

## *Why read this?*

Electric Vehicles (EVs) are very easy to drive. Deceptively so, because owners and journalists alike have found that they still need simple, easy-to-access, practical reminders for longer EV trips with multiple charge-ups. This is what you're looking at...

## ***Plan for the unplanned***

Choose Recharge Stops, at most,  $\frac{2}{3}$ -of-the-car's-EPA-rated-range apart. Closer is fine. Research into extra stops along your route as Standbys for any unplanned diversion. Check that these Standbys could offer overnight facilities for both car and occupants. Keep your shortlist of contact details in the car.

## ***Allow for net elevation***

Hills are not a problem. Regenerative braking on descent returns most of the energy used on ascent. However, add 10 miles to your journey for every 1000 feet of net elevation rise which exists between your start and the next Recharge Stop. (In metric add 15km per 300 metres). Repeat this process for each section/leg of the trip.

## *Always charge extra*

So now that you know the required distances between each Recharge Stop, round these numbers UP (e.g 192→195 196→200). Before each leg, you'll charge the car up to cover this distance PLUS extra to travel further to the nearest Standby stop PLUS a buffer of an extra 20 miles/ 30km. Again, round these values UP to the nearest 5 or 10.

## *Load up but be smooth*

A great benefit of an EV is increased internal luggage space. So check that you have charging cables/adapters, a tire repair kit and maybe a light-weight spare. Heavier loads will require smoother driving and slower ascents to minimize the range penalty. Slowing distances will be greater for a given regenerative brake setting.

## *Cruise if you can*

Use modest accelerations and leave larger braking distances while you get used to the increased weight of the car.

Use Cruise Control on major routes anytime the traffic will allow. This will maintain speed at the lowest practical energy drain, but take care when engaging/disengaging as this can cause sudden speed changes.

## ***Monitor distance-to-go***

Use one of the car's trip meters (say, B) to record the distance driven on the current leg. Whenever the numbers align to make the math easier, subtract this value from the distance between your start and your Standby stop for this leg. This gives furthest-distance-to-go-in-an-emergency. Check this against the car's remaining range. Can you still reach your Standby stop? How's that 20 mile buffer doing?

## *Slower improves range*

You will get low on range; it's a normal problem, so catch it early. You (or a passenger with a calculator on their phone) should check the numbers. When it is safe to do so, simply move across into a slower lane. Even a 10mph/15kmph speed drop can make a noticeable improvement over half an hour, so be patient. Normal traffic congestion is also your friend here.



## *Accept the slow lane*

Many cars are styled to look sleek and speedy. Just relax and try not to let this go to your head/right foot. You can still look cool pacing a line of trucks for an hour or two, but you won't look cool sitting at the side of the road waiting to be rescued by one. When you pull in to your Recharge Stop, check your plan for the charge you'll need to add for the next leg of the journey.

## *Play Supercharger lotto*

If you are using superchargers for any particular trip section, be aware that individual stalls are designated 1a, 2a, 3a, 4a, 1b, 2b, 3b, and 4b but the labelling may not be clear. Or present. Stalls with the same number share electrical power. If possible, plug into an empty stall whose numbered pair is also empty.

## ***When charging - multitask***

Reset the car's trip meter and combine recharging with other useful activities:

Where supercharging is available these could be the usual rest stop coffee/snack/comfort break.

Where slower (below 50kW) charging is available you might choose a museum visit, sight-seeing or an overnight stop.

## *Seasons vary*

Seasonal changes require vehicle heating/cooling which will impact on range. Watch the numbers; slow down sooner/for longer; in extreme weather dig out that Standby contact list.

Seasonal changes also bring queues to public chargers. Everyone will be tired, bored and probably hungry.

Suck it up. Bring a book. Try to be Zen.

## ***Cold charging is slower***

A cold/freezing battery cannot super charge until it warms up. Since your car has Active Thermal Management this isn't a problem UNLESS you've had to spend a while in the queue for a supercharger with the car stationary. When it's your turn you may need to allow extra time as the supercharger ramps up as the battery warms.

## *Supercharger dialback*

In addition, due to battery chemistry, Superchargers have to reduce their power output as the battery fills.

This is “dialback”.

So supercharging an 80% full battery (or higher) is a contradiction in terms. It'll charge fine, but it won't be super.

## *Shared charging*

Each supercharger shares its full power across two stalls. So if yours was the second car of the pair to connect up, your connection can only ramp up as your pair dials back. Not a problem if you also have a cold battery. A short delay if you don't. As usual, use your smartphone app to check on the car's charging progress.

## *Inform other owners*

While you wait, chat to others in the queue; compare charging at different locations; share charging tips. Maybe leave a sign on your car indicating what's happening:

“Need to charge to 90% (apologies)”

If queues are long and you feel safe to do so, include the time you intend to return to the vehicle. If you choose to include a contact number, use a cheap/disposable phone. NEVER your main phone.



*Share your experience*

So...

...how was your trip?

[www.teslamotorsclub.com](http://www.teslamotorsclub.com)