ELECTRIC CAR BUYING GUIDE: EVERYTHING YOU NEED TO KNOW BEFORE YOU BUY

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By Amir Iliaifar — August 28, 2013

We don't need to tell you that buying a new a set of wheels can be stressful endeavor. Throw in a monkey wrench like buying a car powered by an unconventional power source you're unfamiliar with — electricity for example — and you've got an ordeal you could probably do without. But with gas prices at or near the $4.00 mark nationwide, now might be the right time to take that drive down Electric Avenue. If you've looking into buying an electric car, or want to know more about them, our guide to purchasing an electric car is here to help walk you through the entire process.

One is the loneliest number, that's why there's three

Before you get carried away and overwhelmed with all the talk of batteries, zero emissions, hybrid this and electric that, know this: There are really only three types of green cars out there that you need concern yourself with. For now.

Hybrid cars: Hybrid cars remain the closest thing to what you're probably already driving. They use both a gasoline engine and an electric motor to help offset fuel costs and increase gas mileage. Because hybrid cars use gasoline as the primary source of power, all you need to do is fill your tank up like you normally would and off you go. Some examples of popular hybrid vehicles are the Toyota Prius, Honda Insight and Volkswagen Jetta hybrid but there are more coming to market all the time, so shop around.

Plug-in hybrids: Plug-in hybrids delve further down the electrical rabbit whole, so to speak, when it comes to alternatively powering a car. They are the middle child of the green car family. Plug-in Hybrids, like the Chevrolet Volt, operate in much the same way as a hybrid by providing an all-electric driving range using a battery pack. Once the battery has been depleted, the vehicle can slip back to being a regular fuel-fed hybrid and recharge its batteries using the gasoline-powered motor as a generator. The big difference here is that you can also plug it in and recharge the electric motor instead of using the engine to charge it up. Depending on your driving needs, if you can plan your trips and just drive on electricity and then charge back up, you can go a very long time without having to gas up.

All-electric (EV): All-electric cars like the Nissan Leaf, Tesla Model S, Ford Focus Electric and Chevy Spark EV run on, you guessed it, electricity and use electrons as their solitary source of energy. They are known an Electric Vehicles, or EVs. The more you drive an EV, the more the battery charge is depleted and there's no gas engine built in to rescue you if you run out the battery completely. Because all-electrics EVs use no gas, they must be recharged either at your home or at an EV charging station (more on charging options later). At present, fully electric vehicles are primarily city cars due to their limited range, which is typically 80 to 100 miles on a charge. Only the Tesla Model S goes farther but as time goes on, expect the range of EVs to improve.

Gotta spend green to go green – but Uncle Sam can help

Now that you know what types of green cars are out there, you can begin to decide which one is right for you. But before you do that, it might help to know how much they cost. Unfortunately, the price of electric cars, and to a lesser extent, hybrid vehicles in general can be quite high — at least more than your average gasoline-powered car. But all is not lost! While a prohibitive entry price can scare some consumers away, the

U.S. government has subsidized the cost by offering incentives to qualifying consumers.

If you are eligible, the federal government will award you a cool $7,500 tax rebate for buying an EV. The only caveat: You need to have a one-year tax liability that exceeds that amount. Otherwise you can lease the car from the manufacturer and pay the lease down with your $7,500 right away. And while it's still a hefty monthly payment, both Nissan and Chevrolet offer leasing options right around $350 per month. Rumblings going around Washington suggest that President Obama is seeking to raise the incentive to $10,000, and instead of a tax rebate, the credit would be issued at the point of sale.

It's also important to keep in mind that, as of now, the tax credit will only remain in effect for a given manufacturer until it has sold 200,000 green vehicles. But you don't really need to worry because we're a long ways off before that happens.

Many states offer their own incentives in addition to what is provided by the federal government.This website shows what exactly your state can offer you.

Charging: Easy as Level 1, 2, 3

Now that you've decided on a car – either plug-in or all-electric – you're gonna need to charge it up. There are really only three types of charging types or "levels" supported right now by electric car manufacturers.

Level 1: Level 1 charging works like any standard three-pronged household outlet, meaning you can plug your EV into the outlet in your garage and charge its battery. Virtually every EV on the market supports this type of charging. The bad part: it's painstakingly slow. For example, a Nissan Leaf using a standard 120-volt charger will take roughly 18 to 20 hours.

Level 2: Level 2 charging is much faster and uses special equipment specific to EVs. This is the type of charging you will want to use most often. To borrow again another example from the Leaf, a full charge using a 240-volt Level 2 charger ranges between 8 to 12 hours.

Level 3: Level 3 charging (DC Fast Charge or DC Combo) uses industrial-strength chargers, which can

bring battery levels up to 80 percent capacity in as little as 20 to 30 minutes by zapping your battery with 480-volts of electricity. Not all EVs support this type of charging, and currently there are no commercial-grade electric cars on the market that are capable of charging faster than Level 3 although that may change in the future.

It's important to remember that charging times will depend greatly on what the current state of charge your battery is at. In addition, how often you need to charge will invariably come down to how far you drive and what your vehicle's electric range is. Electric cars will be able to travel further due to their larger batteries and need to be plugged in more often in order to recharge, while plug-in hybrids will travel fewer miles on electricity and may require less charging due to their gasoline-powered on-board generators.

Like all lithium-ion batteries found inside the majority of hybrid-electric vehicles (including the Toyota Prius Plug-in, the Chevy Volt, the Nissan Leaf, and the Ford Focus Electric), the ability for the battery to hold its charge capacity will diminish over time. What this means is that in a 10-year period the gradual loss could reach as much as 30 percent or more. Using a Level 3 charger too often can accelerate that loss in a shorter amount of time.

Charge from home, sweet home

As we have pointed out, there are a couple different ways of charging your shiny new EV. What works best will really come down to you. But if you're serious about getting in on the EV scene, we strongly recommend getting a Level 2 charger installed in your home. While it's possible to get by on a Level 1 charger (basically a wall outlet) or even using public charging stations, it's not as convenient as having a Level 2 fast charger nestled inside your garage. Level 2 chargers run on 220/240 systems just like a household appliance, so most any electrician can install it.

Of course it's not free, but thankfully the government is here again to help offset the cost by providing a 30 percent tax credit off the total cost of purchase and installation — up to $1,000. Typically, a Level 2 charging station can cost anywhere between $1,500 and $2,000 to install, depending on the manufacturer.

Know your (car's) limits

For those who want to go with a plug-in hybrid, you needn't worry about this, but if you're leaning towards buying an all-electric car it's important to understand a few key factors. This way you'll be able to recognize what exactly an EV is intended for and where you'll benefit the most.

You might not realize it, but an electric car will be more than adequate as a daily driver; getting you to and from work with ease. Most yield a range of 70 to 100 miles on a single charge (depending on how you drive), which is more than enough for your daily commute. However, because range is limited — and charging times can be inconvenient — the majority of the electric cars on the market are simply not going to be ideal for longer trips. There are a few out there that can take longer treks — Tesla's Model S comes to mind — but not unless you're looking at spending somewhere near or north of $70,000.

More to buy, less to spend in maintenance

Okay, so you're paying a lot more money, but getting a lot less car? While that might sound like a raw deal, it isn't and here's why: All-electric cars like the Nissan Leaf abandon the thousands of mechanical moving parts found inside a combustion engine in favor of just a handful of parts in an electric motor. In addition, all-electrics do not produce tailpipe emissions (because they don't have tailpipes) and, once again, forgo the associated equipment. What this translates to is fewer maintenance costs and saying goodbye to oil and transmission fluid changes along with gas stops.

On the other hand, because plug-in hybrids do utilize an engine and emissions equipment they will carry more maintenance cost than an all-electric car. Unfortunately, this is where a plug-in hybrid's gasoline engine will hold it back, but thankfully the costs are still far less than a standard gasoline-fueled engine.

Now here's the catch (there is always a catch isn't there?): While you'll enjoy far lower annual maintenance costs with an EV or hybrid, the batteries will need to be replaced within 7 to 10 years – and they can be expensive. The upside is that many of the manufacturers have provided lengthy warranties that cover this. In this instance, Chevrolet, Toyota and Nissan have provided customers with an 8-year, 100,000-mile warranty.

Not exactly emissions free

Even though all-electrics like the Leaf and the Tesla Model S are marketed as "zero-emissions" vehicles, that isn't entirely true. The electricity that goes to power these EVs needs to come from somewhere (electricity doesn't grow on trees after all) and that means coal-burning power plants scattered across the country. NPR has a great interactive map to help you see sources of energy for each state, and theDepartment of Energy can help you figure out if you can start purchasing green energy in your area.

For most consumers, this won't be a huge concern, but for hardcore greenies, it might be. Fortunately there is another solution. Drivers looking to get their energy from a cleaner source can also harness the power of the sun and purchase solar panels for their homes. Not only is this better for the environment, but it will help save you money on electricity costs, which brings us to our next topic.

Considering the costs, is it even worth it?

Okay, so an EV is more expensive to buy, and there are a lot of things to consider, like charging and vehicle range. But once you have one, how much will it cost to operate? Is it actually cheaper than your typical gas-guzzler?

Consider this: In 2011 Americans spent more than 8 percent of their income on gas. That number is based on a total US gas bill of over $481 billion. Moreover, that figure is more than any previous year (including 2008, when the national average price of gas ballooned to $4.11).

According to data collected from AAA, the average American travels 12,000 miles a year. The average car in 2009 got between 20 to 25 miles per gallon. If we take the average mileage return of 22.5 mpg and divide 12,000 miles by 22.5, we get roughly 533 gallons. Now take 533 gallons and multiply that by $4.00 and the average American spends about $2,000 annually on gasoline.

When it comes to an EV, manufacturers like Nissan place the yearly operating cost of a Nissan Leaf at around $600, which is in stark contrast to most gasoline-powered cars. Based on a US average of $0.10/kWh, a full battery charge on a Leaf will cost about $2.40 – if you charge it at home. If you can tap into a charger provided by the city or state, it's your tax dollars paying for the charge.

Of course, it's important to remember that electricity rates will vary state to state and can depend on whether or not you're charging during peak times. As far as electricity bills are concerned, EV owners can expect to see an increase, but more often than not, this will be offset by lower maintenance costs and elimination or reduction of gasoline consumption.

Is an EV right for me?

Answering the following questions should help you decide what kind of car is right for you. If you answer yes to some or all, then an all-electric or plug-in hybrid just might work.

- Is the charging infrastructure established enough in my city? (Yes / No)
- Do I generally travel less than 80 miles a day? (Yes / No)
- Do I have reliable access to a secondary vehicle for longer trips (does not apply to plug-in hybrids) (Yes / No)
- Are environmental factors a driving force behind wanting to purchase a “green” car? (Yes / No)
- Am I concerned over the volatile nature of foreign oil? (Yes / No)
- Can I afford it? (Yes / No)

You decide

The future of cars is electric – at least until we find an even better source of alternative energy — and happens to represent the next step in automotive evolution. Electric cars are now gaining ground both in popularity and market share with consumers. And with oil prices continually in flux due to limited supply and all the political issues surrounding major oil-producing regions, a concentrated effort from the government to promote alternatively powered vehicles is already in full swing. The simple truth, or hard truth, depending on your stance, is that electric cars are here to stay. But whether an EV is right for you is another story.

At the very least, we hope our guide will prove useful in helping you come to that decision.