ENVIRONMENT POLICY DEVELOPMENT GROUP
5 MARCH 2019

ELECTRIC VEHICLE CHARGING POINTS

Cabinet Member(s): Cllr Ray Stanley – Portfolio holder for Housing & Property Services
Responsible Officer: Andrew Busby – Group Manager for Corporate Property and Commercial Assets

Reason for Report: To provide members with an overview of the progress installing electric charge points in the District for electric/hybrid vehicles and to update members on the performance of electric chargers installed at our leisure centres.

RECOMMENDATION: Members to note the content of the report. Officers to continue with the review of the provision of electric car charging facilities in light of growing popularity of ULEVS (Ultra Low Emission Vehicles).

Financial Implications: There are currently three leases with an electric car charging provider called Instavolt. These chargers are located at Exe Valley Leisure Centre, Culm Valley Sports Centre and Lords Meadow Leisure Centre. Each charger occupies two car parking spaces which results in an income for the authority detailed in item 8.2.

Legal Implications: It is the view of officers that the recommendations have no legal implications. Further consideration will be given to the legal implications should Property Services recommend in the future to proceed with installing an electric vehicle charging infrastructure.

Risk Assessment: The risk is deemed to be low and each charger is maintained by the provider, therefore the risk to the user is the responsibility of the provider. The Council complete duty of care checks on the equipment.

Equality Impact Assessment: Not applicable for this report.

Relationship to Corporate Plan: Priority 4: Environment Aim 2

1.0 Background

1.1 A request was made for an item to be brought to a future committee meeting to outline progress in relation to installing electric charge points. This report details the background in terms of Central Government policy and incentives for Ultra Low Emission Vehicles (ULEVs) and the types of ULEVs available.

1.2 The Government has demonstrated its commitment to increase (ULEVs) through the pledge to end the sale of all new conventional petrol and diesel cars by 2040. ULEVs are vehicles with pure electric engines, plug-in hybrid engines or cars with CO2 emissions below 75g/km at the tailpipe. The Government's rationale for increasing ULEVs is to help promote green manufacturing and jobs as well as reducing emissions from road transport.

Increasing the uptake of ULEVs can have a positive impact on air quality by reducing the nitrogen dioxide emissions from conventional car engines.

1.3 Department for Transport statistics (2018) indicate that during 2018 Q2, 15,600 ultra-low emission vehicles (ULEVs) were newly registered in the United Kingdom, an increase of 37% on 2017 Q2. ULEVs made up 2.1% of all new registrations. Consequently to support the increase in ULEVs the Government is introducing a number of incentives and enforcement measures including increasing vehicle tax for new non-electric cars, providing more funding for electric charging infrastructure, and working with the car industry to promote electric vehicles including through the Go Ultra Low initiative.

1.4 The Automated and Electric Vehicles Act 2018 came into force on the 19th of July 2018. The Act gives Government powers to ensure that consumers can use publicly accessible charge points without need for multiple memberships, ensure the provision of electric charging infrastructure at key strategic locations such as Motorway Service Areas and leisure centres and require that charge points have 'smart' capability. (Smart capability means that the charger has the ability to communicate with the battery management system in order to control and monitor the charging process, this will reduce high peaks of electricity demand and minimise pressure on the grid).

1.5 The Government currently provides grants for consumers to buy new ULEV and there are also a number of schemes and grants administered by the Office for Low Emission Vehicles (OLEV) to support the installation of electric vehicle charging infrastructure:

- **Electric Vehicle Home Charge Scheme** – Provides grant funding up to 75% towards the cost of installing electric vehicle charge points at domestic properties across the UK;
- **Workplace Charging Scheme** - voucher-based scheme that provides support towards the up-front costs of the purchase and installation of electric vehicle charge points, for eligible businesses, charities and public sector organisations;
- **On-street Residential Chargepoint Scheme** - The on-street Residential Chargepoint Scheme (ORCS) provides grant funding for local authorities towards the cost of installing on-street charge points for residents with no access to off street parking to charge plug in electric vehicles (funding is for 75% of the capital costs).

2.0 Electric Vehicles and Charging Infrastructure

2.1 Ultra Low Emission Vehicles (ULEVs) comprise three types of vehicle:

- Pure electric - powered solely by a battery charged from mains electricity with a single charge range typically of up to 100 miles.
- Plug-in hybrid - a vehicle with a battery for short trips of perhaps 10-35 miles and a standard petrol or diesel engine for longer journeys.
- Extended range vehicles – powered by a battery with an internal combustion engine generator on board. The vehicle is always powered by the electric motor and has a battery range of about 50 miles which is extended by the generator, powered by the petrol engine, for up to 310 miles of motoring.

2.2 The range of an electric vehicle is dependent on a number of factors including weather, topography, and driving style. The use of lights, heaters/air conditioning and windscreen wipers will all affect the number of miles that can be travelled on a single charge. Urban driving is more suitable for electric vehicles as there is more energy recovery from braking, whereas aggressive driving and steady speed driving such as on motorways can be detrimental to battery life with the result in as little as 60% of the reported range of the vehicle being achieved.

2.3 The majority of ULEV car owners recharge their vehicles at their home location overnight and do not make use of public recharging points. Research shows that most of the journeys made using electric vehicles are for relatively short distances within the range of a single charge of the vehicle. Currently there are three main vehicle charging options available:

- Rapid charging (43kW to 50kW) – supply either alternating current (AC) or direct current (DC) from a charging unit. Charges an electric vehicle to around 80% charge in 30 minutes. Cost of equipment c. £15-£40k and annual maintenance approximately £1-£5k. We the Council have this type of charger on the premises at EVLC, LMLC and CVSC.

- Fast charging (7kW to 22kW) – all AC and supply charge times of 3-4 hours. Many commercial and public on-street charges use this technology. Cost of equipment c.£1.7-£5k and annual maintenance approximately £400-£900.

- Slow charging (3kW) – a full charge can take 6-8 hours and this charging option is typical of the provision at domestic properties where vehicles are charged overnight. Cost of equipment is approximately £250-£1k.

2.4 The cost of installing a charge point varies greatly depending on the type and rating of the charger and also the ability to connect to a close and suitable power supply. There will also be additional costs associated with site investigation, ducting/cabling, protection to the charge point, possible changes to Traffic Regulation Orders, and changes to traffic signs and road markings.

2.5 The Council commissioned Instavolt to install one electric charger at our leisure and sports centres located at Exe Valley, Lords Meadow and Culm Valley. These chargers proved to be successful that resulted in Instavolt increasing the number of chargers to two at each site. All Instavolt chargers cost £0.35 per kWH to use, with no connection fee and no monthly membership fee.

Site performance statistics – January 2019

Station Name	Number of Sessions	Energy Dispensed (kWh)	GHG Savings (kg)	Fuel Savings (Litres)
INSTAVOLT / EXE VALLEY 1	41	404.617	44.388	192.223
INSTAVOLT / EXE VALLEY 2	102	957.947	105.098	455.066
GRAND TOTAL	143	1362.564	149.486	647.289
INSTAVOLT / CULM VALLEY 1	31	322.367	35.364	153.148
INSTAVOLT / CULM VALLEY 2	36	494.444	54.246	234.898
GRAND TOTAL	67	816.811	89.61	388.046
INSTAVOLT / LORDS MEADOW 1	21	232.661	25.524	110.531
INSTAVOLT / LORDS MEADOW 2	31	246.514	27.041	117.103
GRAND TOTAL	52	479.175	52.565	227.634

Mid Devon District Council Overall Figures – Lifetime

Month	Number of Sessions	Energy Dispensed (kWh)	GHG Savings (kg)	Fuel Savings (Litres)
2017	162	1128.865	123.844	536.302
2018	2018	18282.421	1980.989	7670.161
Jan-18	124	776.150	85.154	368.703
Feb-18	85	667.554	73.238	317.133
Mar-18	103	821.588	89.419	390.313
Apr-18	154	1278.351	135.838	607.319
May-18	173	1548.455	163.010	735.645
Jun-18	159	1430.430	145.676	679.556
Jul-18	173	1523.595	165.656	723.796
Aug-18	166	1640.047	179.924	779.132
Sep-18	185	1690.488	185.459	803.125
Oct-18	251	2495.851	273.809	1185.691
Nov-18	199	2045.006	224.352	971.524
Dec-18	246	2364.906	259.454	108.224
2019	262	2658.550	291.661	1262.969
Jan-19	262	2658.550	291.661	1262.969
Grand Total	**2442**	**22069.836**	**2396.494**	**9469.432**

2.6 There are currently six national charging networks: Charge Your Car, Polar network, Ecotricity, PodPoint, ZeroNet and Tesla. Most networks require registration (usually via Smartphone app) and they either charge an annual membership fee which allows members free usage of the charge points or alternatively Pay As You Go options. The Tesla supercharger network is designed exclusively to Tesla electric vehicles. The Council use the Instavolt Rapid Chargers network.

3.0 Current situation in the South West

3.1 Table 1 shows the breakdown of charging point connectors in each of the UK regions. Scotland has the most charging points follow by London and the South-East; the regions with the least charging points are Yorkshire and Wales.

Data sourced from https://www.zap-map.com/ February 2019

Table 1 – Breakdown of charging point connectors in each of the UK regions.

Region	Number of charging points	Percentage across the UK
East Midlands	931	4.8%
East of England	1300	6.7%
Greater London	4454	22.9%
North East	922	4.7%
North West	1362	7%
Northern Ireland	468	2.4%
Scotland	2814	14.4%
South East	2743	14.1%
South West	1650	8.5%
Wales	620	3.2%
West Midlands	1093	5.6%
Yorkshire and the Humber	1032	5.3%
Other		0.4%
TOTAL	**19489**	**100%**

4.0 Options for installing additional electric charging infrastructure in Mid Devon

4.1 Across the UK the majority of publicly available charging points are sited either in public off-street car parks, private facilities with public access such as supermarkets or motorway service areas, car dealerships or isolated independent outlets. The majority of provision made by local authorities is within public off-street car parks.

4.2 In more isolated areas plugin hybrid and extended range vehicles are likely to be the more appropriate lower emission option at the current time. The business case for providing charge points in the more rural parts of the county is not as strong, because demand from ULEV vehicle owners will be less and there can be issues with connections to both an energy source and mobile

networks which increase the cost of providing new infrastructure. However the Group Manager for Corporate Property & Commercial Assets has requested Instavolt to review the potential of further chargers being installed in our Pay & Display and Amenity Car Parks, this will be subject to feasibility of the providers own internal business model.

4.3 Property Services will record the number and location of enquiries from the public about EV charging, and at the present time the numbers of queries about charge points, this will develop a better understanding of demand.

4.4 Despite these challenges the Council is committed to reviewing the approach to the provision of electric car charging facilities in light of the growing popularity of ULEVs.

4.5 Officers will consider the future provision of electric vehicle charging points around our District looking at the feasibility of trialling appropriate electric charging infrastructure; consider whether OLEV (Office for Low Emission Vehicles) grant funding could be used to help implement a network of electric chargers in residential areas.

4.6 Given the number of local authorities in the South West there is some complexity in developing a coordinated network of charge points across the county both in terms of ensuring that there is an appropriate level of provision across the county as well as a consistent approach to the infrastructure provided and how it is used including the charges for parking and electricity.

4.7 The research and development of electric vehicle technology and associated charging infrastructure is still relatively new and emerging, with advances in battery technology expected to increase the typical range of vehicles and new wireless charging points being developed (including locating charging infrastructure below the road surface). Officers will continue to monitor the changes taking place and investigate suitable options. One of these new options which is technically feasible, and potentially suitable is the conversion of street lighting columns into electric vehicle charge points.

5.0 Legal Implications

5.1 Consideration has been given to the potential for any legal implications arising from the recommendations. It is the view of officers that the recommendations have no legal implications. Further consideration will be given to the legal implications should Property Services recommend in the future to proceed with installing additional electric vehicle charging infrastructure. This may include commercial contracts, leases of land for the installation of the infrastructure and ensuring issues of liability are properly accounted for.

6.0 Equalities Implications

6.1 Consideration has been given to the potential for any equality impacts arising from the recommendations as this report is for information only. It is the view of officers that at this stage the report does not have an adverse impact on any of the protected characteristics identified in the Equalities Act 2010. Further consideration will be given to the equalities implications should

Property Services decide in the future to proceed with installing electric vehicle charging infrastructures that will be subject to a further committee report.

7.0 Finance

7.1 Consideration has been given to the potential for any financial implications arising from the recommendations. It is the view of officers that this recommendation has no financial implications. Property Services will agree financial risk in the future to proceed with installing electric vehicle charging infrastructure.

7.2 In summary the Council are receiving £2,300 per annum per site for two electrical charging points at each location.

8.0 Conclusion

8.1 As referred to previously in this report the Government is leading on the promotion of electric vehicles to consumers and also in the provision of nationwide electric charging infrastructure, including at fuel stations. The Council has a role, to support the Government's policy to increase the uptake of electric vehicles and to consider whether it is feasible for local authorities to introduce electric charge points in more locations across our District by supporting proposals which seek to deliver opportunities for the use of electric vehicles.

8.2 Officers will continue the review of our electric vehicle charging approach and the provision of charging facilities and also monitor the changes in electric vehicle and associated charging infrastructure technologies in the coming years.

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Circulation of the Report: Cabinet Member Cllr Ray Stanley, Leadership Team

List of Background Papers: Not applicable