

Tesla Talk with Tesla Tim

Why Electric Vehicles need a 400-mile range.

I have heard people say and read articles stating that long range Electric Vehicles are not really needed. Here are some of my thoughts as to why I think they are. This is also one of the reasons that I believe Tesla's are currently so successful.

First let's examine how most people use their current gas/diesel vehicle. Most people fill the fuel tank of their vehicle with the expectation that they will not have to fill it again for several days or even weeks. So, the manufacturers install a fuel tank with the ability to hold enough fuel to meet this expectation. In other words, if the vehicle is expected to get 25 miles to a gallon of fuel and you want the vehicle to be able to go 350 miles before it needs more fuel then you need at least a 14-gallon fuel tank. So why is this important if your daily commute is less than 50 miles per day? The simple answer is no one wants to go to the gas/fueling station more often than they must. Imagine if you had to fuel your vehicle every day or two, even if it only took 5 minutes, how much time you would be wasting. This is the normal daily driving that most people do at least 95% of the time each year. The other 5% or less might be spent on a long-distance trip, like a vacation, where you most likely will stop every 100 to 150 miles to use the bathroom or get something to eat and maybe refuel the vehicle.

Now let's look at how this compares to an electric vehicle. The first thing electric vehicle owners like to talk about is the convenience of charging at home. This is true for most people who own a home but not for all homeowners. For example, if you have an old home or a maxed-out breaker box you may not be able to install a 240-volt 50-amp circuit and will have to charge the car from a 115-volt 15-amp outlet. This will be very slow and you may find that you will have to take your vehicle somewhere else every few days to keep it charged. There is also the

added expense to have the higher voltage/amp outlet installed which might not work for all homeowners. Then there are those that rent apartments or condos. What do they do if the landlord will not install an outlet that they can use to charge their vehicle? How many charging stations should the landlord install? Let's say that it is a 100-unit apartment complex and there are currently only 2 residents with electric vehicles, so the landlord installs 4 charging stations. That is great for now, but what do they do when in the next 2 years that number increases to 10, or 20, or 50 EV/owners?

So, what does this all mean? I believe that electric vehicles need a 400-mile + range so they can be driven for several days or weeks before needing to be refueled just like their gas/diesel cousins. I also believe that fueling locations for electric vehicles need to be as common as fueling stations for your gas/diesel vehicle. Current "gas" stations should start installing electric charging stations and we should start calling them "fueling" stations. Once this starts to happen then charging your electric vehicle at home will become optional. Even as I write this, an article has been published about a gas station in Maryland that is ditching the gas pumps and installing fast electric charging stations in their place. I believe the change is starting and I predict that in less than 5 years most gas stations will have Electric Car charging stations.