

The state of the current public electric charging network in Wales for EV's is very poor compared to Scotland and England. Most chargers available in Wales are 7 or 22 kW (destination chargers) largely sited on private property with no guarantee of being publicly available when needed.

What is needed is a structure of both rapid (50+kW) and destination chargers, easily accessible and publicly available 24/7.

Rapid chargers are badly needed on main routes from north Wales to south Wales and east to west Wales – there is currently only one rapid charger available (at Cletwr Car Park, Tynywern, Machynlleth, SY20 8PN) if travelling north-south along the west coast. This is woefully inadequate. ***There is no such thing as range anxiety –it is working charge point anxiety – i.e. can I find a working charger before I run out of power?*** Rapid chargers provide the potential for an existing business to expand its business base – a service station could install a couple of rapid chargers and maybe even provide a rest area selling refreshments and providing toilet facilities – in theory Rapid chargers mean you will be at the charge point for about 30 mins - time to use the toilet and maybe buy a sandwich and a coffee. These rapid chargers should be spaced about 50 to 60 miles apart ideally, to allow older, lower capacity EV's to be used for longer distance travel, although this will no doubt change as developments in battery technology continue.

Support for businesses which are looking for this type of expansion to their site is very important and help by government and local authorities may be needed - there will need to be a lot of flexibility and cross department cooperation and good leadership to get this infrastructure in place.

Destination chargers need to be sited at various locations that are of importance for tourism and business. It is shameful that, for instance, there are no 24/7 chargers available in Aberystwyth, a university town and tourist destination nor in Fishguard for travellers to charge prior to using the ferry. The tourist board for Wales should be involved with any joint discussion ventures as it is important that people who provide holiday accommodation for hire such as cottages/ houses/ lodges and even caravan sites need to be made aware that as time moves on many people with an EV may well want to book a holiday and would be more inclined to book maybe if they could charge their car at the accommodation they have hired. The National Trust in Wales has been very pro active in providing chargers at various sites it owns for visitors but organizations like NRW appear not to be interested in providing any such chargers at many of their tourist destinations for visitors only for their staff.

Urban area charging will need to be a combination of Rapids (for through travellers), Destination (for visitors) and home charging facilities. In areas where off street parking is available, facilities can be at the discretion of the EV owner - most people now charge at home via a dedicated wall box at 7 kW or via a plug in lead at a max of 3 kW as people buy or lease EV's they decide how they wish to charge then at their own cost or by way of a cash payment from the vehicle supplier (manufacturer) have a dedicated charger point installed at their home. However, provision needs to be made for overnight, off peak charging for those owners of EV's who do not have off street parking.

Central government and WAG – there is the problem that in the early stages of EV takeup, subsidies of any sort can be seen as supporting people who don't really need it. However, while EV volumes remain low, there will be a need for some support to establish the infrastructure that will be the basis for future growth and businesses seeking to install charging infrastructure could be assisted by way of grants or a loan on a pound for pound basis not interest free but a low percentage over a long period to the right individual, **PROVIDING THAT THE FACILITY WILL BE PUBLICLY AVAILABLE 24/7 AND PROPERLY MAINTAINED.** Each case could be assessed on its own merit by the local authority planning dept for the individual business to achieve its goal.

What will be needed is flexibility by everyone involved - if there is no cross party flexibility and good leadership the infrastructure will always be a second rate affair to the detriment of the Welsh nation which relies heavily on tourism in rural areas you will need the right people at the right meeting with the right information for success. If this fails to transpire tourism will slow down lets not forget the people with spare cash to spend may well have an Ev if the infrastructure is not there they will go somewhere else and not come into Wales.

Transport poverty and the 'next steps' accessibility - I don't think it is government's job to become involved in the idea of being concerned about EV transport poverty - **Market forces** will prevail as they do with everything and as electric cars become more available more will find themselves on the used car market. This is exactly what happened over 60 years ago - most people did not own a car but as more came on the used car market they were bought by people who could not afford a new car. So is there a social problem with buying a used vehicle against a new one? NO there is not if we are to be concerned about world resources the longer a piece of equipment (a EV motor vehicle for example) can be used the better it will be for the environment. A bigger issue may be **A lack of EV dealerships.** At the time of this report the big problem in Wales is dealerships for EV's whether new or used. from Anglesey (Ynys Mon) there are only 3 dealerships and they are all on the North Wales coast there are no dealerships anywhere else until you reach South Wales industrial and commercial zone ie the M4 corridor. This situation hardly lends itself to the take up of EV's - in fact it could be true to say that at the time of this consultation document more **used** cars of any engine type are sold in rural Wales than new because of this factor .

So the lack of main dealerships or any dealership for EV's in Wales could be a factor that will have a huge impact on the take up of an EV. The infrastructure to service and repair EV's will also be a factor that will ultimately slow down the uptake of EV's in Wales especially in rural areas.

Regular discussion - There needs to be cross business and government discussion as to how how this problem could be resolved - you can't make a manufacturer open a business just because there is a lack of one in a certain area.

EV vehicle purchase cost - I don't think we should judge the prices we see now for premium brand EV's as an indicator that it will always be like this. As EV's move to the main stream, costs and prices should reduce as manufacturers introduce mainstream models and availability increases. Second hand models will become increasingly available so that price will become less of a barrier to owning an EV.

The provision of an upgraded grid network should be dealt with by the national grid for its customers the end suppliers of electricity and gas packages, there needs to be close ongoing consultation between these parties and EV charge point suppliers and everyone else if the whole concept is to be achieved.

New Developments – there needs to be a mandatory requirement to provide the means to install electric charge points in all new developments, especially residential and not just a token installation – it should be sufficient to allow for off peak charging for all residences to reduce the loading on the National Grid.

Financial charges for charging EV's away from home will be set by various providers and businesses BUT all charge points in Wales **should be contactless payment via a credit or debit card** not tied to the need to have a subscription or account with any specific company nor reliant on the use of a mobile phone app given the issues with the mobile phone service in many areas of Wales.

There is a great opportunity for an expansion of employment in Wales if this whole scenario is handled well with good leadership. If it is seen by business that Wales has a coherent plan for the subject of EV's and progress can be seen to be taking place not just talked about, who knows what could be achieved for jobs and inward investment?

Discussion needs to begin on a end of life policy for any electric vehicle regarding the correct dismantler and handling and correct disposal of batteries and other parts - it would be totally unacceptable to have batteries in end of life vehicles left in some corner of a field degrading and polluting the environment. In fact this needs to be a national UK policy not just in Wales to ensure that these vehicles are collected and dealt with in a correct way to avoid environmental contamination by rare earth battery materials into water courses and the land. Most EV batteries can be used for other purposes after they are removed from cars such as domestic standby power or even be trickle charged in off peak times to recharge an EV at periods of high grid demand