



## The Hybrid Vehicle and Alternative Fuel Report

### January 15, 2011

This report is a summary of articles appearing in popular, business, and technical media referring to the impact of fuel costs and fuel efficiency on vehicle technology, development, and markets. At the end of the report is a list of all articles summarized, with hyperlinks to internet sources where available. Some hyperlinks may require free registration or paid subscriptions to access. *The Hybrid Vehicle and Alternative Fuel Report* (ISSN: 1946-1011) is compiled by Thomas L. R. Smith, Ph. D., Economic Analysis Branch, Budget and Financial Analysis Office, Washington State Department of Transportation. Contact the editor at [smithtm@wsdot.wa.gov](mailto:smithtm@wsdot.wa.gov) or (360) 705-7941. Contributions of articles and positive comments about *The Report* are welcome.

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It's January 15<sup>th</sup> and this is the first *Hybrid Report* of 2011. Because of the holiday hiatus and the recent Detroit Auto Show, *The Report* is just chocky-jam full of hybrid vehicle and alternative fuel news. In the month since our last issue, we've more than doubled our subscription list, so to both our old faithful and new readers, welcome to *The Hybrid Report!*

### HYBRIDS

**National Hybrid Sales for December:** Brad Berman (January 5, 2011) of [hybridcars.com](http://hybridcars.com) has analyzed hybrid sales for December 2010 and reports that December was the best month of 2010 for hybrid sales. December hybrid sales were up 13.6% over December 2009. The Toyota Prius accounted for over half the hybrids sold. Mr. Berman points out that Prius sales from 2009 to 2010 were flat, however the rest of Toyota's line-up declined year-over-year. Mr. Berman also reports that the Chevy Volt sold 326 cars in December and Nissan sold 19 Leaves. Overall, however, hybrid sales were down for the third year in a row, Mr. Berman (January 7, 2011) said in a separate [report](#). Sales for hybrids dropped 6% in 2010, while the rest of the car market increased by 11%. While some hybrid critics may argue that these stats show that hybrids are not really a viable technology, Mr. Berman argues that there were a number of factors that, when combined lowered sails. In addition to dropping gas prices and an overall recession, Mr. Berman says that many of the hybrids offered "seem like experiments from half-hearted automakers." With higher fuel efficiency rules and increasing gas prices on the horizon, there is much more motivation for carmakers to increase hybrid production and buyers to buy hybrids.

Now hear this: Both houses of Congress passed the *Pedestrian Safety Enhancement Act of 2010* on December 17, 2010 and President Obama signed the law on January 4th ([Shepardson](#), January 4, 2011). The new law requires the Secretary of Transportation "to study and establish a motor vehicle safety standard that provides for a means of alerting blind and other pedestrians of motor vehicle operation" (S. 841, 2010). The bill requires USDOT to establish rules for new electric and hybrid cars to emit noises allowing pedestrians to know if an otherwise silent car is in the vicinity and whether the car is speeding up or slowing down. The rules allow for multiple sounds, but require "the same set of sounds" for the same make and model. The warning sounds must also be automatic and they cannot be disabled, altered, or replaced by users. That means

you can't make your Prius sound like a Porsche. Sorry, it's the law. The rules for warning noises must consider "the overall community noise impact." USDOT has 18 months to establish the rules. Once the rules are established, manufactures will have three years to phase in the warning noises. The bill also requires USDOT to report to Congress in three years on whether noise standards should be set for conventional motor vehicles. While it is *The Hybrid Report's* mission to relay the news and not express opinion, we do have one on this story: we would like the noise to sound like a bicycle bell.

The first Chevrolet Volt "extended-range" electric vehicles were shipped from a factory in a town (the name of which we can neither spell nor pronounce) near Detroit to dealers in New York and Washington, D. C. GM originally planned to deliver Volts in late November or early December but held up delivery to perform additional testing in Alaska, the *Detroit Free Press* (Thompson, December 14, 2010) reported. Jeffrey Kaffee, a retired airline pilot from New Jersey, traded in a Toyota Prius to receive the first Volt, according to *Automotive News* (Colias, December 15, 2010). Speaking of "extended-range" Volts, Don Sherman (December 24, 2010) of *The New York Times* explains why the Volt is a plug-in hybrid and not an electric car. The Volt has three, count 'em, three motors and operates in five modes. The motors are an 84 hp 1.4 liter gas engine, an electric motor rated for 149 hp, and an electric motor rated for 74 hp. The vehicle can operate on a single electric motor to about 50 mph, then the second electric motor kicks in. When the batteries are low, the gas engine can turn on to replenish the batteries. The gas engine can also come on at high speeds and provide up to 70% of the power to the wheels. The Volt also beat the Nissan Leaf and Hyundai Sonata in balloting for the North American Car of the Year, *Automotive News* (Abdel-Razzaq & Phillips, January 10, 2011), announced. The Car of the Year is selected by automotive journalists at the Detroit Auto Show.

The union that represents officers of the Queensland, Australia Police Service claims there is a small problem with the 100 Toyota Camry hybrids they recently bought: the trunks are too small for all the gear officers are required to carry, the *Courier Mail* (Knowles, December 25, 2010) said. A Camry hybrid has a smaller trunk than a conventional Camry because of the hybrid batteries. Additionally, the officers, themselves, have difficulty fitting in the cars when the officers wear their equipment belts, according to the union.

Vista Engineering Technologies of Richland, Washington will convert hybrid cars into plug-in hybrids that can travel farther in electric-only mode, Spokane's *The Spokesman-Review* (Prager, January 3, 2011) reviewed. Vista's conversion will cost between \$5,000 and \$10,000. Vista believes that Eastern Washington is ideal for vehicle electrification because that part of the State has some of the lowest electric rates and the highest gas prices in the country.

The Nashville (Tennessee) Electric Service (NES) believes it knows where it should put electrical vehicle chargers and where substations on the power grid need upgrading by using geographic information system (GIS) software and data from 2007 JD Power survey on hybrid car owners, an *ABC News* (Dickerson, January 5, 2011) report says. The JD Power report looked at who was buying hybrids and discovered that the typical buyer was a female Democrat with an advanced degree who are wealthier than average and lives close to work and NES believe those

same people will be the first buyers of electric cars. So using Census data<sup>1</sup> in a GIS mapping program, NES mapped the most likely neighborhoods for electric vehicles.

The Russians are coming: The Russian billionaire and owner of the New Jersey Nets basketball team Mikhail Prokhorov is introducing Russia's first hybrid, the Yo, *AltTransport* (Cholia, January 5, 2011) reports. The Yo is a natural gas-electric hybrid that is expected to get 68 mpg and will sell for 450,000 Rubles or about \$14,622.97. The vehicle is also equipped with GLONASS<sup>2</sup> navigation equipment, which is the Russian version of GPS, as standard equipment *GPS World* (January 5, 2011) relays.

After years of speculation, Toyota announced at the Detroit Auto Show that it was introducing three new Prius models in an effort to keep Toyota on top of the hybrid market, *Automotive News* (Sedgwick, January 10, 2011) reported. The three new Prii are a Prius station wagon that has more cargo room; a plug-in Prius that can go 13 miles on electricity and charges in 90 minutes to 3 hours, depending on voltage; and the "city" car that is much smaller than the current Prius. The Prius wagon comes out this summer, while the other two Prii will arrive in stores in 2012. Analysts say that the plug-in Prius is intended to compete with the Volt. While its electric only range is miniscule when compared to the Volt, the price tag on the plug-in Prius is much cheaper. The "city" car is designed to compete with Honda's CR-Z hybrid.

Ford also revealed three new hybrid and electrics at the Detroit Auto Show, according to the *Detroit Free Press* (Snaveley & Phelan, January 10, 2011). Ford will begin selling hybrid and plug-in hybrid C-Max five passenger mini-vans in 2012. Ford also showed off its electric Ford Focus, which it first introduced in Las Vegas (read more about the Focus in the **ELECTRIC VEHICLES** section of this report). Ford is comparing the C-Max to the Model T, but in a good way, by saying that Ford was "bringing leading edge technology to the market on a larger scale" (Bill Ford in Snaveley & Phelan).

Not to be outdone by either Ford or Toyota announcements of additional hybrid models, in an *Automotive News* exclusive (meaning you have to pay to get access to the article, so we can't link to it or provide more detail) General Motors will introduce a minivan Volt and a hatchback in the upcoming years (Colias & Treece, January 11, 2011). Additionally, GM is already planning to increase 2011 production of the Volt. Originally set at 10,000 Volts, GM was planning to increase Voltage to 20,000. Now GM is planning to produce 25,000 Volts, according to an *Automotive News* (Colias, January 12, 2011) report carried by *Autoweek*.

## ALTERNATIVE FUELS

In the last *Hybrid Report*, we reported that ethanol producers were concerned that tax credits supporting ethanol production and a tariff protecting domestic ethanol from foreign imports would expire on December 31<sup>st</sup> when provisions in the *Energy Policy Act of 2005* sunset (Oil & Gas News, December 13, 2010). We are not exactly sure how this happened but, the US Senate took House of Representatives Bill 5809, called *An Act to amend the Controlled*

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<sup>1</sup> I did not know the Census keeps track of where Democrats live.

<sup>2</sup> We believe GLONASS stands for Global Navigation Satellite System.

*Substances Act to provide for take-back disposal of controlled substance in certain instances, and for other purposes, removed all references to controlled substances, and amended the bill to become the Diesel Emissions Reduction Act of 2010, which restores the incentives and tax breaks for biodiesel production. The House agreed to the amendment.*

In the **HYBRID** section of this issue, we reported on the delivery of the first Chevy Volt and in the **ELECTRIC VEHICLES** section, you'll read about the first Seattle area delivery of the Nissan Leaf. Here, you'll find that Mercedes-Benz leased its first hydrogen fuel cell vehicle to a driver in California. The Mercedes leases for \$850 per month. It can travel 240 miles on a tank of hydrogen, which costs about \$20 to fill, CNET's *cartech* blog (Yvkoff, December 17, 2010) blogged. The car is only available in San Francisco and Los Angeles, the only parts of the world that have hydrogen stations. While this is Mercedes first hydrogen car, Honda has offered hydrogen Civics in California for several years.

Last October, the EPA issued a rule allowing fuel blenders to distribute gasoline with up to 15% ethanol. *Automotive News* (December 20, 2010) reports that a consortium of engine and automobile manufacturers is asking a federal court to require the EPA to take a new look at the rule. The manufacturers believe that the rules violate the Clean Air Act which prohibits fuels that could damage engines. The consortium claims that concentrations of ethanol higher than 15% will damage most engines and that the EPA ignored the available science that supports that.

*Autoweek* car reviewer Mark Vaughn (January 11, 2011) invokes the Grateful Dead when he describes his trip from Los Angeles to Las Vegas in a compressed natural gas (CNG) powered Honda Civic as a "long, strange trip."<sup>3</sup> While Mr. Vaughn says he has little problem finding CNG refueling stations in the Los Angeles area, he was a bit concerned about finding the fuel on the road to Vegas. Mr. Vaughn was fortunate in finding two stations on the highway between LA and Vegas, however, once in Vegas he had some difficulty. A station listed in his guidebook was not longer in existence and others required special credit card accounts. He did find a station, though, but his tale is full of close calls and fuel pumps that were in various states of disrepair. Mr. Vaughn does compare the CNG vehicle favorably with an electric. In an electric, he says, you are always planning your next recharge, while with a CNG vehicle the range allows you to be "far more complacent." Oh, and if invoking the Grateful Dead is not good enough for you, one of the online comments to the article quotes funk-fusion band Tower of Power.

## ELECTRIC VEHICLES

Competition rears its ugly head: Seth Stark of WSDOT has brought it to our attention that the Electric Drive Transportation Association produces *The Electric Drive Report*, which summarizes news stories about hybrid, electric, and alternative fuel vehicles. That report is available [here](#). *The Electric Drive Report* is a free weekly, but unlike *The Hybrid Report*, it is supported by advertising revenue.

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<sup>3</sup> Jerry Garcia, Bob Weir, Phil Lesh, and Robert Hunter, "Truckin," *American Beauty*, Warner Bros. Records, ASCAP, 1970.

Jennifer Steele and Jonathan Hoekstra took delivery of Seattle's first Nissan Leaf all-electric car at Stadium Nissan, [Publicola](#) (Hawkins, December 17, 2010). Leaf owners took delivery in California and Oregon a day or two earlier than the Seattle delivery. [Publicola](#) reports that it costs less than \$3.00 to fully charge the Leaf and the vehicle is made of recycled components. Even though Nissan has begun to deliver new cars to buyers, many on the Leaf waiting list are growing frustrated as Nissan slowly releases the car, the San Jose, CA [Mercury News](#) (Hull, January 9, 2011) reports. Auto analysts say that Nissan is carefully controlling the roll-out because if a problem occurs, it could destroy interest in the car and the market. On the other hand, delivery delays could also blunt interest in the market. People on the waiting list may have to wait up to seven months for their cars.

While we are reporting on first deliveries, the state of Indiana added the first electric cars manufactured by TH!NK's Elkhart, Indiana plant to its motor pool. These are also the first cars made by Norway's Think Global in the United States, [RushLane](#) (Roy, December 18, 2010) informs. The TH!NK gets up to 100 kilometers (that's about 62 miles, American) to a charge. Think Global plans to concentrate on fleet sales to create initial interest in electric vehicles. Meanwhile, Jim Motavalli (December 21, 2010) writes in CBS's [BNET](#), that Think Global plans to sell its car through big box stores like Best Buy instead of traditional dealerships. According to Mr. Motavalli, Think Global is concentrating on fleet sales as [RushLane](#) reported, because fleet owners tend to perform their own maintenance and don't rely on dealerships for repairs. Elkhart, Indiana is best known as the recreational vehicle manufacturing center of the world. The TH!NK assembly plant is important to Elkhart because it replaced manufacturing jobs lost as RV plants in Elkhart shut down or curtailed manufacturing.

The Philippine Congressional Commission on Science and Technology and Engineering (COMSTE) has identified a number of technologies to use in reducing fuel consumption and carbon emissions in the Philippines, the [Philippine Information Agency](#) (PIA, December 26, 2010) announced. One idea is an electric bicycle made out of bamboo. The bamboo bike is 3 kilograms (6 pounds 10 ounces) lighter than an ordinary bike and it can go 30 kilometers (18.6 miles) over flat ground on a five hour charge. The PIA says the bike is a hybrid and since the electric motor is usually used for power assistance for hills, the range is actually much farther than that. The Philippines imports 96% of the country's petroleum. About 70% of Manila's air pollution comes from the transportation sector.

Crystal Ball: Pike Research (Gartner, 4Q 2010) and hybridcars.com released their ten electric vehicle predictions for 2011 in a free report. Among the predictions are: that most electric vehicles will be owned by rental car companies, taxis, and car-sharing fleets before they are popular among consumers; charging stations will be idle most of the time; and (our favorite) "Someone somewhere will have a bad EV experience and the media will overreact." And when that happens, you can bet *The Hybrid Report* will cover it. Another set of predictions in the report is that "range anxiety" will not be a big issue, but instead, electric car owners will be concerned about how long the vehicle takes to charge. You can go to the [Pike Research](#) website and download a free PDF of the report. Jeff Doyle of Washington State Department of Transportation sent in this report. Not to be out done, Jim Motavalli (December 24, 2010) one of the *New York Times* car commentators made six predictions about electric cars on his [BNET](#) blog. Mr. Motavalli says that electric vehicles will sell out in their first year of production, but this is

primarily because their production levels are so low. The true test, Mr. Motavalli says, comes in the second year. Thanks to frequent contributor Jason Beloso of WSDOT for sending this article in.

Tesla, the maker of the \$107,000 electric sports car says that its battery technology will make its \$57,000 electric sedan more cost effective than the Nissan Leaf, *Bloomberg* (Ohnsman, December 30, 2010) reports. Because the Tesla's battery uses smaller, readily available laptop-style batteries, rather than Leaf's larger, purpose-designed batteries, Tesla believes it can turn a profit while selling fewer cars. Nissan, on the other hand, disagrees and says the Leaf will make money. Dan Sheppard of WSDOT sent this to us from his new iPad.<sup>4</sup>

Cloak and Dagger: Three Renault executives have been suspended and the French intelligence service is investigating them for passing electric car battery and drive train secrets to China, *Automotive News* relates. Renault's Vice President for advanced engineering was the most senior executive to be suspended. Renault is a partner with Nissan and shares the same CEO, Carlos Ghosn. Renault and Nissan are working together on electric cars for the European market. As more information comes to light in *Automotive News Europe* (January 10, 2011) Renault's Chief Operating Officer now claims the information leaked was cost and economic data, but not technical secrets. And while the initial reports did say that the data was passed to China, Renault is now saying the breach of data was made by a professional spy ring and is downplaying any connection with China.

A kiss is just a kiss:<sup>5</sup> Automakers usually use Auto shows to introduce new models, but often will use other venues. Ford introduced its new electric Focus in Las Vegas at the Consumer Electronic Show (2011), *CNET* (Cunningham, January 7, 2011) covered. This is Ford's second electric vehicle, however, since their first electric vehicle was the Transit Connect Van, this is their first electric aimed at consumers. While the car has a range of 100 miles to a charge, Ford says the vehicle will charge in half the time it takes to charge the Nissan Leaf, due to a beefier onboard charging system. *CNET* shows a picture of Ford president and CEO Alan Mulally kissing the Focus on the hood. We wonder if Mr. Mulally ever kissed a Boeing 737.

Kissing a car notwithstanding, one of the more unusual introductions of a new vehicle at the Detroit Auto Show was Volvo's unveiling of its C30 electric car, Pete Danko (January 10, 2011) relates in *EarthTechling*. Instead of a bright, shiny new car, Volvo brought out a car that it had run into a test barrier at 40 mph. The results of the crash, according to Volvo, are that the electrical components of the vehicle will remain intact during a collision.

Washington State Departments of Transportation and Commerce will use money from the federal ARRA stimulus program to install fast charging stations along US Route 2 across the Cascades, the *Seattle PI* (AP, January 13, 2011). The Port of Chelan is also planning to put chargers in several places along in the Cascades. If you are traveling on US 2 and need to recharge, one of the places you may be able to stop and get a charge is the Icicle Ridge Winery, the *Wenatchee World* (Pratt, January 13, 2011) says. The winery plans to install a charger at its

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<sup>4</sup> Remember, the appearance of articles, products, opinions, and links in this summary does not constitute an endorsement of the same by the Washington State Department of Transportation (WSDOT).

<sup>5</sup> Herman Hupfeld, "As Time Goes By," Warner Bros. Music Corporation, ASCAP, 1931.

own expense. We don't know if a red or white goes better with a Leaf. Or if wine isn't your thing, Sleeping Lady resort will install a charging station this Spring. Overnight guests of the resort will get free access, but other visitors will be able to buy electricity from the charging station, *Hotel Inertactive* says.

## OTHER TECHNOLOGY

In popular usage, the word "technology" is used to refer to gizmos, usually those that use computer chips, electronic components, and software. The word actually is derived from Greek and means systematic treatment or literally, the study of art or skill. Collins English Dictionary (2009) defines technology as "the application of practical sciences to industry or commerce" and "the methods, theory, and practices governing such application." The point of all that is to explain the placement of the next summary, the Transportation Research Board-commissioned study, *System Trials to Demonstrate Mileage-Based Road Use Charges*, completed by the Rand Corporation in October. The study was completed because of concern that fuel taxes need to be replaced or supplemented as the primary funding mechanism for our highway system. Among the reasons that fuel taxes are felt to be inadequate are improvements in fuel efficiency and growing interest in fuel economy (and a reluctance to raise gas taxes) (Lemer, Foreword, October 2010). The study looked at several methods federal, state, and local governments could explore in between 2015 and 2020 to implement different types of road user fees. The study is available in PDF from the Transportation Research Board. Click [here](#), then click on the "View This PDF" link.

Clarkson University in Upstate New York has developed a modification for semi-trailers that can cut up to 6.5% of the fuel used in long-haul trucks. The University has been working on the modification for 11 years and is now testing the equipment on trucks owned by Lavalle Transportation Inc., *North County Now* (December 14, 2010) says. When a commercial trailer goes down the road, the back of the trailer "creates a large area of low-pressure suction that pulls back on the trailer." Clarkson's development reduces the low pressure area and moves it further away from the trailer, increasing fuel-efficiency. Thanks to Joseph Tario of the New York State Energy Research and Development Authority for providing this article. In a related development, Tacoma, Washington's Interstate Distributor Company is retrofitting 6,800 trailers with aerodynamic side skirts that should improve fuel usage by 3 to 5%, depending on speed and other driving conditions *FleetOwner* (Kilcarr, January 12, 2011) adds.

Ford is planning to add start-stop technology to non-hybrid vehicles in 2012, an Associated Press article on *MSNBC* says. The system turns a vehicle's engine off when the car comes to a start and restarts the engine when the gas pedal is pressed. A vehicle with start-stop technology will get 4% better fuel efficiency than a regular auto. Ford says that a dashboard light will come on when the engine is off to let the driver know it hasn't stalled, but all other accessories like lights, radio, and air conditioning continue to work.

**SUBSCRIBING TO THE HYBRID REPORT.** *The Hybrid Vehicle and Alternative Fuel Report* (ISSN: 1946-1011) is published in Olympia, Washington on or about the 15<sup>th</sup> and 30<sup>th</sup> of each month, unless it's not. It is available on the WSDOT website by clicking this [link](#). From there, you can download the current report in a PDF, look at back issues, or subscribe to a notification service that lets you know when the next report is available. You may also click this [link](#) to subscribe or contact the editor at [smithm@wsdot.wa.gov](mailto:smithm@wsdot.wa.gov) who can add you to the subscription list.

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