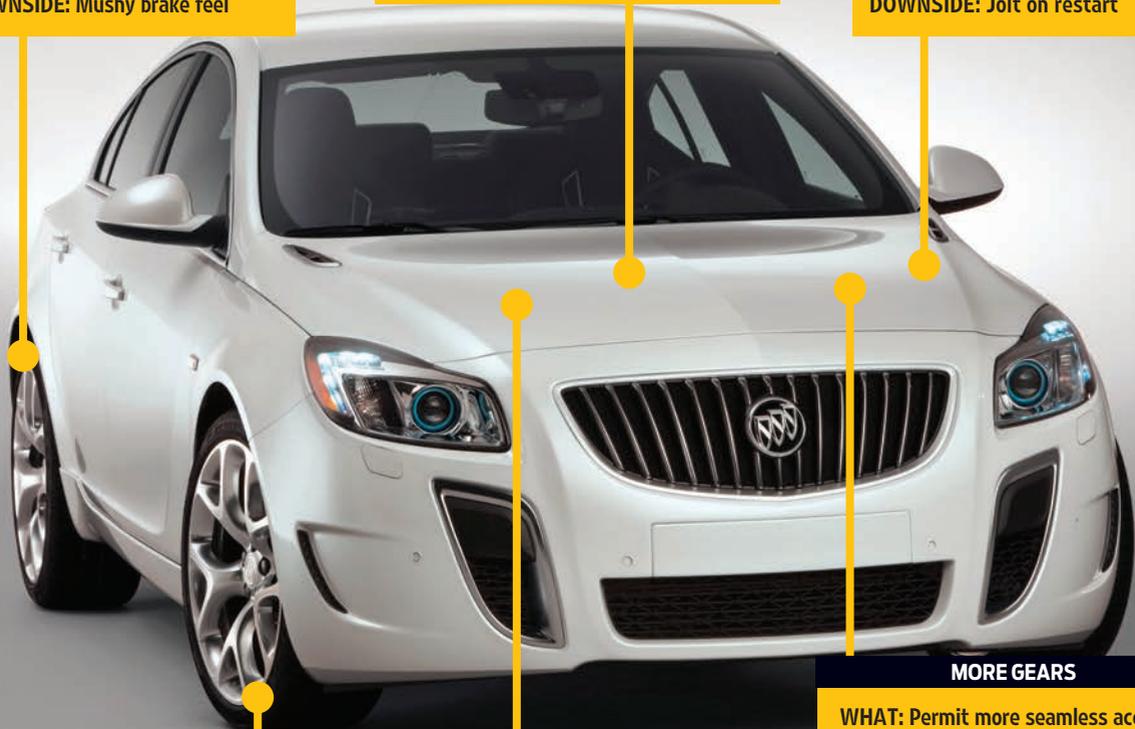
WHAT: Energy is captured when you brake and used to recharge a battery that assists acceleration.
FUEL-ECONOMY BOOST: 7%
DOWNSIDE: Mushy brake feel

DIRECT INJECTION

WHAT: Fuel is injected directly into the cylinders for more-efficient combustion.
FUEL-ECONOMY BOOST: 11% to 13%
DOWNSIDE: None

STOP-START

WHAT: When you stop, the engine shuts off and restarts when you take your foot off the brake.
FUEL-ECONOMY BOOST: 8%
DOWNSIDE: Jolt on restart



LOW-ROLLING-RESISTANCE TIRES

WHAT: Tires are made with a compound that reduces contact with the road and energy loss as they roll.
FUEL-ECONOMY BOOST: 5% to 7%
DOWNSIDE: Longer stopping distances

TURBOCHARGING

WHAT: Boosts power, allowing smaller engines to produce the same power as larger, nonturbo ones.
FUEL-ECONOMY BOOST: 7.5%
DOWNSIDE: "Turbo lag," a hesitation after you step on the accelerator

MORE GEARS

WHAT: Permit more seamless acceleration. Look for six-speeds to replace fives in less-expensive cars and eight to be the new six for luxury models. Continuously variable transmissions have an infinite number of "gears."
FUEL-ECONOMY BOOST: 6%
DOWNSIDE: With CVTs, a disconcerting quiet and "rubber band" feel as you accelerate