

The Automobile Club's 2011 Green Car Guide



**2011 Toyota Highlander Hybrid
Top-Scoring Green Car**



**2011 Scion xD
Best Green Car Value**



**2011 smart fortwo passion EV
100%-Electric 2-Seater**



AUTOMOTIVE RESEARCH CENTER

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2011 Green Car Guide

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The Automobile Club of Southern California's 2011 Guide to Green Cars

What is Green?

Prior to this decade, if a driver was asked what they meant by “green” cars, most likely they would say low-polluting cars that help reduce smog. If the same question was asked today, most people would talk about greenhouse gases or reducing a vehicle’s “carbon footprint.” Which answer is right? Actually, both are. Personal transportation vehicles (cars, light trucks, SUVs, and vans) play roles in both smog formation and greenhouse gas production. However, great improvements have been made and many more options are and will be available.

The Automobile Club of Southern California’s Automotive Research Center (ARC) produced the annual Green Car Guide to inform motorists about:

- The automobile’s role in air pollution
- The automobile’s role in global warming
- Current and future technologies that address these problems
- Conventional and alternative fuels
- Real-world evaluations of available “green” vehicles, including hybrids, battery electric vehicles, low-polluting conventional vehicles (PZEVs), modern clean diesels, natural gas-fueled vehicles, hydrogen-fueled vehicles, and non-hybrid vehicles with category-leading fuel economy (or, put another way, lower greenhouse-gas emissions).

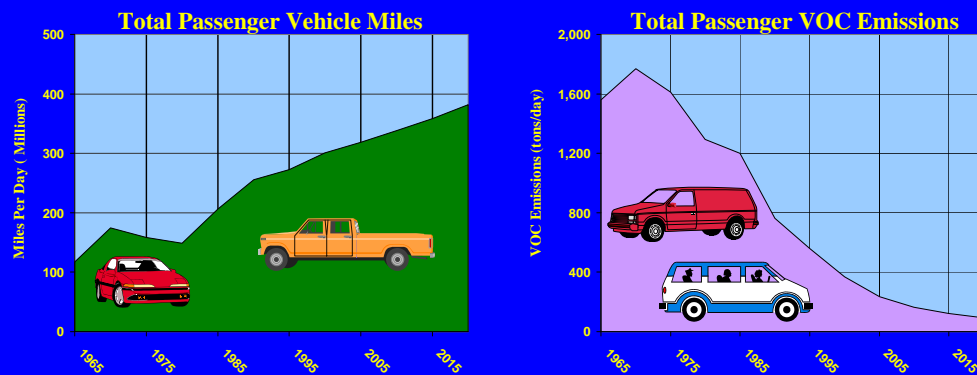
Automobile’s Role in Air Pollution

In the days before emission controls on cars (the 1960s), cars were one of the main sources of the gases that form smog. That has changed significantly. In the 1960s, private passenger vehicles (cars, pickups, and vans) accounted for about 50% of the emissions that led to smog, and at that time there was much more smog. Smog alerts in Southern California (the area of the U.S. with some of the worst air quality) numbered about 100 per year.

Today, private passenger vehicles account for less than 25% of the emissions that lead to smog and air quality is significantly improved. Smog alerts are rare occurrences; there has been only one in Southern California in the last 10 years. This has happened despite the increased number of cars on the road and the increase in distances driven (a more than 200% increase in vehicle miles traveled). New cars emit on average about 97% fewer emissions than those from the 1960s. For example, a new car in 1965 emitted 228 pounds of volatile organic compounds (VOC) per year. A new car today emits less than 2 pounds of VOC per year (both based on 15,000 miles per year).

South Coast Air Basin

PASSENGER VEHICLES MILES TRAVELED vs. PASSENGER VEHICLES VOC EMISSIONS



How has this happened? Technological improvements to vehicles and fuels have led to the development of effective and durable emission-control systems. Components such as catalytic converters, electronic fuel injection, variable valve timing, and on-board diagnostic systems have all played a role in the improvements. Since the late 1980s, the California Air Resources Board (CARB) and U.S. Environmental Protection Agency (EPA) have issued regulations requiring low- and zero-emission vehicles, which have been divided into various categories (with lots of acronyms). In order of increasingly-reduced emissions, California vehicles can be certified as (see Appendix 1 for more definitions):

- Tier 1
- Transitional Low Emission Vehicle (TLEV)
- Low Emission Vehicle (LEV)
- Ultra Low Emission Vehicle (ULEV)
- Super Ultra Low Emission Vehicle (SULEV). This standard is set to approximate the emissions in Southern Calif. by generating electricity to charge an electric vehicle.
- Partial Zero Emission Vehicle (PZEV). This standard has the same tailpipe requirements as SULEV, but requires zero evaporative emissions from the fuel system.
- Zero Emission Vehicle (ZEV). No tailpipe or evaporative emissions at all.

Principal pollutants from private passenger vehicles are:

- **Volatile Organic Compounds (VOC)**, comprised primarily of unburned fuel and evaporation of hydrocarbons. When VOC combines with NO_x in sunlight, ozone is created. Ozone serves as a protective layer in the Earth's stratosphere, but is unhealthy to breathe in our surface atmosphere.
- **Oxides of Nitrogen (NO_x)**, caused from superheating nitrogen and oxygen, which can result from a variety of causes including fuel combustion.
- **Carbon Monoxide (CO)**, caused from the incomplete combustion of carbon-based fuel (oil, natural gas, coal, wood, etc.).
- **Carbon Dioxide (CO₂)**, one of the two main constituents in the exhaust of vehicles using carbon-based fuel (gasoline, diesel, natural gas, and alcohols). If perfect combustion were to occur, then the only constituents in the exhaust would be CO₂ and water vapor. Unfortunately, CO₂ has been shown to be a potent greenhouse gas, leading to global warming. Increased ground-level temperatures attributed to global warming also lead to increased low-level ozone. According to the CARB, passenger vehicles accounted for about 27% of California's CO₂ emissions in 2006.

Light-duty Trucks

When emissions regulations were first implemented in the 1960s, most people drove cars. Trucks were work vehicles, and the term "sport utility vehicle" (SUV) didn't exist. Since trucks were needed to haul heavy loads and early emission controls tended to rob power, trucks were regulated separately, with less-stringent emission standards.

Today, light-duty trucks (pickups, SUVs, and vans) account for about 50% of new-vehicle purchases, and the majority are used as passenger vehicles. And in terms of emission standards, since 2004 in California and 2007 elsewhere in the U.S., light-duty trucks are required to meet the same emission standards as passenger cars.

Fuel Economy and Greenhouse Gas Emissions

Fuel prices hit their highs in the summer of 2008, and due to a variety of factors, 2011 fuel prices are high again. You can track current fuel prices at www.fuelgaugereport.com. There are also concerns about energy security, the large amount of petroleum America imports, and ultimately about its short and long-term availability. These factors have led to increased pressure from EPA, CARB, and consumers on automakers to supply vehicles with improved fuel economy. At the same time, concerns about global climate change have led to California and federal regulations on so-called "greenhouse gas emissions" (largely carbon dioxide – CO₂). The majority of the carbon (99%) coming out of an

engine is in the form of CO₂. This means that improvements in fuel economy result in reduced CO₂ emissions.

What is in This Report?

To meet the extremely low emissions standards required of modern passenger vehicles, the automobile manufacturers have employed advanced technologies. There are a wide variety of technologies in use. Gasoline/electric hybrids, battery electric vehicles, natural gas-fueled engines, and advanced internal combustion engines “ICE” (using both gasoline and diesel) are the main categories in current production. The goals of this report include:

- To provide motorists with useful information about purchasing vehicles that meet their needs but produce fewer emissions and use less fuel.
- To identify and clarify the types of technologies in use.
- To improve awareness of the wide variety of existing low-emission technologies.

The ARC’s engineers and specialists evaluated the vehicles in this report. A list of candidate vehicles was selected, based on a listing of emission certifications from CARB and fuel-economy ratings from EPA (www.fueleconomy.gov). The list was limited to any of the following criterion: vehicles that met ZEV or PZEV emission standards, were hybrids, were battery electric vehicles, ran on diesel and met any of California’s emission standards, ran on compressed natural gas or hydrogen, or had category-leading fuel economy. We tested 62 vehicles; most were from the 2011 model year with a few 2010s, and a few 2009s that were direct carryovers into the 2011 version. By “carryover” we mean that the 2009 (or 2010) version has the same body, chassis, and powertrain as the 2011 version and will achieve identical results on all of our evaluations. We also included a couple of 2012 prototypes. Please note that some of the data for the prototypes is preliminary or estimated since production vehicles were not available. The group of vehicles tested is representative of the “green” vehicles on the market in the first quarter of 2011, although we were not able to test the entire list of models available. Models not included in this guide generally were excluded because test vehicles were not available.

The ARC evaluated the following qualities:

- Emissions
- Fuel economy
- Crashworthiness
- Braking
- Acceleration
- Handling
- Cargo-carrying capacity
- Ride quality

- Interior noise
- Ease of entry and exit
- Maneuverability
- Roominess

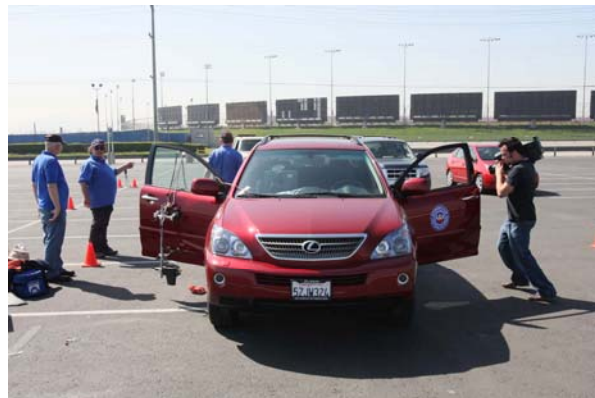
Tests were performed at the ARC in Diamond Bar, California; the Auto Club Speedway in Fontana, California; and on Southern California roads. Testing procedures were based on those developed by the Society of Automotive Engineers (SAE), EPA, and the Auto Club. Most of the test vehicles were obtained from the public relations departments of the automobile manufacturers; several were rented from Enterprise Rental Cars.



AUTOMOTIVE RESEARCH CENTER
Diamond Bar, CA



Hybrid Vehicle Testing
Auto Club Speedway, Fontana, CA



Setting up test vehicle at
Auto Club Speedway, Fontana, CA

Scoring

After testing was completed on the 62 vehicles, the scores for each of the test areas noted previously were ranked on a 0-to-10 point basis. The best-scoring vehicle received 10 points and the lowest received 0 points. The scores from all of the tests were then added to determine the overall score for a vehicle. The total points were divided by the “price as tested” to determine the “cost per point.”

Fuel economy ratings: We used ratings published by the U.S. EPA to obtain the score in this guide. Miles per gallon accounts for 8 of the 10 possible points. If a vehicle uses regular fuel, it receives 2 more points (1 for mid-grade). We also list the high, low, and average on-the-road fuel economy obtained during our evaluation of the test vehicle.

The EPA develops its fuel-economy ratings by performing tests on a dynamometer (a treadmill-like device for cars). Up until model year 2007, the EPA used tests called the Federal Test Procedure (FTP for urban or “city” mpg) and the Highway Fuel Economy Test (HFET for “highway” mileage). These tests were developed in the early 1970s, when the speed limit was 55 miles per hour. In the 1980s, the EPA determined that the tests did not accurately predict the mpg motorists would get, so they adjusted the ratings downward 10% for city driving and 22% for highway driving. These adjusted numbers are what were listed on the window sticker for model years through 2007.



Emissions Testing on AVL 48" Dyno
AUTOMOTIVE RESEARCH CENTER

In the 1980s, the adjustments mentioned above provided mileage ratings that fairly accurately predicted on-road performance. Since then, however, cars and the way we drive them have changed. Freeway driving is often more congested, but when it is free-flowing, people typically drive faster than they did in earlier decades. They tend to accelerate more rapidly, and vehicles are generally larger and more aerodynamic. All these changes combined to make EPA’s fuel economy ratings optimistic. This problem was especially severe for hybrid vehicles, probably because hybrids achieve different fuel-economy ratings depending upon the battery’s initial state-of-charge.

Based in large part on scientific input from the ARC and AAA, the EPA adopted new, more accurate methods for estimating mpg ratings. Three newer dynamometer tests had recently been developed to more accurately measure emissions under real-world driving conditions, but the EPA was not using the fuel economy measured as part of these tests. By incorporating the “US06” (higher speeds and more aggressive driving), “SC03” (high temperature with A/C on), and “Low-Temp CO” (start up at low temperature) tests with the FTP and HFET, a new method of estimating mpg was developed and implemented for 2008 and later model-year vehicles.

You will see from our actual test mpg figures for individual cars that virtually all our mpg measurements fell between the EPA city and highway estimates. Our test procedures include at least one day of testing at the Auto Club Speedway (unusually aggressive driving), so it’s clear that most motorists should be able to achieve in-use mpg in the range EPA now predicts.

Fuel economy ratings for alternative-fueled vehicles: Each fuel has a different energy density, and the most common way to measure how much petroleum or gasoline is displaced by using an alternative fuel is to apply a conversion factor to it. This is done by converting the energy density of an alternative fuel “unit” to the energy density in a gallon of gasoline. The Gasoline Gallon Equivalent (GGE) conversion factor is used in calculating the “fuel economy” of an alternative-fueled vehicle.

Compare Old and New EPA MPG Estimates

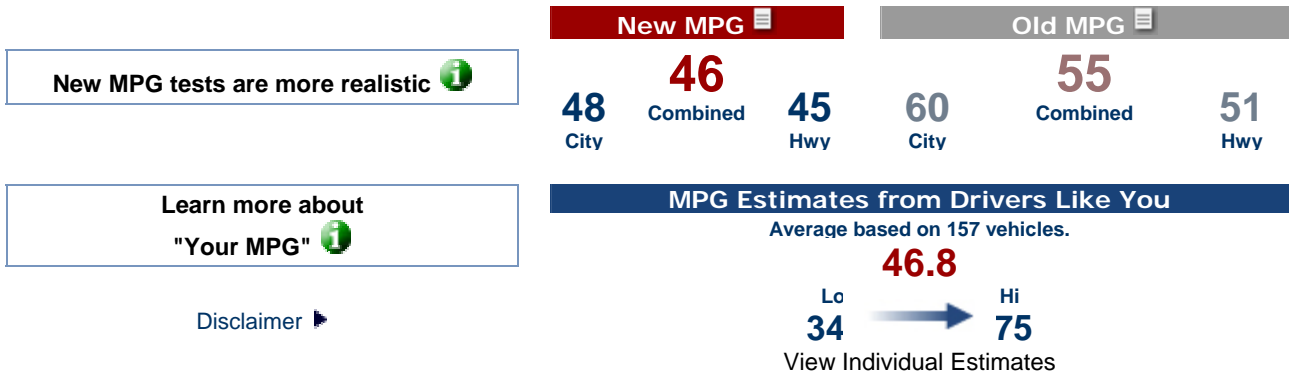
2007 Toyota Prius

Automatic (variable gear ratios)
4 Cylinders
1.5 Liters
Regular Gasoline

[Look up another car](#)



Hybrid Vehicle



*Additional Vehicle Characteristics: Front-Wheel Drive , HEV
Combined MPG estimates are based on 45% highway and 55% city driving*

Use the new EPA MPG estimates to compare to 2008 and later model year vehicles. The old EPA MPG estimates are listed on the window stickers of 2007 and earlier model year vehicles

Example from EPA's www.fueleconomy.gov

Technologies Included

- Hybrid.** A hybrid is a vehicle that uses more than one powertrain. There are many potential hybrid technologies, but all those currently in production are gas/electric hybrids, which combine a conventional gasoline engine with an electric motor/generator, a battery pack, and a controller. Hybrids take advantage of the efficiencies of the two powertrains to increase the vehicle's overall fuel efficiency. The electric motors are very efficient in stop-and-go city driving, and the gasoline engine is more efficient when driving at higher speeds. Hybrids also are equipped with regenerative braking. When the vehicle is coasting or braking, the electric motor functions as a generator and converts the vehicle's kinetic energy into electricity to charge the batteries.
- Plug-in Hybrids (PHEV).** Most of the hybrids tested in this report don't need to be plugged in (in fact, they can't be). We are starting to see the first plug-in hybrids, and tested two for this report, the 2012 Toyota Prius PHEV and the 2011 Chevrolet Volt (General Motors calls the Volt an "extended range electric vehicle" but technically it is a PHEV). Many manufacturers have plans to produce PHEVs in the future. PHEVs have a larger battery pack and operate for some distance in electric-only or electric-

predominant (where the gas engine only comes on under the most demanding circumstances) mode. The idea is that they can operate as zero emission vehicles during short-hop day-to-day driving, but have the range and refueling characteristics of a conventional car. There are a number of prominent myths about hybrids. We will try to debunk some of them here:

- **Myth 1 – You’ll save money by buying a hybrid (non-PHEV) because of its improved fuel economy, even though the initial purchase price is greater.** In general, this is false. On average, the “hybrid premium” - the extra cost of buying a hybrid versus the same model with a gasoline-powered powertrain - is about \$6158 (the range is from \$2740 to \$30,325). It should be noted that the federal tax credits for conventional hybrids have expired. Fuel-economy improvements for hybrids range from just over 1 mpg to over 11 mpg compared to conventional versions of the same car. When considering the number of years it takes to recoup your initial investment (the “hybrid premium”), the average is nearly 18 years; most consumers don’t keep their cars anywhere near that long. Some models provide a better “return” than others, specifically:

- Toyota Highlander Hybrid (3 years)
- Lexus RX 450h (3 years)
- Mercedes Benz ML 450 Hybrid (4 years)
- Ford Fusion Hybrid (5 years)

Other resources have obtained different results because they’ve assumed hybrids will have better resale values than traditional cars. This may be valid; however, consumers may loathe taking on the responsibility of replacing a battery pack (\$3,500 to \$5,000) when it wears out (likely after the 150,000 mile warranty expires).

Note: These calculations were performed based on estimates of 15,000 miles per year, \$4 per gallon for regular, and \$4.30 per gallon for premium. These are relatively “hybrid-friendly” fuel prices. As prices go up, hybrids begin to look more affordable; as gas prices go down, they look less so. Only vehicles available in both hybrid and conventional models were used for our calculations.

- **Myth 2 – You have to plug hybrid vehicles in to charge them.** False. Most currently available hybrids charge their own batteries when they’re running on their gasoline engine but not using full engine power, or through regenerative braking, which occurs when the vehicle is slowing down or stopping. However, a newer type of hybrid is being developed called a PHEV - a plug-in hybrid electric vehicle. This type of vehicle has batteries that can be recharged by connecting to an external electric power source. PHEVs offer the advantage of being able to

operate on battery power alone for a significant portion of their driving range before they have to operate as a conventional hybrid vehicle, using the gasoline engine to power the vehicle and generate electricity to power the electric motor(s) and charge the batteries. PHEVs provide a longer driving range than purely electric vehicles, and, because they run solely on electricity more of the time, their overall fuel economy is better than that of a conventional hybrid. In general, the cost of the electricity used to recharge a hybrid (or even a pure-electric vehicle) is significantly lower compared to the cost of gasoline or diesel fuel. This is especially true for those utilities that provide discounts for off-peak nighttime charging.

- **Myth 3 – Hybrids are all “econoboxes.”** False. Hybrids can range in size from the now-discontinued two-passenger Honda Insight to the Lexus LS 600h (a large luxury sedan), the Chevrolet Tahoe Hybrid (a full-sized SUV), or the Silverado (full-size pickup hybrid). Performance can also be very impressive for these larger vehicles. Several hybrids offer more power than their gasoline counterparts when using both of their power plants - for example, the Lexus LS 600h and the Toyota Camry Hybrid (with an inline-4-cylinder gasoline engine).
- **Myth 4 – You can drive a hybrid “solo” in the carpool (HOV) lane in California.** This is true for three high-mileage hybrids: the Honda Insight (the original 2-seater), the Honda Civic, and the Toyota Prius—but only if you have an HOV lane sticker. The California Department of Motor Vehicles originally issued 75,000 HOV lane stickers and later added 10,000 HOV lane stickers for hybrids meeting the requirements. However, all of the HOV lane stickers have now been issued. If you purchase a used hybrid with this sticker, it is still legal to drive solo in the HOV lane. But these stickers are only valid until July, 2011, at which time this access program expires.
- **Myth 5 – Hybrid vehicle battery packs need to be replaced fairly often** – False. A hybrid vehicle’s battery pack will usually last at least 150,000 miles. Furthermore, battery pack prices have steadily declined. When Toyota first introduced the Prius in 2000, a replacement battery pack would have set you back about \$4,500; today, a replacement would be approximately \$3,000. Toyota expects to have recycled battery packs available at reduced prices when today’s Prius owners need replacements.

Toyota’s usual warranty covering hybrid-related components, including the battery pack, is eight years/100,000 miles for most states. In California and states adopting California emissions standards, those hybrids certified as Advanced Technology Partial Zero Emissions Vehicle (AT-PZEV), like the Prius, Honda Civic, and

Nissan Altima are covered by a 15-year/150,000-mile hybrid-related component warranty and a 150,000-mile emissions warranty.

- **Natural gas engine.** We tested one vehicle (the Honda Civic GX) that had its internal combustion engine designed to run on compressed natural gas. This vehicle is equipped with a high-pressure (3600-psi) fuel tank as well as a system of regulators and injectors to get the fuel into the engine. A common question related to natural gas-fueled vehicles is “where can I get fuel and can I go anywhere I want and expect fuel to be available?” The answer varies depending on where you are traveling. In California, there is an extensive network of CNG fueling stations. You can find where they are (and for that matter any other alternative fuel) at www.cleancarmaps.com. In other states, though, obtaining CNG can be a problem. Honda offers a home refueling system (PHIL) that compresses the CNG piped into most homes for a “slow fill” that takes overnight. As long as you don’t go more than 115 miles (half of the 230-mile range of the Civic GX) from home, you will never run out of fuel or have to go to a filling station again.

- **Advanced-technology Internal-Combustion Engine.** We tested a number of vehicles that met low-emission standards using traditional gasoline-fueled internal-combustion engines. Few people seem to be aware that a number of such vehicles, which meet PZEV standards, are available. Some of them are very popular mainstream models. They employ a variety of technologies to reduce emissions and fuel use. These include:
 - Reduced vehicle size and weight
 - Variable valve timing
 - Direct fuel injection (injecting fuel directly into the cylinder instead of the intake port)
 - Turbocharging
 - Increased number of transmission speeds (for both manual and automatic transmissions)
 - Continuously Variable Transmissions (CVT)
 - Disabling cylinders under low-power demands
 - Improving the aerodynamic shape of the vehicle (reducing wind drag)
 - Reducing the rolling resistance of tires
 - Enabling the engine to shut off at a stop and automatically restart

- **Flex-Fuel Vehicles.** The term “flex fuel” means that the vehicle can run on gasoline and blends of gasoline and alcohol in ratios up to 85% alcohol. Initially the alcohol of choice was methanol, but more recently this has been supplanted by ethanol. E85 (85% ethanol and 15% unleaded gasoline) is available in many service stations (although most of them are concentrated in the Midwest). This fuel is quite scarce in

other areas. For example, as of this writing (May 2011), only a handful of stations offer E85 in Southern California.

Why flex fuel? Ethanol is domestically produced (currently from corn), and reduces the need to import as much petroleum. Ethanol burns cleanly and reduces greenhouse-gas emissions from the vehicle. Unfortunately, recent studies have shown that ethanol production creates roughly as much extra greenhouse-gas emissions as it saves at the tailpipe. (Some studies show a net benefit from E85; others show a net detriment. It's clear that we don't really know the full effect, but either way the increase or decrease in greenhouse-gas emissions is very likely small).

- **“Clean diesel.”** Diesel-fueled light-duty vehicles are extremely popular in Europe (where fuel prices are much higher than those in the U.S.) because of their improved fuel efficiency, reduced CO₂ emissions, and durability. The market for these vehicles has been quite small in the U.S., with the exception of heavy-duty pickup trucks and SUVs. This is mainly because diesel vehicles have a reputation for being noisy, smelly, rough-running, and dirty. Additionally, the poor durability of 1970s passenger-car diesels from Detroit still looms large in the minds of many potential buyers.

In California, no new passenger-car diesels have been available for sale until recently (2008). There's a myth that diesels were banned in California, but that's not true. The facts are: Diesels are held to the same emission standards that gasoline vehicles are held to, and until the advent of low-sulfur diesel fuel (which allows for the use of exhaust after-treatment, including catalytic converters and particulate traps), diesels couldn't meet California's stringent tailpipe-emission standards. A few models started to be certified for sale in California in the 2008 model year, and we tested vehicles from Audi, BMW, and Volkswagen. Even with low-sulfur diesel and exhaust after-treatment, these vehicles still can only meet California's LEV or ULEV standards, meaning that they are among the highest-emitting new vehicles currently sold in California.

- **Hydrogen.** We didn't test any hydrogen-fueled vehicles for this Guide, but as test vehicles become available, we will add them. Hydrogen is the most abundant element in the universe, and when used to power a fuel cell, is the only currently-known full-zero-emissions technology besides battery-electric vehicles. Hydrogen can also be used in internal-combustion engines with no carbonaceous emissions, but NO_x may still be emitted in small quantities.

Hydrogen is generally not available directly; rather, it must be produced. Today, the majority of it is produced from natural gas. Even though hydrogen use produces no greenhouse gases, its production from natural gas does result in some CO₂ emissions

(but less than the emissions from a modern hybrid car). However, hydrogen can be produced from water with little or no resultant CO₂ emissions. Current methods of producing hydrogen this way require the use of large quantities of electricity to split water into hydrogen and oxygen (electrolysis). Currently, and for the foreseeable future, fuel-cell vehicles are expensive to produce (although the price is coming down), and a hydrogen-dispensing infrastructure does not exist, and will be expensive to create.

The Auto Club is in a partnership with California State University Los Angeles (CSLA) in the construction and operation of a demonstration hydrogen production and distribution facility on the CSLA campus. When the facility is completed (currently scheduled for Summer 2011) it will dispense high-pressure (10,000 psi) hydrogen gas produced from water using electricity generated from renewable sources, primarily wind and solar.

- **Battery Electric Vehicles (EV).** EVs have been around as long as ICE vehicles, but the convenience, quick refill capabilities, and low cost of gasoline pushed them out of the market. In the late 1990s, as a result of California's ZEV program, a number of small-scale "demonstration fleets" of EVs became available (for example General Motor's EV1, Toyota's RAV4 EV, and Honda's EV PLUS).

EVs have zero emissions from the vehicle. The CARB seems enamored with EVs because, unlike ICEs, their emissions remain at zero no matter how badly their condition deteriorates as they age. They are also more efficient than ICE vehicles and the electricity to recharge them is less expensive than gasoline.

The 1990s demonstration vehicles actually performed pretty well, and the more-modern EVs perform even better. The problem with EVs is largely a psychological issue with the drivers. These cars have typical ranges around 100 miles, and depending on what type of electrical service you have (110 volt, 220 volt, or 480 volt) recharge times can range from a few hours to over 22 hours (480 volt fast-chargers are being developed that can recharge a battery pack from 20% to 80% state-of-charge in 30 minutes or less). EV drivers tend to watch the remaining charge in the batteries and worry, "Will I get there, and if I do, can I get back?" This is despite the fact that most of us have roundtrip commutes of less than 100 miles. The hope for the coming generation of EVs is that people will realize that these cars are cleaner and less costly to operate and will use them as commuter cars. Most households have more than one car and it seems to make sense to use your ICE vehicle for longer trips and the EV for short ones.

In April 2011, the Automobile Club of Southern California started an extensive research program into the utility of EVs by leasing 20 smart EVs for four years. The

vehicles will be used in a number of ways in California and several other states. They will be used to provide light roadside assistance (lockout, tire changes, jump starts, etc.), by insurance claims adjusters in the field, and driven by Club employees under a wide range of conditions to be able to evaluate their usefulness and durability.

The ARC has one of these smart EVs and tested it for this Guide (see page 70). We will continue testing this car and will provide annual updates in each edition of the Auto Club's Green Car Guide.

Safety of Green Cars

When operating an alternative-fueled or small high-mpg conventional car, the question is often asked, "is that car safe"? No matter how a new car is powered, it must still meet the Federal Motor Vehicle Safety Standards (FMVSS). This includes NHTSA's crash testing program which has been strengthened for the 2011 model year (including a 1-to-5 star overall safety rating). Information on NHTSA's programs and crash test ratings can be found at www.safercar.gov.

Alternatively-powered vehicles have unique issues including high voltage, high pressure gasses, and high temperatures. Safety standards and procedures have been developed for these vehicles, but as technologies advance, they must evolve too. AAA supports aggressive efforts to insure motorist safety in any type of vehicle. Our Emergency Roadside Assistance providers are continually trained in response procedures on new technologies as they emerge.

More Needs to be Done

We recognize that emission standards for new vehicles must continue to be tightened in order to overcome the effects of the growing number of cars and the increase in the total number of vehicle miles traveled in the coming decades. Also, the latest EPA ambient air quality standards for ozone issued in January 2010 are the most stringent ever, placing even more emphasis on reducing emissions from all sources. However, by purchasing one of the extremely-low-emitting vehicles that are now available (as the report shows, there are low-emission vehicles available in just about every category), using them in a responsible manner, and by properly maintaining them, motorists can do their part to help protect our environment from air pollution, reduce their carbon footprint, and use less petroleum.

How to use Less Fuel and Reduce Your Carbon Footprint

Regardless of the kind of vehicle you now own or plan to buy, you can minimize your fuel usage, save money, and reduce your carbon footprint simply by paying attention to how you drive and maintain your car. You might increase your chances of getting to your destination safely, too.

The ARC has researched fuel consumption, recording the mileage motorists achieve driving the way they normally do (or in several cases, driving more aggressively) and comparing that to their mileage when they employed the following techniques. Mileage improvements ranged from a low of 25% to as much as 100% (from 10 mpg to 20 mpg).

- Avoid “jack-rabbit” starts and accelerate gently. Accelerating the mass of a car uses more fuel than any other facet of driving, so imagine there is a raw egg between your right foot and the accelerator pedal and you don’t want to break it.
- Slow down—not necessarily a lot, because we are all in a hurry; but how about actually following the speed limit? Typically, the faster you go, the greater the aerodynamic and drivetrain friction losses will be. Therefore, it takes more fuel to maintain a higher speed. Remember, however, that traveling slower than the flow of traffic can cause a safety hazard. You may want to even consider driving in one of the “slower” lanes on the freeway, and let those more-aggressive drivers waste their fuel in the “fast” lane.
- Anticipate slower traffic and traffic lights. When you see stopped or slow traffic or a red light ahead of you, take your foot off the accelerator and coast. There’s no benefit to zooming up to the light and then slamming on the brakes. You might just find that if you coast up to a red light, that by the time you get there, it will turn green and you won’t have to stop at all! Cars use very little fuel when coasting, and if you’re driving a hybrid, coasting will generally recharge the battery, further improving your mileage.
- There’s no need to let a modern car (1980s and newer) warm up, or for you to race the engine upon start up. Follow the starting instructions in your owner’s manual; generally, it will tell you to start the car, put it in gear, and drive off at a moderate speed until the car warms up.
- Use your air conditioning wisely. Air conditioning use in newer cars can reduce gas mileage by about 5% (on older cars, this number can be much higher). On hot days, open your windows when you’re driving slowly (under 45 mph), but close them and turn on the air conditioner at higher speeds. (Driving with the windows open increases aerodynamic drag; this effect increases the faster you drive).
- Keep your vehicle maintained at a AAA-Approved Auto Repair facility according to the manufacturer’s service schedule (found in the owner’s manual). Regular oil and filter changes, plus other services, will keep your vehicle running smoothly, prolong its life, and save fuel. Also, be sure to have more-comprehensive services performed as specified by the manufacturer for longer intervals (generally every 30,000 miles). Simple things like keeping your tires properly aligned and inflated will not only save you up to 2% on gas for every pound they’re underinflated, they will also prolong the

life of your tires and improve safety, ride, and handling. Track your fuel economy; if it drops suddenly, have the cause determined and corrected.

- Many families have more than one vehicle, so when you take a trip, select the one that best suits the task at hand. Don't automatically jump into your big SUV when the more-economical sedan will do. To save on fuel costs, consider renting a fuel-efficient model for vacations and long trips. Conversely, consider renting a full-size truck instead of buying one if you need its capabilities only occasionally. Put the wear on the rental and save your daily driver.
- "Get the junk out of your trunk". Reducing extra weight in your car can save up to 2% fuel economy for every 100 lbs. you remove, depending on the weight of the vehicle. Also, lose the roof rack. Carrying things on a roof rack increases aerodynamic drag and reduces fuel economy – year round (no matter how cool the ski rack looks!)
- Plan your route efficiently and combine trips. Combining shopping trips and avoiding excessive idling (by parking and walking into the fast-food place or bank instead of using the drive-through) will save gas. Choose a shopping center where you can park and walk to most of the stores you need. Review your work schedule. Can you alter your working hours to avoid bumper-to-bumper traffic? Is carpooling an option? Both measures save fuel and reduce vehicle wear.
- Check your owner's manual for your vehicle's recommended grade of fuel. If it says "regular unleaded gasoline" is recommended, using anything else is a waste of money; if it says "premium required," you should use that for proper vehicle operation. However, if your manual says midgrade or premium is "recommended," read carefully; sometimes it indicates that you can use regular unleaded, although you may experience reduced power or a small reduction in fuel economy. Keep your eye open for low fuel prices, but don't waste gas driving to a distant filling station to save a few cents per gallon.

All of these strategies will save fuel and likely extend the life of your vehicle. Also, carefully consider your future requirements when you buy a new vehicle. Purchase one you can afford that fulfills your needs and not those of a manufacturer trying to sell its latest "über wagon." For assistance in purchasing a new vehicle, you can utilize the AAA Car Buying Service at www.aaa.com.

Aftermarket Parts

At the dawn of emission controls for cars (1966), it seemed that the requirements for reducing exhaust emissions and/or reducing fuel use would cause the end of fun, sporty performance-oriented cars (and for a few years it looked like the doom-sayers were right). Newer cars, however, are the least-polluting, most-efficient, and best-performing

cars ever built. That is not to say that they can't be made better and more "personalized". The automotive aftermarket industry has seen tremendous growth, and the variety of aftermarket parts available is staggering. There are parts available that can:

- Improve your car's looks
- Increase horsepower
- Reduce fuel consumption
- Improve handling
- Improve traction
- Improve ride quality
- Improve audio quality
- Add connectivity to phones, the internet, GPS, etc.

On each individual vehicle report page you will see a list of some popular aftermarket upgrades that are available for the vehicle. We thank SEMA (Specialty Equipment Market Association) Marketing Research Department for providing this data.

What is on the Horizon?

This report evaluates currently-available "mainstream" vehicles. There is tremendous pressure from CARB and EPA to continually reduce emissions of criteria pollutants, reduce greenhouse-gas emissions, and reduce (or eliminate) use of petroleum. Tremendous progress has been made, but the momentum needs to continue. What will the automotive market look like in the future? What kinds of cars and fuels will be prevalent?

There are lots of predictions being made, but since the ARC does not have a crystal ball, we will refrain from prognosticating (at least not too much). Rather, we will briefly discuss the trends, and time will tell which technologies the market will adopt.

In the near-term, we should see a continuation of the progress we see today including:

- Further improvements to traditional gasoline fueled internal combustion engines including camless engines using solenoids to activate the valves, 42-volt electrical systems, direct fuel injection, turbocharging, and countless other changes
- More hybrid vehicles
- More plug-in hybrid vehicles, and even PHEVs using alternative fuels (natural gas, diesel, or hydrogen) either to fuel ICEs or gas turbines
- More battery electric vehicles (EVs) from start-ups like Tesla, Fisker, Coda, and AC Propulsion, as well as the more-established OEM manufacturers
- More use of renewable fuels, especially "bio-diesel", and ethanol (generally blended with diesel and gasoline, respectively)

- More natural-gas fueled vehicles
- Growth in the diesel passenger car market
- Hydrogen powered (ICE and fuel cell) vehicles in demonstration fleets

The mid- to long-term picture is not as clear. It is likely that a significant portion of our vehicle fleet will still be traditional gasoline or diesel vehicles. Some prognosticators envision networks of “fast-charging” stations for electric vehicles that can recharge an EV battery to 80% of its capacity in a matter of minutes, others see a hydrogen pump on every corner (like today’s gasoline stations), while others expect an entirely new technology to provide clean, safe, and economical power for our vehicles. But as we have said many times before, only time will tell.

GREEN CAR GUIDE GREEN CAR SCORES

Ranking	Vehicle Type	Year	Make	Model	Scores
1	4-door SUV	2011	Toyota	Highlander LTD Hybrid 4WD	89.02
2	4-door SUV	2011	Volkswagen	Touareg Supercharged Hybrid	85.63
3	Mid-Sized 4-door Sedan	2009	Lexus	LS 600h L Sedan	84.71
4	Compact 4-door Hatchback	2011	Lexus	CT 200h Hybrid	84.62
5	4-door SUV	2010	Lexus	RX 450h	84.40
6	Mid-Sized 4-door Hatchback	2011	Nissan	Leaf SL	84.12
7	Compact 4-door Sedan	2009	BMW	335d Sedan	83.60
8	Compact 4-door Sedan	2009	Lexus	GS 450h	83.35
9	Mid-Sized 4-door Sedan	2010	Toyota	Prius IV	83.15
10	Mid-Sized 4-door Sedan	2012	Toyota	Prius PHEV	83.00
11	4-door SUV	2011	Subaru	Forester 2.5X Premium	81.45
12	Compact 4-door Sedan	2011	Chevrolet	Volt	80.99
13	Large 4-door SUV	2009	Cadillac	Escalade 2WD Platinum Hybrid	80.84
14	4-door SUV	2010	BMW	X6 ActiveHybrid	80.82
15	Small Station Wagon	2011	Audi	A3 2.0 TDI FWD S-Tronic	80.71
16	Small Station Wagon	2011	Audi	A3 2.0 TFSI FWD MT6	80.69
17	4-door AWD SUV	2011	BMW	X5 xDrive35d	80.31
18	Mid-Sized 4-door Sedan	2010	Ford	Fusion Hybrid	80.24
19	4-door AWD SUV	2010	Subaru	Outback 2.5i Limited PZEV	80.13
20	Compact 4-door Sedan	2010	BMW	328i Sedan	80.02
21	2-Seat Coupe	2011	Honda	CR-Z EX	79.99
22	Compact 4-door Sedan	2010	Mercedes-Benz	C350	79.92
23	4-door SUV	2009	Toyota	Venza	79.22
24	Large 4-door Sedan	2009	Honda	Accord EX V6	79.21
25	Compact 4-door Sedan	2010	Lexus	HS 250h	78.96
26	Mid-Sized 4-door Sedan	2009	Nissan	Altima Hybrid	78.95
27	Full-Size 4-door Sedan	2011	Hyundai	Sonata Hybrid	78.69
28	Mid-Sized 4-door Sedan	2010	Subaru	Legacy 2.5i Limited PZEV	78.40
29	Full-Size 4-door Sedan	2011	Hyundai	Sonata Limited	78.38
30	Subcompact 2-door Coupe	2009	BMW	128i	77.93
31	Mini-Compact 4-door Hatchback	2012	Mitsubishi	i	77.75
32	4-door SUV	2011	Kia	Sorento EX FWD	77.67
33	Compact 4-door Sedan	2011	Chevrolet	Cruze Eco	77.36
34	Large 4-door Sedan	2010	Chevrolet	Impala LT	77.01
35	4-door SUV	2011	Hyundai	Tucson GLS FWD	76.63
36	Mid-Sized 4-door Sedan	2011	Toyota	Camry LE	76.45
37	Mid-Sized 4-door Sedan	2009	Toyota	Camry Hybrid	75.98
38	Compact 4-door Sedan	2010	Mazda	3i	75.96
39	Small 5-door Wagon	2009	Honda	Fit Sport	75.72
40	Compact 4-door Sedan	2009	Mitsubishi	Lancer GTS	75.57
41	Mid-Sized 4-door Sedan	2010	Ford	Fusion SEL	75.44
42	4-door SUV	2009	Ford	Escape Hybrid Limited FWD	75.24

GREEN CAR GUIDE GREEN CAR SCORES

Ranking	Vehicle Type	Year	Make	Model	Scores
43	Subcompact 4-door Sedan	2011	Ford	Fiesta SEL	74.97
44	Mid-Sized 4-door Sedan	2009	Mazda	6i Sedan Grand Touring	74.64
45	Mid-Sized 4-door Sedan	2011	Nissan	Sentra 2.0 SL	74.27
46	Mid-Sized 4-door Sedan	2009	Nissan	Altima 2.5 SL	73.07
47	Compact 4-door Sedan	2010	Honda	Civic Hybrid	72.72
48	Mini-Compact 2-seat Coupe	2011	smart	fortwo passion EV	72.50
49	Compact 4-door Sedan	2011	Volkswagen	Jetta SEL	72.18
50	Small Station Wagon	2010	Kia	Soul Exclaim	71.61
51	Mini-Compact 2-door Coupe	2010	Mini	Cooper Camden Hardtop	71.20
52	Compact 4-door Sedan	2009	Toyota	Corolla S	70.72
53	Compact 4-door Sedan	2011	Mazda	2 Touring	70.50
54	Subcompact 4-door Sedan	2009	Honda	Civic EX-L Navi	70.04
55	4-door SUV	2009	Ford	Escape XLT FWD	68.69
56	Compact 5-door Sedan	2010	Honda	Insight EX Navi	68.67
57	Subcompact 4-door Hatchback	2011	Scion	xD	68.63
58	Large 4-door Pickup	2009	GMC	Sierra 2WD Hybrid Crew Cab 3HB	68.09
59	2-seat Convertible	2010	Mazda	MX-5 Retractable Hardtop	67.78
60	Subcompact 4-door Sedan	2009	Honda	Civic GX NGV	66.65
61	4-door SUV	2009	Chevrolet	HHR LT FlexFuel	61.16
62	Mini-Compact 2-seat Coupe	2009	smart	passion coupe	59.90

GREEN CAR GUIDE
GREEN CAR COST PER POINT

Cost Per Point Ranking	Year	Make	Model	Points	Price as Tested	Cost Per Point
1	2012	Mitsubishi	i	77.75	N/A	N/A
2	2012	Toyota	Prius PHEV	83.00	N/A	N/A
3	2011	Scion	xD	68.63	\$15,765	\$230
4	2011	Mazda	2 Touring	70.50	\$16,985	\$241
5	2009	Honda	Fit Sport	75.72	\$18,780	\$248
6	2011	Chevrolet	Cruze Eco	77.36	\$19,420	\$251
7	2009	smart	passion coupe	59.90	\$15,205	\$254
8	2010	Kia	Soul Exclaim	71.61	\$18,595	\$260
9	2010	Mazda	3i	75.96	\$20,615	\$271
10	2011	Ford	Fiesta SEL	74.97	\$20,495	\$273
11	2009	Toyota	Corolla S	70.72	\$19,683	\$278
12	2011	Nissan	Sentra 2.0 SL	74.27	\$21,390	\$288
13	2011	Honda	CR-Z EX	79.99	\$23,960	\$300
14	2011	Hyundai	Tucson GLS FWD	76.63	\$23,685	\$309
15	2009	Mitsubishi	Lancer GTS	75.57	\$23,810	\$315
16	2011	Toyota	Camry LE	76.45	\$24,149	\$316
17	2009	Chevrolet	HHR LT FlexFuel	61.16	\$19,549	\$320
18	2011	Subaru	Forester 2.5X Premium	81.45	\$26,315	\$323
19	2010	Ford	Fusion SEL	75.44	\$24,700	\$327
20	2011	Volkswagen	Jetta SEL	72.18	\$24,165	\$335
21	2010	Chevrolet	Impala LT	77.01	\$26,430	\$343
22	2010	Honda	Insight EX Navi	68.67	\$23,770	\$346
23	2009	Honda	Civic EX-L Navi	70.04	\$24,325	\$347
24	2009	Toyota	Camry Hybrid	75.98	\$26,568	\$350
25	2009	Ford	Escape XLT FWD	68.69	\$24,115	\$351
26	2010	Mini	Cooper Camden Hardtop	71.20	\$25,000	\$351
27	2009	Toyota	Venza	79.22	\$28,330	\$358
28	2011	Hyundai	Sonata Limited	78.38	\$28,415	\$363
29	2010	Toyota	Prius IV	83.15	\$30,709	\$369
30	2009	Honda	Accord EX V6	79.21	\$29,375	\$371
31	2009	Nissan	Altima 2.5 SL	73.07	\$27,260	\$373
32	2010	Subaru	Legacy 2.5i Limited PZEV	78.40	\$29,380	\$375
33	2010	Ford	Fusion Hybrid	80.24	\$30,245	\$377
34	2011	Kia	Sorento EX FWD	77.67	\$29,340	\$378
35	2010	Honda	Civic Hybrid	72.72	\$27,710	\$381
36	2009	Honda	Civic GX NGV	66.65	\$25,860	\$388
37	2011	Lexus	CT 200h Hybrid	84.62	\$33,200	\$392
38	2009	Mazda	6i Sedan Grand Touring	74.64	\$29,440	\$394
39	2011	Hyundai	Sonata Hybrid	78.69	\$31,650	\$402
40	2011	Audi	A3 2.0 TFSI FWD MT6	80.69	\$32,645	\$405
41	2009	BMW	128i	77.93	\$31,925	\$410
42	2010	Subaru	Outback 2.5i Limited PZEV	80.13	\$33,035	\$412

GREEN CAR GUIDE
GREEN CAR COST PER POINT

Cost Per Point Ranking	Year	Make	Model	Points	Price as Tested	Cost Per Point
43	2011	Nissan	Leaf SL	84.12	\$35,695	\$424
44	2009	Nissan	Altima Hybrid	78.95	\$34,705	\$440
45	2010	BMW	328i Sedan	80.02	\$35,575	\$445
46	2011	Audi	A3 2.0 TDI FWD S-Tronic	80.71	\$37,250	\$462
47	2010	Mazda	MX-5 Retractable Hardtop	67.78	\$31,300	\$462
48	2009	Ford	Escape Hybrid Limited FWD	75.24	\$34,755	\$462
49	2010	Lexus	HS 250h	78.96	\$39,150	\$496
50	2011	Toyota	Highlander LTD Hybrid 4WD	89.02	\$44,720	\$502
51	2011	Chevrolet	Volt	80.99	\$43,700	\$540
52	2010	Lexus	RX 450h	84.40	\$47,375	\$561
53	2010	Mercedes-Benz	C350	79.92	\$46,740	\$585
54	2009	BMW	335d Sedan	83.60	\$50,895	\$609
55	2011	smart	fortwo passion EV	72.50	\$45,952	\$634
56	2009	GMC	Sierra 2WD Hybrid Crew Cab 3HB	68.09	\$46,495	\$683
57	2011	Volkswagen	Touareg Supercharged Hybrid	85.63	\$61,385	\$717
58	2009	Lexus	GS 450h	83.35	\$67,775	\$813
59	2011	BMW	X5 xDrive35d	80.31	\$65,825	\$820
60	2009	Cadillac	Escalade 2WD Platinum Hybrid	80.84	\$85,885	\$1,062
61	2010	BMW	X6 ActiveHybrid	80.82	\$92,325	\$1,142
62	2009	Lexus	LS 600h L Sedan	84.71	\$113,560	\$1,341

Audi A3 2.0 TDI FWD S-Tronic

GREEN CAR SCORES

Score For This Vehicle	80.71
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$31,125
Price as Tested:	\$37,250
Cost per Point for this Vehicle	\$462
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Diesel #2
Fuel Capacity (gal):	14.6
EPA Urban MPG:	30
EPA Highway MPG:	42
Auto Club Highest MPG:	35.6
Auto Club Average MPG:	35.1
Auto Club Lowest MPG:	34.4

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Clean Diesel

DESCRIPTION/COMMENTS

Small Station Wagon

STRONG POINTS

- Good MPG (34)
- Responsive steering with nimble handling
- Fully automatic window controls & rear windows open fully
- Sporty/fun to drive with good road manners
- Well equipped (Sirius, Bluetooth, navigation)
- Headlight illumination

WEAK POINTS

- Cramped rear seat
- Front seat entry/exit
- Non-intuitive radio controls
- Center armrest interferes with parking brake
- Brake feel
- Small trunk for a wagon

OVERALL OBSERVATIONS

Audi supplied us with 2 versions of the A3: one powered by gasoline with a manual transmission (the red one – see next page) and one with a turbodiesel and an automatic transmission (the black one). Many of the features and test results are similar, but there is one huge difference. The TDI equipped A3 gets a whopping 10 mpg better fuel economy (34 vs. 24). Diesel is running more expensive than gasoline these days, but since the gas version A3 requires premium, the fuel prices are comparable. The TDI engine is smooth and provides good power, with only minor lag from a standing start. If you are interested in the A3 and want amazing mpg, the TDI is your answer.

AFTERMARKET PARTS

Front chin spoiler, rear spoiler

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3380
Exterior Length (in):	168.9
Exterior Width (in):	69.4
Exterior Height (in):	56.0
Wheelbase (in):	101.5
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Continental 225/45R17
Towing Cap. (lbs) W/WO Brakes:	3500 - Class 2
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.0L DOHC I4 Turbo Diesel
Horsepower @ RPM:	140 @ 4200

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	7.82
Crashworthiness:	5.36
Visibility:	7.30
Slalom Handling:	8.76
Ride Quality:	7.17
Fuel Economy:	6.18
Interior Noise:	4.02
Acceleration:	6.81
Ease of Entry and Exit:	6.36
Interior Size:	4.37
Turning Circle:	6.97
Luggage Capacity:	2.58

Audi A3 2.0 TFSI FWD MT6

GREEN CAR SCORES

Score For This Vehicle	80.69
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$28,145
Price as Tested:	\$32,645
Cost per Point for this Vehicle	\$405
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	14.6
EPA Urban MPG:	21
EPA Highway MPG:	30
Auto Club Highest MPG:	29.3
Auto Club Average MPG:	24.5
Auto Club Lowest MPG:	22.3

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

Small Station Wagon

STRONG POINTS

- Responsive steering with nimble handling
- Fully automatic window controls & rear windows open fully
- Sporty/fun to drive with good road manners
- Powerful and responsive engine
- Fit and finish
- Brakes provide short straight stops

WEAK POINTS

- Cramped rear seat
- Front seat entry/exit
- Center armrest interferes with parking brake
- Small trunk for a wagon
- Requires expensive premium fuel

OVERALL OBSERVATIONS

The Audi A3 is called a "small station wagon" by EPA. When you drive one, it seems more like a sports car in disguise. It achieves one of the fastest times ever in our slalom, takes only 7.2 seconds to accelerate from 0 to 60 mph, & the brakes provided extremely short stopping distances. Even though it is a wagon, you get some of the typical downsides of a sports car too. The seats are hard to get in & out of & the rear seat is cramped. The trunk is surprisingly small, but the rear seats fold down allowing you to take advantage of the wagon shape. One other comment, like so many other imported cars we test, if you use the remote to unlock the doors, but don't open them within 30 seconds, the car relocks itself.

AFTERMARKET PARTS

Front chin spoiler, rear spoiler

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3220
Exterior Length (in):	168.9
Exterior Width (in):	69.4
Exterior Height (in):	56.0
Wheelbase (in):	101.5
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Bridgestone 225/40R18
Towing Cap. (lbs) W/WO Brakes:	3500 - Class 2
Transmission Type:	Manual 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.0L DOHC Turbo I4
Horsepower @ RPM:	200 @ 5100

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	9.42
Crashworthiness:	5.17
Visibility:	7.30
Slalom Handling:	9.50
Ride Quality:	6.88
Fuel Economy:	1.62
Interior Noise:	3.52
Acceleration:	9.17
Ease of Entry and Exit:	6.36
Interior Size:	5.14
Turning Circle:	7.03
Luggage Capacity:	2.58

BMW 128i

GREEN CAR SCORES

Score For This Vehicle	77.93
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$30,225
Price as Tested:	\$31,925
Cost per Point for this Vehicle	\$410
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	14.0
EPA Urban MPG:	18
EPA Highway MPG:	28
Auto Club Highest MPG:	28.1
Auto Club Average MPG:	22.3
Auto Club Lowest MPG:	17.7

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Subcompact 2-door Coupe

STRONG POINTS

- Nimble & responsive handling
- Quick acceleration
- Fun to drive
- Certified as a PZEV

WEAK POINTS

- Difficult to get in & out of, especially the rear
- Cramped interior
- Cupholders: none in rear & front too small & can interfere with the shifter
- Lacks rear center armrest
- Rear windows do not open
- Requires expensive premium fuel

OVERALL OBSERVATIONS

Our BMW 128i was fast, handled great, & was a blast to drive. It was also bright red, with sporty styling & every cop in town noticed! You don't usually think of a sporty coupe & being good to the environment at the same time, but the 128i, with the 230 horsepower 6-cylinder engine, is certified as a clean PZEV. On the other hand, this is a subcompact coupe & it suffers from the usual maladies of this style of car. It is difficult to get in & out of, the interior is cramped (the rear seat is only good for small children), the rear seat lacks a center armrest, the trunk is small (the folding rear seats help some), & the rear windows don't roll down at all. Still, for \$32k, you can get a hot, but nearly pollution-free sport coupe!

AFTERMARKET PARTS

Tires, wheels, performance exhaust

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/2
Curb Weight (lbs):	3210
Exterior Length (in):	171.7
Exterior Width (in):	76.1
Exterior Height (in):	56.0
Wheelbase (in):	104.7
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Goodyear P225/45R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Manual 6 Speed
Drivetrain Type:	Rear Wheel
Engine Size:	3.0L DOHC 24V I6
Horsepower @ RPM:	230 @ 6500

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	6.89
Crashworthiness:	5.16
Visibility:	7.00
Slalom Handling:	9.74
Ride Quality:	7.25
Fuel Economy:	0.91
Interior Noise:	5.77
Acceleration:	9.54
Ease of Entry and Exit:	5.98
Interior Size:	2.81
Turning Circle:	7.02
Luggage Capacity:	0.87

BMW 328i Sedan

GREEN CAR SCORES

Score For This Vehicle	80.02
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$34,025
Price as Tested:	\$35,575
Cost per Point for this Vehicle	\$445
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	16.1
EPA Urban MPG:	18
EPA Highway MPG:	28
Auto Club Highest MPG:	25.2
Auto Club Average MPG:	22.6
Auto Club Lowest MPG:	21.1

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- Powerful with excellent handling = fun to drive
- Certified as a PZEV
- Excellent brakes
- Easy to use shifter

WEAK POINTS

- Cramped rear seats
- Manual seat controls difficult to operate
- Radio display is invisible if you wear polarized sunglasses
- Uses expensive premium fuel
- Difficult entry and exit, especially in the rear
- Rear seat does not fold down

OVERALL OBSERVATIONS

A sports car as a "green machine"? BMW has one for you, the 328i. Our red "cop getter" test car was very sporty, with a 0-60 mph acceleration time under 7 seconds, an easy to use 6-speed manual shifter, amazing brakes, & responsive handling. You get all of this fun stuff, & the 328i meets CARB's stringent PZEV emission standards too. You also get the typical downside of a sports car, cramped rear seats that are hard to get in & out of, mpg that drops dramatically if you "keep your foot in it" & a small trunk (rear seats don't fold to help with larger cargo). BMW has been offering free scheduled maintenance & attractive lease specials, so if a low-emission sports car is on your agenda, take a look.

AFTERMARKET PARTS

Hood bra, Performance brake kits, Performance tires, Exhaust kits

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3460
Exterior Length (in):	178.2
Exterior Width (in):	79.3
Exterior Height (in):	55.9
Wheelbase (in):	108.7
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	8 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Continental P225/45R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Manual 6 Speed
Drivetrain Type:	Rear Wheel
Engine Size:	3.0L DOHC 24V I6
Horsepower @ RPM:	230 @ 6500

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	7.62
Crashworthiness:	6.46
Visibility:	7.10
Slalom Handling:	8.94
Ride Quality:	7.54
Fuel Economy:	0.91
Interior Noise:	4.29
Acceleration:	9.40
Ease of Entry and Exit:	6.15
Interior Size:	4.80
Turning Circle:	6.59
Luggage Capacity:	1.22

BMW 335d Sedan

GREEN CAR SCORES

Score For This Vehicle	83.60
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$44,725
Price as Tested:	\$50,895
Cost per Point for this Vehicle	\$609
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Diesel #2
Fuel Capacity (gal):	16.1
EPA Urban MPG:	23
EPA Highway MPG:	36
Auto Club Highest MPG:	31.5
Auto Club Average MPG:	27.6
Auto Club Lowest MPG:	24.9

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Clean Diesel

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- Powerful and fun to drive
- Good mpg for sporty car
- Sirius radio
- Powerful ABS brakes provide short straight stops
- Responsive handling

WEAK POINTS

- High purchase price (\$51K)
- Difficult entry & exit, especially the rear
- Control stalks hidden behind wheel
- Rear seat room
- Narrow front seats

OVERALL OBSERVATIONS

A diesel sports car seems unlikely to those who know that "diesels are for trucks", but BMW begs to differ. The 335d sedan is very sporty, with a 0-60 mph acceleration time of 6.75 seconds, amazing brakes, and responsive handling. And it is a diesel, (that provides 7 mpg better fuel economy than the similar 335i with a gasoline engine) but when you drive the car, you would never really know. Of course you pay \$3600 more (of the expensive \$51K MSRP) for the diesel but fuel savings (due to the lower price of diesel, compared to the premium the 335i needs, & improved mpg) allow you to recoup the cost in about 5 years. Diesel in a sports car? You bet!

AFTERMARKET PARTS

Low-profile tires, wheels, brake kits

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3790
Exterior Length (in):	178.8
Exterior Width (in):	78.3
Exterior Height (in):	55.9
Wheelbase (in):	108.7
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Bridgestone 255/35R18
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Rear Wheel
Engine Size:	3.0L DOHC 24V I6 Diesel
Horsepower @ RPM:	265 @ 4200

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	9.46
Crashworthiness:	5.85
Visibility:	7.10
Slalom Handling:	9.58
Ride Quality:	7.17
Fuel Economy:	4.42
Interior Noise:	5.56
Acceleration:	9.14
Ease of Entry and Exit:	6.15
Interior Size:	4.68
Turning Circle:	6.27
Luggage Capacity:	1.22

BMW X5 xDrive35d

GREEN CAR SCORES

Score For This Vehicle	80.31
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$52,175
Price as Tested:	\$65,825
Cost per Point for this Vehicle	\$820
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Diesel #2
Fuel Capacity (gal):	22.5
EPA Urban MPG:	19
EPA Highway MPG:	26
Auto Club Highest MPG:	24.9
Auto Club Average MPG:	22.2
Auto Club Lowest MPG:	19.8

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Clean Diesel

DESCRIPTION/COMMENTS

4-door AWD SUV

STRONG POINTS

- Powerful engine
- Brakes provide short straight stops
- Good MPG for an SUV
- Responsive handling
- Seats can be adjusted to fit any driver
- Roominess
- Loaded!

WEAK POINTS

- High purchase price
- Noisy engine
- Only meets California's least stringent LEV emission standards
- Confusing controls
- Tall vehicle with high door sills and trunk
- Transmission shifts sluggishly at WOT

OVERALL OBSERVATIONS

BMW likes to call their SUVs Sport Activity Vehicles (SAV) and the X5 certainly qualifies. They supplied us a loaded xdrive 35d version equipped with their 265 hp diesel engine, heated seats and steering wheel, Bluetooth, navigation and many more. The adaptive drive system allowed for a taut and controlled but comfortable ride, coupled with excellent handling. Acceleration was quite good, although the transmission seemed to lag from a start and before wide open throttle upshifts. The ABS brakes were powerful and the X5's tall profile is easy to see out of. But all of this costs money, with our test vehicle listing an MSRP of almost \$66K. If you can afford it, the X5 is a desirable SAV.

AFTERMARKET PARTS

Body kits, custom wheels

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	5220
Exterior Length (in):	191.2
Exterior Width (in):	76.1
Exterior Height (in):	69.9
Wheelbase (in):	115.5
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	8 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Michelin 255/55R18
Towing Cap. (lbs) W/WO Brakes:	6000 Maximum
Transmission Type:	Auto 6 Speed
Drivetrain Type:	All Wheel - Full Time
Engine Size:	3.0L DOHC 24V I6 Diesel
Horsepower @ RPM:	265 @ 4200

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	6.00
Braking:	7.83
Crashworthiness:	8.56
Visibility:	7.90
Slalom Handling:	6.87
Ride Quality:	7.71
Fuel Economy:	2.95
Interior Noise:	5.34
Acceleration:	7.92
Ease of Entry and Exit:	6.87
Interior Size:	5.09
Turning Circle:	4.01
Luggage Capacity:	3.25

BMW X6 ActiveHybrid

GREEN CAR SCORES

Score For This Vehicle	80.82
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$89,775
Price as Tested:	\$92,325
Cost per Point for this Vehicle	\$1,142
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	22.5
EPA Urban MPG:	17
EPA Highway MPG:	19
Auto Club Highest MPG:	18.8
Auto Club Average MPG:	16.9
Auto Club Lowest MPG:	13.8

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

4-door SUV

STRONG POINTS

- Unique styling
- Horsepower
- Handling
- Quiet interior
- High fidelity sound system
- Powerful brakes

WEAK POINTS

- Difficult to get in and out of
- High purchase price (\$92K)
- Requires expensive premium fuel and gets poor fuel economy for a hybrid
- Rear visibility
- Too many controls can cause distraction
- Only seats 4 occupants

OVERALL OBSERVATIONS

Wow! That is the most apt description of the effect the BMW X6 ActiveHybrid had on bystanders. This uniquely styled AWD SUV attracted attention anywhere we took it. It performs as well as it looks, with excellent acceleration and stopping along with a wonderful balance of ride and handling. On the other hand, that styling has some drawbacks, making entry and exit difficult and somewhat restricting rear seat headroom and visibility to the rear. Did I mention the X6 is a hybrid? It has a twin turbo V8 engine and 2 electric motors, but only averages 18 mpg. One other neat feature is the rear view camera with "top view" that provides a view looking down on the vehicle and its surroundings during parking maneuvers.

AFTERMARKET PARTS

Rear spoiler, performance air filter

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/2
Curb Weight (lbs):	5710
Exterior Length (in):	192.0
Exterior Width (in):	78.1
Exterior Height (in):	66.5
Wheelbase (in):	115.5
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Dunlop 315/35R20
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	All Wheel - Full Time
Engine Size:	4.4L 32V 4OHC V8
Horsepower @ RPM:	400 @ 5500-6400
Electric Motor Horsepower:	80

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	8.06
Crashworthiness:	8.14
Visibility:	7.30
Slalom Handling:	7.65
Ride Quality:	8.13
Fuel Economy:	0.00
Interior Noise:	6.68
Acceleration:	9.49
Ease of Entry and Exit:	6.50
Interior Size:	4.10
Turning Circle:	4.09
Luggage Capacity:	3.69

Cadillac Escalade 2WD Platinum Hybrid

GREEN CAR SCORES

Score For This Vehicle	80.84
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$85,885
Price as Tested:	\$85,885
Cost per Point for this Vehicle	\$1,062
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	26.0
EPA Urban MPG:	20
EPA Highway MPG:	21
Auto Club Highest MPG:	20.8
Auto Club Average MPG:	17.0
Auto Club Lowest MPG:	15.7

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Large 4-door SUV
Similar to Chevrolet Tahoe and GMC Yukon

STRONG POINTS

- Roomy and flexible interior
- Powerful
- Good MPG for this type of vehicle
- Hi-Fidelity sound system with XM
- Loaded with safety and convenience features

WEAK POINTS

- Rear seat difficult to enter or fold down
- Vague and slow steering
- Unresponsive handling
- High purchase price (\$86K)

OVERALL OBSERVATIONS

The Cadillac Escalade (& the similar Chevy Tahoe/GMC Yukon) Hybrids represent a blending of 2 world views. They are behemoth SUVs, seen as somehow "evil" by some, but in hybrid form they get over 20 mpg as opposed to 15. The power, room, utility, and perception of safety and substance that have made big SUVs so popular remain with mpg like a big sedan. The Escalade Platinum (\$86K) we tested was loaded with features including heated and cooled seats, navigation system with XM Nav Traffic, Bluetooth, backup sensor and camera, and even heated and cooled cupholders! You can be "evil" and "green" at the same time.

AFTERMARKET PARTS

Chrome wheels, audio systems, DVD players

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3/3
Curb Weight (lbs):	6010
Exterior Length (in):	202.5
Exterior Width (in):	79.0
Exterior Height (in):	74.3
Wheelbase (in):	116.0
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	4 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Bridgestone P285/45R22
Towing Cap. (lbs) W/WO Brakes:	5800 Maximum
Transmission Type:	2-Mode Hybrid
Drivetrain Type:	Rear Wheel
Engine Size:	6.0L Vortec V8 SFI LIVC
Horsepower @ RPM:	332 @ 5100
Electric Motor Horsepower:	N/A

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	6.00
Braking:	3.98
Crashworthiness:	7.50
Visibility:	8.10
Slalom Handling:	4.12
Ride Quality:	7.06
Fuel Economy:	2.65
Interior Noise:	7.44
Acceleration:	6.10
Ease of Entry and Exit:	7.06
Interior Size:	6.69
Turning Circle:	4.14
Luggage Capacity:	10.00

Chevrolet Cruze Eco

GREEN CAR SCORES

Score For This Vehicle	77.36
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$18,895
Price as Tested:	\$19,420
Cost per Point for this Vehicle	\$251
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	12.6
EPA Urban MPG:	28
EPA Highway MPG:	42
Auto Club Highest MPG:	34.9
Auto Club Average MPG:	28.0
Auto Club Lowest MPG:	19.1

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- Fuel economy
- XM
- Value (only \$19K)
- Tilt and telescopic steering column
- Useful trunk for this size vehicle
- 5 star crash rating

WEAK POINTS

- Lacks rear cupholders
- Lacks rear center armrest
- Cramped rear seat for tall passengers
- Interior includes lots of "old-tech" plastic

OVERALL OBSERVATIONS

Chevrolet's Cavalier begat Cobalt, which begat Cruze. They all start with "C" for "compact". This is the recent family history of Chevrolet's compact sedans. Each generation has been an improvement from the previous & the Cruze is no exception. We tested the "Eco" version with a 6-speed manual transmission because this is the non-hybrid gasoline fuel economy leader in its size category. It also gets a 5-star overall rating in NHTSA's more stringent (for 2011 & beyond) new crash test program. Ours had the optional "connectivity plus cruise" package & still had an MSRP around \$19K. In the past, imports led the way in the compact segment, but the Cruze is a viable option that may eat into that leadership.

AFTERMARKET PARTS

Mesh grille, cold air intake

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3200
Exterior Length (in):	181.0
Exterior Width (in):	70.7
Exterior Height (in):	58.1
Wheelbase (in):	105.7
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	9 Air Bags or more
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Goodyear P215/55R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Manual 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	1.4L DOHC Turbo I4
Horsepower @ RPM:	138 @ 4900

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	2.82
Crashworthiness:	6.65
Visibility:	6.90
Slalom Handling:	7.39
Ride Quality:	6.83
Fuel Economy:	5.80
Interior Noise:	6.82
Acceleration:	7.42
Ease of Entry and Exit:	6.23
Interior Size:	5.70
Turning Circle:	5.97
Luggage Capacity:	1.84

Chevrolet HHR LT FlexFuel

GREEN CAR SCORES

Score For This Vehicle	61.16
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$18,604
Price as Tested:	\$19,549
Cost per Point for this Vehicle	\$320
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	16.2
EPA Urban MPG:	22
EPA Highway MPG:	30
Auto Club Highest MPG:	28.7
Auto Club Average MPG:	23.5
Auto Club Lowest MPG:	20.5

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

4-door SUV

STRONG POINTS

- Flexible interior with individually folding rear seats and adjustable trunk shelf
- Retro styling
- Small SUV/Wagon easy to fit in garage

WEAK POINTS

- Narrow windows impede visibility
- Long emergency stopping distance (even with ABS)
- Underpowered
- Cheap looking plastic interior trim
- Lacks rear center armrest

OVERALL OBSERVATIONS

Chevrolet's HHR is their answer to the PT Cruiser, combining "retro" styling with compact SUV utility (both are sometimes called wagons, sometimes SUVs). We averaged almost 24 mpg, impressive for this type of vehicle, although the tradeoff was poor acceleration. The 2.2-liter engine is "Flex-Fuel" capable and runs on any combination of gasoline or ethanol (up to 85% ethanol). The HHR LT has ABS brakes standard, but stopping distances were still fairly long. Narrow windows caused limited visibility to the rear and sides. Note: Towing a trailer more than 1000 miles per year is not recommended.

AFTERMARKET PARTS

Panel van conversion, wheels, tires

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3380
Exterior Length (in):	176.2
Exterior Width (in):	69.1
Exterior Height (in):	63.1
Wheelbase (in):	103.5
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	4 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Firestone P215/55R16
Towing Cap. (lbs) W/WO Brakes:	1000
Transmission Type:	Auto 4 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.2L DOHC I4 "Ecotec"
Horsepower @ RPM:	155 @ 6100

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	2.00
Crashworthiness:	4.36
Visibility:	6.90
Slalom Handling:	5.38
Ride Quality:	6.67
Fuel Economy:	3.80
Interior Noise:	2.23
Acceleration:	2.30
Ease of Entry and Exit:	5.83
Interior Size:	5.31
Turning Circle:	5.75
Luggage Capacity:	3.62

Chevrolet Impala LT

GREEN CAR SCORES

Score For This Vehicle	77.01
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$26,430
Price as Tested:	\$26,430
Cost per Point for this Vehicle	\$343
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	17.0
EPA Urban MPG:	19
EPA Highway MPG:	29
Auto Club Highest MPG:	25.1
Auto Club Average MPG:	22.2
Auto Club Lowest MPG:	20.4

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Large 4-door Sedan
Supplied by Enterprise Rental Cars

STRONG POINTS

- Front seat room
- PZEV
- Comfortable soft ride for long trips
- Bluetooth connectivity
- High fidelity sound system

WEAK POINTS

- Rear seats don't fold down
- Lacks rear center armrest
- No cupholders for rear seat passengers
- Stiff throttle spring
- Noisy AC fan motor
- Poor visibility to the rear and sides

OVERALL OBSERVATIONS

A full-sized Chevrolet sedan is "as American as apple pie". Now you can have that slice of Americana and be "green" at the same time. The latest version of Chevrolet's Impala 4-door sedan is now available with a clean running 211 horsepower PZEV V6. Our test car was a minimally equipped rental car, but it had a reasonable MSRP of \$26K and got a surprising (for a 3560 pound full-sized car) 25 mpg. It has the traditional soft ride for freeway cruising and lots of room in the front seats. Unfortunately, the rear seat does not fold down, or else you could use this big 4-door as an alternate to an SUV!

AFTERMARKET PARTS

Mesh grille, body kit

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3560
Exterior Length (in):	200.4
Exterior Width (in):	72.9
Exterior Height (in):	58.7
Wheelbase (in):	110.5
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Goodyear P225/60R16
Towing Cap. (lbs) W/WO Brakes:	1000/1000
Transmission Type:	Auto 4 Speed
Drivetrain Type:	Front Wheel
Engine Size:	3.5L OHV V6
Horsepower @ RPM:	211 @ 5800

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	6.82
Crashworthiness:	5.58
Visibility:	6.80
Slalom Handling:	5.12
Ride Quality:	7.00
Fuel Economy:	3.17
Interior Noise:	6.24
Acceleration:	6.89
Ease of Entry and Exit:	6.68
Interior Size:	6.30
Turning Circle:	4.99
Luggage Capacity:	2.42

Chevrolet Volt

GREEN CAR SCORES

Score For This Vehicle	80.99
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$41,000
Price as Tested:	\$43,700
Cost per Point for this Vehicle	\$540
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	9.3
EPA Urban MPG: Electric/Gas:	95/35
EPA Highway MPG: Electric/Gas:	90/40
Auto Club Highest MPG:	90.7
Auto Club Average MPG:	56.9
Auto Club Lowest MPG:	49.3

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Compact 4-door Sedan
Supplied by Enterprise Rental Cars

STRONG POINTS

- Efficient use of energy
- Technological innovation plus "green" image
- ABS brakes
- Easy and predictable steering
- Uses no gasoline in EV mode, but eliminates range anxiety
- Quiet interior

WEAK POINTS

- Requires expensive premium fuel
- Only certified to ULEV emission standards
- Rear seat cramped and hard to enter/exit
- Hard to see out of
- Long recharge time (with 110 volts)
- Too many controls on flat panel

OVERALL OBSERVATIONS

The Chevrolet Volt is likely the most innovative car of today. Chevy calls it "an extended range EV", but it is a PHEV. It operates as an EV for the first 35 to 40 miles (with fully charged batteries) & then a gas engine comes on & operates a generator to supply electricity for the motor that powers the vehicle. This type of operation can continue as long as there is fuel in the tank, eliminating "range anxiety". Surprisingly for a car this "green", the Volt only meets California's ULEV emission standards. It also needs premium fuel, although we understand this is because premium stores better. If you recharge the car each night, & drive less than 40 miles per day, then the gasoline might sit in the tank unused for months!

AFTERMARKET PARTS

Chevy's Z-speed line of aftermarket parts

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3800
Exterior Length (in):	177.1
Exterior Width (in):	70.4
Exterior Height (in):	56.7
Wheelbase (in):	105.7
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	9 Air Bags or more
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Goodyear P215/55R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 1 Speed
Drivetrain Type:	Front Wheel
Engine Size:	1.4L DOHC 16V I4
Horsepower @ RPM:	84 @ 4800
Electric Motor Horsepower:	150

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	7.12
Crashworthiness:	7.36
Visibility:	6.40
Slalom Handling:	7.49
Ride Quality:	6.71
Fuel Economy:	8.00
Interior Noise:	7.65
Acceleration:	6.89
Ease of Entry and Exit:	5.26
Interior Size:	4.14
Turning Circle:	6.01
Luggage Capacity:	0.96

Ford Escape Hybrid Limited FWD

GREEN CAR SCORES

Score For This Vehicle	75.24
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$32,360
Price as Tested:	\$34,755
Cost per Point for this Vehicle	\$462
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	15.1
EPA Urban MPG:	34
EPA Highway MPG:	31
Auto Club Highest MPG:	29.9
Auto Club Average MPG:	26.4
Auto Club Lowest MPG:	23.0

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

4-door SUV
Similar to Mazda Tribute

STRONG POINTS

- Excellent fuel economy with good performance
- Extremely low emissions (AT-PZEV)
- Equipped with Sync
- Has the utility of an SUV

WEAK POINTS

- Lacks rear center armrest
- High purchase price (\$34K)
- Rear window only opens 2/3
- Distracting reflections from the instrument panel

OVERALL OBSERVATIONS

The Ford Escape Hybrid is the most fuel efficient SUV available. Its combination of a 153 horsepower 2.5-liter engine and a 94 horsepower electric motor provide acceleration similar to its V6 powered sibling, with extremely low emissions (AT-PZEV). The Escape Hybrid scores 5 stars on all NHTSA crash tests. It maintains virtually all of the utility (except trailer towing is not recommended) that have made SUVs so popular. It even has the option of a 110 volt AC power outlet in the cabin. If you want a compact SUV, but value being "green", the Escape Hybrid (& the similar "sisters" the Mercury Mariner & Mazda Tribute Hybrids) can meet your needs.

AFTERMARKET PARTS

Wheels, tires, bike rack

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3750
Exterior Length (in):	174.7
Exterior Width (in):	81.3
Exterior Height (in):	67.7
Wheelbase (in):	103.1
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	4 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Michelin P235/70R16
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	2.5L I4 Atkinson Cycle
Horsepower @ RPM:	153 @ 6000
Electric Motor Horsepower:	94 @ 5000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	2.59
Crashworthiness:	4.80
Visibility:	7.50
Slalom Handling:	5.31
Ride Quality:	6.96
Fuel Economy:	5.71
Interior Noise:	5.77
Acceleration:	6.32
Ease of Entry and Exit:	6.84
Interior Size:	5.29
Turning Circle:	5.04
Luggage Capacity:	4.09

Ford Escape XLT FWD

GREEN CAR SCORES

Score For This Vehicle	68.69
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$23,460
Price as Tested:	\$24,115
Cost per Point for this Vehicle	\$351
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	16.5
EPA Urban MPG:	20
EPA Highway MPG:	28
Auto Club Highest MPG:	25.4
Auto Club Average MPG:	22.9
Auto Club Lowest MPG:	21.2

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

4-door SUV

Similar to Mazda Tribute

STRONG POINTS

- SUV utility and versatility
- Equipped with Sirius radio and Sync
- Dash & steering wheel controls well laid out
- Good mpg (for a non-hybrid SUV)

WEAK POINTS

- Rough idle (although other vehicles we have tested with the same engine idled OK). This might be peculiar to our specific test vehicle (they live a tough life!)
- Shifter lacks positions for intermediate gears
- Rear windows do not open fully
- Lacks rear grab handles & center armrest

OVERALL OBSERVATIONS

The Ford Escape was one of the big beneficiaries of the Cash for Clunkers program, showing significant sales. Why? The Escape is a "compact" 4-door SUV that averages 23 mpg without the purchase price premium of a hybrid. It has the versatility (rear seats fold down independently) and ruggedness that SUV buyers desire, in an economical (our lightly optioned test vehicle had an MSRP of \$24K) and compact package. One interesting new feature on the Escape (and other new Ford products) is the fuel filler has a seal built into the filler flap—no gas cap to forget or to tighten improperly (and no gasoline smell on your hands!) Even though "Clunkers" has ended, this SUV makes lots of sense.

AFTERMARKET PARTS

Fog lamps, bike rack, floor mats

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3390
Exterior Length (in):	174.7
Exterior Width (in):	81.3
Exterior Height (in):	67.9
Wheelbase (in):	103.1
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Michelin P235/70R16
Towing Cap. (lbs) W/WO Brakes:	1500/1500
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.5L I4 IVCT
Horsepower @ RPM:	171 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	3.45
Crashworthiness:	5.37
Visibility:	7.00
Slalom Handling:	4.56
Ride Quality:	6.83
Fuel Economy:	3.29
Interior Noise:	5.03
Acceleration:	5.02
Ease of Entry and Exit:	6.35
Interior Size:	5.61
Turning Circle:	5.09
Luggage Capacity:	4.09

Ford Fiesta SEL

GREEN CAR SCORES

Score For This Vehicle	74.97
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$17,415
Price as Tested:	\$20,495
Cost per Point for this Vehicle	\$273
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	12.0
EPA Urban MPG:	30
EPA Highway MPG:	40
Auto Club Highest MPG:	53.4
Auto Club Average MPG:	33.0
Auto Club Lowest MPG:	21.5

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Subcompact 4-door Sedan

STRONG POINTS

- Good fuel economy
- Certified as a PZEV
- Unusually useful trunk for such a small car
- Well equipped for the price including Sync, Sirius radio, and heated seats and mirrors
- ABS brakes
- Responsive handling

WEAK POINTS

- Unusual and sluggish transmission shifting
- Rear seat cramped and hard to enter/exit
- Lacks center armrests
- Engine noise at cold start
- Follows rain grooves on freeway, touchy steering at speed
- Rear windows don't open fully

OVERALL OBSERVATIONS

Ford has talked about building "world cars" for quite some time. Their Fiesta has been a perennial favorite in Europe & for 2011 it is now available in the US, which may place it in the world car category. The Fiesta in many ways raises the bar for the subcompact category, coming equipped with 7 airbags, stability control, electrochromic rear-view mirror & a host of comfort & convenience features. It gets 35 mpg & meets PZEV emission standards with responsive handling & short stopping distances. Of course, it is a subcompact & the rear seat is cramped & hard to get in & out of. If a small reasonably priced car is on your radar, the Fiesta deserves a long, hard look.

AFTERMARKET PARTS

Front camber kits, performance air filter

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2660
Exterior Length (in):	173.6
Exterior Width (in):	77.8
Exterior Height (in):	58.0
Wheelbase (in):	98.0
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	7 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Hankook 195/50R16
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	1.6L DOHC 16V I4
Horsepower @ RPM:	120 @ 6350

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	8.38
Crashworthiness:	5.00
Visibility:	6.90
Slalom Handling:	7.79
Ride Quality:	6.67
Fuel Economy:	6.02
Interior Noise:	3.86
Acceleration:	4.49
Ease of Entry and Exit:	5.81
Interior Size:	2.97
Turning Circle:	6.72
Luggage Capacity:	1.36

Ford Fusion Hybrid

GREEN CAR SCORES

Score For This Vehicle	80.24
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$27,995
Price as Tested:	\$30,245
Cost per Point for this Vehicle	\$377
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	17.5
EPA Urban MPG:	41
EPA Highway MPG:	36
Auto Club Highest MPG:	42.5
Auto Club Average MPG:	32.3
Auto Club Lowest MPG:	30.2

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- Excellent MPG
- Certified as an AT-PZEV
- Sync voice activation system with Sirius radio
- Optional rear view camera and cross-traffic alert
- No gas cap needed

WEAK POINTS

- Small trunk/rear seat doesn't fold down
- High purchase price (\$30K)
- Rear seat entry/exit for tall passengers

OVERALL OBSERVATIONS

For 2010, Ford introduced a Hybrid version of their popular mid-sized sedan the Fusion. This is a "full hybrid" offering nearly 40 mpg average, good acceleration, and clean "AT-PZEV" emissions. Generally, the features that make the Fusion so popular remain in the Hybrid with one exception, the rear seats don't fold down to increase trunk capacity/flexibility due to placement of the hybrid components. We especially liked the optional Driver's Vision Group which places a display of the rear-view camera on the rear-view mirror, sounds an alarm if cars are coming down the aisle while you are backing out of a blind parking spot, and warns you if there are cars in the blind spots on either side as you drive down the road.

AFTERMARKET PARTS

Wheels, tires, audio systems

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3790
Exterior Length (in):	190.6
Exterior Width (in):	80.1
Exterior Height (in):	56.9
Wheelbase (in):	107.4
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Michelin P225/50R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	2.5L I4 HEV
Horsepower @ RPM:	156 @ 6000
Electric Motor Horsepower:	106 @ 6500

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	5.89
Crashworthiness:	5.85
Visibility:	7.20
Slalom Handling:	7.06
Ride Quality:	7.42
Fuel Economy:	7.23
Interior Noise:	5.60
Acceleration:	6.99
Ease of Entry and Exit:	6.84
Interior Size:	4.68
Turning Circle:	5.29
Luggage Capacity:	1.18

Ford Fusion SEL

GREEN CAR SCORES

Score For This Vehicle	75.44
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$24,700
Price as Tested:	\$24,700
Cost per Point for this Vehicle	\$327
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	17.5
EPA Urban MPG:	22
EPA Highway MPG:	31
Auto Club Highest MPG:	23.9
Auto Club Average MPG:	22.1
Auto Club Lowest MPG:	19.3

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- Good mpg for a non-hybrid mid-sized sedan (25)
- PZEV available (test car ULEV)
- Well lighted interior
- Equipped with Sirius radio and Sync
- Smooth ride

WEAK POINTS

- Shifter lacks positions for intermediate gears
- Displays some torque steer
- Some controls positioned too low
- Limited visibility out of rear window

OVERALL OBSERVATIONS

Ford's Fusion has been increasingly popular and has even garnered some awards. Why? You can get an attractive mid-sized sedan, with available PZEV emissions, 25 mpg (without the cost premium of a hybrid), heated leather seats, power everything, six airbags, Sirius satellite radio, and "Sync" for under \$25K! Our tester rode well without sacrificing handling. The 4-cylinder engine provided average acceleration, but two available 6-cylinder engines (a 3.4-liter with 240 hp and a 3.5-liter with 263 hp) would do better, but with increased fuel consumption. All-in-all, the Fusion seems to be a quality sedan, and it is no wonder its popularity is on the rise.

AFTERMARKET PARTS

Performance exhaust, cold air intake

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3390
Exterior Length (in):	190.6
Exterior Width (in):	80.1
Exterior Height (in):	56.9
Wheelbase (in):	107.4
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Michelin P225/50R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.5L DOHC 16V I4
Horsepower @ RPM:	175 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	5.44
Crashworthiness:	5.37
Visibility:	7.30
Slalom Handling:	7.06
Ride Quality:	7.44
Fuel Economy:	3.88
Interior Noise:	6.97
Acceleration:	5.71
Ease of Entry and Exit:	7.17
Interior Size:	4.88
Turning Circle:	5.20
Luggage Capacity:	2.04

GMC Sierra 2WD Hybrid Crew Cab 3HB

GREEN CAR SCORES

Score For This Vehicle	68.09
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$45,500
Price as Tested:	\$46,495
Cost per Point for this Vehicle	\$683
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	26.0
EPA Urban MPG:	21
EPA Highway MPG:	22
Auto Club Highest MPG:	20.3
Auto Club Average MPG:	18.2
Auto Club Lowest MPG:	16.6

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Large 4-door Pickup
Similar to Chevrolet Silverado

STRONG POINTS

- Good MPG for a full-sized pickup truck
- XM radio
- Adjustable pedal cluster
- Roomy interior with the cargo capacity of a truck
- NAV system with live traffic alerts

WEAK POINTS

- High purchase price (\$46K+)
- Entry to and exit from rear seat
- Large turning circle & sluggish handling

OVERALL OBSERVATIONS

The GMC Sierra and the similar Chevy Silverado Hybrids are the only full-size hybrid pickups on the market today. One might ask why a hybrid pickup? Trucks have unbeatable utility, and if you can operate one at 21 mpg vs. 16 mpg it makes sense. Besides, the large size of a truck provides lots of room to package the hybrid components. Power adjustable seats and pedals, along with a tilt steering wheel, should allow any driver to fit in the Sierra properly. It should be noted that the score for "Luggage Capacity" on this page reflects a comparison of the interior (lockable) space to the trunk space of the SUVs and cars in this guide, not the pickup bed volume.

AFTERMARKET PARTS

Wheels, lift kits, lowering kits, off-road tires, tonneau covers

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	5690
Exterior Length (in):	230.0
Exterior Width (in):	79.9
Exterior Height (in):	73.8
Wheelbase (in):	143.5
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	4 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Bridgestone P265/65R18
Towing Cap. (lbs) W/WO Brakes:	6100 Maximum
Transmission Type:	2-Mode Hybrid
Drivetrain Type:	Rear Wheel
Engine Size:	6.0L SFI OHV V8
Horsepower @ RPM:	332 @ 5100
Electric Motor Horsepower:	N/A

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	6.00
Braking:	5.09
Crashworthiness:	7.12
Visibility:	7.40
Slalom Handling:	1.45
Ride Quality:	6.54
Fuel Economy:	2.90
Interior Noise:	6.32
Acceleration:	6.38
Ease of Entry and Exit:	7.44
Interior Size:	6.39
Turning Circle:	0.00
Luggage Capacity:	5.06

Honda Accord EX V6

GREEN CAR SCORES

Score For This Vehicle	79.21
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$29,375
Price as Tested:	\$29,375
Cost per Point for this Vehicle	\$371
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	18.5
EPA Urban MPG:	19
EPA Highway MPG:	29
Auto Club Highest MPG:	23.9
Auto Club Average MPG:	21.5
Auto Club Lowest MPG:	19.5

MODEL YEAR TESTED - 2009



OVERALL OBSERVATIONS

The Honda Accord is extremely popular, routinely finishing in the top three car models for nationwide sales year after year. For 2009, the 271 horsepower (which provides sub-8 second 0-60 mph acceleration times), top-of-the-line V6 edition meets stringent PZEV emission standards. This means that you can experience all of the qualities that make the Accord so popular (reputation for good build quality and reliability, powerful brakes, smooth but taut ride, easy to see out of, etc.) while contributing to clean air!

REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Large 4-door Sedan

STRONG POINTS

- Extremely clean PZEV emissions from a powerful V6
- Security of items in trunk, since release is lockable & backfold control is in trunk
- ABS brakes provide short stops

WEAK POINTS

- When using the remote to unlock, if a door is not opened within 30 seconds, the doors relock
- Shifter lacks a detent for OD
- Rear windows don't open fully

AFTERMARKET PARTS

Rear spoiler, tires, custom graphics

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3380
Exterior Length (in):	194.3
Exterior Width (in):	72.7
Exterior Height (in):	58.1
Wheelbase (in):	110.2
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Michelin P225/50R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 5 Speed
Drivetrain Type:	Front Wheel
Engine Size:	3.5L SOHC 24V VTEC V6
Horsepower @ RPM:	271 @ 6200

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	6.65
Crashworthiness:	5.36
Visibility:	7.30
Slalom Handling:	7.41
Ride Quality:	7.13
Fuel Economy:	3.17
Interior Noise:	7.42
Acceleration:	8.01
Ease of Entry and Exit:	6.53
Interior Size:	4.56
Turning Circle:	5.09
Luggage Capacity:	1.58

Honda Civic EX-L Navi

GREEN CAR SCORES

Score For This Vehicle	70.04
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$24,325
Price as Tested:	\$24,325
Cost per Point for this Vehicle	\$347
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	13.2
EPA Urban MPG:	25
EPA Highway MPG:	36
Auto Club Highest MPG:	35.2
Auto Club Average MPG:	29.9
Auto Club Lowest MPG:	25.0

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

Subcompact 4-door Sedan

STRONG POINTS

- Good MPG
- Security of items in trunk (interior release lockable, backfold release in the trunk)
- XM radio
- Handling

WEAK POINTS

- Cramped rear seat
- Shifter lacks a detent for OD
- When using the remote to unlock, if a door isn't opened in 30 seconds, the doors relock (even if you pop the trunk)
- Buzzy engine at or near WOT

OVERALL OBSERVATIONS

The Honda Civic has been one of the most popular small cars in the US for years. We tested the top-of-the-line Civic EX-L NAVI and it was loaded, including ABS brakes, six air bags, voice activated navigation, Bluetooth, heated front seats and side mirrors, cruise control, power moonroof, and lots more. All this for just over \$24K (MSRP) and it gets an average of 29 mpg, too! It has an advanced 5-speed automatic transmission, but like other Hondas we have tested, when you shift it to drive forward, the shifter stops at fourth, moving right past the fifth gear position (which is the recommended gear selection and provides the best mpg).

AFTERMARKET PARTS

Body kits, rear spoilers, brake kits

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2830
Exterior Length (in):	177.3
Exterior Width (in):	69.0
Exterior Height (in):	56.5
Wheelbase (in):	106.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Bridgestone P205/55R16
Towing Cap. (lbs) W/WO Brakes:	1000/1000
Transmission Type:	Auto 5 Speed
Drivetrain Type:	Front Wheel
Engine Size:	1.8L SOHC 16V i-VTEC I4
Horsepower @ RPM:	140 @ 6300

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	5.81
Crashworthiness:	4.71
Visibility:	7.20
Slalom Handling:	7.34
Ride Quality:	7.13
Fuel Economy:	4.81
Interior Noise:	3.38
Acceleration:	5.28
Ease of Entry and Exit:	6.80
Interior Size:	3.60
Turning Circle:	5.77
Luggage Capacity:	1.22

Honda Civic GX NGV

GREEN CAR SCORES

Score For This Vehicle	66.65
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$18,925
Price as Tested:	\$25,860
Cost per Point for this Vehicle	\$388
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Natural Gas
Fuel Capacity (gal):	8.0
EPA Urban MPG:	24
EPA Highway MPG:	36
Auto Club Highest MPG:	39.8
Auto Club Average MPG:	33.2
Auto Club Lowest MPG:	23.8

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Alternative Fuel

DESCRIPTION/COMMENTS

Subcompact 4-door Sedan

STRONG POINTS

- Certified to AT-PZEV emissions standards
- Domestically available fuel (non-petroleum)
- Home refueling possible
- Efficient operation (28 mpg equivalent)
- Based on a popular and common vehicle

WEAK POINTS

- Small trunk and rear seat does not fold down
- Drivers tend to be nervous due to perceived lack of refueling facilities (especially outside of California). 235 mile range does not help.
- Underpowered
- Lacks rear cupholders and center armrest
- Shifter lacks a detent for OD

OVERALL OBSERVATIONS

The Honda Civic GX is the only model available that runs on clean burning CNG. Honda claims the 1.8-liter, 4-cylinder engine is the cleanest internal combustion engine available. The 235-mile range and sparse population of CNG fuel stations can cause some trepidation, but for those with normal commutes and Honda's "PHIL" home refueling system, visits to the gas station can be a thing of the past! Like the Civic Hybrid, the GX shares most of the advantages that make the Civic a top-selling compact car.

AFTERMARKET PARTS

Exhaust kits, body kits, rear spoiler

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2870
Exterior Length (in):	177.3
Exterior Width (in):	69.0
Exterior Height (in):	56.5
Wheelbase (in):	106.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Dunlop P195/65R15
Towing Cap. (lbs) W/WO Brakes:	1000/1000
Transmission Type:	Auto 5 Speed
Drivetrain Type:	Front Wheel
Engine Size:	1.8L SOHC 16V I4
Horsepower @ RPM:	113 @ 6300

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	5.09
Crashworthiness:	3.75
Visibility:	6.80
Slalom Handling:	6.28
Ride Quality:	6.92
Fuel Economy:	4.62
Interior Noise:	3.61
Acceleration:	3.11
Ease of Entry and Exit:	6.70
Interior Size:	4.41
Turning Circle:	6.24
Luggage Capacity:	0.13

Honda Civic Hybrid

GREEN CAR SCORES

Score For This Vehicle	72.72
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$27,710
Price as Tested:	\$27,710
Cost per Point for this Vehicle	\$381
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	12.3
EPA Urban MPG:	40
EPA Highway MPG:	45
Auto Club Highest MPG:	46.9
Auto Club Average MPG:	41.5
Auto Club Lowest MPG:	36.0

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- Excellent fuel economy
- Certified as an AT-PZEV
- High fidelity sound system with XM satellite radio
- Voice activated navigation system
- Nicely laid out conventional sedan that is also a hybrid

WEAK POINTS

- Small trunk and rear seat doesn't fold down
- Lacks rear cupholders and center armrest
- When using the remote to unlock, if a door isn't opened in 30 seconds, the doors relock even if you have opened the trunk
- Underpowered
- Low roof line impedes entry and exit

OVERALL OBSERVATIONS

The Honda Civic Hybrid combines a 1.3-liter gasoline engine with an electric motor to take advantage of the strengths of both to provide excellent fuel economy (second best gasoline fuel economy available) and low emissions. However, even with both powerplants going full tilt, acceleration is weak (though improved from previous versions). Front, side, and side curtain airbags are standard and the Civic scores 4 or 5 stars on all NHTSA crash tests. The Civic Hybrid is visually almost identical to other Civic sedans, and shares most of the advantages that make the Civic a top-selling compact car.

AFTERMARKET PARTS

Spoiler, Brake kits, Chassis accessories, Exhaust kits

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2900
Exterior Length (in):	176.7
Exterior Width (in):	69.0
Exterior Height (in):	56.3
Wheelbase (in):	106.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Bridgestone P195/65R15
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	1.3L SOHC 8V i-VTEC I4
Horsepower @ RPM:	110 @ 6000
Electric Motor Horsepower:	20

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	5.60
Crashworthiness:	4.79
Visibility:	7.20
Slalom Handling:	6.36
Ride Quality:	6.71
Fuel Economy:	8.11
Interior Noise:	4.00
Acceleration:	2.54
Ease of Entry and Exit:	6.73
Interior Size:	4.52
Turning Circle:	6.25
Luggage Capacity:	0.93

Honda CR-Z EX

GREEN CAR SCORES

Score For This Vehicle	79.99
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$23,210
Price as Tested:	\$23,960
Cost per Point for this Vehicle	\$300
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	10.6
EPA Urban MPG:	35
EPA Highway MPG:	39
Auto Club Highest MPG:	39.6
Auto Club Average MPG:	35.0
Auto Club Lowest MPG:	29.6

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

2-Seat Coupe

STRONG POINTS

- Fuel economy
- Certified as an AT-PZEV
- Sporty/modernistic styling
- Sporty, fun, and easy to drive
- Loaded with features

WEAK POINTS

- Poor rearward visibility
- Lacks center armrest
- Too many small buttons and controls can be confusing and perhaps distracting
- The front 2 (of 3) cupholders are too small

OVERALL OBSERVATIONS

Honda's CR-Z is their second attempt to produce a small 2-seat sporty hybrid. Their first attempt was the original Insight (the first hybrid in the US market). The CR-Z represents a dramatic improvement. It looks and feels sporty, gets 37 mpg, has above average acceleration, is loaded with safety and convenience features (the Insight was rather Spartan), and is a well-executed modern car. However it is still a small 2-seater, which limits its utility. You are not going to be able to use the CR-Z to pull a trailer or to carry the soccer team. But if a low-emission sporty 2-seater with cutting-edge technology and excellent fuel economy is your style, the CR-Z fits the bill.

AFTERMARKET PARTS

Cat-back exhaust, body kit

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2
Curb Weight (lbs):	2680
Exterior Length (in):	160.6
Exterior Width (in):	68.5
Exterior Height (in):	54.9
Wheelbase (in):	95.9
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Dunlop P195/55R16
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	1.5L SOHC i-VTEC I4 IMA
Horsepower @ RPM:	122 @ 6000
Electric Motor Horsepower:	13 @ 1500

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	7.00
Crashworthiness:	4.53
Visibility:	6.80
Slalom Handling:	8.01
Ride Quality:	6.75
Fuel Economy:	6.75
Interior Noise:	4.23
Acceleration:	6.22
Ease of Entry and Exit:	7.24
Interior Size:	2.51
Turning Circle:	7.36
Luggage Capacity:	3.60

Honda Fit Sport

GREEN CAR SCORES

Score For This Vehicle	75.72
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$18,780
Price as Tested:	\$18,780
Cost per Point for this Vehicle	\$248
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	10.6
EPA Urban MPG:	27
EPA Highway MPG:	33
Auto Club Highest MPG:	34.7
Auto Club Average MPG:	31.2
Auto Club Lowest MPG:	25.1

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

Small 5-door Wagon

STRONG POINTS

- Good MPG
- Excellent and flexible utilization of interior space
- Responsive and nimble handling
- Shifter and clutch easy to use
- Equipped with a navigation system

WEAK POINTS

- Controls for the radio and NAV system are small (can be voice activated)
- Lacks rear center armrest
- Buzzy/bouncy ride at freeway speeds
- Can be blown around by side-winds

OVERALL OBSERVATIONS

EPA calls the Honda Fit a "small station wagon", but it looks like a compact 4-door hatchback. The 1.5-liter, 4-cylinder engine with 5-speed manual transmission averaged over 31 mpg, while still providing better than average acceleration. It has excellent ABS brakes, nimble handling, & can fit easily into most parking spots. Like many other small cars, the rear seat is cramped & has no center armrest. Similar to most Honda models there are few options, but the "Sport" model we tested has the most equipment (including a voice activated navigation/sound system but surprisingly lacks a Bluetooth link for a cellular phone), all for \$18,780.

AFTERMARKET PARTS

Custom floor mats, fog lamps, sport grilles

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2550
Exterior Length (in):	161.6
Exterior Width (in):	66.7
Exterior Height (in):	60.0
Wheelbase (in):	98.4
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Dunlop 185/55R16
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Manual 5 Speed
Drivetrain Type:	Front Wheel
Engine Size:	1.5L SOHC 16V i-VTEC I4
Horsepower @ RPM:	117 @ 6600

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	4.91
Crashworthiness:	4.37
Visibility:	7.10
Slalom Handling:	7.58
Ride Quality:	6.79
Fuel Economy:	4.91
Interior Noise:	4.44
Acceleration:	6.35
Ease of Entry and Exit:	6.94
Interior Size:	5.47
Turning Circle:	7.07
Luggage Capacity:	2.78

Honda Insight EX Navi

GREEN CAR SCORES

Score For This Vehicle	68.67
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$23,770
Price as Tested:	\$23,770
Cost per Point for this Vehicle	\$346
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	10.6
EPA Urban MPG:	40
EPA Highway MPG:	43
Auto Club Highest MPG:	42.8
Auto Club Average MPG:	37.9
Auto Club Lowest MPG:	31.2

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Compact 5-door Sedan

STRONG POINTS

- Excellent fuel economy
- Certified as an AT-PZEV
- Affordable purchase price for a hybrid
- Has that "green look"

WEAK POINTS

- Underpowered
- Cramped rear seat
- Rough transition from engine stop to start especially in econ mode
- Front cup holders too small, rears are in the door = spills when you close the door

OVERALL OBSERVATIONS

Honda introduced the new Insight to take on the Toyota Prius. They wanted to have a car that was available exclusively as a hybrid (not a conversion) that looked "aerodynamic" and was identifiable as a hybrid. Well, a wind tunnel is a wind tunnel and many have a hard time telling the Insight and the Prius apart at a glance! The Insight is less expensive than the Prius (or most other hybrids), gets great mileage, and is also an AT-PZEV. However, its performance and overall utility lag behind the other hybrids on the market today.

AFTERMARKET PARTS

Car cover, cargo mat, nose cover

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2750
Exterior Length (in):	172.3
Exterior Width (in):	66.7
Exterior Height (in):	56.2
Wheelbase (in):	100.4
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Dunlop P175/65R15
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	1.3L SOHC i-VTEC I4
Horsepower @ RPM:	98 @ 5800
Electric Motor Horsepower:	10 @ 1500

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	2.76
Crashworthiness:	3.61
Visibility:	6.90
Slalom Handling:	5.63
Ride Quality:	6.08
Fuel Economy:	7.91
Interior Noise:	5.47
Acceleration:	2.87
Ease of Entry and Exit:	5.89
Interior Size:	3.57
Turning Circle:	7.09
Luggage Capacity:	1.91

Hyundai Sonata Hybrid

GREEN CAR SCORES

Score For This Vehicle	78.69
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$26,515
Price as Tested:	\$31,650
Cost per Point for this Vehicle	\$402
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	17.2
EPA Urban MPG:	35
EPA Highway MPG:	40
Auto Club Highest MPG:	32.6
Auto Club Average MPG:	28.1
Auto Club Lowest MPG:	24.8

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Full-Size 4-door Sedan

STRONG POINTS

- MPG
- Meets SULEV2 tailpipe emission standards
- Smooth ride
- Lots of content
- Good power and throttle response
- 5 star NHTSA crash test rating

WEAK POINTS

- Visibility to the side and rear
- Small trunk
- Rear seat does not fold down
- Sluggish brake response

OVERALL OBSERVATIONS

The Hyundai Sonata is a loaded "near-luxury" full-sized car (see next page). For 2011, Hyundai added a Hybrid version rated at an excellent 37 mpg. Our Hybrid (with the \$5000 "Premium" package and more) had a reasonable (for a hybrid) MSRP of under \$32K, and maintained the high content level and performance of the Sonata Limited. One notable difference is the Hybrid's small trunk and fixed rear seat backs. Most, if not all, of the hybrid sedans we have tested have the same problem because of the placement of the battery pack and electronics. If you want a full-sized sedan with good mpg, an excellent warranty, and full-tilt modern electronics, then the Sonata Hybrid should be on your radar.

AFTERMARKET PARTS

Dash covers, emblems/decals

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3840
Exterior Length (in):	189.8
Exterior Width (in):	72.2
Exterior Height (in):	57.7
Wheelbase (in):	110.0
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	60/60,000
Tire Manufacturer:	Kumho 215/55R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.4L Atkinson Cyc I4 Hybrid
Horsepower @ RPM:	166 @ 6000
Electric Motor Horsepower:	40.2

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	5.09
Crashworthiness:	5.91
Visibility:	6.90
Slalom Handling:	5.98
Ride Quality:	7.29
Fuel Economy:	6.85
Interior Noise:	6.67
Acceleration:	6.39
Ease of Entry and Exit:	7.14
Interior Size:	4.58
Turning Circle:	5.90
Luggage Capacity:	0.98

Hyundai Sonata Limited

GREEN CAR SCORES

Score For This Vehicle	78.38
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$26,015
Price as Tested:	\$28,415
Cost per Point for this Vehicle	\$363
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	18.5
EPA Urban MPG:	22
EPA Highway MPG:	35
Auto Club Highest MPG:	23.1
Auto Club Average MPG:	23.1
Auto Club Lowest MPG:	23.1

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Full-Size 4-door Sedan

STRONG POINTS

- Content for the price
- PZEV available
- Balance of power with mpg
- Comfortable

WEAK POINTS

- Rear visibility (rear view monitor helps)
- Noisy AC fan on "high"
- Lack of instruments (oil psi and voltage)
- Small side-view mirrors

OVERALL OBSERVATIONS

The Hyundai Sonata (ours was a "Limited") is a loaded "near-luxury" full-sized car equipped with power-everything, electronic stability control, 6 airbags, sound system with AM/FM/XM/CD, heated leather seats (front & rear), Bluetooth, push button start, and optional navigation system. All of this can be had for only \$28K (MSRP). A PZEV (2.4-liter, 4 cylinder, the same size as the ULEV engine in our test car) engine can be purchased (for no extra charge) in California & the other states that adopted CA emission standards. Fuel economy & horsepower ratings of the PZEV & ULEV engines are the same. For value & security (due to an excellent warranty) the Sonata could be the right choice.

AFTERMARKET PARTS

Dash covers, emblems/decals

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3316
Exterior Length (in):	189.8
Exterior Width (in):	72.2
Exterior Height (in):	57.9
Wheelbase (in):	110.0
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	60/60,000
Tire Manufacturer:	Hankook P215/55R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.4L I4
Horsepower @ RPM:	198 @ 6300

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	8.15
Crashworthiness:	5.29
Visibility:	7.10
Slalom Handling:	7.43
Ride Quality:	6.81
Fuel Economy:	4.16
Interior Noise:	5.59
Acceleration:	6.96
Ease of Entry and Exit:	7.24
Interior Size:	4.95
Turning Circle:	5.68
Luggage Capacity:	2.02

Hyundai Tucson GLS FWD

GREEN CAR SCORES

Score For This Vehicle	76.63
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$23,585
Price as Tested:	\$23,685
Cost per Point for this Vehicle	\$309
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	14.5
EPA Urban MPG:	22
EPA Highway MPG:	31
Auto Club Highest MPG:	23.5
Auto Club Average MPG:	21.9
Auto Club Lowest MPG:	19.2

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

4-door SUV

STRONG POINTS

- Utility
- PZEV available & gets 25 mpg
- Good value for \$23K
- Excellent warranty
- Tilt and telescopic steering wheel

WEAK POINTS

- High door sills impede entrance
- Difficult to see to the rear
- Underpowered
- Noisy on rough roads
- Rear seat cramped for taller passengers
- When using the remote to unlock, if a door is not opened within 30 sec. the doors relock
- Overly assisted steering, darts to the side on freeway

OVERALL OBSERVATIONS

The Hyundai Tucson is their entry into the crowded compact CUV field. It has a lot going for it, chief the Hyundai strategy of equipping their vehicles with more features for comparable or less money than the competition. Add to that the Tucson's PZEV emission rating, 25 mpg fuel economy, and Hyundai's excellent warranty program and you have a winner. On the down side, it could use some more power and the electric assisted power steering is too sensitive at freeway speeds, causing it to dart right or left with the slightest wiggle of the steering wheel. Hyundai has also made great strides in quality improvement, so if a compact CUV is what you want, check out the Tucson.

AFTERMARKET PARTS

Floor mats, roof rack

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3220
Exterior Length (in):	173.2
Exterior Width (in):	71.7
Exterior Height (in):	66.3
Wheelbase (in):	103.9
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	60/60,000
Tire Manufacturer:	Kumho 225/60R17
Towing Cap. (lbs) W/WO Brakes:	2000/1000
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.4L DOHC 16V I4
Horsepower @ RPM:	176 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	6.31
Crashworthiness:	5.17
Visibility:	7.10
Slalom Handling:	6.09
Ride Quality:	6.58
Fuel Economy:	3.88
Interior Noise:	5.72
Acceleration:	6.70
Ease of Entry and Exit:	6.85
Interior Size:	4.94
Turning Circle:	6.58
Luggage Capacity:	3.71

Kia Sorento EX FWD

GREEN CAR SCORES

Score For This Vehicle	77.67
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$25,590
Price as Tested:	\$29,340
Cost per Point for this Vehicle	\$378
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	18.0
EPA Urban MPG:	21
EPA Highway MPG:	29
Auto Club Highest MPG:	23.5
Auto Club Average MPG:	20.8
Auto Club Lowest MPG:	17.9

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

4-door SUV

STRONG POINTS

- Roomy and comfortable interior
- Good MPG for an SUV
- Lots of content for the price
- Rear seat head rests automatically foldout of the way when folding down the rear seats
- Controls are easy to identify and use

WEAK POINTS

- High step in height impedes entry
- Reflections from instrument cluster chrome trim rings can be distracting
- Rear seat back releases difficult to operate
- Large vehicle may be difficult to park in small spots
- When using the remote to unlock, if a door isn't opened in 30 seconds, the doors relock

OVERALL OBSERVATIONS

The Kia Sorento applies their increasingly successful strategy of producing affordably priced vehicles with more content than the competition to the SUV market. Our test vehicle was equipped with dual zone auto HVAC, power everything, fog lights, Sirius radio, Bluetooth, rear view monitor, "Smart" key, & optional navigation, heated leather seats, & premium sound for just over \$29K. EPA rates the Sorento at 24 mpg (good for an SUV) but our testers averaged below 21 mpg. Being a tall large vehicle brings pluses & minuses. The Sorento is easy to see out of (the rear view monitor helps), but is hard to park in tight spots. With Kia's high content & excellent warranty, if you want an SUV, check out the Sorento.

AFTERMARKET PARTS

Hood deflector, roof rack

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3900
Exterior Length (in):	183.9
Exterior Width (in):	74.2
Exterior Height (in):	67.3
Wheelbase (in):	106.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	8 Air Bags
Warranty (Months/Miles):	60/60,000
Tire Manufacturer:	Kumho 235/60R18
Towing Cap. (lbs) W/WO Brakes:	1650/1650
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.4L DOHC 16V I4
Horsepower @ RPM:	175 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	6.01
Crashworthiness:	6.98
Visibility:	7.30
Slalom Handling:	5.03
Ride Quality:	6.67
Fuel Economy:	3.54
Interior Noise:	5.52
Acceleration:	4.99
Ease of Entry and Exit:	6.75
Interior Size:	6.04
Turning Circle:	6.08
Luggage Capacity:	5.76

Kia Soul Exclaim

GREEN CAR SCORES

Score For This Vehicle	71.61
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$18,595
Price as Tested:	\$18,595
Cost per Point for this Vehicle	\$260
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	12.7
EPA Urban MPG:	24
EPA Highway MPG:	30
Auto Club Highest MPG:	27.8
Auto Club Average MPG:	24.3
Auto Club Lowest MPG:	18.9

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

Small Station Wagon

STRONG POINTS

- Economical with reasonable price, good mpg, and well equipped
- The box shape is "cute" and provides a roomy interior
- Has a better than average sound system with Sirius radio, but the flashing lights around the speakers can be distracting (or at least annoying)
- Excellent warranty

WEAK POINTS

- Choppy ride
- Underpowered
- Lacks rear seat center armrest
- Small trunk, but folding rear seats help

OVERALL OBSERVATIONS

Jelly beans or cubes? There were some pundits who predicted that all cars would eventually look the same (like jelly beans) due to aerodynamics, but if recent trends continue, they will be proven wrong. One of the more popular recent trends is cube-shaped cars. The Kia Soul is their entry into this field, and the car has a lot going for it. Like many Kia models, it comes surprisingly well equipped, with an equally surprising MSRP under \$19K. Add to that a 10yr/100K mile powertrain warranty and you have a good deal! Even though the 2.0-liter engine can use a little more power, and the ride is choppy, the youth-oriented styling allows a roomy interior, and you still get 26 mpg. This cube is sweet!

AFTERMARKET PARTS

Wheels, tires, headlight covers

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2980
Exterior Length (in):	161.6
Exterior Width (in):	70.3
Exterior Height (in):	65.4
Wheelbase (in):	100.4
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	60/60,000
Tire Manufacturer:	Hankook P225/45R18
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 4 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.0L DOHC 16V I4
Horsepower @ RPM:	142 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	4.91
Crashworthiness:	4.88
Visibility:	7.20
Slalom Handling:	7.19
Ride Quality:	6.21
Fuel Economy:	4.15
Interior Noise:	3.87
Acceleration:	4.20
Ease of Entry and Exit:	7.06
Interior Size:	6.07
Turning Circle:	6.31
Luggage Capacity:	2.55

Lexus CT 200h Hybrid

GREEN CAR SCORES

Score For This Vehicle	84.62
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$32,650
Price as Tested:	\$33,200
Cost per Point for this Vehicle	\$392
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	11.9
EPA Urban MPG:	43
EPA Highway MPG:	40
Auto Club Highest MPG:	44.2
Auto Club Average MPG:	38.5
Auto Club Lowest MPG:	20.7

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Compact 4-door Hatchback

STRONG POINTS

- Excellent fuel economy
- Extremely low emissions (SULEV)
- Sporty handling but still easy to drive
- ABS brakes
- Sporty styling but retains that "green" image

WEAK POINTS

- Lacks rear seat cupholders & center armrest
- Rear seat cramped & hard to get in or out
- Small trunk
- Sound system controls not well illuminated

OVERALL OBSERVATIONS

A few years ago you would have never even thought of a 42 mpg Lexus sporty compact. The CT 200h is billed as the "highest mpg luxury car" and it may well be. This is a car that can be many things, with a controller that lets you set the mode (EV, Eco, Normal, or Sport) that suits you and/or the driving conditions of the day. The styling is sporty, handling is nimble, and the brakes provide short and straight stops. Like many Lexus models the interior is quiet, but it is a compact, with the usual smallish rear seat and trunk. It is also interesting that a modern luxury car has no cupholders for the rear seat. Lexus/42mpg/ sport compact – if these terms spark your interest, check it out.

AFTERMARKET PARTS

Body kits

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3220
Exterior Length (in):	170.1
Exterior Width (in):	69.5
Exterior Height (in):	56.7
Wheelbase (in):	102.4
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	8 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Michelin P215/45R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	1.8L DOHC 16V I4
Horsepower @ RPM:	98 @ 5200
Electric Motor Horsepower:	80

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	7.95
Crashworthiness:	6.17
Visibility:	6.90
Slalom Handling:	8.53
Ride Quality:	6.83
Fuel Economy:	7.98
Interior Noise:	7.76
Acceleration:	5.38
Ease of Entry and Exit:	6.29
Interior Size:	3.35
Turning Circle:	6.85
Luggage Capacity:	1.64

Lexus GS 450h

GREEN CAR SCORES

Score For This Vehicle	83.35
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$57,225
Price as Tested:	\$67,775
Cost per Point for this Vehicle	\$813
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	17.2
EPA Urban MPG:	22
EPA Highway MPG:	25
Auto Club Highest MPG:	24.9
Auto Club Average MPG:	23.1
Auto Club Lowest MPG:	20.0

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- Powerful with excellent acceleration
- Adaptive cruise control
- SULEV emissions
- High fidelity sound system
- Loaded with advanced safety and convenience features
- Quiet interior

WEAK POINTS

- High purchase price (\$68K)
- Requires expensive premium fuel
- Small trunk and rear seat does not fold down

OVERALL OBSERVATIONS

The Lexus "GS series" is a family of rear-wheel drive luxury-sport sedans. Lexus takes advantage of hybrid powertrain characteristics (electric motors provide their peak torque at low speeds) to provide excellent performance while still improving fuel economy. The GS 450h we tested gets 15% better mpg than the comparable non-hybrid GS 460 with equivalent or even better performance. Our test car was loaded with safety & convenience features including auto leveling HID headlights, Bluetooth, voice activated navigation, auto up/down (with pinch control) power windows & a long list of others. The bottom line: the GS 450h is a wonderful luxury-sport sedan. If you have \$60K, then check it out!

AFTERMARKET PARTS

Body kits, wheels, low profile tires

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	4250
Exterior Length (in):	190.7
Exterior Width (in):	71.6
Exterior Height (in):	56.1
Wheelbase (in):	112.2
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	8 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Dunlop P245/40R18
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Rear Wheel
Engine Size:	3.5L 24V V6 Hybrid
Horsepower @ RPM:	292 @ 6400
Electric Motor Horsepower:	MG1 180; MG2 197

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	5.47
Crashworthiness:	7.40
Visibility:	8.00
Slalom Handling:	6.83
Ride Quality:	8.19
Fuel Economy:	1.36
Interior Noise:	8.46
Acceleration:	9.56
Ease of Entry and Exit:	7.36
Interior Size:	4.14
Turning Circle:	6.61
Luggage Capacity:	0.96

Lexus HS 250h

GREEN CAR SCORES

Score For This Vehicle	78.96
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$35,075
Price as Tested:	\$39,150
Cost per Point for this Vehicle	\$496
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	14.5
EPA Urban MPG:	35
EPA Highway MPG:	34
Auto Club Highest MPG:	32.4
Auto Club Average MPG:	29.1
Auto Club Lowest MPG:	26.2

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- SULEV emissions
- Excellent fuel economy
- Navigation system with "real-time" traffic information
- Sound system with XM satellite radio
- Easy to use power window controls

WEAK POINTS

- Rear seat cramped for taller occupants, with inadequate foot room for all
- Small trunk and the rear seats don't fold down
- Too many buttons and controls, and many must be accessed through the screen
- The brake pedal feels "touchy"

OVERALL OBSERVATIONS

The Toyota Prius is seen by many as the state of the art vehicle of today, but maybe it isn't. The Lexus HS 250h borrows much of the technology from the Prius (only with a larger & more powerful engine/electric motor) & adds the comfort & convenience of a Lexus. It uses a central navigation screen operated by a joystick & an "enter" button that closely emulates operating your PC. The HS 250h scores 5 stars in all NHTSA crash tests (4 on rollover) & is equipped with 10 air bags & many other advanced safety technologies. Like every other hybrid sedan we have tested, the rear seat does not fold down, but this is a practical car loaded with features that should get 35 mpg too.

AFTERMARKET PARTS

Chrome trim, Wood dash kits, Custom wheels

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3690
Exterior Length (in):	184.8
Exterior Width (in):	70.3
Exterior Height (in):	59.3
Wheelbase (in):	106.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	9 Air Bags or more
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Toyo P225/45R18
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	2.4L DOHC 16V VVT-i I4
Horsepower @ RPM:	187 @ 6000
Electric Motor Horsepower:	105 kW

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	6.35
Crashworthiness:	7.23
Visibility:	7.00
Slalom Handling:	6.49
Ride Quality:	7.13
Fuel Economy:	6.21
Interior Noise:	5.45
Acceleration:	7.12
Ease of Entry and Exit:	6.97
Interior Size:	3.33
Turning Circle:	5.45
Luggage Capacity:	1.24

Lexus LS 600h L Sedan

GREEN CAR SCORES

Score For This Vehicle	84.71
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$106,710
Price as Tested:	\$113,560
Cost per Point for this Vehicle	\$1,341
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	22.2
EPA Urban MPG:	20
EPA Highway MPG:	22
Auto Club Highest MPG:	22.2
Auto Club Average MPG:	20.9
Auto Club Lowest MPG:	17.9

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- Powerful & seamless hybrid powertrain
- Quiet and comfortable interior
- Advanced safety equipment (12 airbags)
- Adaptive cruise control
- 21 mpg and SULEV7 emissions

WEAK POINTS

- Small trunk and rear seat doesn't fold
- High purchase price (we can't all afford luxury!)
- Requires expensive premium fuel
- Long rear doors cause entry/exit problems in "compact parking spaces"

OVERALL OBSERVATIONS

Most of the time when you hear "hybrid" you think of a high mpg, low performing "green-mobile". Lexus however thinks "green-performance". Their flagship model line is the LS and they elected to place the hybrid model (LS600h L) at the top-of-the-line. This is a marvelous luxury/performance sedan that is powerful, quiet, comfortable and loaded with just about every convenience and safety feature you can imagine. All this and you still get a respectable 21 mpg while meeting strict SULEV7 emission standards. You don't get this cheap, but this is a car that can compete with comparable offerings from the elite manufacturers of the world, and still offer the environmental benefits of a hybrid!

AFTERMARKET PARTS

Chrome wheels, body kits, low-profile tires

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	5270
Exterior Length (in):	202.8
Exterior Width (in):	73.8
Exterior Height (in):	58.3
Wheelbase (in):	121.7
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	9 Air Bags or more
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Bridgestone P245/45R19
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	All Wheel - Full Time
Engine Size:	5.0L 32V DOHC Dual VVT-i
Horsepower @ RPM:	389 @ 6400
Electric Motor Horsepower:	MG2 221

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	3.61
Crashworthiness:	9.12
Visibility:	7.80
Slalom Handling:	6.89
Ride Quality:	8.33
Fuel Economy:	0.76
Interior Noise:	9.70
Acceleration:	9.65
Ease of Entry and Exit:	8.26
Interior Size:	6.52
Turning Circle:	3.91
Luggage Capacity:	1.16

Lexus RX 450h

GREEN CAR SCORES

Score For This Vehicle	84.40
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$42,535
Price as Tested:	\$47,375
Cost per Point for this Vehicle	\$561
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	17.2
EPA Urban MPG:	28
EPA Highway MPG:	27
Auto Club Highest MPG:	27.2
Auto Club Average MPG:	25.7
Auto Club Lowest MPG:	24.6

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

4-door SUV

STRONG POINTS

- Balance of good mpg with excellent power
- High fidelity sound system featuring XM
- Certified as an AT-PZEV
- SUV utility
- Equipped with many safety/convenience systems including rear view camera

WEAK POINTS

- Requires expensive premium fuel
- High purchase price (we can't all afford luxury!)
- Dives on hard braking

OVERALL OBSERVATIONS

The Lexus RX 450h was the first luxury hybrid SUV on the market. It offers excellent V8-like performance, but still provides fuel economy about 40% better than similar non-hybrid SUVs and meets PZEV emission standards to boot. It is loaded with the safety and convenience features you would expect from a modern luxury vehicle including Bluetooth, rear view camera, reclining rear seats, and front, side, side curtain, and driver's knee airbags. The "utility" of an SUV is maintained & the RX can even tow a 3500 pound trailer. The 2009 RX scored 5 stars on all NHTSA crash tests and we anticipate that the 2010 will too. If you want to be "Green" with performance, luxury, & utility then the RX 450h is for you!

AFTERMARKET PARTS

Wheels, audio systems

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	4610
Exterior Length (in):	187.8
Exterior Width (in):	74.2
Exterior Height (in):	66.3
Wheelbase (in):	107.9
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	8 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Michelin P235/60R18
Towing Cap. (lbs) W/WO Brakes:	3500
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	3.5L 24V V6 Hybrid
Horsepower @ RPM:	245 @ 6000
Electric Motor Horsepower:	MG2 167

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	4.92
Crashworthiness:	7.83
Visibility:	7.80
Slalom Handling:	5.39
Ride Quality:	7.79
Fuel Economy:	2.44
Interior Noise:	6.74
Acceleration:	8.23
Ease of Entry and Exit:	7.45
Interior Size:	5.44
Turning Circle:	5.06
Luggage Capacity:	6.31

Mazda 2 Touring

GREEN CAR SCORES

Score For This Vehicle	70.50
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$16,985
Price as Tested:	\$16,985
Cost per Point for this Vehicle	\$241
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	11.3
EPA Urban MPG:	27
EPA Highway MPG:	33
Auto Club Highest MPG:	34.5
Auto Club Average MPG:	31.2
Auto Club Lowest MPG:	29.0

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- Good MPG (29)
- Sporty handling and highly maneuverable
- Affordable purchase price
- Small exterior size makes it easy to park
- Good ergonomics

WEAK POINTS

- Rear headrests inhibit rearward visibility
- Cramped rear seat
- Lacks center armrests
- Small trunk (folding seats seat help)
- Rough ride on all but the smoothest roads
- Weak engine is buzzy during heavy accelerations

OVERALL OBSERVATIONS

Mazda calls their "2" model a sub-compact, EPA calls it a compact. Either way, it is a smaller car than the compact 3i reviewed on the next page. Our test car was the Mazda 2 Touring edition. It combines nimble handling, a tiny turning radius, & a thrifty 29 mpg EPA rating. The interior however, belies the sub-compact rating Mazda gives it. The rear seat is only suitable for small children, the interior includes a lot of cheap looking plastic, & there are no center armrests for the front or rear seats. The 100-hp engine & auto transmission mate up well under most conditions, but freeway passing maneuvers can be white-knuckle affairs. We should point out though, that the MSRP was under \$17K, & is quite a bargain at that price.

AFTERMARKET PARTS

Mp3 player, roof rack

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2340
Exterior Length (in):	156.1
Exterior Width (in):	66.7
Exterior Height (in):	58.1
Wheelbase (in):	98.0
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Yokohama 185/55R15
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 4 Speed
Drivetrain Type:	Front Wheel
Engine Size:	1.5L DOHC 16V VVT I4
Horsepower @ RPM:	100 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	6.00
Braking:	6.88
Crashworthiness:	4.12
Visibility:	7.00
Slalom Handling:	8.16
Ride Quality:	6.06
Fuel Economy:	4.91
Interior Noise:	4.21
Acceleration:	4.62
Ease of Entry and Exit:	6.15
Interior Size:	3.32
Turning Circle:	7.61
Luggage Capacity:	1.45

Mazda 3i

GREEN CAR SCORES

Score For This Vehicle	75.96
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$18,100
Price as Tested:	\$20,615
Cost per Point for this Vehicle	\$271
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	14.5
EPA Urban MPG:	25
EPA Highway MPG:	33
Auto Club Highest MPG:	32.1
Auto Club Average MPG:	30.8
Auto Club Lowest MPG:	29.8

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- Meets stringent PZEV emission standards
- Good MPG (28)
- Smooth ride (especially for a compact)
- Easy to use manual transmission shifter
- High-fidelity optional Bose sound system
- Huge glove box

WEAK POINTS

- Road noise
- Rear seat difficult to enter
- Limited rear seat legroom
- When using the remote to unlock, if a door is not opened within 30 seconds, the doors relock

OVERALL OBSERVATIONS

One of Mazda's strengths has been selling affordable fun-to-drive small cars "zoom-zoom". The 3i we tested, the "touring model" was equipped with a 144 horsepower 2-liter, 4-cylinder engine and 5-speed manual transmission and displayed good acceleration most of the time, but low RPM power was limited. The ride quality was good, especially for a compact car, and handling, while not quite up to sports car standards, was nimble. Our 3i was very well equipped for an MSRP under \$21K, featuring Bluetooth, Sirius radio, 6 airbags, ESC, ABS, and a steering column that both tilts and telescopes in and out to fit any driver. Maybe not quite "zoom-zoom" but certainly a worthy competitor in the compact class.

AFTERMARKET PARTS

Cold air intake, cat-back exhaust

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2900
Exterior Length (in):	180.9
Exterior Width (in):	69.1
Exterior Height (in):	57.9
Wheelbase (in):	103.9
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Bridgestone P205/55R16
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Manual 5 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.0L DOHC 16V VVT I4
Horsepower @ RPM:	144 @ 6500

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	6.76
Crashworthiness:	4.79
Visibility:	6.80
Slalom Handling:	6.97
Ride Quality:	7.00
Fuel Economy:	4.57
Interior Noise:	4.79
Acceleration:	7.11
Ease of Entry and Exit:	6.21
Interior Size:	3.86
Turning Circle:	6.92
Luggage Capacity:	1.18

Mazda 6i Sedan Grand Touring

GREEN CAR SCORES

Score For This Vehicle	74.64
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$25,580
Price as Tested:	\$29,440
Cost per Point for this Vehicle	\$394
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	18.5
EPA Urban MPG:	20
EPA Highway MPG:	29
Auto Club Highest MPG:	29.2
Auto Club Average MPG:	24.1
Auto Club Lowest MPG:	21.3

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- PZEV emissions available with auto trans only (test car man trans, certified as LEV)
- HID headlights illuminate well and are height adjustable
- Blind zone monitoring system
- Optional Bose audio system with Bluetooth and Sirius satellite radio

WEAK POINTS

- When using the remote to unlock, if a door isn't opened in 30 seconds, the doors relock
- Poor audio quality of other person on phone when using Bluetooth
- Front shoulder belt too low for tall drivers

OVERALL OBSERVATIONS

The mid-sized sedan has been the "bread and butter" of the American car market for ages. Mazda's entry into this market is simply called the "6". The "6" is attractively styled (some might even call it sporty) & our "I Grand Touring" version was well equipped. It comes standard with 6 airbags, ABS, ESC, adjustable HID headlights, blind-zone monitoring, power everything, & heated leather seats. The 2.5-liter, 4-cylinder engine provided decent acceleration & averages 23 mpg. Since our test car had a manual trans, PZEV emissions were not available, but if you get an automatic, the clean burn engine can be had. The Mazda "6", especially the automatic, merits a good look even in the crowded mid-sized market.

AFTERMARKET PARTS

Exhaust kits, body kits, wheels, tires

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3350
Exterior Length (in):	194.5
Exterior Width (in):	72.4
Exterior Height (in):	57.9
Wheelbase (in):	109.8
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Michelin P215/55R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Manual 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.5L DOHC 16V VVT I4
Horsepower @ RPM:	170 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	6.00
Braking:	7.43
Crashworthiness:	5.33
Visibility:	7.40
Slalom Handling:	6.78
Ride Quality:	7.31
Fuel Economy:	3.36
Interior Noise:	7.59
Acceleration:	6.36
Ease of Entry and Exit:	6.48
Interior Size:	3.17
Turning Circle:	5.38
Luggage Capacity:	2.05

Mazda MX-5 Retractable Hardtop

GREEN CAR SCORES

Score For This Vehicle	67.78
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$29,150
Price as Tested:	\$31,300
Cost per Point for this Vehicle	\$462
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	12.7
EPA Urban MPG:	21
EPA Highway MPG:	28
Auto Club Highest MPG:	31.8
Auto Club Average MPG:	28.3
Auto Club Lowest MPG:	24.6

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

2-Seat Convertible

STRONG POINTS

- Excellent handling
- Fun to drive
- Good fuel economy for a sporty car (but uses expensive premium fuel)
- ABS brakes provide short straight stops
- Retractable hardtop rather than cloth
- Styling

WEAK POINTS

- Noisy interior
- Small and virtually useless trunk
- Small and flimsy plastic sunvisors
- Interior cramped for tall or heavy occupants
- Hard ride

OVERALL OBSERVATIONS

Mazda (a Japanese automaker) produces the best British-type sport car in the US. The Mazda MX-5 (previously called the Miata) is their latest in a long line of 2-seat convertible sports cars. It is cute, red (at least ours was), handles well, stops on a dime, is fun-to-drive, and gets 24 mpg. It is also cramped, noisy, and stiff riding. Again, like a classic British sports car! This iteration on the theme has a neat retractable hardtop rather than a cloth top that should be longer lasting and require less maintenance. In these days of high gas prices, some fear the end of cars that are just plain fun. The MX-5 is proof that this is unfounded fear!

AFTERMARKET PARTS

Lowering kit, body kit

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2
Curb Weight (lbs):	2740
Exterior Length (in):	157.3
Exterior Width (in):	67.7
Exterior Height (in):	49.4
Wheelbase (in):	91.7
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	4 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Bridgestone 205/45R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Manual 6 Speed
Drivetrain Type:	Rear Wheel
Engine Size:	2.0L DOHC 16V I4
Horsepower @ RPM:	167 @ 7000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	9.20
Crashworthiness:	3.60
Visibility:	6.70
Slalom Handling:	8.96
Ride Quality:	6.17
Fuel Economy:	1.46
Interior Noise:	1.53
Acceleration:	8.25
Ease of Entry and Exit:	5.56
Interior Size:	1.20
Turning Circle:	8.16
Luggage Capacity:	0.00

Mercedes-Benz C350

GREEN CAR SCORES

Score For This Vehicle	79.92
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$40,865
Price as Tested:	\$46,740
Cost per Point for this Vehicle	\$585
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	17.4
EPA Urban MPG:	17
EPA Highway MPG:	25
Auto Club Highest MPG:	22.1
Auto Club Average MPG:	21.1
Auto Club Lowest MPG:	19.4

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- PZEV available
- Powerful engine
- ABS brakes provide short straight stops
- Nimble handling
- Equipped with multiple safety and convenience features

WEAK POINTS

- Comand system confusing and perhaps distracting to use
- \$47K purchase price
- Requires expensive premium fuel
- Sluggish shifting
- The turn indicator stalk is too low and you can easily activate the cruise control when trying to activate turn signals

OVERALL OBSERVATIONS

A sports sedan as a "green machine"? Mercedes-Benz has one for you, the C350. Our test car was very sporty, with a 0-60 mph acceleration time under 7 seconds, powerful brakes, and responsive handling (without sacrificing ride quality). Our test car was loaded, including 9 airbags, ESC, heated power seats, and the "Premium 2", "Advanced Agility", and "Multimedia" packages totaling an MSRP of \$47K. These options include the "Comand" navigation system which we found quite difficult to master. Fuel economy is only rated at 20 mpg, and since the C350 takes premium fuel, motoring around in it will be none to cheap. You do however, get a lot of car for the money!

AFTERMARKET PARTS

Coil-over covers, grille

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3620
Exterior Length (in):	182.3
Exterior Width (in):	79.2
Exterior Height (in):	57.0
Wheelbase (in):	108.7
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	9 Air Bags or more
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Continental P225/40R18
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 7 Speed
Drivetrain Type:	Rear Wheel
Engine Size:	3.5L V6
Horsepower @ RPM:	268 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	8.94
Crashworthiness:	7.15
Visibility:	7.20
Slalom Handling:	9.59
Ride Quality:	7.67
Fuel Economy:	0.51
Interior Noise:	5.55
Acceleration:	8.67
Ease of Entry and Exit:	6.18
Interior Size:	3.39
Turning Circle:	6.78
Luggage Capacity:	1.29

Mini Cooper Camden Hardtop

GREEN CAR SCORES

Score For This Vehicle	71.20
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$19,500
Price as Tested:	\$25,000
Cost per Point for this Vehicle	\$351
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	13.2
EPA Urban MPG:	28
EPA Highway MPG:	37
Auto Club Highest MPG:	34.1
Auto Club Average MPG:	30.6
Auto Club Lowest MPG:	23.0

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

Mini-Compact 2-door Coupe

STRONG POINTS

- Rated at 32 MPG but uses expensive premium fuel
- Nimble handling and powerful ABS brakes
- Fun to drive
- "Bi-Xenon" headlights provide excellent illumination
- Cute styling

WEAK POINTS

- Useless rear seat
- Small trunk
- Noisy interior
- Lacks center armrests

OVERALL OBSERVATIONS

An "econobox" that is not an "econobox"? That is the Mini Cooper from BMW. Based on the enduring British mini sports car, the Mini is tiny but cute and immensely fun-to-drive. The "econobox" part is the stingy 32 mpg EPA rating. Handling and brakes are fantastic, and acceleration, while not a "sink you in the seat" beast, is still "zippy". However, this is a really small car and even though it has 4 seats, the rear seats are for show only. Even children are too cramped back there. The trunk is also very small, so do your grocery shopping a little at a time. Want good mpg and fun-to-drive too? The Mini is worth a good look.

AFTERMARKET PARTS

Custom mesh grille, cold air intake

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/2
Curb Weight (lbs):	2430
Exterior Length (in):	145.6
Exterior Width (in):	66.3
Exterior Height (in):	55.4
Wheelbase (in):	97.1
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	48/50,000
Tire Manufacturer:	Continental 205/45R17
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Manual 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	1.6L DOHC 16V I4
Horsepower @ RPM:	118 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	10.00
Crashworthiness:	4.23
Visibility:	6.60
Slalom Handling:	9.65
Ride Quality:	6.58
Fuel Economy:	3.42
Interior Noise:	1.85
Acceleration:	6.41
Ease of Entry and Exit:	5.60
Interior Size:	3.40
Turning Circle:	6.38
Luggage Capacity:	0.07

Mitsubishi i

GREEN CAR SCORES

Score For This Vehicle	77.75
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	N/A
Price as Tested:	N/A
Cost per Point for this Vehicle	N/A
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Electricity
Battery Capacity (KWH):	16.0
Equivalent EPA Urban MPG:	N/A
Equivalent EPA Highway MPG:	N/A
Charger Input (VAC) :	110
Charger Charge Time (Hours) :	22.5
Charger #2 Input (VAC) :	220
Charger #2 Charge Time (Hours) :	6.5

MODEL YEAR TESTED - 2012



REASON THIS VEHICLE WAS TESTED

Electric

DESCRIPTION/COMMENTS

Mini-Compact 4-door Hatchback

STRONG POINTS

- Useable acceleration
- Good head room
- Zero emissions
- Rear windows open fully
- Rear seat backs fold flat
- Low cost of "fuel"
- Brakes

WEAK POINTS

- Follows rain grooves on freeway
- Cramped interior
- Limited range between recharges & long recharge time
- Lacks center armrests & outer armrests too hard
- Bouncy ride

OVERALL OBSERVATIONS

President Obama has an aggressive goal of 1 million EVs on the roads by 2015. Mitsubishi wants to be part of that growth. They provided us a "European-spec" i electric vehicle. The 2012 US version of the i will be wider, with as much as 4" more interior width. It will also have longer external dimensions, due to the bumpers needed to meet US safety standards. Even though the i (like many EVs) has low acceleration scores, the electric drivetrain provides adequate acceleration for most conditions experienced on the road, especially in congestion. EPA equivalent mpg ratings are not available yet, but we believe that they will be very good. Prices will start at \$28K – the lowest priced mainstream EV available.

AFTERMARKET PARTS

N/A

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/2
Curb Weight (lbs):	2583
Exterior Length (in):	145.0
Exterior Width (in):	63.0
Exterior Height (in):	64.0
Wheelbase (in):	100.4
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Dunlop 175/55R15
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 1 Speed
Drivetrain Type:	Rear Wheel
Engine Size:	49kW Electric Motor
Horsepower @ RPM:	N/A
Electric Motor Horsepower:	66

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	10.00
Braking:	8.51
Crashworthiness:	4.41
Visibility:	6.60
Slalom Handling:	4.43
Ride Quality:	5.13
Fuel Economy:	10.00
Interior Noise:	5.53
Acceleration:	2.70
Ease of Entry and Exit:	5.88
Interior Size:	3.54
Turning Circle:	9.62
Luggage Capacity:	1.40

Mitsubishi Lancer GTS

GREEN CAR SCORES

Score For This Vehicle	75.57
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$19,260
Price as Tested:	\$23,810
Cost per Point for this Vehicle	\$315
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	15.3
EPA Urban MPG:	21
EPA Highway MPG:	28
Auto Club Highest MPG:	24.2
Auto Club Average MPG:	23.4
Auto Club Lowest MPG:	22.0

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- Sporty and fun to drive
- Responsive handling, steering, and engine
- Excellent (optional) sound system with Sirius
- Optional HID headlights provide good forward illumination
- PZEV emissions available (test car LEV)

WEAK POINTS

- The main audio controls are on the screen. We prefer knobs you can feel so your eyes can stay on the road.
- Uncomfortable rear seat
- Entry and exit of rear seat
- Rearward visibility obstructed by the spoiler

OVERALL OBSERVATIONS

The Mitsubishi Lancer GTS we tested comes with a 2.4-liter engine & is certified as a LEV. We were trying to test a Lancer with a 2.0-liter engine that is certified as a PZEV, but a suitable test car was not available. Our Lancer GTS was very sporty & fun to drive due to its 168 hp engine, but it is unclear if the 143 hp PZEV would have the same character. On the plus side, the PZEV gets 2 mpg better fuel economy (25 vs. 23). Otherwise, the cars should be the same. The Lancer is a compact, & you can tell due to the cramped, uncomfortable, & hard to enter rear seat. We enjoyed the optional "Sun & Sound, Navigation, & Touring" packages. All this was under \$24K & you get a 10 year/100K mile powertrain warranty too!

AFTERMARKET PARTS

Chin spoiler, graphics, exhaust kits

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3070
Exterior Length (in):	180.0
Exterior Width (in):	69.4
Exterior Height (in):	58.7
Wheelbase (in):	103.7
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	7 Air Bags
Warranty (Months/Miles):	60/60,000
Tire Manufacturer:	Dunlop P215/45R18
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Manual 5 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.4L DOHC I4 MIVEC
Horsepower @ RPM:	168 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	6.00
Braking:	6.51
Crashworthiness:	5.49
Visibility:	7.10
Slalom Handling:	8.74
Ride Quality:	7.38
Fuel Economy:	3.46
Interior Noise:	4.90
Acceleration:	7.14
Ease of Entry and Exit:	6.31
Interior Size:	4.13
Turning Circle:	7.13
Luggage Capacity:	1.27

Nissan Altima 2.5 SL

GREEN CAR SCORES

Score For This Vehicle	73.07
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$22,235
Price as Tested:	\$27,260
Cost per Point for this Vehicle	\$373
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	20.0
EPA Urban MPG:	23
EPA Highway MPG:	31
Auto Club Highest MPG:	26.1
Auto Club Average MPG:	24.9
Auto Club Lowest MPG:	23.0

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- PZEV emissions available (test car LEV)
- Optional Bose audio system with Bluetooth and XM satellite radio
- 4 cylinder engine was responsive & powerful
- Roomy front seats
- Smooth & comfortable ride on the freeway

WEAK POINTS

- Rear seatback releases hard to reach
- Parking brake (push on – push off)
- Steering too light with vague feel

OVERALL OBSERVATIONS

The Nissan Altima is a “nice” mid-sized sedan. It does not have any really outstanding aspects to its driving character, but it also does not have any glaring weaknesses, rather it does pretty well at everything it should. The 2.5-liter, 4-cylinder engine provides surprisingly good acceleration & is available as a PZEV (our test car was a LEV). The fuel economy (26 mpg) is reasonable, & it scores 5 stars on all NHTSA crash tests. Like most of our test vehicles, our Altima was loaded. We especially liked the connection package which included a Bose CD changer with 9 speakers & Bluetooth phone connectivity (we don't recommend talking on the phone while driving, even hands-free).

AFTERMARKET PARTS

Audio systems, wheels, tires

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3250
Exterior Length (in):	189.8
Exterior Width (in):	70.7
Exterior Height (in):	57.9
Wheelbase (in):	109.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Continental P215/60R16
Towing Cap. (lbs) W/WO Brakes:	1000/1000
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	2.5L DOHC 16V I4
Horsepower @ RPM:	175 @ 5600

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	6.00
Braking:	4.47
Crashworthiness:	5.21
Visibility:	7.10
Slalom Handling:	6.72
Ride Quality:	7.25
Fuel Economy:	4.06
Interior Noise:	5.75
Acceleration:	7.21
Ease of Entry and Exit:	7.34
Interior Size:	4.72
Turning Circle:	5.43
Luggage Capacity:	1.82

Nissan Altima Hybrid

GREEN CAR SCORES

Score For This Vehicle	78.95
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$27,345
Price as Tested:	\$34,705
Cost per Point for this Vehicle	\$440
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	20.0
EPA Urban MPG:	35
EPA Highway MPG:	33
Auto Club Highest MPG:	33.1
Auto Club Average MPG:	28.9
Auto Club Lowest MPG:	21.4

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- Certified to AT-PZEV emissions standards
- Excellent MPG (34)
- Loaded test car had excellent sound system with XM
- Powerful
- Easy to use rear view camera

WEAK POINTS

- Small trunk and rear seat does not fold down
- Blending of electric motor/gas engine not smooth
- Vague steering feel and there is some jerky torque steer

OVERALL OBSERVATIONS

Toyota, Honda, & Ford seem to be getting most of the ink about their hybrids, but Nissan is in the game too. Their Altima Hybrid is a quality entry, & it scored 3 points higher than the Toyota Camry Hybrid in this comparison. Both have similar mileage (34 mpg) but the Altima has lower overall emissions & better acceleration than Camry! One thing they have in common (& it appears that the hybrid sedan conversions all have) is a small trunk & rear seat backs that don't fold down or only do so in a limited fashion. This is the price we pay for locating batteries & controllers into cars not originally designed for them. In our "loaded" test car, this pales in significance when you consider all of the creature comforts the Altima offers!

AFTERMARKET PARTS

Wheels, intake kits, chin spoiler

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3350
Exterior Length (in):	189.8
Exterior Width (in):	70.7
Exterior Height (in):	57.9
Wheelbase (in):	109.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Continental P215/60R16
Towing Cap. (lbs) W/WO Brakes:	1000/1000
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	2.6L DOHC 16V I4
Horsepower @ RPM:	158 @ 5200
Electric Motor Horsepower:	40 @ 0-1500

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	6.11
Crashworthiness:	5.33
Visibility:	7.20
Slalom Handling:	6.29
Ride Quality:	7.17
Fuel Economy:	6.09
Interior Noise:	6.50
Acceleration:	8.18
Ease of Entry and Exit:	7.26
Interior Size:	4.45
Turning Circle:	4.51
Luggage Capacity:	0.87

Nissan Leaf SL

GREEN CAR SCORES

Score For This Vehicle	84.12
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$34,540
Price as Tested:	\$35,695
Cost per Point for this Vehicle	\$424
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Electricity
Battery Capacity (KWH):	24.0
Equivalent EPA Urban MPG:	106
Equivalent EPA Highway MPG:	92
Charger Input (VAC) :	110
Charger Charge Time (Hours) :	21
Charger #2 Input (VAC) :	220
Charger #2 Charge Time (Hours) :	7

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Electric

DESCRIPTION/COMMENTS

Mid-Sized 4-door Hatchback

STRONG POINTS

- Energy efficiency (100 mpg equivalent)
- Zero emissions
- Quiet
- Front headroom
- Well equipped with Bluetooth, navigation, and XM radio

WEAK POINTS

- Limited range can cause "range anxiety" until you get accustomed
- Long recharge time (especially @ 110 volts)
- Small trunk
- High purchase price (especially when tax credits expire)
- Lacks rear center armrest

OVERALL OBSERVATIONS

The Nissan Leaf represents "Take one – Version two" of electric vehicles. It is the first modern EV to be available for sale from an established OEM. How well does it work? Surprisingly well. When you drive the Leaf, it seems like you are in a well-equipped, strangely quiet, conventional car. You step on the accelerator & it goes (with reasonably good power), you turn the steering wheel & it turns, & when you step on the brake it stops, etc. But you are getting the equivalent of 100 mpg & producing no emissions (from the vehicle). The downside is the usual for an EV. Range anxiety: "will I make it there & if so, can I get back?" If we plan our trips & usage, range anxiety fades & the Leaf becomes just "our around town" car.

AFTERMARKET PARTS

Body panel kit

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3462
Exterior Length (in):	175.0
Exterior Width (in):	69.7
Exterior Height (in):	61.0
Wheelbase (in):	106.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Bridgestone P205/55R16
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 1 Speed
Drivetrain Type:	Front Wheel
Engine Size:	80 kW AC Motor
Horsepower @ RPM:	107

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	10.00
Braking:	5.76
Crashworthiness:	5.46
Visibility:	7.00
Slalom Handling:	5.51
Ride Quality:	6.83
Fuel Economy:	10.00
Interior Noise:	7.80
Acceleration:	5.98
Ease of Entry and Exit:	7.16
Interior Size:	4.62
Turning Circle:	6.34
Luggage Capacity:	1.67

Nissan Sentra 2.0 SL

GREEN CAR SCORES

Score For This Vehicle	74.27
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$19,600
Price as Tested:	\$21,390
Cost per Point for this Vehicle	\$288
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	14.5
EPA Urban MPG:	27
EPA Highway MPG:	34
Auto Club Highest MPG:	38.5
Auto Club Average MPG:	27.5
Auto Club Lowest MPG:	19.7

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- PZEV available
- Well equipped for the price
- Handling
- High-fidelity Rockford Fosgate sound system with XM radio

WEAK POINTS

- Underpowered
- Body roll
- Bumpy ride on rough roads
- Uncomfortable seats
- Difficult rear seat entry/exit and limited rear headroom for taller passengers

OVERALL OBSERVATIONS

The 2000 Nissan Sentra CA was the first car to meet California's new (at the time) PZEV emission standards and we marveled at the successful use of technology for clean air. Today, PZEVs are common and Nissan has a new and improved Sentra (still a PZEV). Our 2.0 SL test car was very well equipped (Bluetooth, "smart key", navigation, XM radio, rear-view camera, and a power moonroof), all for \$21K. The interior is attractive, but unfortunately is not too comfortable (although much better than the older model). The engine could use more horsepower, but handling is good, and our CVT equipped test car is rated at 30 mpg.

AFTERMARKET PARTS

Body kits, rear spoiler

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3040
Exterior Length (in):	179.6
Exterior Width (in):	70.5
Exterior Height (in):	59.7
Wheelbase (in):	105.7
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Bridgestone P205/55R16
Towing Cap. (lbs) W/WO Brakes:	1000/1000
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	2.0L DOHC I4
Horsepower @ RPM:	140 @ 5100

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	6.00
Braking:	6.90
Crashworthiness:	4.96
Visibility:	6.70
Slalom Handling:	8.38
Ride Quality:	6.63
Fuel Economy:	5.00
Interior Noise:	5.08
Acceleration:	6.20
Ease of Entry and Exit:	6.76
Interior Size:	4.12
Turning Circle:	6.13
Luggage Capacity:	1.42

Scion xD

GREEN CAR SCORES

Score For This Vehicle	68.63
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$15,765
Price as Tested:	\$15,765
Cost per Point for this Vehicle	\$230
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	11.1
EPA Urban MPG:	27
EPA Highway MPG:	33
Auto Club Highest MPG:	34.7
Auto Club Average MPG:	31.3
Auto Club Lowest MPG:	25.9

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

Subcompact 4-door Hatchback

STRONG POINTS

- Good MPG
- Affordable purchase price
- Easy to drive
- Adjustable (fore/aft and recline) rear seat

WEAK POINTS

- Cramped interior (especially the rear seat)
- Lacks center armrests front and rear
- Lacks compete instrumentation
- Front seats adjustable for fore/aft and recline only
- Rear headrests impede visibility to the rear
- Difficult entry/exit to the rear seat
- Road noise, can't hear radio on freeway

OVERALL OBSERVATIONS

Is it a mini CUV, a compact wagon, a 4-door hatchback, or just a miniature box? The Scion xD defies categorization. EPA calls it a subcompact car so we will call it one too. It is a stylish box, & gets an EPA rated 29 mpg. Our testers got an excellent average of over 31 mpg, including a day of aggressive testing at the Auto Club Speedway, (which generally hurts mpg). MSRP is under \$16K & the xD is well equipped for that price. But it is a subcompact car & has the cramped interior & small trunk that goes with that category. Scion's reputation for quality appears to have not been hurt by parent company Toyota's recall issues, so if an affordable high mpg "box" is what you want, then check out the xD.

AFTERMARKET PARTS

Rear camber kit, custom gauges

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2620
Exterior Length (in):	154.7
Exterior Width (in):	67.9
Exterior Height (in):	60.0
Wheelbase (in):	96.9
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Dunlop P195/60R16
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Manual 5 Speed
Drivetrain Type:	Front Wheel
Engine Size:	1.8L DOHC 16V I4
Horsepower @ RPM:	128 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	6.39
Crashworthiness:	4.45
Visibility:	6.70
Slalom Handling:	7.10
Ride Quality:	6.21
Fuel Economy:	4.91
Interior Noise:	3.30
Acceleration:	6.84
Ease of Entry and Exit:	6.08
Interior Size:	3.20
Turning Circle:	5.51
Luggage Capacity:	0.95

smart fortwo passion EV

GREEN CAR SCORES

Score For This Vehicle	72.50
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$45,587
Price as Tested:	\$45,952
Cost per Point for this Vehicle	\$634
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Electricity
Battery Capacity (KWH):	16.5
Equivalent EPA Urban MPG:	94
Equivalent EPA Highway MPG:	79
Charger Input (VAC) :	110
Charger Charge Time (Hours) :	12
Charger #2 Input (VAC) :	220
Charger #2 Charge Time (Hours) :	8

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Electric

DESCRIPTION/COMMENTS

Mini-Compact 2-Seat Coupe

STRONG POINTS

- Zero emissions from the vehicle
- Small turning radius
- Low operating costs (fuel vs. electricity)
- Makes people look, conversation starter
- Easy to park
- Surprising head and leg room

WEAK POINTS

- Underpowered and limited to 65 mph
- Battery range and associated "range anxiety"
- Long 110 volt recharge time
- Ride
- High purchase price (\$46K)
- Tracks rain grooves on road and sensitive to side winds

OVERALL OBSERVATIONS

For 2011, smart is rolling out a lease program of 250 fortwo electric vehicles in the US. The Automobile Club of Southern California has leased 20 of them for evaluation and the ARC has one, a "passion coupe". We had some trepidation, since our experience with the gas version of the fortwo was somewhat negative. However, it seems that the fortwo platform was meant to be an EV. It scores quite a bit higher than the gas version, and despite the lack of power and range anxiety (for drivers with long commutes), the electric drivetrain was much smoother in operation, the cost of electricity makes operation more affordable, and you can't drive much more "green" than an electric smart!

AFTERMARKET PARTS

Custom upholstery

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2
Curb Weight (lbs):	1860
Exterior Length (in):	106.1
Exterior Width (in):	69.0
Exterior Height (in):	61.6
Wheelbase (in):	73.5
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	8 Air Bags
Warranty (Months/Miles):	48/40,000
Tire Manufacturer:	Kumho 175/55R15
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 1 Speed
Drivetrain Type:	Rear Wheel
Engine Size:	20kW Constant/30kW Peak
Horsepower @ RPM:	N/A
Electric Motor Horsepower:	N/A

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	10.00
Braking:	5.37
Crashworthiness:	4.55
Visibility:	6.60
Slalom Handling:	6.20
Ride Quality:	5.67
Fuel Economy:	10.00
Interior Noise:	4.73
Acceleration:	0.00
Ease of Entry and Exit:	6.56
Interior Size:	2.38
Turning Circle:	10.00
Luggage Capacity:	0.45

smart passion coupe

GREEN CAR SCORES

Score For This Vehicle	59.90
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$14,235
Price as Tested:	\$15,205
Cost per Point for this Vehicle	\$254
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	8.7
EPA Urban MPG:	33
EPA Highway MPG:	41
Auto Club Highest MPG:	36.5
Auto Club Average MPG:	34.8
Auto Club Lowest MPG:	32.2

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

Mini-Compact 2-Seat Coupe

STRONG POINTS

- Economical purchase price
- Good MPG, but requires expensive premium fuel
- Small turning circle
- Cute and noticeable styling

WEAK POINTS

- Bouncy ride with interior rattles
- "See-saw" like shifting of automated manual trans
- Hard to keep in lane at freeway speeds
- Noisy
- Underpowered
- Small trunk
- Feels unsafe due to small size

OVERALL OBSERVATIONS

The smart has been popular in Europe (they are used to small cars & mpg is a major factor), but Daimler-Benz was hesitant to bring the smart to the US (the home of giant SUVs). \$4 gas in 2008 cemented the deal & the smart is here! The unusual styling & tiny size make every smart noticed. A small car should get good mpg & the smart does so, averaging 36 mpg. Our tester was only \$15k so small car=small price. Driving the smart though is another story. Underpowered, with a bouncy, noisy ride, the smart wanders at freeway speeds, requiring maximum driver attention to stay in the lane. The bottom line, if you want a small economical "city-car" then the smart works, but otherwise it may not be best.

AFTERMARKET PARTS

Wheels, dash kits

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2
Curb Weight (lbs):	1820
Exterior Length (in):	106.1
Exterior Width (in):	69.0
Exterior Height (in):	60.7
Wheelbase (in):	73.5
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	4 Air Bags
Warranty (Months/Miles):	24/24,000
Tire Manufacturer:	Continental 175/55R15
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	Auto 5 Speed
Drivetrain Type:	Rear Wheel
Engine Size:	1.0L I3
Horsepower @ RPM:	70 @ 5800

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	5.79
Crashworthiness:	2.50
Visibility:	6.60
Slalom Handling:	6.88
Ride Quality:	4.96
Fuel Economy:	4.62
Interior Noise:	2.52
Acceleration:	0.00
Ease of Entry and Exit:	6.80
Interior Size:	1.85
Turning Circle:	9.93
Luggage Capacity:	0.45

Subaru Forester 2.5X Premium

GREEN CAR SCORES

Score For This Vehicle	81.45
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$25,220
Price as Tested:	\$26,315
Cost per Point for this Vehicle	\$323
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	16.9
EPA Urban MPG:	21
EPA Highway MPG:	27
Auto Club Highest MPG:	25.1
Auto Club Average MPG:	22.8
Auto Club Lowest MPG:	21.5

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

4-door SUV

STRONG POINTS

- Meets stringent PZEV emission standards
- Roomy and flexible interior
- Easy to see out of
- AWD traction

WEAK POINTS

- Small, awkward and non-intuitive radio controls
- Noisy under hard acceleration and at startup
- Automatic transmission only has 4 speeds
- Small navigation screen

OVERALL OBSERVATIONS

This guide contains data on vehicles that cost over \$100K, but one that costs only \$26K comes out near the top. How about the Subaru Forester? This compact SUV does about everything well, combining clean PZEV emissions with a respectable 23 mpg (for an AWD SUV), along with ABS brakes, a flexible interior that can carry a surprising amount of cargo, and excellent sight lines. It even scores 4 stars on NHTSA's new more stringent overall rating. On the down side, this is a \$26K vehicle and the interior materials and controls (especially the optional Tom-Tom navigation unit) show it. If you are in the market for a small AWD SUV, the Forester should be on the top of your list to consider.

AFTERMARKET PARTS

Roof rack

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3540
Exterior Length (in):	179.5
Exterior Width (in):	70.1
Exterior Height (in):	66.9
Wheelbase (in):	103.0
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Yokohama P225/55R17
Towing Cap. (lbs) W/WO Brakes:	2400/1000
Transmission Type:	Auto 4 Speed
Drivetrain Type:	All Wheel - Full Time
Engine Size:	2.5L DOHC HO4
Horsepower @ RPM:	170 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	6.89
Crashworthiness:	5.55
Visibility:	7.30
Slalom Handling:	6.30
Ride Quality:	6.75
Fuel Economy:	3.38
Interior Noise:	5.79
Acceleration:	5.73
Ease of Entry and Exit:	7.26
Interior Size:	5.51
Turning Circle:	6.77
Luggage Capacity:	5.22

Subaru Legacy 2.5i Limited PZEV

GREEN CAR SCORES

Score For This Vehicle	78.40
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$26,320
Price as Tested:	\$29,380
Cost per Point for this Vehicle	\$375
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	18.5
EPA Urban MPG:	23
EPA Highway MPG:	31
Auto Club Highest MPG:	27.3
Auto Club Average MPG:	25.3
Auto Club Lowest MPG:	22.0

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- Meets stringent PZEV emission standards
- All-wheel-drive traction
- Well equipped with navigation, Bluetooth, rear-view camera, and Sirius radio
- Well laid out and useful interior

WEAK POINTS

- Non-intuitive radio controls
- Unusual exhaust note "like a jet winding up for takeoff"
- Screen hard to see in bright light
- Poor fit of plastic trim inside and out

OVERALL OBSERVATIONS

Toyota (Camry) and Honda (Accord) have been doing battle for the title of best selling midsize sedan for years. It is doubtful Subaru's entry in this category, the Legacy, will steal the title anytime soon, but in snowy states, the Legacy has made inroads into the competition's dominance. The Legacy is a nice 4-door sedan with superior traction due to "Symmetrical AWD with Vehicle Dynamics Control". Add to that 5-star crash test ratings, PZEV emissions, 26 mpg, good handling and braking, and a reasonable price (our loaded "Limited" edition had an MSRP under \$30K) and you have a winner.

AFTERMARKET PARTS

Body kits, exhaust

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3460
Exterior Length (in):	186.4
Exterior Width (in):	71.7
Exterior Height (in):	59.3
Wheelbase (in):	108.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Bridgestone P215/50R17
Towing Cap. (lbs) W/WO Brakes:	2700/1000
Transmission Type:	CVT
Drivetrain Type:	All Wheel - Full Time
Engine Size:	2.5L HO4
Horsepower @ RPM:	170 @ 5600

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	7.68
Crashworthiness:	5.46
Visibility:	6.90
Slalom Handling:	7.96
Ride Quality:	7.08
Fuel Economy:	4.06
Interior Noise:	5.02
Acceleration:	5.40
Ease of Entry and Exit:	7.37
Interior Size:	5.51
Turning Circle:	5.27
Luggage Capacity:	1.71

Subaru Outback 2.5i Limited PZEV

GREEN CAR SCORES

Score For This Vehicle	80.13
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$28,495
Price as Tested:	\$33,035
Cost per Point for this Vehicle	\$412
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	18.5
EPA Urban MPG:	22
EPA Highway MPG:	29
Auto Club Highest MPG:	29.4
Auto Club Average MPG:	24.5
Auto Club Lowest MPG:	14.8

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

4-door AWD SUV

STRONG POINTS

- Roomy and flexible interior
- Meets PZEV emission standards
- AWD Traction
- Well equipped
- Rear seats fold flat and are easy to fold

WEAK POINTS

- On-screen radio/navigation controls confusing
- Underpowered
- Engine noisy when accelerating

OVERALL OBSERVATIONS

Is it a station wagon, or an SUV? Subaru used to call the Outback the "Legacy Outback", since it was a wagon version of the Legacy sedan, but the Legacy name has disappeared from Outback, and EPA & NHTSA both call it an SUV. Either way, the Outback is popular in snowy climates, especially due to the traction provided by "Symmetrical AWD and Vehicle Dynamics Control". Add to that the standard (on "Limited" trim level) heated front seats and mirrors, leather upholstery, and even windshield wiper deicers, and you can tell why. Now, the Outback can even be ordered as a clean PZEV, so you can have all this ruggedness without guilt!

AFTERMARKET PARTS

Cargo net, floor mats

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3620
Exterior Length (in):	188.2
Exterior Width (in):	71.7
Exterior Height (in):	65.7
Wheelbase (in):	107.9
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Continental P225/60R17
Towing Cap. (lbs) W/WO Brakes:	2700/1000
Transmission Type:	CVT
Drivetrain Type:	All Wheel - Full Time
Engine Size:	2.5L SOHC HO4
Horsepower @ RPM:	170 @ 5600

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	6.87
Crashworthiness:	5.65
Visibility:	7.00
Slalom Handling:	6.16
Ride Quality:	7.00
Fuel Economy:	3.72
Interior Noise:	4.86
Acceleration:	5.31
Ease of Entry and Exit:	6.99
Interior Size:	6.35
Turning Circle:	6.01
Luggage Capacity:	5.22

Toyota Camry Hybrid

GREEN CAR SCORES

Score For This Vehicle	75.98
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$26,010
Price as Tested:	\$26,568
Cost per Point for this Vehicle	\$350
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	17.2
EPA Urban MPG:	33
EPA Highway MPG:	34
Auto Club Highest MPG:	31.1
Auto Club Average MPG:	30.8
Auto Club Lowest MPG:	29.8

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- Excellent MPG
- Certified as a SULEV
- Tilt/telescopic steering wheel can be positioned for virtually all drivers
- The most popular sedan in the US goes green!
- Good acceleration for an "economy car"

WEAK POINTS

- Rear seats fold down, but there is only a "pass-through" opening
- Small trunk
- Auto engine startup can startle driver
- Integration of regenerative braking can make stopping somewhat jerky

OVERALL OBSERVATIONS

Some people drive hybrids to make a statement (Prius and Insight owners), others to save fuel and to be environmentally responsible. Camry hybrid drivers tend to be in the second group. The Camry Hybrid looks like any other Camry with the exception of badging, but it gets 36% better mpg (34 vs. 25). With an MSRP of \$26.5K, fuel savings (based on 15,000 mi/yr and \$3/gal) covers the \$3500 extra cost of the hybrid in about 7 years, quite a bit better than some other hybrids. And of course, better mpg means proportionally lowered CO2 emissions. So you can have a traditionally reliable Camry, save money on fuel, and help the planet all at the same time.

AFTERMARKET PARTS

Body kits

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3590
Exterior Length (in):	189.2
Exterior Width (in):	71.7
Exterior Height (in):	57.9
Wheelbase (in):	109.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	9 Air Bags or more
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Michelin P215/60R16
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	2.4L 16V VVTi I4
Horsepower @ RPM:	147 @ 6000
Electric Motor Horsepower:	105 KW @ 4500

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	8.00
Braking:	2.96
Crashworthiness:	7.11
Visibility:	7.10
Slalom Handling:	6.11
Ride Quality:	7.00
Fuel Economy:	5.93
Interior Noise:	5.61
Acceleration:	7.28
Ease of Entry and Exit:	7.11
Interior Size:	4.99
Turning Circle:	5.83
Luggage Capacity:	0.96

Toyota Camry LE

GREEN CAR SCORES

Score For This Vehicle	76.45
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$22,985
Price as Tested:	\$24,149
Cost per Point for this Vehicle	\$316
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	18.5
EPA Urban MPG:	22
EPA Highway MPG:	32
Auto Club Highest MPG:	29.9
Auto Club Average MPG:	26.5
Auto Club Lowest MPG:	21.6

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- PZEV available
- Automatic power window controls for all windows and rears open 100%
- Value
- Comfortable ride
- Surprising performance for a 4-cyl. midsize

WEAK POINTS

- Lacks complete instrumentation
- Push on/push off parking brake
- Bland styling
- Dim interior lighting
- Rear seat cramped for tall passengers

OVERALL OBSERVATIONS

How do you improve the best selling car in the US in today's environmentally-conscious times? By reducing emissions to PZEV, which is as clean as generating the electricity to charge an electric car. Nothing suffers and you still have a Camry. The value, comfort, performance, and reputation for reliability remain, only you can rest assured that you are doing your part to eliminate smog. Our test car was a Camry LE (one level above base) equipped with the optional sound system with Bluetooth, upgraded tires and wheels, and a security system. Still the MSRP was only \$24K and mpg averages 26 so this popular car will be gentle on your pocketbook!

AFTERMARKET PARTS

Body side moldings, rear spoiler

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3300
Exterior Length (in):	189.2
Exterior Width (in):	71.7
Exterior Height (in):	57.9
Wheelbase (in):	109.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	7 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Michelin P215/60R16
Towing Cap. (lbs) W/WO Brakes:	1000/1000
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.5L DOHC 16V I4
Horsepower @ RPM:	169 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	6.89
Crashworthiness:	5.77
Visibility:	6.80
Slalom Handling:	5.95
Ride Quality:	7.04
Fuel Economy:	3.95
Interior Noise:	5.90
Acceleration:	7.17
Ease of Entry and Exit:	6.92
Interior Size:	5.62
Turning Circle:	5.68
Luggage Capacity:	1.76

Toyota Corolla S

GREEN CAR SCORES

Score For This Vehicle	70.72
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$16,320
Price as Tested:	\$19,683
Cost per Point for this Vehicle	\$278
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	13.2
EPA Urban MPG:	26
EPA Highway MPG:	35
Auto Club Highest MPG:	32.8
Auto Club Average MPG:	30.6
Auto Club Lowest MPG:	28.3

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

Non-Hybrid High MPG

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- Fuel economy
- Sound system includes XM
- Well equipped for a compact car inc. Bluetooth and tilt/telescopic steering wheel
- Nimble handling

WEAK POINTS

- Small sunvisors
- Could use more power
- No rear center armrest
- Tends to wander in the lane
- Drivetrain whine

OVERALL OBSERVATIONS

The Corolla has been a stalwart for Toyota for many years. It is often seen as the standard for quality in a compact car. The 2009 model we tested generally lives up to this reputation. It gets excellent mileage (we averaged over 30 mpg, including a day of testing at the Auto Club Speedway), and the test car's optional equipment makes it seem more like a luxury car than a high-mpg compact. Taken with Toyota's reputation for reliability, the Corolla seems a wise choice if you are in the market for a compact car.

AFTERMARKET PARTS

Seat covers, dash kits

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	2820
Exterior Length (in):	178.7
Exterior Width (in):	69.3
Exterior Height (in):	57.7
Wheelbase (in):	102.4
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Goodyear P205/55R16
Towing Cap. (lbs) W/WO Brakes:	Maximum 1500
Transmission Type:	Manual 5 Speed
Drivetrain Type:	Front Wheel
Engine Size:	1.8L DOHC I4 VVT-i
Horsepower @ RPM:	132 @ 6000

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	3.37
Crashworthiness:	4.69
Visibility:	6.70
Slalom Handling:	7.55
Ride Quality:	7.21
Fuel Economy:	4.91
Interior Noise:	4.56
Acceleration:	5.51
Ease of Entry and Exit:	6.96
Interior Size:	3.99
Turning Circle:	7.01
Luggage Capacity:	1.27

Toyota Highlander LTD Hybrid 4WD

GREEN CAR SCORES

Score For This Vehicle	89.02
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$43,755
Price as Tested:	\$44,720
Cost per Point for this Vehicle	\$502
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	17.2
EPA Urban MPG:	28
EPA Highway MPG:	28
Auto Club Highest MPG:	31.0
Auto Club Average MPG:	24.0
Auto Club Lowest MPG:	13.0

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

4-door SUV

STRONG POINTS

- Roomy and adaptable interior
- Good mpg for an SUV
- Powerful
- Easy to see out of
- California versions meet SULEV emissions
- 4 wheel drive traction

WEAK POINTS

- High purchase price
- Jolt when the engine starts at low speed
- Third row seats cramped and hard to access
- Somewhat vague steering feel with some torque steer

OVERALL OBSERVATIONS

Why do we love SUVs? Because they have room & the capability to perform many tasks, & because they are perceived as "tough" & "safe". Why do we hate SUVs? Because they are seen as egregious resource wasters or gas hogs! The Toyota Highlander Hybrid can silence these critics. It performs like the SUVs we love, but still gets better mpg (28) than many sedans (& is not so huge as to appear arrogant like some others). In this case the safety & toughness of the Highlander is more than skin deep, since it scores 4 or 5 stars on all NHTSA crash tests & comes equipped with front, side, driver's knee, & 3-row side-curtain airbags, ABS, & ESC. This is another example where "you can have your cake & eat it too".

AFTERMARKET PARTS

Cargo cross bars, running boards

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3/2
Curb Weight (lbs):	4920
Exterior Length (in):	188.8
Exterior Width (in):	75.2
Exterior Height (in):	69.3
Wheelbase (in):	109.8
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	9 Air Bags or more
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Toyo P245/55R19
Towing Cap. (lbs) W/WO Brakes:	3500 Max/1000
Transmission Type:	CVT
Drivetrain Type:	All Wheel - Full Time
Engine Size:	3.5L DOHC Dual VVT-i V6
Horsepower @ RPM:	280 @ 5800
Electric Motor Horsepower:	MG2 167; MGR 68

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	8.00
Braking:	7.40
Crashworthiness:	8.70
Visibility:	7.20
Slalom Handling:	5.35
Ride Quality:	7.00
Fuel Economy:	4.56
Interior Noise:	7.98
Acceleration:	8.26
Ease of Entry and Exit:	7.36
Interior Size:	6.08
Turning Circle:	4.40
Luggage Capacity:	6.73

Toyota Prius IV

GREEN CAR SCORES

Score For This Vehicle	83.15
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$26,500
Price as Tested:	\$30,709
Cost per Point for this Vehicle	\$369
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	11.9
EPA Urban MPG:	51
EPA Highway MPG:	48
Auto Club Highest MPG:	43.5
Auto Club Average MPG:	40.8
Auto Club Lowest MPG:	37.2

MODEL YEAR TESTED - 2010



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- Excellent fuel economy
- Extremely low emissions (AT-PZEV)
- Fully automatic window controls
- High tech styling layout, the "in" car to have
- Advanced features: navigation, smart key, XM, solar panels in roof

WEAK POINTS

- Confusing sound system controls (integrated with navigation system)
- High purchase price over \$30k for an "economy car" (our test car was "loaded", though)
- Lack of traditional engine gauges
- Limited rear seat headroom for tall passengers

OVERALL OBSERVATIONS

The Toyota Prius is seen by many as the state of the art vehicle of today. It has a sophisticated hybrid powertrain that mates a 1.8-liter, 4-cylinder engine with an 80 hp electric motor and meshes the operation of both to extract the maximum efficiency each is capable of. It achieves fuel economy that is second to none in the US. The Prius scores 4 or 5 stars in all NHTSA crash tests, is equipped with many advanced safety technologies, and is certified as an AT-PZEV. The futuristic styling has become "en vogue" and owners who purchased the car to save fuel and drive a clean car are now driving a modern status symbol!

AFTERMARKET PARTS

Seat covers, floor mats, tailight covers

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3190
Exterior Length (in):	175.6
Exterior Width (in):	68.9
Exterior Height (in):	58.7
Wheelbase (in):	106.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	7 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Yokohama P195/65R15
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	1.8L DOHC 16V VVT-i I4
Horsepower @ RPM:	98 @ 5200
Electric Motor Horsepower:	MG2 = 80

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	6.36
Crashworthiness:	5.63
Visibility:	6.90
Slalom Handling:	6.25
Ride Quality:	7.08
Fuel Economy:	10.00
Interior Noise:	6.43
Acceleration:	5.36
Ease of Entry and Exit:	6.78
Interior Size:	3.70
Turning Circle:	6.69
Luggage Capacity:	2.96

Toyota Prius PHEV

GREEN CAR SCORES

Score For This Vehicle	83.00
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	N/A
Price as Tested:	N/A
Cost per Point for this Vehicle	N/A
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	10.6
EPA Urban MPG: Electric/Gas:	N/A
EPA Highway MPG: Electric/Gas:	N/A
Auto Club Highest MPG:	53.2
Auto Club Average MPG:	50.3
Auto Club Lowest MPG:	48.5

MODEL YEAR TESTED - 2012



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

Mid-Sized 4-door Sedan

STRONG POINTS

- Meets PZEV emission standards
- Excellent fuel efficiency
- Uses inexpensive electricity for short trips
- Quiet in EV mode
- Rear windows open fully
- Fully automatic power window controls

WEAK POINTS

- Small trunk
- Underpowered, especially in EV mode
- Visibility especially to the rear
- Follows rain grooves on the freeway

OVERALL OBSERVATIONS

Toyota's Prius has become an icon, especially in California. For 2012, Toyota hopes to roll out a new version that can be plugged in to recharge a larger battery pack allowing for 10-to-15 miles of zero-emission electric only operation (at a much lower per mile cost than on gasoline). We tested a prototype of this car, so some data are estimated or not provided. EPA mpg data is not ready yet so we used our in-use mpg instead, & pricing is not available. This is an interesting car that looks like a Prius with better mpg, operates as a zero emission pure EV part of the time & just like a traditional Prius the rest of the time. This may be just what a hybrid should be.

AFTERMARKET PARTS

Cargo mat, cargo net

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3500
Exterior Length (in):	175.6
Exterior Width (in):	68.7
Exterior Height (in):	58.7
Wheelbase (in):	106.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	7 Air Bags
Warranty (Months/Miles):	Not for sale
Tire Manufacturer:	Yokohama P195/65R15
Towing Cap. (lbs) W/WO Brakes:	Not Recommended
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	1.8L I4
Horsepower @ RPM:	98 @ 5200
Electric Motor Horsepower:	80

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	9.00
Braking:	6.61
Crashworthiness:	6.00
Visibility:	6.70
Slalom Handling:	6.76
Ride Quality:	6.58
Fuel Economy:	10.00
Interior Noise:	6.20
Acceleration:	5.31
Ease of Entry and Exit:	6.67
Interior Size:	4.59
Turning Circle:	5.72
Luggage Capacity:	2.85

Toyota Venza

GREEN CAR SCORES

Score For This Vehicle	79.22
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$26,190
Price as Tested:	\$28,330
Cost per Point for this Vehicle	\$358
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	17.7
EPA Urban MPG:	21
EPA Highway MPG:	29
Auto Club Highest MPG:	23.4
Auto Club Average MPG:	22.0
Auto Club Lowest MPG:	20.6

MODEL YEAR TESTED - 2009



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

4-door SUV

STRONG POINTS

- PZEV available (test car ULEV)
- Roomy and versatile interior
- Rear seat backs recline
- Easy to operate power window controls with express up and down and auto-reverse
- Equipped with optional XM satellite radio

WEAK POINTS

- Could use more power
- Visibility to the rear and sides
- Rear windows don't open fully
- Dives under hard braking and your stuff on the rear seat falls on the floor

OVERALL OBSERVATIONS

You might ask why does Toyota need another SUV model? Well in the days of \$4 gas, "crossovers or CUVs" are a hot ticket since they are built on car chassis rather than being truck-based, providing improved ride & fuel efficiency while retaining the versatility, utility, & perceived ruggedness of an SUV. The Venza is Toyota's new CUV, & it fills the size niche "larger than the compact RAV4". It is surprisingly roomy & comfortable, gets a respectable 24 mpg, & the 4-cylinder model is available as a PZEV (our test vehicle was a prototype & was only rated a ULEV). Even though CUVs are really station wagons disguised as SUVs, they can still be "cool" & the Venza is a good example.

AFTERMARKET PARTS

Wheels, tires, body kits

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3810
Exterior Length (in):	189.0
Exterior Width (in):	75.0
Exterior Height (in):	63.4
Wheelbase (in):	109.3
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	9 Air Bags or more
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Toyo P245/55R19
Towing Cap. (lbs) W/WO Brakes:	2500 with tow package
Transmission Type:	CVT
Drivetrain Type:	Front Wheel
Engine Size:	2.7L DOHC VVT-i I4
Horsepower @ RPM:	182 @ 5800

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	3.84
Crashworthiness:	7.37
Visibility:	7.10
Slalom Handling:	7.58
Ride Quality:	7.04
Fuel Economy:	3.54
Interior Noise:	5.75
Acceleration:	6.49
Ease of Entry and Exit:	7.78
Interior Size:	5.97
Turning Circle:	4.46
Luggage Capacity:	5.29

Volkswagen Jetta SEL

GREEN CAR SCORES

Score For This Vehicle	72.18
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$24,165
Price as Tested:	\$24,165
Cost per Point for this Vehicle	\$335
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Regular
Fuel Capacity (gal):	14.5
EPA Urban MPG:	24
EPA Highway MPG:	31
Auto Club Highest MPG:	29.5
Auto Club Average MPG:	24.6
Auto Club Lowest MPG:	22.9

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

PZEV

DESCRIPTION/COMMENTS

Compact 4-door Sedan

STRONG POINTS

- High fidelity sound system with Bluetooth, satellite radio, and navigation
- PZEV available
- Sliding sunvisors
- Good fit and finish
- Comfortable ride

WEAK POINTS

- Awkward side mirror controls
- Narrow front seats are uncomfortable
- Lacks instrumentation and those that are on the dash are too small to read easily
- Handling not as brisk as previous versions
- Cramped rear seat for taller passengers

OVERALL OBSERVATIONS

Volkswagen introduced a new version of their popular Jetta for 2011. It appears to be more "mainstream" in style and performance. They may trade-off the passion some owners have for the previous version for a larger possible market. This is a car that excels at little, but on the other hand has no obvious weaknesses (witness all the yellow bars below). We tested a Jetta SEL with 6-speed automatic transmission and the standard 2.5-liter, 5-cylinder engine (with federal emissions, a PZEV version is available for purchase but was not available to test). This is a well-equipped car that gets 27 mpg and scores 4 stars overall on NHTSA's new crash test ratings.

AFTERMARKET PARTS

Body kits, spoilers

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	3047
Exterior Length (in):	182.2
Exterior Width (in):	70.0
Exterior Height (in):	57.2
Wheelbase (in):	104.4
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Michelin P225/45R17
Towing Cap. (lbs) W/WO Brakes:	1500/1500
Transmission Type:	Auto 6 Speed
Drivetrain Type:	Front Wheel
Engine Size:	2.5L DOHC I5
Horsepower @ RPM:	170 @ 5700

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	6.00
Braking:	6.03
Crashworthiness:	4.96
Visibility:	6.60
Slalom Handling:	6.63
Ride Quality:	6.94
Fuel Economy:	4.23
Interior Noise:	4.46
Acceleration:	6.05
Ease of Entry and Exit:	6.71
Interior Size:	4.97
Turning Circle:	6.75
Luggage Capacity:	1.85

Volkswagen Touareg Supercharged Hybrid

GREEN CAR SCORES

Score For This Vehicle	85.63
Highest Scoring Green Car	89.02
Lowest Scoring Green Car	59.90

VEHICLE PRICE

Base Price:	\$61,385
Price as Tested:	\$61,385
Cost per Point for this Vehicle	\$717
Highest Green Car Cost/Point	\$1,341
Lowest Green Car Cost/Point	\$230

FUEL ECONOMY

Fuel Type	Unleaded Premium
Fuel Capacity (gal):	26.4
EPA Urban MPG:	20
EPA Highway MPG:	24
Auto Club Highest MPG:	20.3
Auto Club Average MPG:	18.9
Auto Club Lowest MPG:	18.6

MODEL YEAR TESTED - 2011



REASON THIS VEHICLE WAS TESTED

Hybrid

DESCRIPTION/COMMENTS

4-door SUV

STRONG POINTS

- Roomy, comfortable, and flexible interior
- 380 HP (combined) plus AWD = excellent acceleration
- Improved MPG for a large SUV
- Luxury appointments

WEAK POINTS

- High Purchase Price (\$61K)
- Requires expensive premium fuel
- Rear windows don't open fully
- High vehicle is hard to get into
- Too many controls on steering wheel and column mounted stalks may be confusing

OVERALL OBSERVATIONS

Volkswagens were Beetles, Rabbits, Golfs, and Jettas. They were small, economical, sometimes underpowered, and sometimes quirky, mass market cars. That has changed. VW introduced the "ultra-luxo" Phaeton (with little success) and now we have a \$61K Supercharged Touareg Hybrid AWD SUV. This is a very luxurious, high performing, rugged SUV. And this SUV is big too, weighing 5200 pounds, but the hybrid powertrain and 8-speed automatic transmission boost MPG to 21 mpg on average. Acceleration is excellent and handling is good for this sized vehicle. Visibility is also very good. In all, this is one of the top scoring vehicles in this evaluation. The down side is none of the evaluators can afford one!

AFTERMARKET PARTS

Lowering springs, cold air intake

VEHICLE SPECIFICATIONS

Number of Passengers (F/R):	2/3
Curb Weight (lbs):	5200
Exterior Length (in):	188.8
Exterior Width (in):	76.4
Exterior Height (in):	68.2
Wheelbase (in):	113.9
Anti-lock Braking System:	4 Wheel ABS
Restraint Type:	6 Air Bags
Warranty (Months/Miles):	36/36,000
Tire Manufacturer:	Michelin 265/50R19
Towing Cap. (lbs) W/WO Brakes:	7700/1650
Transmission Type:	Auto 8 Speed
Drivetrain Type:	All Wheel - Full Time
Engine Size:	3.0L V6 TSI Hybrid
Horsepower @ RPM:	333 @ 5500
Electric Motor Horsepower:	40

TEST DATA

Test Vehicle Scores (0 to 10 Points)

EPA Emissions Score:	7.00
Braking:	6.38
Crashworthiness:	7.53
Visibility:	7.70
Slalom Handling:	7.39
Ride Quality:	7.63
Fuel Economy:	0.95
Interior Noise:	7.35
Acceleration:	9.29
Ease of Entry and Exit:	7.02
Interior Size:	6.87
Turning Circle:	5.63
Luggage Capacity:	4.87

APPENDIX 1

Some common acronyms include:

- **CNG, LNG, NGV.** CNG is *compressed natural gas* (mostly methane), the same substance that's piped into homes. Natural gas is compressed to either 3,000 psi or 3,600 psi when used in motor vehicles. LNG is *liquefied natural gas*, which is cryogenically chilled to temperatures as low as -275° F to liquefy it, at which point it occupies 1/600 of its volume as a gas, making efficient storage and transportation possible. NGV stands for *natural gas vehicle*, one that has been designed or converted to use CNG or (less often) LNG for its fuel source.
- **ZEV, PZEV, AT-PZEV, SULEV, ULEV, LEV.** Emission certification levels for California and other states that have adopted California's emission standards:
 - **ZEV** = Zero-emission vehicle. A vehicle that produces no harmful emissions. Currently the only technologies that can meet this standard are battery-electric vehicles and vehicles powered by hydrogen fuel cells.
 - **PZEV** = Partial-zero-emission vehicle. These vehicles produce only very miniscule amounts of harmful (smog-forming) pollutants from the tailpipe and are certified to produce no emissions from fuel evaporation. The tailpipe standards have been set by the California Air Resources Board (CARB) to be equivalent to the emissions caused by electricity generation needed to charge a battery-electric car. This level is based on the relatively clean mix of electricity-generation sources (natural gas, hydro, nuclear, and renewable) in California. For other regions, where electricity is not as "clean" because it is generated from burning coal or oil, operating a PZEV is actually cleaner than operating a battery-electric vehicle. PZEVs also have a 15 year/150,000-mile emission warranty.
 - **AT-PZEV** = Advanced-technology partial-zero-emission vehicle. These vehicles meet the same emission standards as a PZEV but utilize technologies CARB deems to be "advanced," thus earning the manufacturer additional zero-emission-vehicle credits.
 - **SULEV** = Super ultra-low-emission vehicle. This is a vehicle has the same tailpipe standards as a PZEV but with some evaporative emissions.
 - **ULEV** = Ultra-low-emission vehicle.
 - **LEV** = Low-emission vehicle.

- **E85, M85, FFV.** E85 is 85% *ethanol* or *grain alcohol*; M85 is 85% *methanol* or *wood alcohol*. E85 or M85 fuel uses 15% gasoline, rather than 100% alcohol, for two reasons: Gasoline enables the vehicle to start more easily in cold temperatures. Also, alcohol burns with an invisible flame; adding gasoline provides a bright orange flame and thick black smoke, which, in case of a collision or accident, alerts drivers, passengers, and emergency responders to the presence of fire. FFV refers to a *flexible-fuel vehicle*, which is capable of running on regular gasoline as well as E85.
- **GGE.** GGE refers to *gasoline gallon equivalents*. Each fuel has a different energy density, and the most common way to measure how much petroleum or gasoline is displaced by using an alternative fuel is to apply a conversion factor to it. This is done by converting the energy density of an alternative-fuel “unit” to the energy density in a gallon of gasoline. The GGE conversion factor is useful in calculating the “fuel economy” of an alternative-fueled vehicle.
- **PHEV.** A *plug-in hybrid electric vehicle* is a hybrid vehicle with batteries that can be recharged by connecting the vehicle to an external electric power source, typically at a lower cost than by running the vehicle’s gasoline engine. These vehicles can operate on battery power for a significant portion of their driving range before they must switch over to conventional hybrid mode (i.e., using both electricity and a gasoline engine). This configuration overcomes concerns about the limited driving range of pure battery-electric vehicles. A PHEV’s overall fuel economy can be significantly higher than that of a conventional hybrid.
- **DRL.** Many newer vehicles have *daytime running lights*, which are reduced-intensity headlights that make daytime driving safer. Vehicles with DRLs but without automatic headlamps generally still need to have their normal “nighttime” headlamps switched on manually. It always helps to see and be seen at night!
- **VIN.** This 17-digit number is a car’s unique *vehicle identification number*, a vehicle’s “serial number”. The VIN is broken down into groups of numbers and letters, as follows: the first three are the manufacturer identifier; the next five are vehicle attributes (body style, engine, model, series, etc.); the next three are the check digit, model year, and assembly plant; and the remaining six characters identify a specific vehicle that came off the assembly line.
- **MPG.** *Miles per gallon* (usually lower case: mpg) is a number that indicates the vehicle distance traveled per gallon of fuel used, typically categorized as “city,” “highway,” and “mixed” driving. The website www.fueleconomy.gov reports the mpg of recent car models.

- **GVWR.** This term refers to *gross vehicle weight rating*; this number is usually found on the driver's door or the lower door pillar. It refers to the maximum allowable total weight, including the weight of the vehicle, fuel, passengers, and cargo.
- **10W-30 or 5W-30.** These numbers refer to *oil grade and viscosity* (weight). The specific number—the manufacturer's recommendation for the type of oil to use in your vehicle—is in your owner's manual. Multi-grade oil designations include two numbers—for example, 10W-30. The first number (10) means that an engine can pump this grade of oil as easily as it can a single-grade SAE 10 oil. (*W* means *winter*, not *weight*.) And it's even easier for an engine to pump 5W, a "thinner" oil, at a given temperature than it is to pump 10W. The second number, 30 in this example, means that the viscosity of this multi-grade oil at a 100°C (212°F) operating temperature is equivalent to the viscosity of a single-grade SAE 30 oil at the same temperature.
- **P285/35ZR20.** This series of letters and numbers, found on a tire's sidewall, refers to the following *tire characteristics*: The first letter indicates the tire's intended use or vehicle class; the next numbers indicate the tire's width in millimeters; the numbers following the slash are the ratio of the tire sidewall height compared to the width, expressed as a percent; the next two letters refer to the tire's speed rating (S, T, H, or Z, for example) and tire fabric construction (bias, diagonal, or radial); the final two digits refer to the wheel diameter.
- **OEM.** This term means *original equipment manufacturer*, the manufacturer of record for the fully assembled vehicle (e.g., General Motors, Ford, and Toyota). Many vehicle parts are built by external suppliers, but the OEM is responsible for the final production of the vehicle.
- **HID.** *High-intensity discharge* headlights send a high-voltage discharge through a mix of special gases, including Xenon, in a micro-discharge bulb to produce an extra-white (or even bluish) light that's three times brighter than a conventional halogen headlight but is more tightly controlled, with a distinct edge to the illumination area. HID headlights allow drivers to see objects more clearly and at greater distances. They're becoming available in increasing numbers of vehicles as expanded demand and production drives prices down.
- **ABS.** *Antilock brake systems* typically use speed sensors at each wheel to tell a vehicle's computer how much brake force to apply to prevent the wheel from "locking up" under hard braking, which could result in the vehicle skidding out of control. ABS brakes allow the driver to maintain control and steer around obstacles

while applying the brakes as hard as possible. The proper technique for ABS brakes is keeping a hard, constant pressure on the brake pedal rather than pumping them.

- **SRS.** *Supplemental restraint system* describes air bags that supplement conventional seatbelts as safety devices. During a frontal crash, the air bags inflate rapidly; when the driver or passengers are thrown forward, they're met by a fully inflated air bag, which absorbs energy and helps keep them from colliding with the vehicle's interior. First-generation airbags used sensors to "decide" when to activate; they deployed at a single level of force, sometimes causing injuries or even fatalities to older, smaller, or frail occupants.

Overall, the number of lives first-generation air bags saved was significant, but their shortcomings led to the development of second-generation air bags, which use additional sensors to take into account an occupant's size, weight, and the severity of the impact and to adjust the speed and force of deployment accordingly. Side-impact air bags inflate for side impacts, and side-curtain air bags above the side windows help protect an occupant's head; in the case of a rollover accident, they stay inflated in case the vehicle rolls over multiple times. Some vehicles also have a knee bag under the steering column, which helps protect the driver's feet and legs and also helps to keep the driver in a normal driving position, so they can maintain some level of control over the vehicle after a crash.

- **OBD.** *On-board diagnostics* refers to a mandated diagnostic system that monitors whether a vehicle's emission-control system is operating correctly. Early versions of OBD illuminated a malfunction indicator light (MIL) on the dashboard if it detected a problem, often using the terms "service engine soon" or "check engine soon." OBD2 is a computer-based system built into all 1996 and later passenger vehicles and light-duty trucks. OBD2 enables a technician to diagnose problems with a vehicle's engine or emission-control system. It provides a standardized way to locate problems by reading diagnostic trouble codes and operating data.
- **Dub.** A *slang term for 20-inch custom wheels* (from "double dime") normally coupled with low-profile tires, which give a radical, custom look to a vehicle. Larger, 22-inch wheels are called "Dub two's," and so on. These larger wheels and tires can degrade ride quality; however, low-profile performance tires may offer an improvement in handling over stock tires if the overall wheel height is close to OEM height. If they're much more than an inch or two taller than stock equipment, however, handling may suffer because of the increased mass of the wheel/tire unit.
- **V8, V6, I4.** These terms refer to a *vehicle's engine configuration and number of cylinders*. A V engine has two banks of cylinders (typically three or four cylinders

per bank) offset by 60° or 90° from each other. An “I” engine configuration has the individual cylinders in a vertical line, or “inline.”

- **VSS.** *Variable suspension system* refers to a vehicle that has a suspension system (springs, shock absorbers, and linkages) that vary in stiffness and ride height. Fully active suspensions electronically monitor vehicle conditions and modify suspension settings in real time to directly control the motion of the car.
- **VVT.** *Variable valve timing* refers to an enhanced engine valve-train configuration in use in many of today’s automobiles. VVT allows the lift, duration, or timing (any or all of these) of the intake and/or exhaust valves to be changed during engine operation.

The position and shape (“profile”) of the engine’s camshaft lobes is optimized for a certain “ideal” engine rpm. As a result, there is a tradeoff between low-engine speed (low-end) torque and high-end power; typically, an engine without VVT can usually perform well at one end of the power band but not both. VVT technology provides a way to dynamically alter the camshaft profile at different engine speeds and loads, thus resulting in higher efficiency, lower emissions, and greater engine power across a broader rpm range.

- **TCS.** *A traction control system* uses the same wheel-speed sensors as antilock brakes, with additional electronic controls to sense the speed of each drive wheel. It then applies braking force and/or reduces power to the drive wheel(s) to prevent wheel spin and the loss of traction on slick or loose surfaces. Some sophisticated all-wheel-drive vehicles have advanced systems that supply power to only one wheel and simultaneously apply braking force to the others in an attempt to maintain traction when needed. Traction control does not give a vehicle more traction; it simply prevents the drive wheels from spinning.
- **ESC.** *Electronic stability control* refers to a variety of systems designed to improve a vehicle’s handling or regain driver control. ESC uses antilock brake sensors and braking capability and other sensors to help the driver maintain directional control of the vehicle. Sensors monitor individual wheel speed, steering angle (the driver’s intended path), lateral acceleration (cornering force), and yaw rate (the tendency to spin around a central axis). From these inputs, ESC determines if the car is going in the direction the driver intends. If the car begins to slide or spin, ESC temporarily applies brake pressure at one or more wheels and/or reduces engine power to help restore the driver’s intended path. Some manufacturers have developed enhanced ESC systems, which provide features ranging from limited rollover prevention to advanced “rollover mitigation” systems, which incorporate additional sensors, such as gyroscopes, to detect possible rollovers and add

advanced-control strategies to help prevent that from happening. The details differ among manufacturers, but all try to keep the vehicle not only from rolling over but also on its intended path.