



RAC
Foundation

Old dogs and new tricks – an electrifying trip

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You never really know until you've had a go...

I have driven several electric cars and motorcycles in recent years but despite having discussed with ministers, officials and journalists the challenges involved in recharging them on the public network – arguably the biggest of the remaining bugbears people have about switching from petrol and diesel – I'd never got round to having a go at recharging one myself.

Until last week. Time long past, you might say, to experience for myself what all the fuss was about.

So it was that on a bright winter's morning my colleague pulled up outside in his shiny new Tesla Model 3.

Having done my duty, as one does when a chum gets a new car, by admiring clever design touches like the aerodynamic wheel hubs, the astonishingly cavernous boot, and the cleverly disguised charging socket it was time to get in.

This took some moments while I tried to fathom how the aerodynamically designed, flush-fitting door handles worked.

I want to make clear at this point that it is absolutely not my ambition in relating this day's experience to write a stream of knocking copy about how rubbish electric cars are, as one might read in many a journal of late. There are many things about electric motoring that are new to me, but, just like the Tesla doorhandles, I have no doubt that they would soon enough become second nature. (Nor is this a tale of home-charging, on- or off-street, which raises its own set of issues).

The purpose of the exercise was not so much to think '*how do I do this?*' (and how unfamiliar, strange and unwelcome it is) but '*how do I feel about getting used to this?*' (and what could be done to make it easier?).

We set off.

Gatwick

First stop the brand-spanking new Gridserve temple to electric motoring just opened at Gatwick airport. It's a strikingly designed building, which I was able to admire from the back as we sailed down the wrong turning and ended up establishing that the Model 3 has a surprisingly small turning circle.

If you're reading this Gatwick management, a bit more signing wouldn't go amiss, please.



We pulled into a charging bay. First impressions: excellent.

We're under cover, for a start. The charger has a big screen. The charge socket flap on the car has to be opened from inside or by a phone app. I guess that would become second nature soon enough – the filler flap on my ageing VW has to be opened from inside the car, so being able to do it on the phone would be quite handy. And the fact that it *can* be done from inside the car means the quality of phone signal coverage isn't an issue. Nor is it an issue for getting some electricity into the car.

I plug in the tethered cable, the light next to the charge socket goes to a darker shade of blue and after I make my way through the not entirely intuitive instructions on the charger (it wasn't just me who had to stare at the instructions for a bit before twigging what was needed, my colleague was involved in a bit of chin-scratching before we got there), the screen tells me that the juice is flowing. Time for a cuppa. I turn to walk away, but am invited to pause by my colleague having one of his Confucious moments “the wise EV driver always checks that their *vehicle* is telling them the juice is flowing, rather than trusting the charger, and they also hang around for a minute or two as experience shows that sometimes things seem to just stop about a minute in and there's nothing quite like dashing off for a cuppa only to return 20-40 minutes later to find very little has happened in your absence”.

After a minute or two of hanging around to establish that all is proceeding as it should I am more than ready for that coffee. Happily, the Gridserve Electric Forecourt, as I should learn to call it, is not only blessed with multiple facilities – a café, a shop, toilets, plenty of comfortable seating, even the option of arranging to buy an electric car – it also has staff, one of whom, clearly proud of the place, shows us around and explains what's what.

We're doing well. I'm starting to think this is a glimpse of a future that I could very quickly get to like, though it comes at a cost - £0.79 per kWh. That's the price of clean, bright convenience (including conveniences) it seems (but it's still about ten times more than I'd be paying if I was on my driveway at home charging at my domestic rate). And soon, my colleague and I suspect, to become a magnet for local EV minicab drivers looking to serve the airport market and environs and will surely value the facilities on offer as well as the location.

We'd set the car only to accept a limited charge, since we had multiple locations to visit, so I barely had time to finish my coffee before the Tesla app on my colleague's phone told us that it was time to untether the car and head off. How long would it take for me to cease being impressed by the way the charge socket cover shuts itself, I wondered, as I failed to remember how to work the door handle and had to be reminded.

Cobham

The M25 was kind to us and it wasn't long before we were pulling in to Cobham Motorway Service Area, eschewing the bank of Gridserve superchargers (no offence, but this is about a variety of experiences) to visit the Ionty bays. A bit of a hike back to the MSA services had I needed the loo, and no roof to keep the rain at bay. But today the sun continued to shine. I noticed other drivers crouching and peering at the other Ionty chargers and soon worked out that they were finding the chargepoint screens hard to read in the sunlight. Designers, please take note.

A tap on the phone screen to get the car ready to accept charge and then a wrestle to get the tethered charge cable round so I could plug it in. I accept I am no athlete, but I couldn't help thinking that someone with a bit less heft would find this hard work – my mother, in her later years as a driver, for example, would have had to ask someone for help. Yes, thank you, all those engineer and scientist readers who are itching to explain to me that if I want to refill my battery at pace I have to live with a beast of a cable. Full marks to physics and precious few to ergonomics.

I work out how to plug in the tethered charge cable. Time to follow the instructions on the charger.

Well good luck with that.

I have assembled flat-pack furniture, so I am no stranger to what happens when instructions pass through a translation mangle. But these were a really quite outstanding example of what, I gather, makes complete sense in German, but when translated literally left this British punter stumped, despite my German 'O' level.

We had a go at being new customers, which required registration, which, in turn, required a decent phone signal. Happily, the signal was OK, but the phone registration process was *unbelievably* slow,

and, again, had the air of having been designed by someone who'd never had to try using it. I fell at the first hurdle, because in putting in my address I put the house number before the street name. Germans do that the other way round. The computer said 'no'. My colleague, not long back from hols in Germany, spotted the problem and tried again.



This time we got quite a long way through filling in the digital form before we were dumped back at the beginning, I had no idea why. My colleague had no idea why. Being British, of a certain age, I said: “why did that happen?”. “I have no idea, annoying, isn't it?” he replied.

The precious hours of the day were ebbing away, so we decided to move on. Lucky for us that we could, having arrived with our battery half-full.

But before we go any further it is fair to record that had we been driving a different car, say an electric Mercedes, our experience would have been quite different. “*Guten tag. Willkommen zurück mein alter Freund, wie gehts?*” I can imagine the charger saying as it and the car recognised each other as kindred spirits and connected without further ado.

And I suppose I could imagine that as a Tesla owner I would have opened an account, have made my way through the instructions somehow, and remembered them. And have swallowed the per kWh price. But, and we'll come to this later, I think I might have done so all the while stealing envious glances at that array of Gridserve chargers we drove back past on the way out. They say competition breeds champions...

Reigate Hill

Time for something completely different – just off the M25 at Reigate Hill there's a National Trust viewing point that boasts an EV chargepoint – a Swarco e-connect. The view is impressive.



The car park isn't huge and today's sunshine means it is really rather full. As is the single chargepoint. A perfectly pleasant minicab driver urgently needs to bag the sole charger and at 50 kW he's planning to be there for at least 25 minutes, which means we'd need double that to wait him out, get tethered and get a worthwhile charge ourselves.

The charger itself looked simple enough. But another pricing system to puzzle through – a flat £2.00 fee to tether and then a reasonable £0.40p per kWh. The charger was clearly working to the cabbie's satisfaction, so it had the connection it needed, and my phone had a few bars showing, so the mobile signal coverage looked to be OK.

Nevertheless we weren't about to run flat and today was not a day for sitting around admiring the view, so we left our friendly cabbie to the charger and moved on

Again, we were fortunate not to have drained all our juice away to get here, but had we done so the next nearest charger was, we found, 6 miles away. And no guarantee that it would be available. As someone once said: 'one charger does not an electric forecourt make'. How true. Six miles isn't that far, but it's far enough, being entirely off our desired route, to give me pause for thought.

Forest Row

Off we head back round a spookily quiet M25 this time headed to Forest Row, where we make for the BP Pulse 7 kW charger tucked away behind the village hall.



We find the charger. It is occupied.

Of course, we have no idea – and no way of knowing - when the i3 on charge will be moved. Its owner could have nipped down the road to the shops, be in a nearby café, or could have gone home to watch the telly. I'm reminded of the challenge of getting party guests to go home at the end of the evening. There really does need to be an incentive to get EV drivers to make way (which is, of course, built into the Tesla system which starts to cost you money - £1.00 for every minute if it judges you to have unnecessarily blocked a charger).

Good news, though, because the next nearest chargers are barely a stone's throw away, in the village car park across the road, accessed down a heavily rutted, seemingly unmade but mercifully short alleyway.

Here we have a row of dedicated EV spaces with Connected Kerb chargers – none of your fancy touch-screens here, this is the back-to-basics end of charging.

Time to hoick the charge cable out of the Tesla front boot. Blow me this thing weighs a ton. OK, not a ton, but it's a chunky piece of kit. We plug in.



The instructions say that we should tap the right membership card for a recognised charge scheme company on the charger and so, since my colleague has a modest collection of the things, has (having sat at his home computer filling in multiple registration forms on-line when he got his first electric car) that's what we do. Nothing. We try again. Nothing. We unplug and try the next charger along (there is a car in that bay, also restricted for EV use, but despite signs promising dire punishment it is occupied by what is patently a petrol model).

Tap. Nothing. Try a different card. Nothing. Time to try using the phone – reliant on the phone signal and, success! We are charging. Very slowly. Fair play to Connected Kerb, this is not unexpectedly slow – the lower per kWh price reflects the lower rate of charge on offer.

Could I see myself swooshing into such a car park and hoicking out my own cable to charge at this pace as a matter of course even at this price? I could not. And that's on a sunny day.

We observe that another of the dedicated EV bays is occupied by a car liberally festooned with plug-in EV symbols, including one on the filler-flap. It is actually another petrol-engined model presumably masquerading so as to slip into spaces reserved for EVs (sneaky, but it was the work of a few seconds to check on the DVSA's MoT app that this wasn't just a new hybrid model we hadn't previously encountered). We give up and move on.

Crowborough

It is time for lunch. Time to find a hostelry that offers one of those tempting menu/EV charging combos, and where better than the Blue Anchor at Crowborough?

Here we find a selection of Osprey chargers. Nice design, I thought. Big screen, pretty good, intuitive instructions, and the on-screen information shows you the power you're actually getting (sounds obvious, but really isn't) at a decent-enough 75 kW.

No shelter, but we're just a few strides from the welcoming warmth of the pub itself. And I can thoroughly recommend the grub – proper pies! Not just a crust on a pie dish as so often these days and (*that's enough pie chat, Ed.*)

Things are looking up.

Tonbridge

It couldn't last. Our timing now took us slap-bang into school pick-up traffic as we trundled slowly through the back streets of Tonbridge in search of the pair of Instavolt chargers in the McDonalds car park.

First impression isn't brilliant – the two spaces are a bit of a squeeze for the Model 3, and other drivers anxious to get burgered-up are clearly in no mood to wait for our manoeuvres.

Eventually we're in. Despite the message on the chargepoint screen saying 'no signal' we did get the tethered cable plugged in and the power connected, but the rate of charge was dismal – the up-to-100 kW we were expecting for our 85p per kWh turned out to be a fraction of that number. A quick calculation suggests our 10 minutes of charging should have got us about 16 kWh compared to the 0.1 kWh we'd achieved at the point we drew stumps.

We fossil-fuellers are used to our petrol and diesel pumps having a pretty much universal rate of flow: squeeze the nozzle hard to get full flow, more gently to ease up.

I had naïvely thought that the kW rating of the charger would tell me the kW rate of charge. But not all cars are willing and able to accept charge at the same rate, and the rate at which chargers pump out powers varies too, presumably related to physics, again, rather than my need to get a move on. Hence the value of the charger screen 'fessing-up to the actual rate of charge you are getting.

What we find a bit harder to swallow is being faced with a rapid-charge per kWh price for what, in practice, was anything but. We're all used to adverts cunningly promising us 'up to' numbers (sale items at up-to 40% off) but this feels more problematic.

We'd have had to sit there for an age to get a worthwhile shot of power – far longer than it would take to munch through a McDonalds meal, let alone the time it would take to buy a take-out. I guess we could have called the helpline number, but with no indication of what the problem might be, and dusk falling, we decide to move on. Very sorry if you were next in to connect to that charger – I hope you had more luck than us.

Dunton Green

Off into the evening, towards Donnington Manor Hotel, outside Sevenoaks. Here we ease past a pair of basic, low-power chargers available for the hotel guests. Fair enough – the idea is to plug-in and let the electricity trickle in overnight – who cares if the 7 kW you were expecting falls to 3.5 kW because someone plugs in next to you, as I'm told does happen? You literally have all night.

Except for the fact that it's increasingly likely your car will have a battery capacity of more than 70 kW. Plug in at 10pm expecting to set off fully charged at 8am the next day for a long trip and at 3.5 kW you'd be disappointed.

Meantime, there at the far end of the car park is an array of nine Tesla superchargers, glowing in a gently welcoming way. They stop just short of saying “*Good to see you, come on in, how are you today?*” to us in a soothing American accent (I imagine them saying it to the car).

‘Watch’ says my colleague wielding his smartphone. Tap and the charge socket flap flips open. Tap and the charger is ready to untether. Click and it's in. That's it. If you want to know how it's doing, just look at your phone. In fact it was even more impressive than that, because having looked up the location of the chargers on the in-car sat-nav and selected it before we left Tonbridge the car first checked with us that we wanted to get a charge and then prepped itself so that it was warmed ready to accept charge at the fastest rate – a 140 kW rate of charge at 43p per kWh. OK, so the car used some extra electricity to heat itself on the way over so that it could accept even more electricity on arrival, which is all a bit weird to an EV novice. But pretty clever too.

A tasty hot coffee in the hotel bar sees enough juice squeezed into the Tesla to more than cover the journey to our respective homes. And importantly we remember to pop the car's registration mark into the screen atop the bar – fail to do that and you can expect a parking charge notice through the post in short order.

Time to reflect

Back to the original exam question – how did I feel about getting used to all this?

It was a curate's egg of a day – bits of it were excellent. I feel like I've seen the future and it's perfectly capable of working.



For a start it wasn't so much that there weren't enough public EV chargers - our trip was in the South East, near the M25, and the map shows there are plenty to be found. But whereas with traditional service stations pretty much the only variation is of price per litre of fuel, and even then it's a matter of a few pence per litre, there's quite a variety of experiences to be had in the world of EV chargers, *including* price, which in the course of our day we found to vary by a multiple (double) rather than a percentage (somewhere around a 20% premium for petrol or diesel at a motorway service area).

There's no uniformity of design of charger, even between ones that look similar at first glance. My EV driving chums talk knowingly to each other of the strengths, weaknesses and foibles of different chargers by supplier, location and design. They seem pretty quickly to learn what works best for them. They plan accordingly. Am I being unduly harsh on Ionity? Maybe others would have found the instructions perfectly clear.

But the issue isn't whether *some* people find the chargers easy and intuitive to use, it's whether that's true for the *vast majority* of us. As a former boss of mine was fond of pointing out, the test of whether you've written a clear set of instructions is not whether your friends are capable of following them, it's whether those less well disposed to you – and less inclined to try – can reasonably claim that they can't.

I'd urge anyone designing a chargepoint to get an EV novice to give the prototype a try. This is an eminently fixable problem.

And before I get on my high horse to complain that I've never really had to plan in order to drive around and get refuelled in my petrol cars I am duty bound to observe that the only reason we had to

recharge my colleague's Model 3 at all to make our round trip was because he deliberately hadn't recharged his car overnight, as he normally would have, at home, at his domestic electricity rate of less than 10p per kWh. Cheap? As chips. Convenient? Not 'arf.

I wonder what the cabbie at Reigate Hill would have done had the tables been turned and we'd arrived five minutes before him. Would he have sat and lost half an hour of his driving shift waiting for us to move? Would he have braved the cold to stand next to our car so as to bag the next slot when we moved in case some other EV driver rocked up? Or would he have had enough juice to make the 6-mile trip to the next nearest alternative?

At Cobham I was reminded of the rising tide of panic I felt many years ago at a French self-service petrol station where the pump absolutely refused to recognise my GB credit card with my fuel gauge nudging on empty. How well would I have coped had the rain been falling, the skies dark, and the car bearing fidgety toddlers whose fascination with the Tesla's ability to make silly noises was rapidly wearing thin?

On those gargantuan charging cables, forgive me, but I'm going to allow myself a moment of comparison to the late, great tech entrepreneur Steve Jobs and his insistence that early Apple computers be both silent and (in every sense) cool, and so must not have a fan. Which reduced many an Apple engineer to tears. But he insisted *and they came through*.

You engineers and scientists are clever people, right? So, let's have charging cables that don't make me feel like I've unwittingly been signed up to appear on the BBC re-boot of Gladiators.

I also find myself wondering how well even the lovely Gridserve facility will cope when the number of electric vehicles powers past the 1 million mark this month, on its rapid way to many millions as the Zero Emission Vehicle mandate bites on the auto companies, requiring them to ramp up their EV sales. I hope the Gridserve folks are as on-top of the inevitable care and maintenance tasks to keep their facility spick and span as they are on the rest of their business.

And it's only fair to remember that point about the rate of charging not just being about the rate at which a charger can emit a charge but also the rate at which the vehicle can accept it. Not all cars are the same, and then there's variability depending on the level of charge the battery is holding and its temperature. I'm told that for many vehicles the sweet spot is not to let the level of charge in the battery fall below about a third and not to top up above three-quarters. Or something like that.

It'd be handy if car designers could agree on where in the vehicle to put the socket, too, so that we don't have to think too hard about how to park in relation to the charger. I get the designers'

obsession with style, and with hiding things away, but let's put a healthy dollop of practicality into the mix as well, please.

Home

I generally hesitate to quote Professor Brian Cox of D:Ream and argue that *things can only get better*. I'm generally the one reminding people that, in practice, things can often get worse. But my suspicion on public EV charging, at least for the rapid network, is that they can and, more importantly, they will improve.

We consumers are a fickle bunch and we will ultimately vote with our wallets which, hopefully, together with the Government's evident willingness to intervene (viz the Public Chargepoint Regulations that came into force late last year¹) will be pressure enough to drive not only the quality and the cost of EV charging but the consistency of experience.

But time is not on our side, and auto companies now needing to ramp up their EV sales to comply with the Zero Emission Vehicle mandate need to be thinking hard about what they can do to reassure their prospective car-buyer customers that their EV recharging experience will be easy, intuitive and reliable.

Meantime by the end of the day I'm pleased to report that I was routinely remembering how to work that Tesla door handle. And I see there are some excellent deals to be had on new and nearly new EVs ...

SG

¹<https://www.gov.uk/government/publications/the-public-charge-point-regulations-2023-guidance/public-charge-point-regulations-2023-guidance>

