South Coast AQMD

SCAQMD ADVISOR

Cleaning the air that we breathe...

2016 Clean Car Buying Guide

California Leading the Way with Clean Vehicles

Finding solutions that will improve the state's air quality has thrust California to become the leader in alternative fuel vehicles. With nearly 3,700 public alternative fueling stations and more than 184,000 plug-in electric vehicles on the road today, California has become an economic hub for technology and jobs focused on clean vehicles. In the last quarter, California was the recipient of over half of the clean-tech venture capital investments in the U.S. making it the champion in clean vehicle technology.

In 1966, California created the first tailpipe emission standards and these standards have continuously been enhanced and developed to include regulations such as evaporative emission standards and improved emission control systems. California's Advanced Clean Cars program focuses on the control of smog, pollutants and greenhouse gas emissions for model years 2015-2025. This program backs the development of cleaner, more environmentally friendly vehicles with the use of the ZEV program which requires manufacturers to produce more Zero Emission Vehicles and plug-in hybrids for model years 2018-2025.

The total yearly passenger car and truck pollution in California has declined more than 85% since 1975, despite the fact that the average miles driven in California have more than doubled. In 2014, Californians bought roughly 40% of all plug-in vehicles sold in the United States, making California the leading purchaser of electric vehicles in the world. Not only is California the leading purchaser due to the available technology, but also due to the multiple state rebates that have been put into place.

The Clean Vehicle Rebate Project offers rebates to low and middle income consumers for the lease or purchase of an eligible zero-emission, plug-in hybrid or electric vehicle. With these rebates and a growing number of alternative fuel vehicle models to choose from, California's goal of having 1.5 million zero-emission vehicles on California's roadways by 2025 is on the path to be achieved.

With multiple incentives, programs, standards, and regulations, California has and will continue to lead the world in clean vehicle technology.

About This 2016 Clean Car Guide

The vehicles featured in this Special Edition of the SCAQMD Advisor can do much more than get you from point A to point B. Some can get you there sooner and cleaner, like electric vehicles with white stickers that allow solo drivers access to HOV lanes. Some can get you there cheaper, by reducing your number of trips to the pump, saving you money and time. Others still, with their futuristic design, will get you there with style as you cruise down the highway. And all can get you there cleaner, with cars that generate much less pollution than gasoline powered engines, or even no pollution at all.

Regardless of your preference, the South Coast Air Quality Management District produced this publication to help you make a more informed decision about purchasing an alternative fuel vehicle, lower your carbon footprint, and help you do your part to clean the air that we breathe.

Visit SCAQMD's Clean Air Choices website at a*qmd.gov/cleanairchoices/* to find more information on specific models.

CleanAir CHOICES

The Little-Known Story of How SCAQMD Spurred on Development of Plug-In Hybrids

To achieve cleaner air, SCAQMD works directly with manufacturers to boost their efforts in developing, demonstrating, and ultimately, getting cleaner technologies into the marketplace.

SCAQMD's Technology Advancement Office (TAO) seeks out technologies from anywhere in the world that may reduce emissions. SCAQMD does not develop the technologies itself, but works closely with manufacturers either through direct funding, partnering with a private sector company to showcase supply and demand for a product, or by partnering with a company to demonstrate a technology's feasibility.

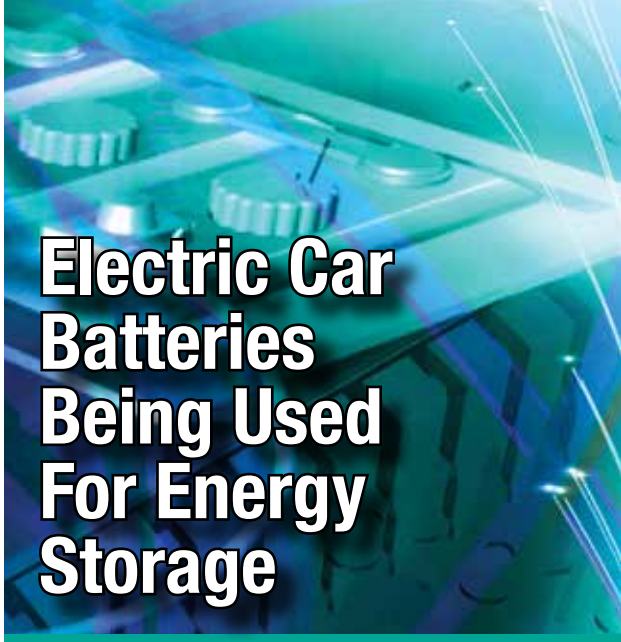
It was this last strategy that helped SCAQMD create a market for plug-in hybrid vehicles where none existed before. It began in 2000, when SCAQMD participated in evaluating research for the development of continuously variable transmission and plug-in hybrid prototype vehicles at UC Davis. SCAQMD also participated in several studies with the Electric Power Research Institute beginning with "Comparing the Benefits and Impacts of Hybrid Electric Vehicle Options." SCAQMD expanded this program to co-sponsor technology demonstration projects of two utility boom trucks in 2001 and five DaimlerChrysler delivery vans in 2003 with Southern California Edison.

Beginning in 2001, SCAQMD had additional demonstration projects for plug-in hybrid passenger vehicles with small companies AC Propulsion and EnergyCS. These projects resulted in competitive solicitation awards in 2007 to deploy a larger number of plug-in hybrid vehicles. One recipient was Hymotion, a small company eventually purchased by lithium-ion battery supplier A123 that developed a retrofit kit for the Toyota Prius. The other recipient was a local company named Quantum Technologies of Lake Forest, California, which converted a Ford Escape hybrid (using gasoline but running on electric power generated through regenerative braking) into a plug-in hybrid (where the vehicle could be powered entirely with electricity via a battery charging plug). The Ford Escapes continue to be part of the SCAQMD fleet.

SCAQMD understood that it would be difficult to get a major vehicle manufacturer to invest their time and money in developing a new product, especially when potential markets were undetermined. Regardless SCAQMD wanted to demonstrate that the plug-in hybrid technology was viable, and this could help reduce barriers to entering the marketplace.

So SCAQMD worked with a publicly-owned utility in Texas, Austin Energy, which had a program called Plug-in Partners to develop a database of companies willing to purchase the plug-in hybrid vehicle if it was produced. SCAQMD demonstrated to the major automakers that there would be a demand for this product if it was made available.

The success of the program between SCAQMD and Quantum led Ford itself to enter the passenger vehicle market with a plug-in hybrid prototype program and shortly thereafter, Nissan came out with its all-electric plug-in LEAF vehicle. Now, just nine years later, the marketplace includes a wide proliferation of plug-in hybrids and California is the largest market.



Electric Car Batteries Being Used For Energy Storage

Major automakers have developed various alternative vehicle models which have made it easier to go green. Although the increase of alternative vehicles has led to the reduction of emissions, there is a concern about what will happen to used electric car batteries. General Motors and Nissan are working on a solution to re-use electric car batteries by transforming them to stationary energy storage systems for homes and businesses.

Nissan is partnering with Green Charge Networks to reuse batteries from Nissan's LEAF electric vehicles in stationary energy storage systems. These systems will be designed primarily for businesses to reduce energy costs by offsetting peak energy demand with electricity stored in the batteries. General Motors (GM) is also planning on entering this market. In mid-2015 it announced it had a similar stationary energy storage system using repurposed batteries from its Chevy Volt set up at a test campus in Michigan. GM plans to produce and sell the systems eventually.

Tesla Motors was the first automaker to focus on development of batteries for home and utilities with their so-called Powerwall, aimed at storing energy gathered during the day from residential solar panels to use later. Daimler AG (maker of Mercedes-Benz vehicles) also announced a home energy storage unit for personal and commercial use. However both the Tesla and Mercedes-Benz efforts are using new batteries and not reusing batteries that are no longer useful for electric vehicles.

Clean Air Choice Vehicles

Advanced Technology - Zero-Emission Vehicles (ZEVs)

ZEV is an acronym for **Z**ero **E**mission **V**ehicle. A ZEV has zero tailpipe emissions and emits 98 percent cleaner emissions than the current model year's average vehicle. Electric-only vehicles and fuel-cell vehicles qualify as ZEVs.

2016 Models

as of 03/01/2016

Electric Vehicles

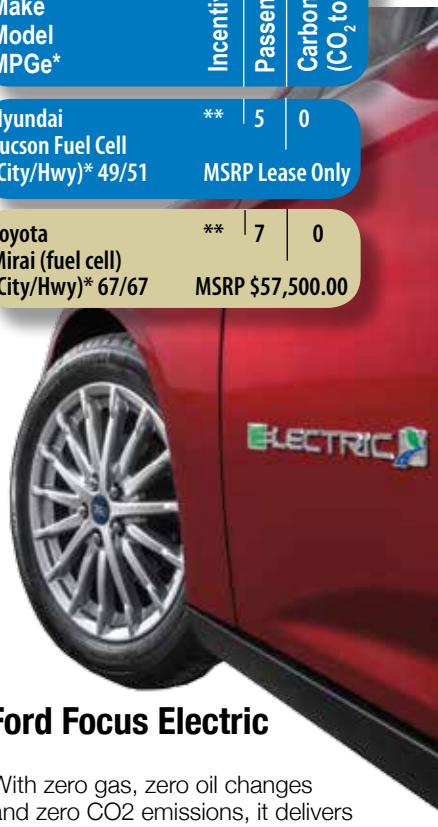
ZEVs Make Model MPGe*	Incentives	Passengers	Carbon Footprint (CO_2 tons/yr)***	Battery Range	240 V Charging Time (hrs)
BMW i3 BEV (City/Hwy)* 138/111	**	4	0	82	7
	MSRP $42,400				
Chevrolet Spark EV (City/Hwy)* 128/109	**	4	0	82	7
	MSRP $25,120				
Fiat 500e (City/Hwy)* 122/108	**	4	0	87	4
	MSRP $20,000				
Ford Focus FWD BEV (City/Hwy)* 110/99	**	5	0	76	3.6
	MSRP $29,170				
Kia Soul Electric (City/Hwy)* 120/105	**	5	0	82	7
	MSRP $31,950				
Mercedes B-Class Electric Drive (City/Hwy)* 85/84	**	5	0	82	7
	MSRP $41,450				
Mitsubishi i-MiEV (City/Hwy)* 126/99	**	4	0	62	7
	MSRP $22,995				

Electric Vehicles

ZEVs Make Model MPGe*	Incentives	Passengers	Carbon Footprint (CO_2 tons/yr)***	Battery Range	240 V Charging Time (hrs)
Nissan LEAF (24 kw-hr battery pack) (City/Hwy)* 126/101	**	5	0	75	4
	MSRP $29.010				
Nissan LEAF (30 kw-hr battery pack) (City/Hwy)* 124/101	**	5	0	75	4
	MSRP $34,200				
Smart Convertible EV, Coupe EV (City/Hwy)* 122/93	**	2	0	76	6
	MSRP $25,000				
Tesla Model S 70 kWh, Model S 85 kWh, Model S 90 kWh (City/Hwy)* 94/97	**	7	0	240	10
	MSRP 69,900				
Tesla Model S 85D kWh, Model S P85D kWh, Model S 70D kWh, Model S 90D, Model S P90D (City/Hwy)* 88/90 - 101/102	**	7	0	257	5
	MSRP $ n/a				
Tesla Model X 90D, Model X P90D (City/Hwy)* 90/94 - 89/90	**	7	0	250	5
	MSRP $ n/a				
Volkswagen e-GOLF (City/Hwy)* 126/105	**	5	0	83	5
	MSRP $31,120				

Fuel-Cell Vehicles

ZEVs Make Model MPGe*	Incentives	Passengers	Carbon Footprint (CO_2 tons/yr)***
Hyundai Tucson Fuel Cell (City/Hwy)* 49/51	**	5	0
	MSRP Lease Only		
Toyota Mirai (fuel cell) (City/Hwy)* 67/67	**	7	0
	MSRP $57,500.00		



Ford Focus Electric

With zero gas, zero oil changes and zero CO2 emissions, it delivers a 100 percent electric driving experience. This model also comes with a choice of charging options: 120V/30-amp convenience charge cord or a 240V/30-amp home charging station.

* MPGe: Miles per gallon gasoline equivalent (MPGe) is a measure of the average distance traveled per unit of energy consumed. Based on EPA formula of 33.7 kW/hour equal to one gallon of gasoline energy. Approximate MPG or MPGe based on 2016 model year data.

** The Federal Tax Credit is between $2,500 and $7,500 depending on the vehicle's battery capacity. (see http://*www.afdc.energy.gov/laws/409*). The California state tax credit varies depending on the vehicle type: Fuel-Cell vehicles: $5,000; Battery Electric Vehicles (BEV) $2,500; Plug-in Hybrid Electric Vehicles (PHEV) $1,500.

*** Carbon Footprint information based on vehicle driven 15,000 miles per year. Information from fueleconomy.gov. For more information, see CARB's website at *arb.ca.gov/msprog/onroad/cert/cert.php*

MSRP - Manufacturer's Suggested Retail Price, which generally excludes tax, title, license, dealer fees, destination freight charge and optional equipment.

Visit South Coast AQMD's website at *aqmd.gov* and *cleanairchoices.org* for its Clean Air Choices site.

Toyota Mirai

Japanese for "future," the Mirai runs on a hydrogen fuel cell and the only substance emitted from its tailpipe is water.

Clean Air Choice Vehicles

Advanced Technology-Partial Zero-Emission Vehicles (AT-PZEVs) and (TZEVs)

AT-PZEV is an acronym for **A**dvanced **T**echnology **P**artial **Z**ero **E**mission **V**ehicle. These are vehicles that meet the super ultra-low emission vehicle (SULEV) and PZEV tailpipe emissions requirements, but also include components on the cutting edge of technology that help to improve the fuel mileage of PZEVs. Hybrid drivetrain components are a good example. PZEVs run on gasoline, yet offer extremely clean SULEV tailpipe emissions with zero evaporative emissions and 150,000 mile emission warranty.

The term AT-PZEV is being replaced by the term **TZEV,** and is an acronym for **T**ransitional **Z**ero **E**mission **V**ehicle.

AT-PZEVs TZEVs Make Model MPGe*	Incentives	Passengers	Carbon Footprint (CO_2 tons/yr)***
BMW I3 REX (Hybrid gas-electric) (City/Hwy)* 41/37 gas (electric) 117	** MSRP $42,400	5	0.7
Cadillac ELR (Hybrid gas-electric) (City/Hwy)* 31/32 (Electric) 85	** MSRP $57,500	4	1.5
Chevrolet Volt (Plug-In Hybrid gas-electric) (City/Hwy)* 35/42 (Electric) 106	** MSRP $33,170	4	0.8
Ford Fusion Energi (Plug-In Hybrid gas-electric) (City/Hwy)* 44/38 (Electric) 88	** MSRP $33,900	5	2.1
Ford C-Max Energi (Plug-In Hybrid gas-electric) (City/Hwy)* 42/38 (Electric) 88	** MSRP $31,770	5	2.1
Honda CR-Z (Hybrid gas-electric) (City/Hwy)* 36/39	** MSRP $26,295	2	3.9
Hyundai Sonata, (Hybrid gas-electric) (City/Hwy)* 39/40 (Electric) 99	** MSRP $26,000	5	1.7
Kia Optima, Optima Ex Hybrid gas-electric) (City/Hwy)* 35/39	** MSRP $32,495	5	4

AT-PZEVs TZEVs Make Model MPGe*	Incentives	Passengers	Carbon Footprint (CO_2 tons/yr)***
Mercedes S 550E (3.0L) (Hybrid gas-electric) (City/Hwy)* 16/26 (Electric) 58	** MSRP $95,650	5	5.6
Subaru Crosstrek (Hybrid gas-electric) (City/Hwy)* 30/34	** MSRP $26,395	5	4.7
Toyota Camry LE, Camry XLE/SE, (Hybrid gas-electric) (City/Hwy)* 43/39	** MSRP $26,790 MSRP $30,140	5	3.6
Toyota Prius 1.8 Hybrid gas-electric) (City/Hwy)* 54/50	** MSRP $24,200	5	2.8
Toyota Prius, Prius Eco 1.8 (Plug-In Hybrid gas-electric) (City/Hwy)* 58/53	** MSRP $26,675 MSRP $19,560	5	3
Volkswagen Jetta (Hybrid gas-electric) (City/Hwy)* 42/48	** MSRP $31,120	5	3.3

Chevrolet Volt

When the gas-powered generator kicks in, producing electricity to power the engine, the range of the Volt extends to an EPA-estimated 380 miles with a full charge and a full tank of gas.

* MPGe: Miles per gallon gasoline equivalent (MPGe) is a measure of the average distance traveled per unit of energy consumed. Based on EPA formula of 33.7 kW/hour equal to one gallon of gasoline energy. Approximate MPG or MPGe based on 2016 model year data.

** The Federal Tax Credit is between $2,500 and $7,500 depending on the vehicle's battery capacity. (see http://*www.afdc.energy.gov/laws/409*).
The California state tax credit varies depending on the vehicle type: Fuel-Cell vehicles: $5,000; Battery Electric Vehicles (BEV) $2,500; Plug-in Hybrid Electric Vehicles (PHEV) $1,500.

*** Carbon Footprint information based on vehicle driven 15,000 miles per year. Information from fueleconomy.gov. For more information, see CARB's website at *arb.ca.gov/msprog/onroad/cert/cert.php*

MSRP - Manufacturer's Suggested Retail Price, which generally excludes tax, title, license, dealer fees, destination freight charge and optional equipment.

Visit South Coast AQMD's website at *aqmd.gov* and *cleanairchoices.org* for its Clean Air Choices site.

Clean Air Choice Vehicles

Partial Zero-Emission Vehicles (PZEVs)

PZEV is an acronym for **P**artial **Z**ero **E**mission **V**ehicle. PZEVs are modern vehicles with advanced engines equipped with cutting-edge emissions controls. PZEVs run on gasoline, yet offer extremely clean emissions with zero evaporative emissions. However some PZEVs don't concurrently offer outstanding fuel mileage, with the majority of them falling in line with current model year averages.

PZEVs Make Model MPG*	Passengers	Carbon Footprint (CO_2 tons/yr)***
Audi A3, A3 Cabriolet, A3 CabrioletQuattro, A3 Quattro TT Coupe Quatro, TT Roadster Quatro (City/Hwy)* 23/32	5	5.3
BMW 228i, 228i xDrive, 228i Convertible, 228i xDrive, 328i, 328i xDrive, 328i Gran Turismo, 328i xDrive Gran Turismo, 428i Convertible, 428i Coup, 428i Gran Coupe, 428i xDrive Coupe, 428i xDrive Convertible (City/Hwy)* 23/35	4/5	5.7
BMW Z1 SDRIVE281, X1 XDRIVE282 (City/Hwy)* 22/34	2/5	5.7
BMW Mini Cooper S Clubman, Mini Cooper S Convertible, Mini Cooper S Hardtop 2 Door, Mini Cooper S Hardtop 4 Door (2.0) (City/Hwy)* 24/34	5	5.4
BMW Mini Cooper Clubman, Mini Cooper Convertible, Mini Cooper Hardtop 2 Door, Mini Cooper Hardtop 4 Door (1.5) (City/Hwy)* 25/34	5	5.2
Buick Lacrosse (3.6) (City/Hwy)* 18/28	5	6.7
Cadillac XTS (City/Hwy)* 20/31	4	3.6
Chevrolet Cruze Limited, Sonic, Sonic 5 (1.8) Impala (3.6) (City/Hwy)* 22/35	5	5.5
Chevrolet Impala (3.6) (City/Hwy)* 18/28	5	6.7
Chrysler 200FWD (2.4) (City/Hwy)* 23/36	5	5.5
Dodge Dart FWD, Dart GT FWD (2.4) (City/Hwy)* 23/35	5	5.5

PZEVs Make Model MPG*	Passengers	Carbon Footprint (CO_2 tons/yr)***
Ford Focus (2.0) (City/Hwy)* 26/38	5	4.8
Ford Fusion (1.5) (City/Hwy)* 24/36	5	5.2
Honda Civic 4DR (1.5) (City/Hwy)* 31/42	5	4.2
Honda Accord (2.4) (City/Hwy)* 26/35	5	4.9
Honda Accord (3.5) (City/Hwy)* 21/34	5	5.7
Hyundai Elantra Limited (2.0) (City/Hwy)* 24/34	5	5.3
Hyundai Sonata Sport, Sonata Limited (2.4) (City/Hwy)* 25/36	5	5.2
Jaguar F-Type Convertible, F-Type Coupe, F-Type S AWD Convertible, F-Type S Convertible, F-Type S Coupe, XF, XF AWD, XF S, XF S AWD, XJ, XJ AWD, XJL, XJL AWD (City/Hwy)* 19/28	2	6.5
Jeep Cherokee 4*4, Cherokee 4*4 Active Drive II, Cherokee FWD, Cherokee Trail Hawk 4*4 (2.4) (City/Hwy)* 21/27	5	6.3
Kia Forte (1.8) (City/Hwy)* 26/39	5	4.8
Kia Forte (2.0) (City/Hwy)* 24/34	5	5.2
Kia Optima, Optima FE (2.4) (City/Hwy)* 25/37	5	5
Land Rover Range Rover, Range Rover Sport (3.0) (City/Hwy)* 17/23	5	7.7

PZEVs Make Model MPG*	Passengers	Carbon Footprint (CO_2 tons/yr)***
Land Rover Discovery Sport, Range Rover Evoque, Range Rover Evoque Convertible (City/Hwy)* 20/26	5	6.6
Mazda 3 (2.0) (City/Hwy)* 30/41	5	4.3
Mazda 3 (2.5) (City/Hwy)* 28/39	5	4.6
Mazda 6 (2.5) (City/Hwy)* 26/38	5	4.8
Subaru Impreza (2.0) (City/Hwy)* 26/34	5	5.2
Subaru Impreza Sport (2.0) (City/Hwy)* 24/32	5	5.4
Subaru Forester (2.5) (City/Hwy)* 28/34	5	4.7
Subaru Crosstrek (2.0) (City/Hwy)* 27/36	5	4.9
Subaru Impreza Wagon (2.0) (City/Hwy)* 27/36	5	4.9
Volkswagen Beetle, Beetle Convertible (1.8), Beetle, Beetle Convertible (2.0), CC (2.0), Jetta (1.8), Jetta (2.0), Passat (1.8) (City/Hwy)* 25/34	4-5	5.2
Volkswagen GTI (2.0)Golf, Golf Sportwagen (1.8) (City/Hwy)* 25/33	5	5.3
Volvo XC60 T5 FWD (2.0) (City/Hwy)* 23/31	5	5.7

Compairing Vehicle Technologies: The Benefits of Alternative Fuel Vehicles

Fuel Economy & Greenhouse Gas Rating – A 1(worst) to 10 (best) rating system on greenhouse gas and tailpipe emissions.
MPG – Miles per gallon.
MPGe – Miles per gallon equivalent. This is a measure used by the U.S. Environmental Protection Agency (EPA) to explain the energy consumption of an advanced technology vehicle in comparison to the fuel economy of a conventional internal combustion engine.
Smog Rating - This rating reflects vehicle tailpipe emissions that contribute to local and regional air pollution. Vehicles that score a 10 are the cleanest.

Gasoline Vehicle — MPG 19 MPG

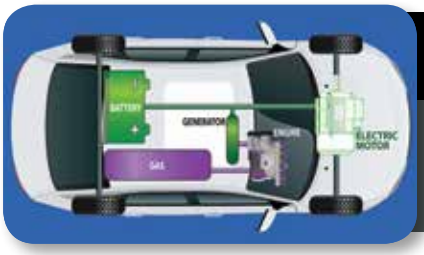
Cost Savings in 5 Years N/A **Driving Range** 200-300+ miles **Refuels with:** Gasoline
Average Charging/Refueling Time 5-10 Minutes
Smog Rating 7 **Fuel Economy & Greenhouse Gas Rating** 6

Diesel Vehicle — MPG 25 MPG

Cost Savings in 5 Years N/A **Driving Range** 400-500+ miles **Refuels with:** Diesel
Average Charging/Refueling Time 5-10 Minutes
Smog Rating 6 **Fuel Economy & Greenhouse Gas Rating** 5

Compressed Natural Gas (CNG) Vehicle
MPG 31 MPG (CNG only)

Cost Savings in 5 Years $6,250 **Driving Range** 200-225 miles **Refuels with:** Compressed Natural Gas (CNG)
Average Charging/Refueling Time 5-10 Minutes
Smog Rating 9 **Fuel Economy & Greenhouse Gas Rating** 8

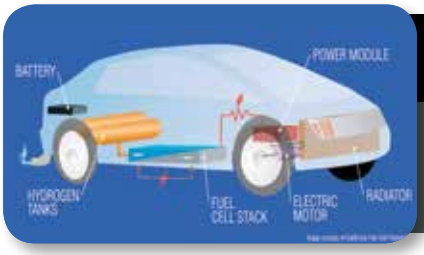


Extended Range Plug-In Hybrid Electric Vehicle
MPG 98-100 MPGe; 35-45 MPG

Cost Savings in 5 Years $8,000 **Driving Range** 20-80 miles (electric only); 250-300 (electric and gasoline)
Refuels with: Gasoline and Electricity
Average Charging/Refueling Time 8-12 Hours (120V); 3-4 Hours (240V)
Smog Rating 9 **Fuel Economy & Greenhouse Gas Rating** 10

Plug-In Hybrid Electric Vehicle (PHEV)
MPG 95-115 MPGe; 45-50 MPG

Cost Savings in 5 Years $6,750 **Driving Range** 10-20 miles (electric only); 450-500 (electric and gasoline)
Refuels with: Gasoline and Electricity
Average Charging/Refueling Time 3-7 Hours (120V); 1.5-3 Hours (240V)
Smog Rating 9 **Fuel Economy & Greenhouse Gas Rating** 10



Hydrogen Fuel-Cell Vehicle
MPG 50-70 MPGe (hydrogen only)

Cost Savings in 5 Years $6,000 **Driving Range** 200-300+ miles
Refuels with: Hydrogen
Average Charging/Refueling Time 3-8 minutes
Smog Rating 10 **Fuel Economy & Greenhouse Gas Rating** 10

Electric Vehicle
MPG 76-115 MPGe

Cost Savings in 5 Years $8,500 **Driving Range** 70-200 miles
Refuels with: Electricity
Average Charging/Refueling Time 20 Hours (120V); 8 Hours (240V); 20-40 Minutes (480V)
Smog Rating 10 **Fuel Economy & Greenhouse Gas Rating** 10

From Sci-Fi to Reality: The Future of Cars Coming Soon

The science of automobiles has seemed to merge in recent years with science fiction. There are now driverless cars, electronic crash avoidance systems, remote control from a smart phone, self-parking, and in-car Wi-Fi.

The future of all vehicles is the future of clean vehicles, as cars are expected to not only be more efficient but also less polluting. But what else will our cars do that will make them more efficient and useful?

Cars are just starting to be seen not just as transportation devices, but also as communication devices. Among the expectations, is that cars will join the Internet of Things concept and communicate with each other and with our smartphones. They could share their speed and direction and warn other cars when there is a potential hazard looming. Known as "vehicle-to-vehicle" communication (or V2V) it is being tested on 3,000 cars in and around Ann Arbor, Michigan by the University of Michigan. It is also lauded as a key safety advance by the National Highway Traffic Safety Administration (NHTSA).

According to the NHTSA safercar.gov website, V2V communication technology shows great promise in transforming the way Americans travel. Using V2V technology, vehicles ranging from cars to trucks and buses to trains could one day be able to communicate important safety and mobility information to one another that can help save lives, prevent injuries, ease traffic congestion, and improve the environment."

Cars will also be monitoring drivers. Not only will cars learn our habits through the common routes we drive and the times we drive them, but it will use this information to suggest alternate routes to avoid traffic or maximize fuel economy. Ford and Mercedes-Benz are working on these types of systems. Cars are also expected to monitor a driver's health through biometric information, to make sure the driver is awake and to help drivers avoid accidents. According to CNN, Nissan is working on a system to measure a driver's sweat while touching the transmission knob to determine if the driver has had too much alcohol. Other companies are developing systems to make sure a driver is watching the road, not falling asleep at the wheel, and not having a heart attack or stroke.

These are just some of the advances being developed that could make driving safer for us all.

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Catching a Hybrid Taxi Is Getting Easier

For nearly a century, vehicles fueled by fossil fuels have been major contributors to Southern California's smoggy skies. To help decrease emissions, more and more people are seeing alternative fueled taxis rolling around their town.

Taxis drive many miles more than the average privately-owned car. For instance, the average New York City taxicab drives 70,000 miles each year and is retired when its odometer reaches 300,000 miles. Thus, replacing one taxi with a hybrid will reduce more emissions than replacing an average private passenger vehicle. With the rise in gas prices over the last decade, and taxis logging so many miles each day, it is also a huge cost savings for taxi companies to switch to alternative fuel vehicles.

Cities in the South Coast region were among the first to adopt hybrids for their taxi fleets. Starting in 2002, Yellow Cab in Orange County embarked on the first green-fleet initiative in California. They introduced fifty taxis that run on compressed natural gas (CNG) and now have over 150 CNG taxis along with a number of hybrids. Then in 2008, the cities of Burbank and Long Beach launched hybrids in their taxi fleets, and the City of Los Angeles joined them in 2009. Currently, around 70% of Yellow Cab's fleet in Los Angeles and San Bernardino counties runs on CNG or are hybrids, and some can get up to 55 miles per gallon. California law requires each municipality to develop taxicab regulations, but cities do not maintain taxi fleets.

Also, in 2001, SCAQMD Rule 1194 Commercial Airport Ground Access required taxis operating at local airports to transition fleets to be Super Ultra Low Emission Vehicles (SULEV) or Ultra Low Emission Vehicles (ULEV).

Meanwhile, other cities are experimenting with battery electric taxis. New York City is conducting an electric taxi program with selected taxis running completely on electricity for one year. This pilot program is the first step toward the goal of having one-third of the City's taxis electric by 2020. Around the world, electric taxis are becoming more common. London just initiated a pilot program featuring all-electric models of its traditional "black cabs." Paris, Bogota, Osaka, Amsterdam, and Oslo also have large electric taxi fleets. Most use Nissan LEAFs, but some even feature Tesla Model S vehicles.

SCAQMD ADVISOR

This bimonthly news publication is produced by the South Coast Air Quality Management District's (SCAQMD) Legislative & Public Affairs Office. SCAQMD is the air pollution control agency for Orange County and major portions of Los Angeles, San Bernardino and Riverside Counties. *SCAQMD does not endorse or warrant any products, services or companies mentioned in this publication.*

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