South Coast AQMD

SCAQMD

Cleaning the air that we breath

AQMD ADVISOR

SPECIAL

2014 Clean Car Buying Guide

More Alternative Fuel Vehicles on the Road

By Kailah Byrd, Student Intern

According to the U.S. Energy Information Administration there are over two million clean cars on Americas roadways, manufactured by more than a dozen different automakers. This past year alone, more than 50 new clean cars entered the automobile market, with the largest segment being electric vehicles.

The Electric Drive Transportation Association reports that nearly 160,000 EVs have been sold nationwide since January 2011, and of those, almost half were purchased in 2013. California accounts for one-third of total sales with the numbers increasing monthly. According to a recent report, sales of plug-in electric vehicles (PEVs) in the U.S. overall are projected to grow at an annual rate of 18.6 percent through the next ten years. This is significantly higher than the expected growth rate for the overall light-duty vehicle market during the same period, according to the report from Navigant Research. This report expects that four states, California, New York, Washington and Florida, will lead the way in PEV sales over that period.

California Governor Jerry Brown issued a Zero-Emission Vehicle (ZEV) Action Plan in February 2013 following an Executive Order issued in March 2012 that established a goal of 1.5 million ZEVs on California roads by 2025. This plan details concrete actions that state agencies are taking to help accelerate the market for plug-in electric vehicles and fuel cell electric vehicles. You can take action too. When you are ready to purchase or lease a new vehicle, consider the cleaner alternatives highlighted in this special edition.

About This 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, like plug-in electric cars with green stickers that allow solo drivers access to HOV lanes. Some can get you there cheaper, by lessening your 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. Regardless of your preference, vehicles in this issue can help you make a more informed decision, lower your carbon footprint and help you do your part to clean the air that we breathe. This is why the South Coast Air Quality Management District produced this publication for you. Visit SCAQMD's Clean Air Choices website at *aqmd.gov/cleanair-choices/* to find more information on specific models.

CleanAir CHOICES

Financial Incentives and Other Benefits Available for Clean Vehicle Owners



By Norma Boster, Student Intern

State and federal Incentive programs have made buying a clean vehicle easier than ever for both the environment and drivers' wallets. Prospective car buyers should consider these incentive programs as they prepare to purchase or lease their next vehicle.

There are more clean vehicles on the roads in California than anywhere else in our nation. That may be due to the Clean Vehicle Rebate Project, administered by the California Air Resources Board, which offers rebates up to $2,500 for the purchase or lease of plug-in hybrid electric and zero-emission vehicles.

Federal incentive programs also promote the use of clean vehicles on a national level to help clean our environment. These programs currently offer up to a $7,500 income tax credit for the purchase of plug-in hybrid electric vehicles. Some private companies are also helping their employees purchase hybrid or alternative fuel vehicles by offering incentives that range from $1,000- $5,000.

Besides the cash incentives, owners of clean vehicles receive additional benefits. For instance, some clean vehicle drivers can access High Occupancy Vehicle (HOV) lanes on California freeways with just one occupant. Time is money, and state-issued HOV lane stickers in green (for plug-in hybrids) or white (for battery electric, hydrogen or natural gas vehicles) decrease the amount of time drivers spend sitting in traffic.

Clean vehicle owners can also save on their auto insurance. Geico and AAA, for instance, offer a 5% discount, while Farmers and Travelers Insurance each offer up to a 10% discount on auto insurance for most hybrid and other alternative fuel vehicles. Individuals should check to see if such discounts are available through their insurance provider.

Several gas and electric companies also offer discounted rates for electricity used to charge EVs. Additionally, select cities like Santa Monica and Hermosa Beach provide free metered parking for electric vehicles displaying the Clean Fuel Vehicle sticker.

Visit *www.driveclean.ca.gov/Calculate_Savings/Incentives.php* to learn more about additional state, federal and private incentive programs for clean vehicles.

Dispelling Range Anxiety One New Fuel Station at a Time

By Tiffany Tran, Student Intern

Each year, there are more and more models of alternative fuel vehicles on the market. These attractive choices are often cheaper to fuel and are better for the environment. However, drivers of alternative fuel vehicles sometimes experience what is commonly known as "range anxiety." That's the fear that the vehicle has insufficient fuel to reach its destination, leaving the vehicle's occupants stranded somewhere far from a station. The feeling can be caused either when there are not enough refueling stations located in an area, or drivers are uncertain where refueling stations are located.

The availability of more and more stations operating throughout the Southland can make range anxiety a distant memory. Whether you need an EV charger or access to a CNG, LNG or hydrogen fuel pump, refueling stations are closer than you think.

To find the closest fueling station, download the free SCAQMD smartphone app (it's available for iPhone and Android) which provides an updated list of refueling locations by fuel type across the South Coast basin. Visit *http://tinyurl.com/kjyxrz3* for a national list of alternative fuel stations.

2014 Models

Clean Air Choice Vehicles

Advanced Technology - Zero-Emission Vehicles (ZEVs)

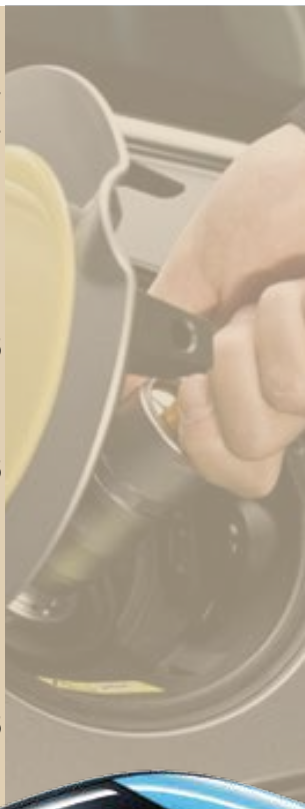
ZEV is an acronym for **Z**ero **E**mission **V**ehicle. A ZEV has zero tailpipe emissions and emits 98 percent cleaner emissions than the current model year's average vehicle. Electric-only vehicles and fuel cell vehicles qualify as ZEVs.

ZEVs

Vehicles	Incentives	Passengers	Carbon Footprint (CO_2 tons/yr)*	Battery Range	240 V Charging Time (hrs)
Chevrolet *Spark EV* (City/Hwy)* 128/109	**	4	0	82	7
Fiat *500e* (City/Hwy)* 122/108	**	4	0	87	4
Ford *Focus FWD BEV* (City/Hwy)* 110/99	**	5	0	76	3.6
Honda *Fit EV* (City/Hwy)* 132/105	**	5	0	82	4
Mitsubishi *i-MiEV* (City/Hwy)* 126/99	**	4	0	62	7
Nissan *Leaf* (City/Hwy)* 128/109	**	5	0	75	4
Smart *Convertible EV Coupe EV* (City/Hwy)* 122/93	**	2	0	76	6
Tesla *Model S 60kWh* (City/Hwy)* 94/97	**	5	0	208	10
Toyota *RAV4EV* (City/Hwy)* 78/74	**	5	0	103	6

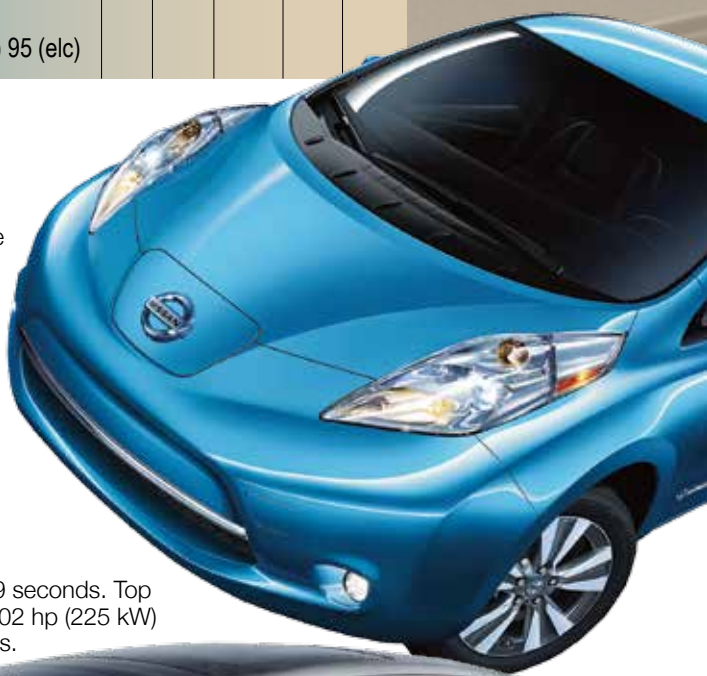
AT-PZEVs Plug-In Hybrid Electric Vehicle

Vehicles	Incentives	Passengers	Carbon Footprint (CO_2 tons/yr)*	Battery Range	240 V Charging Time (hrs)
Chevrolet *Volt (Plug-In Hybrid gas-electric)* (City/Hwy)* 35/40 (gas) 98 (elc)	**	4	1.4	38	4
Ford *Fusion Energi (Plug-In Hybrid gas-electric)* (City/Hwy)* 44/41 (gas) 100 (elc)	**	5	1.8	21	2.5
Ford *C-Max Energi (plug-In Hybrid gas-electric)* (City/Hwy)* 44/41 (gas) 100 (elc)	**	5	1.8	21	2.5
Honda *Accord (plug-In Hybrid gas-electric)* (City/Hwy)* 47/46 (gas) 115 (elc)	**	5	2.1	13	1
Toyota *Prius Plug-In (Hybrid gas-electric)* (City/Hwy)* 51/49 (gas) 95 (elc)	**	5	2.2	11	1.5



LEAF

The Nissan LEAF is 100% electric. It has an EPA average range of 75 miles and does not use a single drop of gas. It has zero emissions and no tailpipe.



Tesla S

Zero to 60 MPH in 5.9 seconds. Top speed of 120 MPH. 302 hp (225 kW) Zero tailpipe emissions.

**Maximum Federal Tax Credit: $7,500 / CA State Tax Credit: $2,500

*Approximate MPG based on 204 model year data; Carbon Footprint information based on vehicle driven 15,000 miles per year.

Source: *fueleconomy.gov* For more information, see CARB's website at *arb.ca.gov/msprog/onroad/cert/cert.php*

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

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.

Clean Air Choice Vehicles

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

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 waranty.

AT-PZEVs

Vehicles	Incentives	Passengers	Carbon Footprint (CO_2 tons/yr)*
Acura *ILX (Hybrid gas-electric)* (City/Hwy)* 39/38	**	5	3.8
Buick *Regal eAssist (2.4) (Hybrid gas-electric)* (City/Hwy)* 25/36	**	5	5
Buick *LaCrosse eAssist (2.4) (Hybrid gas-electric)* (City/Hwy)* 25/36	**	5	5
Chevrolet *Impala eAssist (Hybrid gas-electric)* (City/Hwy)* 25/35	**	5	5.1
Chevrolet *Malibu eAssist (Hybrid gas-electric)* (City/Hwy)* 25/36	**	5	5
Honda *Accord (Hybrid gas-electric)* (City/Hwy)* 50/45	**	5	3.1
Honda *CR-Z (Hybrid gas-electric)* (City/Hwy)* 36/39	**	5	3.9

AT-PZEVs

Vehicles	Incentives	Passengers	Carbon Footprint (CO_2 tons/yr)*
Honda *Insight (Hybrid gas-electric)* (City/Hwy)* 41/44	**	5	3.5
Hyundai *Sonata, Sonata Limited (Hybrid gas-electric)* (City/Hwy)* 36/40	**	5	3.9
Kia *Optima, Optima Ex Hybrid gas-electric)* (City/Hwy)* 36/40	**	5	3.9
Mercedes *E 400 (Hybrid gas-electric)* (City/Hwy)* 24/30	**	5	5.6
Toyota *Camry LE, Camry SE, Camry XLE (Hybrid gas-electric)* (City/Hwy)* 43/39	**	5	3.6
Toyota *Prius Hybrid gas-electric)* (City/Hwy)* 51/48	**	5	3
Volkswagen *Jetta (Hybrid gas-electric)* (City/Hwy)* 47/46	**	5	3.3

Prius

Prius offers an EPA-estimated 51 mpg city/48 mpg highway. In addition to normal operating mode Prius offers three driver-selectable modes: EV, ECO and POWER; with EV Mode allowing Prius to run on battery power only for up to one mile.

**driveclean.ca.gov for list of incentives

Cadillac XTS

New to the XTS is Automatic Parking Assist. Once activated, this available system will locate a suitable parallel parking spot and then help you park your car.

Clean Air Choice Vehicles

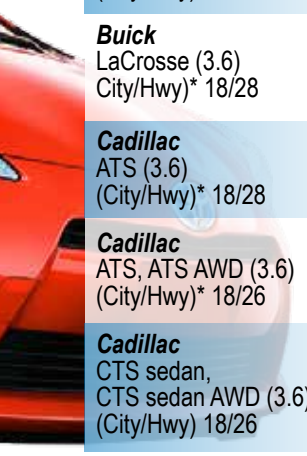
Partial Zero-Emission Vehicles (PZEVs)

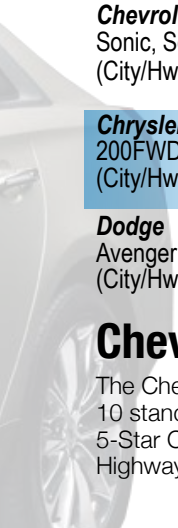
PZEV is an acronym for **P**artial **Z**ero **E**mission **V**ehicle. PZEVs are modern vehicles with advanced engines equipped with cutting-edge emissions controls. PZEVs run on gasoline, yet offer extremely clean emissions with zero evaporative emissions. However some PZEVs don't concurrently offer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

PZEVs Vehicles	Passengers	Carbon Footprint (CO_2 tons/yr)*
BMW 328i, 328i xDrive, 428i Convertible 428i Coup, 428i Coup xDrive (City/Hwy)* 23/35	5	5.3
Buick LaCrosse (3.6) City/Hwy)* 18/28	5	6.9
Cadillac ATS (3.6) (City/Hwy)* 18/28	5	6.9
Cadillac ATS, ATS AWD (3.6) (City/Hwy)* 18/26	5	7.1
Cadillac CTS sedan, CTS sedan AWD (3.6) (City/Hwy) 18/26	5	7.1
Cadillac XTS (3.6) (City/Hwy)* 18/28	5	6.9
Chevrolet Cruze (1.8) (City/Hwy)* 22/35	5	5.5
Chevrolet Equinox FWD, AWD (2.4) (City/Hwy)* 20/29	5	6.3
Chevrolet Impala (2.5) (City/Hwy)* 21/31	5	6
Chevrolet Sonic, Sonic 5 (1.8) (City/Hwy)* 25/35	5	5.2
Chrysler 200FWD (2.4) (City/Hwy)* 20/31	5	6.2
Dodge Avenger (2.4) (City/Hwy)* 21/30	5	6.2

PZEVs Vehicles	Passengers	Carbon Footprint (CO_2 tons/yr)*
Ford Focus (2.0) (City/Hwy)* 27/37	5	4.8
Ford Fusion (1.5) (City/Hwy)* 23/36	5	5.3
GMC Terrain FWD, AWD (2.4) (City/Hwy)* 20/29	5	6.3
Honda Accord (2.4) (City/Hwy)* 27/36	5	4.9
Honda Accord (3.5) (City/Hwy)* 21/34	5	5.8
Honda Civic (1.8) (City/Hwy)* 28/39	5	4.6
Hyundai Elantra (1.8) (City/Hwy)* 28/38	5	4.6
Hyundai Elantra, Elantra Coup (2.0) (City/Hwy)* 24/34	5	5.3
Hyundai Sonata (2.4) (City/Hwy)* 24/35	5	5.3
Kia Forte, Forte Eco (1.8) (City/Hwy)* 25/36	5	5.1
Kia Forte, Forte 5, Forte Coupe (2.0) (City/Hwy)* 24/34	5	5.3
Kia Optima (2.4) (City/Hwy)* 23/34	5	5.3

PZEVs Vehicles	Passengers	Carbon Footprint (CO_2 tons/yr)*
Kia Sportage 2WD, 4WD (2.4) (City/Hwy)* 19/26	5	6.6
Mazda 3 (2.0) (City/Hwy)* 30/41	5	4.3
Mazda 6 (2.5) (City/Hwy)* 26/38	5	4.8
Mercedes C 300 4MATIC, C 350, E 350, E 350 Coupe, E 350 4MATIC, E 350 4MATIC Coupe (City/Hwy)* 20/29	5	6.3
Mercedes GLK 350, GLK 350 4MATIC (City/Hwy)* 19/26	5	6.8
Subaru Impreza AWD (2.0) (City/Hwy)* 27/36	5	4.9
Subaru Impreza Wagon AWD (2.0) (City/Hwy)* 27/36	5	4.9
Subaru Legacy AWD (2.5) (City/Hwy)* 24/32	5	5.4
Subaru Forester AWD (2.5) (City/Hwy)* 24/32	5	5.4
Subaru Outback AWD Wagon (2.5) (City/Hwy)* 24/30	5	5.6
Subaru XV Crosstrek AWD (2.0) (City/Hwy)* 25/33	5	5.2





Chevrolet Cruze

The Chevrolet Cruze is the first car in its class with 10 standard airbags, helping earn the 2014 Cruze a 5-Star Overall Vehicle Score from the National Highway Traffic Safety Administration.

Clean Air Choice Vehicles

Partial Zero-Emission Vehicles (PZEVs)

2014 Models

PZEVs

Vehicles	Passengers	Carbon Footprint (CO_2 tons/yr)*
Toyota Camry (2.5) (City/Hwy)* 25/35	5	5.2
Volkswagen Beetle, Beetle Convertible (2.0), (1.8),(2.5) (City/Hwy)* 23/29	4	5.9
Volkswagen CC (2.0) (City/Hwy) 21/31	5	5.8
Volkswagen Golf (2.5) (City/Hwy)* 23/30	5	5.7
Volkswagen Passat (1.8) (City/Hwy)* 24/34	5	5.3
Volkswagen Passat (2.0) (City/Hwy)* 22/31	5	5.8
Volkswagen Jetta (1.8) (City/Hwy)* 25/36	5	5.1
Volkswagen Jetta, Jetta Sports Wagen (2.5) (City/Hwy)* 23/30	5	5.7
Volkswagen GTI (2.0) (City/Hwy)* 24/32	5	5.5

PZEVs

Vehicles	Passengers	Carbon Footprint (CO_2 tons/yr)*
Volkswagen Jetta GLI (2.0) (City/Hwy)* 23/29	5	5.7
Volvo S80 (3.2) (City/Hwy)* 20/29	5	6.3
Volvo XC60 (3.2) (City/Hwy)* 18/26	5	6.8
Volvo XC60 AWD (3.2) (City/Hwy)* 18/25	5	7.1
Volvo XC70 (3.2) (City/Hwy)* 18/26	5	6.8
Volvo XC70 AWD (3.2) (City/Hwy)* 18/25	5	7.1

Subaru Forester

Every Forester 2.5i model is a Partial Zero Emission Vehicle (PZEV), meaning it exceeds California's stringent emissions standards and offers lower emissions than some hybrid or alternative fuel vehicles.

Approximate MPG based on 2014 model year data; Carbon Footprint information based on vehicle driven 15,000 miles per year.

Source: *fueleconomy.gov* For more information, see CARB's website at *arb.ca.gov/msprog/onroad/cert/cert.php*

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

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.

SCAQMD Employees Adopting Cleaner Technologies

By Louis Penna II, Student Intern

The electric car - it's a clean, green, environmentally-friendly machine. Ditch the gas pump, the future is here.

With leasing options starting as low as $199 per month and substantial incentive programs that make certain models more affordable than most mid-level sedans, automakers have finally brought their technology and price range for these futuristic vehicles down to Earth.

SCAQMD has its own way of sweetening the deal. Employees hired prior to 2006 who drive their all-electric vehicle to work can receive a rideshare incentive of up to $85 a month. SCAQMD has several EV chargers available for employees to recharge their vehicles while they work.

The incentives spurred one rideshare group to jointly lease a Nissan Leaf. The three employees, Information Management, Systems & Programming Supervisors Saad Karam and David Yeh, along with Systems Analyst George Haddad, have been carpooling together for over a decade. When they calculated that they could share a new car with little out of pocket costs they leased the vehicle in 2013. The state's $2,500 incentive covered their down payment and the combined monthly rideshare incentive payment each receives from SCAQMD covers the car's monthly payment. According to Karam, "We just pay a little bit out of pocket each month to cover the insurance."

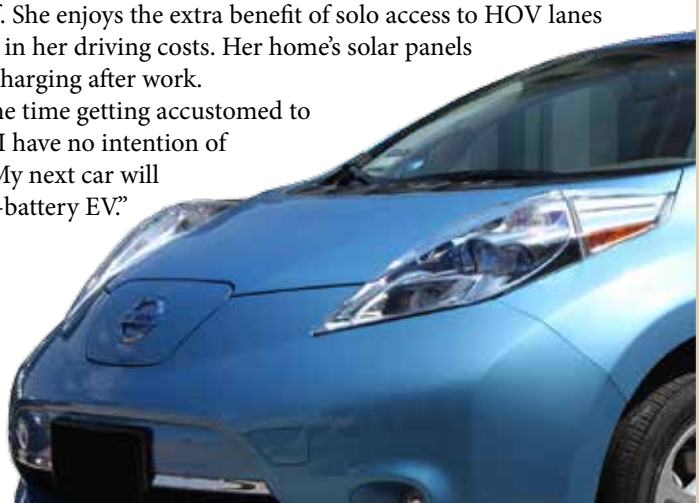
Though incentive-laden, some consumers may be hesitant to sign on the dotted line. Without the comfort of a 20-gallon tank, there is the worry that running out of power could turn their modern transportation machine into a half-ton brick on the freeway.

But Jeanne Pandes Villacorte, an Air Quality Engineer II, doesn't feel anxious during her 56-mile commute.

"Having access to workplace charging eliminates the doubt of being able to make the commute, including being able to handle unexpected trips," said Villacorte.

As a working mom with two kids in school, Villacorte has put over 37,000 miles on her 2011 Nissan Leaf. She enjoys the extra benefit of solo access to HOV lanes and the 80 percent drop in her driving costs. Her home's solar panels help foot the bill while charging after work.

"At first, it took some time getting accustomed to driving an EV. But now I have no intention of going back to gas cars. My next car will definitely be another all-battery EV."



First it was hybrids, then all-electric vehicles. What's next? Fuel cell vehicles, of course

By Marc Carrel

In 2000, Toyota began a revolution by introducing the Prius to the U.S. The then-unheard of hybrid vehicle claimed a fuel efficiency rating of 48 mpg (equivalent to 41 mpg today) due to its gas-electric motor and regenerative braking that recharges the car's battery. The Prius was a hit. By 2011 Toyota sold over a million of the new hybrid in the U.S.

A decade later, in 2010, Nissan introduced the LEAF, which has become the best selling all-electric car in history with over 50,000 units sold worldwide by February 2013. Today there are dozens of alternative fuel vehicles on the market.

But with technology moving so quickly, the newest clean vehicle technology, hydrogen, is expected to be powering cars in 2015. Honda Motor Co. and Toyota plan to have hydrogen-powered fuel cell vehicles (FCVs) in their showrooms next year. Hyundai Motor Co. recently announced it will offer a fuel-cell version of its Tucson crossover model in Spring 2014. This would make it the first federally certified hydrogen fuel-cell vehicle available for mass-market sale in the United States.

FCV hydrogen cars have a range similar to gasoline-powered vehicles, take just as much time to refuel (3-5 minutes) and do not produce any tailpipe emissions. Production capacity for these vehicles is expected to increase over the coming years as automakers work to meet the corporate average fuel economy target of 54.5 mpg. Automakers are also required to meet California's goal of 15.4% of the state's vehicles being zero-emissions vehicles by 2025.

The tricky part in encouraging the general public to adopt FCVs is to ensure there is adequate refueling locations for hydrogen fuel cell vehicles. California's recently adopted legislation, which SCAQMD strongly supported, will provide more than $200 million in funding to build at least 100 hydrogen fueling stations by 2025. The Golden State currently has 10 publicly-available hydrogen fueling stations. Automakers have said they're focusing on selling fuel-cell vehicles in California initially, then expanding to other states when more hydrogen fueling stations are available.

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Rental Car Companies Offering Electric Options

by Michelle Cirrito, Student Intern

Several major rental car companies are providing electric vehicles for rent in Southern California. Among these is Enterprise Holdings, which now offers customers cleaner choices through its three rental car companies, Enterprise, Alamo and National. With this new option, individuals are able to express their pledge to sustainability by selecting a plug-in electric vehicle (EV). In addition, EV charging stations will be installed at select Enterprise locations. Together, these options offer customers the opportunity to make a simple choice that will benefit the environment.

Hertz is also offering an all-electric option by making Tesla Model S available to rent as part of its Dream Cars collection that includes other high end vehicles such as models from Ferrari, Porsche and Lamborghini. The Tesla vehicle is only available to rent from its San Francisco and Los Angeles airport locations. Hertz' Green Traveler Collecion includes a line of alternative fuel vehicles, including EVs for rent in New York, Washington, D.C., San Francisco, London, and two cities in China.

Enterprise's goal is to spark the general public's interest in clean vehicles. For curious consumers, renting an EV or hybrid car for a weekend could encourage them to consider going green when purchasing their next car, truck or SUV. The inclusion of EVs and other clean vehicle options in both the Enterprise and Hertz fleets is an innovative leap towards advancing our region's automotive future.

Other companies, such as Avis Budget Group, which owns Avis and Budget Car Rentals, offer the Toyota Prius hybrid model for rent, but have not added EVs to their rental fleets.

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