

## **The Recharging Conundrum**

If you're considering an electric vehicle (EV), or you're just curious about EVs, you've heard the *big* complaint: recharging takes too long. They say you'll be sitting around for *hours* while the car charges. Yuck, who has time for that?

EV evangelists respond (with varying degrees of believability) that it doesn't take long and you can practice meditation while the car is charging and you should not be in a hurry and it's good for your soul to learn patience and, um, well, something or other and let's change the subject and oh, look, a squirrel!

So, what's going on? As usual, the real story is complex. Does charging take "too long"? What counts as "too long"? Do you really need to sit around staring at the car while it charges?

This three-part article is meant to help you sort out the hype about charging. You may be pleasantly surprised to find that – in the right circumstances – you can spend *less* time "refueling" an EV than a gas-powered vehicle!

## **What's the Question?**

Much confusion arises because we ask the wrong questions. We try to apply the gasoline fueling paradigm to recharging an EV: we look at how long it takes to put gasoline in the tank and then think about "putting electricity in the battery". But that's the wrong approach. Here's the real question: *how much time of your time is need to add range to your car?* In other words, how much time do you spend waiting around when you could be doing something else?

With that in mind, well, it all depends – and it mostly depends on when and where are you charging your EV. And that depends on your own driving situation and needs.

Consider this common case: you commute to work weekdays, maybe running a few errands on the way; on weekends you go grocery shopping or take the kids to soccer practice. Your EV has enough battery range for those daily around-town tasks, and you have a charger in your garage. In this scenario, *charge time is irrelevant*. Amazingly, you will spend *less* time charging than the owner of a gasoline-powered car will spend fueling!

Wait, how can that be? Doesn't fueling a gasoline-powered car take only minutes? Well, remember that we are looking at the time that *you* spend, so let's check out that gasoline-powered car. When you need fuel, you drive to the gas station (if you're lucky, it's right along your commuting route -- or maybe not); find an empty pump (if it's right after work, you may wait in line for a few minutes); fiddle with your credit card (all bets are off if you need to go inside to pay); remove the gas cap and insert the hose (hoping that you don't spill gas on your shoes or step in the puddle of gas that the last person spilled); spend several minutes pumping the gas (during which you cannot leave your car); and finally hop back in the car, get back into traffic, and drive back to your route. Personally, I've never accomplished all of this in less than 10 minutes. Let's assume you only need to do this twice a month. At minimum, that's 20 minutes per month that you spend fueling the gas-powered vehicle. (Many of us need to gas up more like every week, so spend more like 40 minutes per month – but we're being conservative.)

How about your EV? When you arrive home at night and pull into the garage, you push the button to open the charger door on the car, take the charger cable off the wall, and plug it into the car. You're done in about 10 seconds. (I've timed it.) The car charges automatically overnight – none of your time is required. In the morning, you unplug and are on your way – another 10 seconds. Assume that you do this every day of the month, i.e., 30 days. That's 600 seconds or 10 minutes per month, half the time that it takes to fuel the gas-powered vehicle. (And if you are in gas-up-every-week mode, EV charging is a quarter of that time.) So much for the universal claim that charging *always* takes too long!

Let's be clear: the *car* may be charging for a few hours. But you don't care. You're eating supper or watching TV or sleeping or whatever; the car can do what it wants. From your point of view, the whole operation takes seconds.

Most current EV's have enough range for most people to make the once per night charging schedule work just fine. Some early EVs, such as the original Nissan Leaf, might cut it close; Teslas, Chevy Bolts, newer Nissan Leafs, or other vehicles with 150 miles or more of range make it easy.

Let's emphasize that point again: charging an EV in your garage for normal in-town use is drop-dead easy. It takes so little time that you will never notice it. This is so very different from the old story that "charging takes too long."

### ***To Be Continued***

It's all very nice to say that we can drive our EVs around Columbus without spending a lot of time charging. But how about those road trips? You know, driving to Cleveland or Cincinnati or Chicago or Washington? Surely that will be awful, right? (Spoiler alert: no, not so awful!)

In the next article in this series, we'll consider charging on the road. See you then!