# 50 Frequently Asked Questions About Electric Vehicles

by Gavin Shoebridge



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#### **#1)** Are electric vehicles reliable?

Yes, because they <u>are simple</u>. Electric motors have only one moving part, as opposed to an internal combustion engine which has over a hundred moving parts. There's also no exhaust system, no radiator and cooling system, no belts, pulleys or spark plugs and no oil changes.

#### **#2)** Are electric vehicles cheaper to run?

Yes in most cases. This is due to <u>the high efficiency</u> of electric motors compared to gasoline or diesel engines. **This means a dollar of electricity will move you further than a dollar of gasoline** - of course there are always exceptions to this rule. There are also <u>lower maintenance costs</u> with an electric car as there's no engine, oil, coolant or filters, nor an exhaust system to repair. Not only that but **the more expensive crude oil becomes, the cheaper an EV becomes in comparison**.

#### #3) How fast can an electric vehicle go?

As fast as you like. <u>The current land speed record</u> for an electric car is <u>271 mph</u> (436 km/h). Your top speed is limited by your car's voltage, your available power from your batteries - and most importantly - your budget.

#### #4) Are electric vehicles cleaner to run?

Yes, even when running off a coal-fired power station. There have been numerous reports and studies done on this exact subject with electric vehicle results ranging from 5% cleaner than a gasoline car, right up to <u>100% cleaner than gasoline car</u>. It all depends on the source of the electricity - and the source of the report! Many power companies also offer carbon-neutral electricity at a slightly higher price – check with your supplier.

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### **#5)** Can I buy a factory made EV today?

Yes – but the choices are <u>either limited</u>, very expensive, just plain weird, or all of the above!

Here is an example of some electric cars on the market:

- **Tesla Motors** offer an electric roadster starting at \$98,000 USD
- <u>Mitsubishi</u> have their new MiEV now selling (Japan & UK only) at \$48,000 USD
- **Zap** have their quirky three wheeled Xebra for sale at \$11,700 USD
- <u>**G-Wiz**</u> (made & sold as the *Reva* in India) offer their tiny EV (UK only) for \$14,000 USD
- **<u>GEM</u>** makes a golf-cart style vehicle starting at \$7400 USD.

There are and have always been a lot of electric cars "just around the corner" according to press releases, but for those of us who grow wary of press releases and delays – **home conversions are the cheaper**, faster way to become oil-free in your daily driving.

### #6) Will cold weather affect the battery performance?

Yes, <u>cold weather will affect lead acid batteries</u>. Warm batteries perform much better than cold batteries delivering more amps and offering more capacity. In fact you could lose up to 30% of your pack's total capacity in extreme winter conditions.

Fear not however! There are ways to get around this problem. While the obvious solution is to <u>keep your car in a warm garage</u> for many of us it's simply not an option in which case you should look at insulating your batteries.

You could put all the batteries into a box of some sort or wrap each battery with a foil-backed foam lining, being careful not to short battery terminals with the foil backing.

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Your batteries will naturally warm up when charging & while driving but in between you could look at heating them remotely with heating pads from a waterbed, or elements from an underfloor heating system installed underneath your batteries.

Because your batteries warm up while charging, you could have your charger set up on a timer so that it would finish charging just a few minutes before you're scheduled to leave for work etc. This way you'd be jumping into a car with warm batteries for your journey with more amps available and more capacity. With <u>good insulation</u> your batteries will stay warm until your next journey.

#### **#7)** Do I really have the skills to convert a car to electricity?

Yes, absolutely! I like to think that my first conversion experience proved that **anyone with no specific mechanical skills can convert a car to electricity**. Because the electric car is so basic with so few parts, all you need is a basic set of tools and some creativity!

#### **#8)** Do I need special tools to convert an EV?

Not in most cases, though an engine hoist or some sort would be convenient during the engine-out, motor-in stages. If you're planning on doing absolutely everything yourself it's a different story: you could make use of a lathe for your gearbox adapter and a welder for your battery mounts. <u>I've found that anyone with a basic set of tools can convert a car to electricity</u>.

#### **#9)** Can I convert a car without a garage?

<u>Yes, it's possible</u>. Components such as the motor, controller, charger and batteries should be kept dry so you may be at the mercy of the elements at times. To help get around this problem, try using a neighbors or a friend's garage for installing the essentials. You could suggest paying a goodwill allowance in cash - or beer!

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Alternatively, you may be able to <u>rent a garage or temporary storage shed</u> for the duration of the conversion.

You could also consider using a <u>portable garage</u> available from camping shops, or setting up a <u>temporary canvas</u> or plastic shelter above the car for those moments when everything is in pieces and the rain clouds appear. With a bit of creativity you'll find **anything's possible** so don't let it stop you!

#### **#10)** How long does a conversion take?

<u>Anything from 5 days to 5 months</u> - depending on your budget, skills, time and money. If you have all your electric conversion parts purchased already, then you can expect to be driving on pure electrons in just a matter of weeks with steady work on occasional weeknights and weekends. The longest part of any conversion is usually waiting for parts to arrive.

# **#11)** What happens if I run out of electricity in the middle of nowhere?

What happens if you run out of gas in the middle of nowhere? The answer is the same for both scenarios – **you have to find some**! More realistically, you wouldn't go for a long drive without enough gas in your tank, just as you wouldn't do the same in an EV without enough electricity stored.

If it does happen to you however, power outlets are more commonplace than gas stations and most people wouldn't mind you using a dollar's worth of their power if you paid for it. Some EV drivers keep an <u>extension cord</u> in their trunks just in case, though most never use them.

#### **#12) Why not use AC parts instead of DC?**

<u>Cost.</u> A typical DC conversion might cost you around **\$6,000 USD**, whereas the same conversion with AC components might cost **\$14,000 USD**. While AC systems have benefits such as higher efficiency, regenerative braking as standard

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with more configuration possibilities, the extra cost must be weighed up against the benefits. One popular AC component supplier is <u>http://www.metricmind.com</u> Consider contacting them if you're interested in getting a quote on parts for your conversion with AC components.

#### **#13)** How long before an EV pays itself off?

That depends on the cost of your conversion and the amount you would have paid for fuel & maintenance each year, which is different for every country.

It's not hard to estimate the payback time if your EV is up & running: First of all work out the yearly running cost for your EV including electricity, distilled water, registration, tires and a replacement battery pack every three years (divide the battery purchase price into thirds and add the price into your yearly EV expenses).

Next, calculate what your yearly fuel expenses would be on your gas car including everything such as registration, tires, servicing, repairs, fuel & oil. The winner is the one with the lowest price.

<u>The difference is the savings leftover</u>, which you can subtract yearly from the total conversion cost to give you a payback-time estimate. In some cases where fuel is cheap, the payback period may be long (several years) but in places where gas (*petrol*) never goes below \$4 US per gallon, **it wouldn't take very long to pay itself off**.

Remember: the cheaper the conversion and the more expensive the gas, the faster your electric car will pay its way.

#### **#14)** Some ebooks say I can build an electric car for \$200. Is it possible?

<u>Be very wary of such claims</u>. While it's been proven possible to convert a car to electric for under \$1000 US using forklift parts and recycled batteries, your **performance is typically relative to your conversion price**.

From my experience any electric car built for next to nothing will be of low quality

& reliability and have the finished performance of a ride-on lawnmower. This ebook offers a lot of insider information and cost-cutting techniques - but be wary of people promising a \$200 high performing electric super-car!

### **#15)** How long will the batteries last?

That depends on the battery quality and how the batteries are treated, including what level the batteries are discharged to.

### The average battery lifespan of common batteries if used in EV applications is:

- Normal Car Starting Batteries: 3-12 months
- Marine Batteries: 1-6 years
- Golf Cart Batteries: 2-7 years
- AGM Deep Cycle: 4-7 years
- Gelled Deep Cycle: 2-5 years
- NiCad Batteries: 1-20 years
- Ni-MH Batteries: 2-10 years
- LiFePO4 Batteries: 1-10 years (still an estimation as the technology is new)

For more information go to <u>http://www.windsun.com/Batteries/Battery</u> FAQ.htm

#### #16) How far can an EV go?

That depends on how much you want to spend. Starting with the basics, a low voltage, home converted car running on flooded lead acid batteries could have an average, <u>useful range of perhaps 20 miles - but that is just a starting point</u>.

By increasing your voltage, battery capacity, and vehicle design you could have your car reaching 60 miles per charge on simple lead acid batteries.

If that's not enough consider changing your battery technology to Lithium Iron Phosphate. With the right battery pack and vehicle design you could see yourself easily reaching 100+ miles per charge. As with anything in life, the more you want, the more you pay.

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A very popular range-estimating web page for electric cars is this one: <u>http://www.evconvert.com/tools/evcalc/</u>

It's been proven time & time again to be one of the best range calculators on the Internet. Of course every car is different and your results will vary depending on driving style and aerodynamic modifications.

#### **#17)** Can I install a generator in the back to extend my range?

Yes it's possible but not a case of going to the mall and simply buying a portable generator. You need to decide how much power (how many amps at what voltage) you'll need to assist your car while driving and find a generator suitable for this purpose.

To keep your batteries topped up with average driving you may need a generator output of perhaps 20 kW – this depends on your driving style and terrain of course. For this sort of power output an engine from a small car and a large generator would be suitable.

Depending on your creativity and skills you could manage a towable trailer with a generator for around \$3000 US. The *ideal* backup generator for your car is entirely dependent on your car's configuration. <u>A trailer</u> would be the ideal method for a backup generator because you'd only need it occasionally.

You wouldn't want a generator to be permanently mounted inside the car if you're not using it as you'll lose a lot of range simply through hauling dead weight around with you.

If you're interested in this idea I recommend posting the specifications of your electric car and your goals to the community at <u>http://www.diyelectriccar.com</u>

You might find it's cheaper in the long term to using a different longer-range battery chemistry instead, such as <u>Lithium Iron Phosphate</u> than to run a noisy gasoline generator.

### **#18)** What about the legalities of converting a car?

Every country or state is different so before you start your conversion, contact your local DMV or Ministry of Transport and ask for the rules on converting an electric car, as well as any extra road taxes you may be liable to pay, or even taxes you may be able to claim!

To give you an idea what the rulebooks look like I recommend using the New Zealand rules available in 3 parts here:



Even if you're not in New Zealand, the rules are detailed, comprehensive and quite strict, covering everything from power steering to timed battery venting.

If you follow these strict rules to the letter you'll generally fly through any inspection (as I found), though check with your transport agency first. In the unusual instance that your country or state has no specific rules on conversions, the New Zealand rules are a very safe guide.

### #19) Is an electric vehicle safe?

Yes, though <u>taking precautions when working on the high voltage circuit</u> is important, such as:

- wrapping up your tools with insulation tape,
- wearing high voltage gloves,
- wearing protective eyewear when installing & connecting batteries.

If **safeguards** are in place such as circuit breakers, fuses, and strong battery supports, electric cars are just as safe as gasoline powered cars when involved in crashes with the risk of fire or battery explosion very low.

If an electric car flips onto its roof with flooded lead acid batteries, battery acid will be released which is a good reason to keep batteries out of the passenger compartment. **Battery acid is easily neutralized with baking soda** and can then be washed away with water.

#### #20) Will my electric car be outdated and obsolete once it's finished?

No. Unlike computers and cellphones, <u>the main parts in electric cars haven't</u> <u>changed for over a hundred years</u>, and even the most advanced electric sports car uses the same basic layout that your car will use. Because of the reliability of electric vehicles, your motor, controller and main components (excluding the batteries) can often outlast the body of any car you put them into. This means you can move them into another car when you're bored with your current donor car.

#### #21) What if I get in too deep and can't finish converting it?

Don't worry, your fear is shared by every converter at some point during their conversion. To prepare yourself for a conversion I recommend reading through this ebook in its entirety, then watching someone's conversion videos. This will help to give you a good understanding of all the work involved. When you finally get to the point where the conversion seems overwhelming - and we've all been there - the best piece of advice I can offer is to stop what you're doing and **write** 

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**a list of all the tasks yet to be done on the car**; everything from connecting the batteries to installing the vacuum pump cut-off switch.

Don't worry if your to-do list turns out to be 2 pages long - just set yourself a goal to get through at least one item each day. This simple idea of writing a big list stopped me from being overwhelmed and giving up on my conversion half way through it. Before I knew it I was down to my final five things-to-do and doing my first test drive up the street!

#### #22) How do I know when my batteries are flat?

Lead acid batteries are fully charged when their voltage reads between **12.6** and **13.8** volts and completely "empty" or discharged when reading **10.5** volts.

Remember: never take lead acid batteries below 50% Depth of Discharge or your battery life will be shortened dramatically. A half-full lead acid battery should read 12.0 volts each. Don't let your batteries go below this voltage to maximize their usable lives.

#### #23) Why aren't there more electric cars on the road?

There are many reasons I've heard. Some are obvious and some are purely conspiratorial but I'm not much of a conspiracy theorist so some of the more realistic answers are:

- Electric cars have a perceived lack of usable range (aka "Range Anxiety")
- Electric cars take time to recharge on a standard outlet which could be inconvenient
- Electric cars with long range batteries are expensive
- Electric cars are seen as toys and an unknown commodity which puts people off
- Electric cars are seen as slow or simply useful as golf carts

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#### #24) What sized battery pack should I get?

This is a complicated question with a complicated answer so I'll try and simplify it using averages.

Let's say the average home converted EV uses 0.3 kW/h (kilowatts per hour) of electricity per mile at 35 miles per hour. This means to drive 50 miles at the same speed, you'll need approximately 15 kW/h of battery capacity available.

Remember that you should never take lead acid batteries past half-full which means you'll need a battery pack that is actually *twice* what you need (30 kW/h). With lead acid batteries a 30 kW/h pack is enormous!

For example if your car is running a 96 volt pack you can work out the battery amp hour requirements with the **watts**÷**volts**=**amps** formula: 30,000 W/h (30 kW/h) *divided by* 96 volts *equals* 312.5 A/h (amp hours)

This means a **96 volt car** would need to use ten, 12 Volt, 312.5 A/h batteries (**10x12v=96v**), which (if they existed) might weigh around 176 lbs (80 kg) each. That's 1760 lbs (800 kg) which would exceed the limits of most cars except for some small trucks!

Remember that this entire calculation is purely an example which will change depending on your car's weight (including batteries), aerodynamic properties, driving style, and system voltage (the higher the system voltage the less hard the system has to work).

#### **#25)** Why do lithium batteries cost so much?

Partly <u>because it's quite a new battery technology</u> with a higher manufacturing cost than lead acid batteries but also because it has a limited number of suppliers and a limited number of buyers at the moment.

This is slowly changing however; every year lithium compound batteries fall in price. For example Lithium Iron Phosphate (**LiFePO4**) batteries are now about the same price as lead acid in a dollar-per-kilometer comparison when considering a LiFePO4 battery pack can be drained further and weighs much less than it's lead acid counterparts.

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One media source claims that 1 kW/h with a LiFePO4 pack is worth 3 kW/h in a lead acid pack. I would suggest it's closer to a more conservative 2 kW/h in a lead acid pack as it's better to be safe than sorry if you are looking at LiFePO4 batteries.

#### #26) How do I make my RPM gauge work on an electric motor?

There are two ways to do this, one delivering an accurate response, the other simply looking pretty as it moves in time with the motor (more or less).

<u>a) The accurate method</u> involves finding a light sensor or magnet sensor and attaching it next to the tail shaft on your motor with an opposing reflective strip or magnet on the actual tail shaft. When the sensor spins past the light sensor or magnet, a pulse will shoot back to the circuit on your RPM gauge. You can buy RPM kits for your car from some EV parts suppliers.

For example: <u>http://www.evsource.com/tls\_speedsensor.php</u>

<u>b) The easier and cheaper (but less accurate) method</u> that I invented involves finding a simple 3V DC motor from a hobby electrical store and wiring it up to the RPM gauge's "motor" that turns the actual needle, and bypassing the tachometer circuit completely. While not perfectly accurate you could tweak the reading by running it through a potentiometer so that it's accurate at one important point – your maximum RPM! You can see it moving in some of my videos at <u>www.Kiwiev.com</u>

#### **#27) What controllers offer regenerative braking?**

Most AC controllers offer regenerative braking as a standard function, where your motor collects some energy rolling downhill and feeds it back into the batteries. DC controllers that offer regenerative braking are not quite as easy to come by, and those who have used it often have stories of how it occasionally fries controllers. Makers have come & gone and currently I'm aware of only **Navitas and Kelly** controllers that offer DC regenerative braking. If you do choose to use regenerative braking you'll most likely have to retard your motor's timing (by adjusting your brushes back to neutral) to avoid arcing inside the motor.

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# #28) Why aren't there many businesses that convert and sell EVs?

There are some, but the labor time involved in converting a car often pushes the price up over \$10,000 USD what it's actually worth. If you're looking at converting cars for a business you will need to efficiently convert at least one car per month (or faster) to keep the labor costs down.

#### #29) How long does it take to fully charge a plug-in hybrid or electric car?

It depends on the voltage and amperage rating of your charging system. From an ordinary <u>120V socket, you would need overnight to charge a battery EV fully</u>. With a 240 volt power supply you could cut this down to 6 hours or less for a complete charge from "empty" to "full".

#### **#30)** How often do you have to replace the batteries?

<u>Quality lead acid batteries</u> that are well looked after should last between <u>3 to 4</u> <u>years</u> in a typical conversion. It all depends on the quality of the batteries and the level they are discharged to.

The easier your batteries life is, the longer it'll be! If that worries you, just put \$10 a week into an envelope or separate account and you'll have enough for a new pack when your batteries start losing their capacity.

While I advocate cutting costs in all areas of EV conversions, **the batteries are one area to invest wisely** if possible. I recommend using brand name batteries that are designed for heavy, deep cycling such as *Trojan* "deep cycle" or "*golf cart*" batteries.

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# #31) What about the environmental damage of changing batteries?

<u>Recycle them!</u> The great thing about lead acid batteries is that lead is the most recycled non-precious metal in the world! There's no reason why your batteries should end up in a landfill. In fact, **scrap-metal dealers will actually pay you for dead batteries**! This is even more the case with Nickel based or Lithium based batteries.

#### #32) Aren't hydrogen fuel cells the answer?

Not in our lifetimes. <u>Hydrogen fuel cell cars are four times less efficient</u> than battery powered electric vehicles if the hydrogen is extracted from water. This is due to the incredible amount of electricity required to separate hydrogen from water by electrolysis. The current popular method is to extract hydrogen by refining oil - which is great for oil companies but still 1.4 times less efficient than a battery electric car, plus the refining process releases masses of co2 into the atmosphere. **This means the idea that hydrogen fuel cells being clean & green is just a myth.** 

The cost of the average fuel cell vehicle is also restrictive: expect to pay between \$700,000 US and \$1m per car. Then there's the cost of the hydrogen itself. It's currently sold at twice the price per unit (gallon equivalent) of gasoline. Finally, there's the "15 years away" claim we've heard since the 1970's. Affordable, mass-produced hydrogen cars have *always* been 15 years away, so just imagine what level battery technology will have advanced to in another 15 years!

### #33) What about putting solar panels on car?

It's not really worth it to be honest. This is because solar panels have a low output for their size, so installing panels on every upward-facing area on your car would return minimal gain. A full day in the sun wouldn't get you more than a mile of typical driving and the cost of solar panels is restrictive. You'd be better off putting solar panels on the roof of your house where there's more space available. To reduce costs you could even consider *making* your own solar panels.

Click here for more details:

→ <u>http://www.evsecrets.com/recommends/solar-panels-diy.html</u>



Get Started on Generating Homemade Energy

### #34) Aren't electric vehicles dangerously quiet?

No, modern gasoline cars are just as quiet in car parks. I'm sure we've all walked in front of them by mistake. <u>Electric vehicles are most certainly not silent either</u>. At low speeds make noise from controller "whine", gearbox cogs moving and most noticeably tire noise. At high speeds the wind and tire noise is the same as in any other car. If you're still concerned, you could install an optional buzzer or beeper in the engine compartment, though it's not typically necessary and frowned upon by the EV community!

#### #35) What about driving in the rain?

<u>A well built electric car is perfectly safe to drive in the rain</u>. Installing a simple splash-guard under and around the sides of the electric motor will stop any rain from entering it. The other components are ideally mounted at the back of the engine compartment, although this isn't an issue as many controllers are completely sealed units (such as the *Curtis* brand).

#### **#36)** Is recharging the car an inconvenience?

Not at all. Recharging has become part of daily life with things such as cellphones to laptops. In fact <u>most electric car owners feel a sense of satisfaction</u> when plugging their cars in as they feel like they're "beating" the oil companies each time. Gone are the long queues at a petrol stations and the waiting to get to a pump and gone is the small fortune it costs to refill your tank each week. I'm very confident you'll actually *enjoy* plugging in your car when you get home – I certainly did!

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#### **#37) What about servicing an electric car?**

Thankfully there's not much to service with an electric car other than **topping up the water** in your batteries every two or three months which is a <u>simple and</u> <u>cheap task</u>. The only oil you'll ever have to change will be your gearbox oil, and most people just simply forget about it!

#### #38) Can I convert any car to electric?

Yes. The best cars are the lightest, strongest and most aerodynamic ones that can handle the heavy weight of lead batteries. But if you want to convert an old heavy classic then go for it! Some of the most impressive conversions are those done with classic cars.

# #39) Can I run appliances off an electric car in a power outage?

<u>It's possible</u>. While there's often enough spare power in an electric car to do this the problem lies with turning your car's DC voltage into an AC voltage at 120 or 240 volts.

Devices that increase these sorts of voltages and convert them to AC aren't readily available and you may need to contact an electrical technician to have one created. Your next best option would be running appliances through the car's cigarette <u>lighter socket</u> through an inverter however with this method you're limited the small amount of current allowable through the cigarette lighter socket.

#### **#40)** Does an electric car emit electromagnetic fields?

Like any appliance an electric car also has an **electromagnetic field**, though studies have not proven any link between EMF and the ailments associated with it. Home-converted electric cars should put out no more EMF than the computers and high voltage sparking system in a typical gas powered car.

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#### #41) What happens if one battery dies while driving?

If this happens and you're not far from your house or destination and you can't be towed easily, you may be able to simply use a jumper cable to <u>bypass the</u> <u>faulty battery</u>. This means you'll be running on 12 volts below your designated voltage however, and the lower your car's designated voltage, the more you'll notice the performance reduction. This emergency method will put extra strain on your other batteries and most jumper cables aren't designed for constant high amperage loads so it's only recommended as a last resort.

#### #42) Where do all the parts in an electric car come from?

The more popular electric car parts available such as the controller, motor & fuses are typically American made, though there are also Chinese and Russian motors available, as well as Chinese and German controllers to choose from. Batteries can be made almost anywhere, so if you're curious check with your supplier.

# #43) Don't electric cars cause damage by sending their batteries to landfill?

Why on earth would you send your dead batteries to a landfill when there are thousands of scrap metal dealers who'll *pay you* to take them off your hands! This is the same story for more expensive batteries such as Lithium Iron Phosphate, Lithium Ion, and Nickel Metal Hydride & Nickel Cadmium. The metals inside those batteries are desirable and re-usable long after they've lost their usefulness as batteries.

#### #44) But what if we all switched to electric cars overnight?

Firstly, it's just not possible as there aren't enough electric cars on the planet to attempt this. Secondly, even if it were somehow possible to create a hundred million electric cars in the blink of an eye most countries would not experience any dramatic problems. One report I read claimed New Zealand (with over 2 million vehicles) would only experience a 40% increase in consumption if every vehicle suddenly became battery-electric powered.

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#### #45) Won't we need to build more power plants?

Not for a long time, and not due to electric cars alone. Not only are <u>electric cars</u> <u>very efficient</u> but they can charge during off-peak times by simply plugging them through a timer. Power stations can't simply be wound up or down according to demand so during the night they're still operating at full power with no one using the electricity. As well as that, <u>home power generation</u> is an option that bypasses the issue altogether.

# #46) Will an electric car run my high powered car sound system?

Absolutely. It all depends on how much current the DC to DC converter can take. As mentioned in the ebook, a DC to DC converter changes the high voltage DC circuit to a normal 12 volt DC output (for your indicators and headlights to work). If your DC to DC converter can handle it then there's nothing stopping you from running thousands of watts of amplifiers, speakers, TV displays and Play Stations!

#### #47) What if I want to drive across the country?

It's not cheap for home converters to build electric cars for long distance driving so you could either keep your gas car as a second car for occasional long drives, take a train, plane or bus or even hire a car with the money you've saving by not buying gas each week.

#### #48) Could I start my own electric car conversion business?

Yes, absolutely. The conversion process may seem complicated but it isn't when broken down throughout this ebook. Once you've converted your first car you'll know first hand just how simple it can be, and it will <u>open the door to converting</u> <u>cars for profit</u>.

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### #49) Will my girlfriend/wife love it?

Believe it or not this was one of the many questions asked when researching this ebook. Sadly I can't answer that accurately. From my personal experience your partner will inevitably begin hating your electric car when you get about halfway through the conversion as that's when all the money seems to vanish to electric car suppliers, and when he or she only sees you as you get home then go straight into the garage for the rest of the night. **Once you're driving past the gas stations however it's a completely different story**. My wife ended up driving the EV more than me and loved it!

#### **#50)** What happens if I get stuck and need help?

There's no need to panic! If you come across something that's not answered in the ebook then you can contact me by opening a support ticket.

#### It's easy:

- 1: Simply click here: <u>http://www.evsecrets.com/support/</u>
- 2: Create a *support ticket* at that page.
- 3: Then relax I'll get back to you ASAP!

I wish you happy driving and good luck!  $\ensuremath{\textcircled{$\odot$}}$ 

Gavin Shoebridge