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The cleanest cars you can buy

By Robert Luhn (April 27, 2007)

Thanks to our love affair with the automobile, sucking in a lungful of air is akin to puffing on a Marlboro. If you want to save the world (and save your lungs), make your next car a lowemissions vehicle. But you don't have to lay out the bucks for a pricey hybrid--lots of mainstream cars made in the last few years emit a modest amount of ozone-causing pollutants and greenhouse gases. But how do you determine which are the greenest and cleanest? This guide will show you how to wade through the acronyms and technical minutiae to make the right choice.

Getting green and clean

What comes out of a tailpipe--carbon monoxide, carbon dioxide, nitrogen oxides, and hundreds of hydrocarbons--is pretty nasty stuff for you and the planet. But thanks to the Federal Clean Air Act and, notably, California's tougher air quality standards, new cars are far cleaner than their predecessors.

How much cleaner? A new car built in 1965 spewed a ton of hydrocarbons into the air in its first 100,000 miles. By 2010, cars adhering to California's Low Emission Vehicle II standards (LEV II) will emit a mere 10 pounds. The health payoff could be enormous. In one famous study, Atlanta's efforts during the 1996 Summer Olympic Games to cut ozone pollution by 28 percent resulted in a 42 percent drop in acute asthma cases.

Down on greenhouse gases? There's no federal auto standard, but a California law that takes effect in 2009 mandates 30 percent lower greenhouse gas emissions from new cars. So far, 11 states (including New York, Massachusetts, Connecticut, Oregon, Washington, Maine, and Vermont), have adopted the law, which automatically means they must also live up to the LEV II standards. (Five other states are considering the law.) "Car makers are suing to overturn the law," says Patricia Monahan, deputy director of the Clean Vehicles Program for the Union of Concerned Scientists. "But we hope they'll embrace the 'innovate don't litigate' model soon."

Buying green

The EPA has its own scheme for rating auto emissions, but as Monahan points out, the average "cleanest" car by federal standards is the "dirtiest" car according to California standards. To buy a truly clean and green car, use California's LEV yardstick. We explain what each emissions rating means and offer a few examples of cars that fall under it. To complicate an already complicated matter, the first two ratings, LEV and ULEV, only apply to cars sold before 2004. Cars from 2004 on must meet the stricter LEV II standards.

The old emissions standards

LEV and ULEV

The old emissions standards

LEV II

Low Emission Vehicle

ULEV II

Ultra Low Emission Vehicle

SULEV

Super Ultra Low Emission Vehicle

Partial Zero Emission Vehicle





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The old emissions standards

LEV (Low Emission Vehicle)

This is the original and "dirtiest" emission standard that passenger cars sold between 1994 and 2003 had to meet. (There were separate, dirtier standards for light trucks, vans, and SUVs.) In a typical year of driving (10,000 miles), a LEV car spews 75 pounds of carbon monoxide and 4 pounds of nitrogen oxides into the air. For a light truck, it's 97 and 9 pounds, respectively. (By comparison, newer LEV II vehicles produce 25 percent and 88 percent less, respectively.) The LEV rating was replaced by LEV II in 2004.

ULEV (Ultra Low Emission Vehicle)

Another older emissions rating, ULEV cars generate 13 percent fewer emissions than LEV cars. (There's likewise a separate, dirtier ULEV standard for trucks, vans, and SUVs.) Your typical ULEV car is a basic big bomber Audi, BMW, Buick, Crown Victoria, or Ford Explorer from 2004. Tool around in one of these babies for a year, and you'll belch 38 pounds of carbon monoxide and 4.4 pounds of nitrogen oxides into the atmosphere. (Haul around in a 2004 Chevy CK30, and we're talking 121 pounds of carbon monoxide and 15 pounds of nitrogen oxides. By comparison, a new ULEV II vehicle is 20 percent and 88 percent cleaner, respectively.) The ULEV standard was replaced by ULEV II in 2004.

Low Emission Vehicle

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LEV and ULEV

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LEV II aka LEV II LEV (Low Emission Vehicle)

The LEV II program became the new emissions standard starting in 2004. LEV II established new categories (such as SULEV), radically reduced nitrogen oxide pollution, clamped down on evaporative emissions (fuel vapors escaping from pollution-control hardware), and finally, applied a single standard to passenger cars, and most pickup trucks and SUVs. LEV II was rolled out between 2004 and 2007.

Just to make things confusing, the baseline, gotta-meet pollution standard in the LEV II program is also called LEV II. A LEV II car is pretty darn clean compared to a LEV car, with 75 percent fewer nitrogen oxide emissions. But LEV II pickup trucks and SUVs are radically cleaner than their LEV predecessors, emitting 25 percent to 91 percent fewer pollutants across the board. A LEV II vehicle must maintain this standard in its first 50,000 miles.

A note on diesels: now that ultra-low sulfur diesel fuel is available, new diesel cars should start showing up in the U. S. fairly soon. But only one new diesel car--Mercedes' vaunted BlueTec E320--has met California's LEV II standards. Honda claims a four-cylinder diesel debuting in 2009 will pass muster.



The bottom line: With plenty of standard onboard tech, a comfortable interior, and a premium V-8 under the hood, the 2006 Buick Lucerne CXS lives at the top end of the midrange sedan market. Unfortunately, its price tag suggests something more impressive.

2006 Buick Lucerne



The bottom line: The 2007 Volkswagen Touareg offers a solid driving experience, although it's too sluggish for fast maneuvers in traffic. The cabin tech needs an upgrade, something we hope to see in future models.

2007 Volkswagen Touareg

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Vehicle)

different ULEV models made in 2006, from BMW wagons to any number of Volvos--and you'll be cruising pretty clean. A ULEV II car puts out half the carbon monoxide of LEV II--38 pounds per year. ULEV II cars must meet or beat this standard for the first 50,000 miles.

> The bottom line: We found the 2007 BMW 328xi more at home driving twisty mountain roads than in mall parking lots. Its interior quality may tempt drivers looking for a luxury ride, but only sport drivers should consider this car.



2007 BMW 328xi Sedan



very stylish with the top down or up, and its audio system is among the best we've heard. The navigation system isn't a very worthwhile option, since it usually can't be seen because of glare, and this car is not for the driving enthusiast

2006 Volvo C70



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ULEV II aka LEV II ULEV (Ultra Low Emission

ULEV II takes a firm step toward still cleaner emissions. Strap on a car in this class--there were more than 100



The bottom line: Not the most practical car, the 2006 Volvo C70 looks

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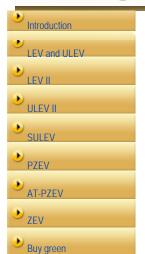
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commute hours. For some drivers, that's reason enough to go green.



The bottom line: Easy on the eyes and the pocketbook, user-friendly as well as ecofriendly, the Toyota Camry Hybrid is a fitting front-runner in the new generation of hybrid sedans.

2007 Toyota Camry Hybrid



The bottom line: The 2006 Mitsubishi Lancer Evolution IX is a fantastically fun car to drive spiritedly and show off to friends, but the lack of in-cabin technology and sudden engine power can make it a bit tiresome in everyday driving.

Partial Zero Emission Vehicle

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SULEV aka LEV II SULEV (Super Ultra Low **Emission Vehicle)**

Although SULEV emission standards are much stricter than LEV II or ULEV II, dozens of 2005 and 2006 vehicles comfortably nestle in this category, from the BMW 325i and Buick LaCrosse, to the Chevy Cobalt and Honda Accord. And we're talking clean. A SULEV produces 40 percent less carbon monoxide and 60 percent less nitrogen oxides than a ULEV II. In 100,000 miles of driving, a SULEV pumps a mere pound of hydrocarbons into the air-about the same created by "spilling a pint of gasoline" in the words of California's Air Resources Board. SULEV vehicles must also meet this tough standard for 120,000 miles. One bonus: in some states, if your SULEV is a hybrid or powered by an alternative fuel (such as compressed natural gas), you can use the carpool lane during

2006 Mitsubishi Lancer Evolution

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PZEV aka SULEV-PZEV (Partial Zero Emission Vehicle)

Although "Partial Zero" seems like an oxymoron, it's just bureaucrat-speak for "nearly zero" emissions. Both PZEV and AT-PZEV cars match SULEV's tailpipe output, with a few extra conditions. For starters, PZEV and AT-PZEV cars must be spanking clean for the first 150,000 miles (versus SULEV's 120,000 miles), have zero evaporative emissions, and come with a 15 year/150,000 mile manufacturer warranty on the pollution control system. What typically qualifies as a PZEV? Nearly two dozen cars sold in 2006, from mainstream gasoline-powered sedans such as the 2006 Mercury Milan to baby SUVs such as the Mitsubishi Outlander.



The bottom line: The 2006 Mercury Milan is about as average as they come, with features sometimes matching but never outstripping the competition. While pleasant enough to behold, the Milan really doesn't offer much to desire.

2006 Mercury Milan





The bottom line: Although not luxurious, the 2007 Mitsubishi Outlander is quite comfortable and capable. It's a practical and fairly affordable choice for a variety of uses, including outdoor adventure and daily commutes.

2007 Mitsubishi Outlander

Advanced Technology Partial Zero Emission Vehicle

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AT-PZEV aka SULEV-AT-PZEV (Advanced **Technology Partial Zero Emission Vehicle)**

AT-PZEV cars meet the same exacting standards as PZEV vehicles. So what's the difference? An AT-PZEV must also use the kind of technology found in Zero Emission Vehicles--such as electric motors or compressed natural gas (CNG). What cars use this "ZEV-enabling" technology? At this point, mostly hybrids do, such as the Prius, the Honda Civic, and the 2006 Ford Escape. (Note: Not all hybrids are AT-PZEV. The Toyota Camry Hybrid is classified as a SULEV.)



The bottom line: The 2006 Ford Escape Hybrid still feels unfinished. Despite a commendably advanced power train, the rest of the vehicle disappoints, and the overall ownership experience won't be salvaged by a few extra miles per gallon.





The bottom line: The cabin of the 2006 Honda Civic Hybrid catapults the driver into a cool future where voice commands operate navigation and audio, but the rackety engine and the less-than-smooth power train serve as a reminder that hybrid development is still in its early stages.

2006 Honda Civic Hybrid

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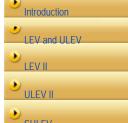


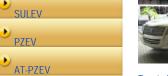
Ah, the holy grail. Cars that are clean as clean can be--zero tailpipe emissions, zero evaporative emissions, zip. But

can you buy a ZEV? Except for bicycles, ZEVs are as scarce as an honest politician and pricier than a Monet. The

potentially big players include hydrogen-powered cars (the Honda FCX, the Toyota FCHV, and the Chevy Sequel),

hydrogen/electric hybrids (notably, the Ford Edge), and pure electric cars, such as the Tesla Roadster.











Tesla Roadster



Chevy Sequel

ZEV (Zero Emission Vehicle)

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Honda FCX

Ford Edge

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Green car buying advice

- . What you can buy depends on where you live. Many automakers make one version of a car for the 11 "green" states, and another for the rest of the U.S.. For example, in Arizona you may not be able to buy that low-emissions version of the Mercury Milan; at the very least, you may have to special order it.
- Foggy smog index. New car stickers typically show a confusing smog index that compares the vehicle's emissions to others in its class. A simpler sticker (similar to the EPA's SmartWay label) that features smog and global warming scores, debuts in 2009.
- Learn the LEV. California classifies vehicles in six different emission categories, from LEV (Low Emission Vehicle) to ZEV (Zero Emission Vehicle.) Starting in 2007, all cars sold in the 11 " green" states must meet the stricter LEV II standards
- Find that LEV! The LEV rating is rarely on the sticker. Dig into the automaker's literature or pop the car's hood and locate the Vehicle Emissions Control Information label. You'll see something like "LEV II SULEV" (the California rating) and "Tier 2, Bin 3" (EPA's equivalent rating). Better yet, go to the site, click the model year link on the right, and check the "Emissions Standard" column.
- Get lazy. "Buy the most fuel-efficient car in the size class you want," says *Green Car Journal*'s Ron Cogan. "Chances are this will also be a very clean car when it comes to emissions."



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