Individual Response Number 01

Hello,
- this is a non confidential individual comment -

Is there any scope for comparing charging points with battery swapping or determining if there is a market for battery swap stations.

In my view, battery swapping stations, where my battery can be swapped for a fully charged battery in under 5mins would be a fantastic innovation.

In addition, a network of battery charge stations could form a wonderful sink or reservoir for any excess electricity generation.

thanks for your time,

Individual Response Number 02

I have no home charging point at home. Therefore, I rely total on the public charging network.

I took the decision to buy a used EV solely for the short trips necessary for daily life. I have kept my petrol car for longer journeys.

The car was bought online near enough to drive home. I have only recharged it once but the first choice charger shut down before two minutes had elapsed. I discovered this after I caught the bus home. The help desk attempted to remedy the problem but after 30 minutes recommended I return to the car and travel to another charging point. The second charging point worked ok. However, because it was located in a public car park it could only be used for 90 minutes before occurring a £10 penalty fine.

These problems have not dulled my enjoyment of the car which is perfectly suited to the low mileage round trips it is used for.

If in future you are conducting any group discussions. Please feel free to to include me.

Individual Response Number 03

Below are my comments on EV charging in the UK.

Q: What are the main existing and potential barriers to entry and expansion for EV charging providers and how can these be addressed?

Q: How can charge points be effectively deployed to ensure there is sufficient supply to meet future demand? What factors need to be taken into account?

A: One issue that must be tackled is manufacturer specific charge points such as those installed by Tesla, and exclusivity deals such as Ecotricity's one with Motorway Service Areas (MSAs). There is only so much space and so much energy that can be supplied at a location without expensive upgrades, and charge points dedicated to one manufacturer make it harder for other vehicles to be served. MSAs in particular particular need a large number of chargers available for all vehicles, ideally from a number of different suppliers. Norway is developing infrastructure that way, with service areas typically offering a choice or at least two suppliers.

Q: What is required in order to ensure that rural / remote communities and those without off-street parking are well served by charging infrastructure?

A: In order to avoid creating divisions between those who can charge cheaply at home and those who are forced to pay high prices it will be essential to provide on-street charging at rates similar to home electricity. Those without home charging will also be forced to pay for larger batteries than they would otherwise need, or switch cars earlier due to battery degradation. Failure to do this will reduce social mobility and have undesirable effects on the price of property with and without off-road parking. It's worrying that even today new homes are being built without the facility to charge an EV.

There are many issues that need to be addressed. Every residential street will need one charge point per home and some means to bill the correct person. This will exacerbate existing parking problems too, as people need to park where they are able to charge. A system will need to be developed, probably with the energy providers, ideally so that any energy used is added to home energy bills and the cost of maintaining the infrastructure is incorporated into standing charges.

Q: What challenges or difficulties related to chargepoints might act as a barrier to consumers switching from a conventionally fuelled passenger vehicle to an EV and how might these be overcome?

Q: Are there any technological developments or tools that could support consumers to navigate the sector, for example by helping to make more informed choices?

Q: What, if any, open data measures are needed to support consumer interaction, such as through the growth of comparison sites and apps?

A: The infrastructure needs to be much more reliable. People worry that they will be stranded and it's almost happened to me a couple of times because chargers have been broken when I arrived. One thing that would really help is a centralized system for collecting real-time data from chargers, showing if they are working and if they are in use. This information should be available in-car, via a variety of apps (e.g. integration with mapping and satellite navigation tools) and via a website. A consumer should be able to plan a journey in their choice of mapping application, e.g. Google Maps, with recommended stops and expected costs displayed.

In my experience most people vastly overestimate distances and thus underestimate EV range, and tools like A Better Route Planner are an eye-opener for them, showing that such vehicles are practical.

Another issue is payment. Card payment should be mandatory, currently you have to know which providers require accounts or online payments and have the right account.

Q: How do consumers decide which chargepoint services and providers to use? What information do consumers need to make this decision and at what stage in the decision-making process?

Q: Can consumers easily understand and compare charging tariffs in this sector and what barriers, if any, do they face?

A: There should be a standard way of metering charging, similar to how petrol is always sold per litre. Currently some charge by time and some charge by kWh delivered. The price should be clearly displayed on the charger.

Q: Do particular groups of consumers face additional challenges to interacting with the sector and if so, who and why? How might these be overcome?

A: I don't know of any chargepoint providers that accept cash payments, they are all either credit/debit card or subscription/account based.

Individual Response Number 04

I am a regular EV driver with three years experience. The big issue apart from not enough chargers in some areas of the UK is the rediculous number of different apps, RFID cards etc. that are required when using public chargers, ALL we want is a simple tap to pay system, you need look no further than Instavolt who do this on all chargers.

The only other requirement is the situation where a charger looses connection to their payment systems meaning that a car is unable to charge, in this situation the charge should always be free, what must never happen is a driver is stranded unable to continue their journey, look at Ecotricity as a good example of this.

All new cars coming to the market have CCS chargers, currently 99% of motorway service stations have only ONE charger available, this must change rapidly, see Tesla charge stations for how this can be achieved.

Individual Response Number 05

Hello,

Please see below my comments as an EV owner in England.

Theme 1

1. **What are the key challenges for consumers already interacting with the sector and how might these change over time as the sector grows? -** Unreliable public chargers and monopolies by certain providers making it impossible for innovation to occur. Roll out of public chargers with only CCS plugs means the tens of thousands of existing Chademo or Type 2 only cars cannot use them.

2. **How do consumers decide which chargepoint services and providers to use? What information do consumers need to make this decision and at what stage in the decision-making process? -** The usual avenue is to use websites like ZapMap or PlugShare - Every person I have ever spoken to that owns an EV uses these services. Built-in head units in the vehicles themselves almost all have Sat navs with charge points on the map too.

3. **Can consumers easily understand and compare charging tariffs in this sector and what barriers, if any, do they face?** No. I believe this to be the biggest issue with public charging, there are multiple mobile apps and multiple companies to deal with, I currently have 5 different apps... all I want to do is use contactless to pay.

4. **Do particular groups of consumers face additional challenges to interacting with the sector and if so, who and why? How might these be overcome? -** No comment.

5. **Are there any technological developments or tools that could support consumers to navigate the sector, for example by helping to make more informed choices? -** Yes, services like ZapMap and Plugshare are independent and user operated.

6. **Are existing protections offered by consumer law and other measures (such as sector regulations) sufficient? -** No comment.

7. **What, if any, open data measures are needed to support consumer interaction, such as through the growth of comparison sites and apps? -** The majority of the "good" charging providers offer open APIs that publically show the charging status or operational status of each individual charger, this should be mandatory to allow third party companies to build tools and apps.

8. **What else is required to help ensure that the EV charging sector develops in a way that is responsive to consumer needs? -** More public money and grants should be available to companies providing *reliable* services,

companies like Instavault and Osprey should be having money thrown at them to provide reliable services - companies such as Ecotricity/Electric Highway *should not*.

Theme 2

1. **How is the EV charging sector developing and how will technological or other developments (for example smart technologies) impact sector development and competition? -** The charging sector seems to be developing very quickly - Places like Gridserve/Electric Forecourt should be supported better by the government/public money to get them off the ground quicker.

2. **How well is competition between EV charging providers working at present in the different sector segments and what are the key risks to effective competition (including any emerging competition concerns)?** - Competition seems essentially trivial, there aren't, for example, a row of chargers by Genie on one side of the road and a row of Instavolt chargers on the other competing on prices - In general there (relatively) so few chargers that it is still possible for companies to target areas without any charging infrastructure and have zero competition, this has resulted in increases recently in prices because there is zero competition for them at a local level - please see BP Chargemaster recently upping their prices only for rapid charging.

3. **How can competition in the different sector segments be strengthened as the sector develops, either by building on current policies and/or through other approaches? -** No comment.

4. **What are the main existing and potential barriers to entry and expansion for EV charging providers and how can these be addressed? -** Uptake of EVs in rural areas is chicken and egg - There is a perceived lack of range on EVs by the general public and the inability to charge them in rural areas - so people in rural areas avoid buying an EV...lower ownership rates means charging providers are less likely to install charging infrastructure in rural areas. For example, where I live the nearest rapid charger is 9 miles away.

5. **How can chargepoints be effectively deployed to ensure there is sufficient supply to meet future demand? What factors need to be taken into account?** The focus should be on "hubs" that Gridserve (Electric Forecourt) and Instavolt (Instalvolt Hubs) are focusing on, these should be in rural areas or "mid-points" between travel - The "destination chargers" at end points of travel (Cities, towns, motorway service stations) are already there - there needs to be stop off points in between.

6. **What incentives are there for private investment in EV charging infrastructure including within the different sector segments? How might incentives need to change for the future growth of the sector and development of competition? -** I believe the current incentives are there, but there isn't enough education about it. For example a number of charging providers offer FREE(!) installation of rapid chargers on your land and will even pay the landowner rent - A win-win for the land owner or business, an added

amenity that has the potential to bring in new custom - I am quite sure very few businesses or land owners are even aware this is an option for them.

7. **What impact does public subsidy have on private investment incentives; are there any areas/gaps where public support is most likely to be needed? -** No comment.

8. **What is required in order to ensure that rural / remote communities and those without off-street parking are well served by charging infrastructure? -** On road charging is a must, the technology has already evolved to the point of being viable - For example lampposts being converted to Type 2 sockets, "pop up" charging stations - the technology is available, councils just need to invest in it.

9 **What role should local authorities play to help deliver EV charging in a way that promotes competition? What support would they need?** - Local authorities should be looking at ways they can install charge points for on-road charging and finding available rural land for "charging hubs". However, the onus should not be on the local authorities when it comes to paying for these developments. Companies such as Osprey and Instavolt need land and will install these services for free to the local authority. However if money is required the government should be subsidising these fees.

10. **What can be learned from the different policy approaches taken in the devolved administrations for the EV charging market's development?** I think it has been made clear that the extra grants given by the Scottish government has affected uptake of home chargers, they get an extra £150 off compared to the rest of the UK - I have not even considered installing a home charger because of the high cost, despite being eligible for the OLEV grant in England, the prices are still £400+.

Thanks

Individual Response Number 06

Hi
As an EV owner I would like to offer my feedback:

1) There should be a SLA for uptime to ensure a reliable service

2) All chargers should allow contactless for the same price as an app

3) Suppliers should be able to have a price difference department on charge speed but this should be capped by regulation i.e 35p per KW for 50kwh or 45p for 150kwh

4) Similar to ATM's/Broadband suppliers should be encouraged to operate in less profitable locations with setup grants for rural areas

5) Listed building planning concent should be dropped as it's just a barrier to adoption

6) More charge points should be available in city centers to encourage more use of EV's

7) More councils like [✂] should offer free or reduce parking with charging facilities
I hope the above helps with your review and I would be very happy to be contacted if you need further information or which to discuss charging further.

Individual Response Number 07

I would like to comment on the UK charging infrastructure as it currently is and how it could to be improved.

We have had an electric car ([✂]Nissan Leaf [✂] mile range) for 2.5 years (26000miles) and live in the countryside ([✂]).

We have been to France in the car and all over the UK.

We charge mostly at home [✂] (we have a 22kw 3 phase AC charger). Going any distance needs the use of superchargers 50kw DC or higher.

The Press and Government often publish figures about how many chargers the UK has.

This often annoys me greatly, because AC chargers are of no use for long journeys (it takes many hours to charge). So when publishing figures for chargers, I'm only interested in how many (working) superchargers there are.

AC chargers can be useful when staying overnight somewhere, or visiting an attraction for long periods (many hours).

Otherwise for me, superchargers are what I'm interested in.

Currently there is a distinct lack of superchargers on the motorway and dual carriageway networks, making long distance travel difficult.

There are some Tesla ones, but they can only be used by Tesla cars - and probably rightly so since they have clearly interested heavily in their network (at great expense) and need to regain some money from selling their cars.

The only other network available on the motorways is Ecotricity.

They *may* have 1 or 2 DC chargers at *some* services on the motorways.

Where there are 2 chargers, normally both have a Chademo connector, but only 1 has a CCS connector. The newer EVs normally have a CCS, as this is the new Europe standard, so if that charger is in use when you arrive at the services, you have to wait. It may take 40 minutes for the other car to finish charging, before you can start your own 40 minute session. Potentially this would mean an 80 minute stop - considerably increasing overall journey time.

These Ecotricity chargers are frequently broken down for long periods. If the charger with the CCS connector is the one that is broken, then you cannot charge at that location.

If people are to take EVs seriously, just consider this:

Car drivers see a service area on the M1 with maybe 15 petrol pumps.

They know it will take about 5 minutes to fill with fuel, and they're off again.

The EV driver sees 2 chargers at the same services (or none maybe) and 1 is occupied for 40 minutes and the other is broken.

Not a great result... (but all too common).

All motorway and larger dual carriageway service stations need DC chargers urgently. This must be considered an absolute priority if people are going to do any reasonable journey in an EV.

The chargers must be kept working always, not left broken for months. Otherwise the investment is a waste of money and it puts people off using EVs.

BP Chargemaster (aka Polar) have quite a few superchargers. These are rarely, if ever, at motorway services, normally they are at pubs. So you must get off the motorway and go driving around looking for them.

Late at night this isn't great - as you probably want to use the services while the car is charging, not go to the pub, which could be closed anyway (say in the early morning, so no toilet break option there...).

The screen is very often broken on these Polar chargers, thus making them useless. I gave up my £8/month subscription with them, because they were all too often broken.

All DC chargers need to be contactless card payment compatible. Often they require monthly subscription sign up or the use of an app (different app for every network) on a smartphone.

If your phone is broken, flat, has no signal, or their app doesn't work correctly you are stuck without being able to charge.

Almost without doubt the best chargers are the Instavolt ones, these nearly always work. They are contactless payment, so super easy to use. Pity there are not more of these, especially on the major routes.

This company should be helped with their expansion, as they clearly know what they are doing and are doing it well.

Also, Ionity chargers cost 69p/kwh (normal rate is 30-35p/kwh). I would *never* use their chargers at this price unless I was absolutely desperate.

This price is more expensive than using a gas guzzling 4x4.

If I knew I would always have to pay this kind of money to charge my EV (at superchargers) I would:

1. Not buy an EV
2. If I had an EV, I'd take my diesel 4x4 for the long journeys (currently I will always use the EV for long runs)
3. Since EVs cost vastly more to buy, at this 69p/kwh price, I'd wonder why I even bought an EV
4. Sell the EV and buy an old diesel?

Having AC chargers at attractions like Harry Potter Studios and Chester Zoo (where a visit will typically last a number of hours) should be actively encouraged. It is very nice to able to charge while there. Makes me want to leave my diesel car at home (where it belongs).

I hope that gives you some insight into my experience of the UK charging network - which is far superior to what I experienced in France, but could still be greatly improved.

I would just like to add, that there is some confusion around DC rapid charging (aka supercharging) and believe rules may be needed to govern how we are being charged, see below:

The process of DC charging, is that the charging post converts AC mains power to DC power the car can accept.

This process is not 100% efficient.

Thus, as EV car users should we be charged for the total power that goes into the charging post (and we have to pay for poor design/bad efficiencies of the charging post maker) or do we pay for the power we actually receive going in to the car (the DC energy)?

If we pay for the total power going into the charging post, this would almost encourage manufactures to make them inefficient, so they will get more money.

If we pay only for the power we actually receive on the DC side (after conversion), this will encourage efficient charging infrastructure to be deployed, minimising wasted energy. It will also mean we can properly compare charging prices between operators.

Hope the above makes sense, but I think it's important.

Individual Response Number 08

My biggest bug bear with the EV market at the moment is Rapid chargers – Tesla have one of the best networks for rapid charging on the go where you just stop off and plug in. The car's charged in about 20 mins or so and automatically communicates with the Supercharger to sort out billing at a reasonable price, but if you don't have a Tesla or aren't near a Tesla Supercharger the other options aren't quite as easy.

There are a lot of different companies which all have their own different apps or fobs and aren't as well maintained or reliable. Using apps like zapmap or plugshare are good to show where the best chargers are, but you still need to have the other apps installed to communicate with the charger to sort out billing. A new law was passed to help this issue which required all new chargers to accept contactless card payment but it doesn't apply to existing chargers.

Would therefore like to see:

1. maintenance of existing chargers improved, for example 90% of the rapid 50kw chargers in Poole no longer work and charge your car (now polar bp chargemaster) who operate them aren't interested in fixing or upgrading them unless the council pays them more money to do so! Have contacted the council and polar bp chargemaster but neither are interested.

2. the complexity of using the apps which don't always work first time or when there is hardly any signal needs to be improved. You end up needing to have at least about 10 different apps installed to cover most of the major charging operators which is a process which is far too complicated and will put people off going electric. Having contactless payment helps but hardly any of the chargers currently accept this and doubt any of the current ones will be updated so this works well.

3. cost of rapid charging. Some of the companies charge extortionate amounts as they are the only place you are able to charge and so have a monopoly on the rates they are able to sell the electricity to you for. Some of these options even cost more to fill up than a petrol car so having a cap on these would provide consumer confidence!

Individual Response Number 09

My interest in this subject arises from commuting to customers by car around the UK as an ordinary car user or travelling as a family on trips in the UK/Europe.
My experience: [✂]

Then and now...

1. Then, in 2014 I was able to travel on free electricity as a user of the [✂], the Ecotricity 50Kw charger at [✂] services was readily available even when I had forgotten my RFID card, as was the 50Kw charger at the various Nissan garages on my journey. [✂]Car Park, [✂], allowed me to charge for free, whilst I paid the car park fees £4 per hour. I used to be able to travel with 3 RFID cards. Ecotricity, SourceEAST and SourceLondon. Free or cheap membership meant free or minimal electricity costs. The fast chargers were either out of service or freely available, you would never quite know which it would be.

- Today I am required to download apps for each network. I have to top-up the account on the app. The apps are not reliable. Customer service is often poor. And the electric is very expensive per KWh. In the winter, one KWh will enable me to travel 2.5 miles. It works out more expensive than petrol when purchased en-route. The queues at service station chargers are getting longer and longer. People see this and it puts them off. Charging units out of service, this is still a common problem, it also puts people off.

Now, I find that a virtual monopoly in London on parking spaces such as [✂] Council means that they can charge inflated fees for the electric and parking. The cheaper car park option at [✂] has gone.

The [✂] charges very slowly. Some operators charge by the time spent charging, which is unfair, it is not good value for slow charging cars.

The [✂] is fantastic because it is still very frugal with petrol, so I have a practical choice.

Street charging is still minimal. As every EV and Plug-in hybrid car is still provided with a UK standard 3 pin 240v connector, you could have 3 pin sockets on every street lamp. Slow trickle charge when parked visiting customers or relatives, for say 3 hours, would give you 3 x 3 kwh x 2.5 winter miles = 22.5 winter miles, enough to reach the other side of [✂]. Plug-in hybrids would use far more electricity miles per journey in that case.

In summary, fuel costs have rocketed for EV users since 2014. Charging facilities are still poorly maintained in general. Trickle charging would even out the draw-down of electricity across our cities plus ensure more electric miles per journey for Plug-in hybrids. Smart meters that drain the EV battery when the Grid demand rises could mean a journey abandoned because you unexpectedly had less miles in the battery than you expected.

In the end the only thing I liked about pure EV ownership was that I could re-fuel at home overnight on a cheap tariff and avoid smelly petrol stations. But range fear was

a stress too far. And that is what will prevent EV use on longer journeys such as holiday trips. I still need access to a diesel family vehicle, I have a 7-seater for family trips, holidays, and range of pure EV 7-seaters is currently minimal and recharging for an hour at a time is not acceptable.

Individual Response Number 10

To whom it may concern

After purchasing an Electric Vehicle on October [✂] 2020 we wanted to share with you our experience of negotiating a wall box installation.

Initially we did not know the rules from [✂] County Council in regards to charging cables across the footpath. However we accepted theirvreasobs and suggested [✂] fit in our detached garage on a shared drive. Thus they were ok to do as long as a third party electrician carried out some work first.

After seeking advice of an electrician we were informed that the work would not be feasible without major expense and major work. Thus was due to the distance from the existing fuseboard and the fact we would be crossing the neighbours portion of a shared drive. With this knowledge we did some research and found that some county councils allowed valuables crossing the pavement. With thus information we contacted [✂] again. After much back and forth we discovered they were looking at their policy. They sent us a list of bullet points that we responded to about safety of pedestrians, when we would be charging, what our street was like and our level of insurance. Once we had given proof and answered all if these questions we were granted a licence to lay a cable which would be secured in a ramped cable protector across the pavement and we could go ahead with an install of a wall box at the front of our property.

With this information we forwarded everything on [✂] to [✂] and looked forward to be given an install date. The same day we were informed that they could not proceed because the Office of Low Emmission Vehicles (OLEV) would not allow the wall box at the front of our property due to the fact we would not be charging on a private drive and the cable would be crossing a pavement.

You mentioned in your study on EV charging about the percentage of people charging at home and said that this would increase. Without any leeway with County Councils and OLEV, especially with them both working together, I do not see how this us possible. We have been activly waiting for two months now and been really pleased with the foresight of [✂] County Council and their willingness to look a fresh at policies. But OLEV seem to be the group that will not allow for the uptake of more home charging.

We are starting to lose the will to fight further. In our local area our closest charge point us 7 miles away. This consists of two 7 KW plugs but as of yesterday one was not working. We do have 4 other plugs roughly the same distance away but each time I have tried to use them I have been hindered by the technology running them and not been able to successfully charge.

Without some joined up thinking and cooperation between National Government, OLEV, County Councils and EV Home Charging install companies. I worry that the governments target will prove unfeasible.

If you would like any further information from us to help with your study please do get in touch. Also, if you have any solution or possible solutions to our situation, we would gratefully recieve them.

Thank you for your time

Individual Response Number 11

I've had an electric car for just over 8months now. On the whole I think the charging scene is getting better. More should be done to encourage providers to use contactless card transactions rather than having to set up and often preload accounts with money. This then either limits choice "I always need to use X type chargers as they have my money" or forces users to have pockets of money with lots of companies "just in case I stumble upon X type chargers in the future"

With range anxiety being s real thing, especially whilst driving on motorways, we need to relook into the current company who seem to have the monopoly on motorway service stations. All to often I find their machine inoperable meaning I have to risk driving to the next service station and hope that machine will be working. I believe this leads to more dangerous driving as one is constantly aware of range and distracted from normal driving.

I believe more should be done in public carparks as it appears that the current set up relies on supermarkets or private owned carparks which sometimes have restrictions as to who can use them

Individual Response Number 12

Hi there,

Will this study also look at consumer related issues (ie info from consumer groups)?

As an electric car user, I find maintenance of fast chargers is lax and ideally, there should be a forced SLA for companies to fix those chargers that are unavailable quickly. Some chargers are inactive for weeks at a time. This is currently important as there are a limited number of chargers available at any one stop.

Secondly, the charging landscape is a mishmash of different companies with different payment or usage requirements. For example if you join one network you can't use another etc etc. A "roaming" service could be provided based in your chosen charging networks tariff.

What is best for industry isn't always best for the consumer and it would be best to plan ahead to avoid negatively affecting constituents.

Individual Response Number 13

As an EV user of 4mths with a very positive and acceptable approach to changing old happits of travel I have found some serious issues.

1. The lack of easily accessible info to educate new and experienced EV users.
2. 2. The lack of control (policing) of chargers being blocked by cars not charging or finished.
3. Some networks being unusable unless you find it is a new charger especially Ecotricity.
4. The lack of destination chargers. Just 2 in a carpark of 100 spaces even for now is not enough and they get placed in the most popular part of the carpark so are more likely to get blocked.
5. Many parts of the country forgotten about. Wales currently only have 2 chargers 100+kWh and travelling S to N in Wales you would have to go out of your way for even a 50kWh charger and if it was out of order no other choice but a destination charger. So a 1hr charge would become 7hrs if there was one close, or a recovery truck.
6. There needs to be destination in all carparks now at 20% and 50% by the time no ICE sales. This is mainly due to PHEV cars blocking chargers. Charges should be by time not kWh in these locations
7. Need rapid chargers of 150+kWh along all A roads with no more than 50miles between them. This gives choice and speed of charge makes it available quicker. Charged by kWh at a higher price so they are more available for those with time pressures. Those with more time can save their money if they wish at a more scenic cheaper stop a stroll.

I'm sure I could say more but over all it does not look like local councils put any common sense into how they spend their grants there needs to be a central body of advisors to guide them.

Individual Response Number 14

Please ensure that access is readily available for both major charging systems: Chademo and CCS.

Regards

Individual Response Number 15

I would like to participate in the review of EV charging points. I am a new EV car owner and I am disappointed with the lack of clarity for EV ownership.

My main concerns are EV ownership has to trickle down to all drivers quickly. For my [✂] to afford an EV she will have to purchase a 10 year old EV. Typically those cars have a range of only 50miles. Today you can purchase an EV scooter with a 50mile range. But that will not assist her if she wants to raise a family and own an EV car.

The decentralisation of EV charging will make it more competitive. If ALL EV owners are allowed to charge their cars from the home meter the market will become fairer and people will adopt EV cars. The two barrier's off street parking and the charging infrastructure.

We need RFI cards from our Energy providers which will allow EV owners to charge anywhere there is a plug point (either three pin, type2 etc) But the charge will be their home energy providers rates at that time of day-night. This will allow for more offers from the larger energy providers and allow owners of EV to charge at will without memberships, clubs and special charging rates. The cost of charging at home should be anywhere between 2p per kWh to 15p. The cost of charging in public should be no more than 2p to 5p more. This will encourage more EV ownership and take up of the EV method of travel without range anxiety.

We all need more micro generation of power. Every home, every sloped roof should be utilized for generating electricity. IF all councils allowed our roofs to be clad in solar panels as a substitute for traditional roofing tiles we would see more homes converted to solar.

If possible I would like to represent these and other views for your consultation.