

Chapter 1 : Plug-in hybrid - Wikipedia

Plug-in hybrid electric vehicles (PHEVs) and all-electric vehicles (EVs) are both capable of being powered solely by electricity, which is produced in the U.S. from natural gas, domestic coal, nuclear energy, and renewable resources.

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Overview Hybrid electric vehicles HEVs are praised as being fuel efficient, and good for the environment. Most HEV owners will agree about the gas mileage: On average, HEVs get twice as many miles per gallon as conventional counterparts, data show. But the environmental impact of HEVs is harder to quantify, particularly since they are still relatively new to the automobile market.

Emissions One of the major negative effects of automobiles on the environment is smog-producing gases. Smog is particularly evident in large metropolitan areas, where many thousands of cars are concentrated. The gases that make up smog include nitrogen oxides, hydrocarbons, and other volatile organic compounds. Hybrid cars produce fewer gas emissions than conventional cars, but not as much less as you might think. Generally, the larger the car, the greater the difference in emissions between the hybrid and conventional versions.

Emissions from Plug-in Hybrids Plug-in hybrid cars PHEVs offer drivers the ability to charge their cars from a volt power source, essentially creating a second fuel source. When fully charged, these cars primarily use their electric motors, with gasoline motors for backup only. The gasoline engine can be used as the primary engine if no electric power is available. These cars can get over miles per gallon, and produce very few tailpipe emissions, the California Cars Initiative notes. A negative impact of these cars on the environment depends upon the type of power plants that supply the electrical grids where they are charged. Charging PHEVs in California can thus be very good for the environment, since neither the cars nor the power plants produce harmful emissions. However, several states use mostly coal-burning power plants to produce electricity. In these cases, charging PHEVs produces power-plant emissions that can be just as harmful as tailpipe emissions, according to an Ohio State University study.

Nickel-Hydride and Lithium-Ion Batteries Car batteries have always been a source of concern for environmentalists. Traditional lead-acid car batteries contain high amounts of toxic lead that can seep into the environment, the Hybrid Cars website reports, citing several studies. This can cause serious health problems, such as brain damage, kidney damage and hearing impairment. Hybrid vehicles do not use lead-acid batteries; as of , many use nickel-hydride batteries, with an increasing shift toward lithium ion batteries as hybrid and electric car technology progresses. A three-month research project conducted by Environmental Defense in compared the environmental effects related to the mining, manufacture, use, and disposal of the the three main battery types: The study concluded that lead batteries are the worst for the environment, followed by nickel-hydride, then lithium-ion. The main threat posed by nickel-hydride batteries is that nickel appears to be a human carcinogen.

Chapter 2 : Mitsubishi PH Gives Outlander PHEVs, i-MiEVs to Department of Science and Technology

This excerpt is from Chapter 1, "Why Plug-In Hybrid Electric Cars Can Happen Now," and Chapter 2, "PHEVs Save the Environment and Energy." What is a plug-in hybrid electric vehicle?

Benefits and Conversions Would you like a car that gets miles per gallon? A plug-in hybrid electric vehicle does just that. The book provides details on everything from the energy savings and environmental benefits of plug-in hybrid electric vehicles to the drivetrain components and conversion process. Written by clean energy guru and electric vehicle expert Leitman, this hands-on guide gives you the latest technical information and easy-to-follow instructions for building a plug-in hybrid electric vehicle PHEV. Why should I take a hybrid electric car and convert it to a plug-in hybrid? The best way I can put it is to say that a plug-in hybrid is cleaner and more energy-efficient than a hybrid electric car. A plug-in hybrid can be a gas car with electric batteries that have a range of 20, 30, 40, 50, 60 or 70 miles, or it can be a hybrid electric car that has a purely zero-emission vehicle ZEV range of 20, 30, 40, 50, 60 or 70 miles. If you use your car for commuting to work or driving around town, a plug-in hybrid acts as an electric car all the time you are driving. How important is that? I am an electric vehicle purist at heart, and to transform the automobile market, we need more electric and fewer gasoline-powered cars. Plug-in hybrid electric vehicles PHEVs combine the benefits of pure electric vehicles and those of hybrid electric vehicles. Like pure electric vehicles, they plug in to the electric grid and can be powered by the stored electricity alone. Like hybrid electric vehicles, they have engines that enable them to have a greater driving range and that can recharge the battery. Continue Reading The cost of the electricity needed to power plug-in hybrids for all-electric operation has been estimated at less than one-quarter of the cost of gasoline. Plug-in hybrids use no fossil fuel during their all-electric range if their batteries are charged from nuclear and renewable energy sources. Other benefits include improved national energy security, fewer fill-ups at the filling station, the convenience of recharging at home, opportunities to provide emergency backup power to the home, and vehicle-to-grid applications. Before leaving, he told me that the next step toward full electric vehicles would be the plug-in hybrid and that I should never lose sight of that. I never did, and that is the message of this book. Lifetime service costs are lower for a vehicle that is mainly electric. The report stated that scientists have confirmed that, unlike gasoline cars, plug-ins will get cleaner as they get older "because our power grid is getting cleaner. The study showed that with the increase in the number of PHEVs on the road and the evolving characteristics of the power grid in terms of capacity and carbon intensity, PHEVs will vastly reduce greenhouse gases over the next 40 years. The second study showed that increased PHEV use will reduce greenhouse gases over the next 20 years; even if, in the worst-case scenario, we still use lots of coal, nationwide air quality in terms of other emissions will also improve. Both reports match up well with previous studies. The issue keeps being raised, although studies are conclusive. A California Air Resources Board CARB study showed that battery electric vehicles emit at least 67 percent less greenhouse gases than gasoline cars "even more assuming the power is generated with renewable energy sources. A PHEV with only a mile all-electric range emits 62 percent less. An Argonne researcher reached consensus with researchers from other national labs, universities, the Air Resources Board, automakers, utilities and Arthur D. Little to estimate in July that PHEVs using nighttime power reduce greenhouse gases by 46 to 61 percent. During, many government and industry researchers have been focusing on determining what range for all-electric operation is economically optimum for the design. Using the average U. PHEVs are meant to be plugged in at night. In many areas of the country, overnight power is available at a lower cost. In some areas where wind and hydropower are wasted at night, the rate can be as low as 2 to 3 cents per kWh. However, a conversion by building your own will cost much less and will increase the payback. People routinely pay more for such options as sunroofs, automatic transmissions, V8 engines and leather seats. This means that the more maintenance-free electrical systems of PHEVs offset the initial higher cost of batteries. The costs and benefits of cars extend far beyond an individual driver to society as a whole. But when people talk about payback, they refer only to the net dollars to the driver. Congress asking that a minimum sound standard for hybrids be included in the emissions regulations. Manufacturers are aware of the

problem but have made no pledges yet. You Can Do It! What is happening with plug-in hybrid electric vehicles is merely the beginning. As battery technology improves, PHEVs will get faster, have a longer range, and be even more efficient. All the available technology has just about been squeezed out of internal combustion engine vehicles, and they are going to be even more environmentally squeezed in the future. This will hit each buyer right in the pocketbook — incremental gains will not come inexpensively. Internal combustion engines are nearly at the end of their technological lifetime. Electric vehicles have also been around for more than years, so making a hybrid car and PHEV will greatly improve their range and performance. When you do it yourself, any choice you wish to make for more speed, acceleration or range is readily accommodated. At somewhere around that level, EVs will begin making a dent in the strategic oil, greenhouse gas and air quality problems. This is because of the magic of load leveling. Load leveling means that if PHEVs are used during the day and recharged at night, they perform a great service for their local electric utility. How electricity is generated varies widely from one geographic region to another, and even from city to city in a U. In , the net fuel mix used by electric utilities was Those electric utility plants that produce electricity at the lowest cost i. When owners recharge their PHEVs in the evening hours valley periods , they receive the benefit of an off-peak typically lower electric rate. Because recharging PHEVs raises the valleys and brings up its base-load demand, the electric utility is able to utilize its existing plant capacity more efficiently. This is a tremendous near-term economic benefit to our electric utilities because it represents a new market for electricity sales with no additional associated capital asset expense. I have a motor concept that is outside the box. My potential motor develops a rotating magnetic field. There is a device inside this rotating field that becomes polarized. This device will be repulsed by the rotating magnetic field causing motion. Developed torque will depend on what I am trying to move. The developed current will be trapped and sent back to the batteries for recharging.

Chapter 3 : Using Battery Management Systems for EVs, HEVs, & PHEVs – Pulse Electronics

There are some energy and environment saving tips that if followed to the latter will go a long way in reducing the amount of energy you spend in your home. You will save yourself a lot of money in the long run as well.

For the better part of the last century, all we had was gasoline and diesel. Some companies are even researching and developing hydrogen fuel cells as a new source, but the practicality and popularity of that is a little ways down the road. We all know how they work. We fill up, we drive, we fill up again. A lot of the advantages of gasoline powered vehicles are pretty out-dated with the new fuel sources we have now. We know the disadvantages like the back of our hand. Gasoline vehicles are killing the environment – the Kia Sportage uses It also emits grams per mile of greenhouse gas emissions. Gasoline prices are never the same, and the more oil we use, the higher the prices will be. There are two types of hybrid vehicles, but both use a combination of electricity and gasoline to power a vehicle. Basically, this system puts the electric motor in a hybrid on hold, and an on board generator charges the batteries with electrical energy absorbed each time the vehicle brakes. The advantages of hybrid cars are simple. There are of course disadvantages for hybrids. They may be better for the environment on a global scale, but unless you drive below 60 mph on the highway, the higher fuel economy may not make much of a difference in the long run. We did point out the savings, but just like the tax credit, it will take awhile to pay off. So, you have to weigh your options. Not only do they use gasoline and electricity to power a vehicle, but consumers have the choice of using either fuel source at any time, as long as there is gas in the tank or the battery has a charge. Being able to charge up the battery is apparent, and with regenerative braking in the mix, that leads to even greater fuel economy and the ability to cover much larger distances without filling the tank or stopping to charge up. Most PHEVs can handle the daily commute on electricity alone, which is even better for the environment, and does it really matter if the battery runs empty by the time you get to your destination? We have to be realistic though, people. You hafta spend money to save money, and PHEVs can cost as much as a hybrid if not more. They also share some of the disadvantages that hybrids have. Recharging is a great advantage, but without the proper charging accessory, it can take anywhere from 3 – 9 hours. Plus, batteries evidently die the more frequently we recharge them, so we have a catch 22 here. In the end, the savings may not be worth it, as we mentioned about hybrids. Again, we need to compare the good and the bad and decide to make a smart decision. Electric Vehicles Alright, this is a tricky one. Electric vehicles are automobiles powered solely by electricity. They use about 0. Now for the down side. Sure, a Kia Soul Electric can drive 93 miles, and charging stations are popping up. However, when electricity is the sole power source no pun intended , you gotta keep it charged. However, the savings one gets may well be worth it. Only in recent years have companies given EVs a shot, so we may not see an electric vehicle from our favorite brand for a while. You can also find all of the Kia vehicles mentioned here in our inventory.

Chapter 4 : News features: Environment – theinnatdunvilla.com

On most of these sites, solar-charged driving is a footnote to coverage of EVs, PHEVs, solar power, energy efficiency, green driving, etc. We think these other sources are burying the lead – the fact that everyday individual consumers will soon be able to drive their car on the sun.

Chapter 5 : Pros and Cons of Gas, Hybrids, PHEVs, and EVs

EVs and PHEVs running only on electricity have zero tailpipe emissions, but emissions may be produced by the source of electrical power, such as a power plant. In geographic areas that use relatively low-polluting energy sources for electricity generation, PHEVs and EVs typically have a well-to-wheel emissions advantage over similar.

Chapter 6 : BYD Chairman Calls For Stronger Government Support Of PHEVs

Alabama Power always wants to find ways for our customers to save. Plug-in electric vehicles are one way to accomplish savings. The Department of Energy Plug-In Electric Vehicle (PEV) Handbook says "PEVs can reduce your fuel cost dramatically.

Chapter 7 : Petrol vs. Electricity: What's Cheaper to Run a Car

Save energy, save the environment. Although it may not be obvious, there's a direct connection between your energy use and the environment. When you consume less power, you reduce the amount of toxic fumes released by power plants, conserve the earth's natural resources and protect ecosystems from destruction.

Chapter 8 : Plug-In Hybrid Electric Cars: Benefits and Conversions

Finally, smart grid will create a platform that will promote the development and deployment of technologies for increasing distributed generation (DG) and energy storage capacity, such as wind and solar generation, and plug-in hybrid electric vehicles (PHEVs).

Chapter 9 : EarthTalk: Are hybrid cars really better for the environment?

Not only will you be pleasantly surprised at the amount of money you'll save on petrol, but you can be safe in the knowledge that you're being kinder to the environment. And that deserves a big thanks from us here at Click Energy.