North Yorkshire County Council

Business and Environmental Services

Transport, Economy & Environment Overview and Scrutiny Committee

25 October 2018

Electric Vehicle Charging Points in North Yorkshire

Report of the Corporate Director – Business and Environmental Services

1.0 Purpose Of Report

1.1 To provide members with an overview of the progress installing electric charge points in the county for electric/hybrid vehicles and to seek members views on increasing the number of charge points and to promote the use of electric/hybrid vehicles.

2.0 Background

2.1 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. It also outlines the current status of electric charge points in North Yorkshire and sets out the potential future options for increasing charge points.

2.2 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.

2.3 Department for Transport statistics (2017) indicate that new electric car[1] registrations comprise 1.5% of total new car registrations, showing there is still some way to go before ULEVs become the new vehicle of choice for the majority of drivers. 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.[2]

2.4 The Automated and Electric Vehicles Act 2018 came into force in 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

[1] HM Government Industrial Strategy 2017 - Electric car includes plug-in hybrids, 100% electric, range extended electric and fuel cell electric cars

[2] https://www.goultralow.com/

vehicle charging infrastructure at key strategic locations such as Motorway Service Areas and to require that charge points have 'smart' capability.[3]

2.5 The Government currently provides grants for consumers to buy new ULEVs[4] and there are also a number of schemes and grants administered by the Office for Low Emission Vehicles (OLEV)[5] to support the installation of electric vehicle charging infrastructure:

- **Electric Vehicle Homecharge Scheme** – Provides grant funding up to 75% towards the cost of installing electric vehicle chargepoints 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 chargepoints for residents with no access to off street parking to charge plug in electric vehicles (funding is for 75% of the capital costs).

3.0 Electric Vehicles and Charging Infrastructure

3.1 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.

3.2 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.

3.3 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:[6]

- 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. £15,000-£40,000 and annual maintenance approximately £1000-£5000.

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[3] http://www.legislation.gov.uk/ukpga/2018/18/pdfs/ukpga_20180018_en.pdf
[4] https://www.gov.uk/plug-in-car-van-grants
[5] https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles
[6] Source: UKEVSE - UK Electric Vehicle Supply Equipment Association http://ukevse.org.uk/charge-points-chargers/

- 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.£1,700-£5000 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 approximately £250-£1000.

3.4 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.

3.5 It is estimated to take approximately 4 years to pay back the cost of installation for a charge point costing £4000 that is used for a minimum of one charge per day for 2-3 hours at an average cost of £5 for the charge (this equates to £2.5 to cover electricity costs at 13p/kwh and the remainder covering the installation and operational/maintenance costs).

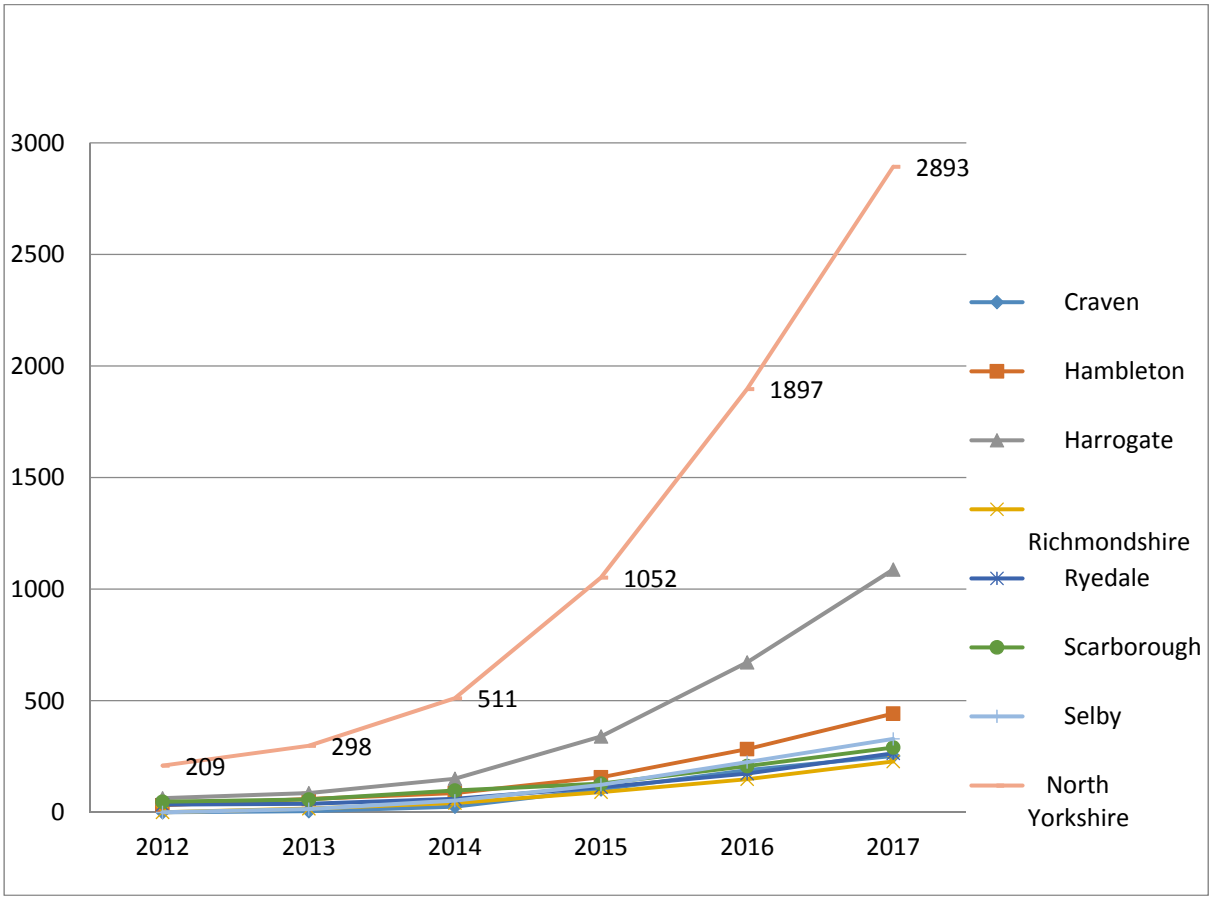
3.6 There are a number of recharging networks/service providers operating either at a regional or national level. There are no regional networks covering the North Yorkshire area at the present time. There are currently six national charging networks: Charge Your Car, Polar network, Ecotricity, PodPoint, 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. Tesla cars are high end electric cars which are unaffordable for many car owners.

4.0 Current situation in North Yorkshire

4.1 The County Councils' Local Transport Plan 4 2016-2045 (LTP4) recognises the environmental impacts of transport, including on air quality. LTP4 states: "We will support measures to promote environmentally friendly forms of transport including provision for ULEVs and are currently developing a policy which will consider the provision of infrastructure for electric vehicles in North Yorkshire."

4.2 The uptake of ULEVs in North Yorkshire has been increasing in recent years, although the percentage of total licensed cars remains less than 1%. Figure 1 indicates the number of licensed ULEVs by district, with Harrogate borough showing a significantly higher number of new ULEVs.

Figure 1 - Number of licensed Ultra Low Emission Vehicles (ULEVs) by area



Source: Department for Transport table VEH0132
NB: Department for Transport uses the term 'ultra-low emission vehicles' to refer to vehicles with significantly lower levels of tailpipe emissions than conventional vehicles. The term currently refers to electric, plug-in hybrid and hydrogen fuel-cell vehicles. For the purposes of this indicator, all vehicles with fully electric power, and cars and vans with tail-pipe emissions below 75 g/km of CO2 have been included.

4.3 Compared to the rest of England the distribution of charge points in Yorkshire & the Humber is fairly sparse and lower than other regions (see Table 1). In North Yorkshire there are approximately 34 electric car charging sites[7]. Many of these locations are not open to the general public as they are located at car dealerships, hotels or holiday cottages where they would be expected to be solely for the use of customers. 12 of the 34 electric charging sites are Tesla chargers which are exclusively for Tesla car owners.

[7] Data sourced from https://www.zap-map.com/ in June 2018

Table 1 – Profile of charging connectors in England

Region	Number of charging points	Percentage	Number of charge points per 10,000 people in population
Greater London	3620	27.6%	4.1
South East	2302	17.5%	2.5
North East	876	6.7%	3.3
South West	1461	11.1%	2.6
East of England	1179	9.0%	1.9
North West	1171	8.9%	1.6
West Midlands	935	7.1%	1.6
East Midlands	740	5.6%	1.6
Yorkshire & The Humber	833	6.4%	1.5
Total	13117	100%	2.4

Data sourced from https://www.zap-map.com/ in June 2018 and Office of National Statistics

4.4 The Harrogate area currently has the highest number of chargers per district with 12 charging locations (see Table 2). There are three rapid chargers located in the visitor car park at the Borough Council's new Civic Centre in Harrogate. The chargers are available for public use seven days a week at a charge of £3.50 for a 30 minute charge. Harrogate Borough Council is to announce a new strategy for the provision of electric vehicle charging points in 2018.

Table 2 Electric Vehicle Charge Points in North Yorkshire

District	Number of charge points
Craven	2
Hambleton	4
Harrogate	12
Richmondshire	3
Ryedale	7
Scarborough	5
Selby	1
Total	34

Data sourced from https://www.zap-map.com/ in June 2018

4.5 Based on the figures above there is scope to increase the number of on and off-street charge points within North Yorkshire.

5.0 Options for installing electric charging infrastructure in North Yorkshire

5.1 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. As Members are aware the County Council is the highway authority for North Yorkshire and has responsibility for on-street parking with the responsibility for off street car parks generally falling to the local district council or National Park Authority.

5.2 There is also a need to recognise the challenges facing North Yorkshire, as geographically the largest local authority, in providing appropriate new charging infrastructure. There are remote rural parts of the county with a varying topography; consequently range anxiety is a significant and understandable issue when considering the uptake of electric vehicles in the county. In more isolated areas plug-in 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.

5.3 As parts of the county are experiencing significantly slower uptake of ULEVs compared to others, it is hard to estimate the future demand for EV charging, particularly in terms of potential on-street residential parking locations for charge points. Officers are recording the number and location of enquiries from the public about EV charging, and at the present time the numbers of queries about charge points for on-street parking are relatively few. We will continue to record enquiries and requests for charge points to develop a better understanding of demand.

5.4 Despite these challenges the County Council is committed to reviewing the County Council's policy and approach to the provision of electric car charging facilities in light of the growing popularity of ULEVs and as part of a new strategy to protect and maintain North Yorkshire's air quality. Action points from this review include investigating options for increasing the availability of charging points in North Yorkshire.

5.5 Officers will consider the business case for provision of electric vehicle charging points in market towns looking at the feasibility of trialling appropriate electric charging infrastructure in parking bays located on the public highway; consider whether OLEV grant funding could be used to help implement a network of electric chargers in residential areas (where residents have no access to off-street parking). Explore whether OLEV grant funding could be used at NYCC workplaces, for example at County Hall as part of the modernisation of the campus and satellite offices (such as the Highways Area Offices) to support staff uptake of ULEVs, encourage visitors to bring ULEVs, and enable the use of NYCC electric pool cars throughout the county. Consideration will also be given to the provision of electric charge points at the NYCC run park and ride sites at Whitby and Scarborough, particularly if grant funding or private sector funding can be identified. Electric Vehicle information provision for the public and businesses could be improved e.g. via the NYCC website to ensure North Yorkshire businesses and residents are taking advantage of the Government grants available to support new charging infrastructure.

5.6 Given the number of local authorities in the area there is some complexity in developing a coordinated network of charge points across North Yorkshire 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. We are aware that many districts are currently considering their own provision of charge points. Therefore NYCC officers are in the process of arranging a meeting of Local Planning Authorities (district councils and National Park Authorities) leads on Air Quality and Electric Vehicles to ensure a coordinated approach to the provision of suitable electric charging infrastructure throughout the county.

5.7 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) which could prove more suitable for charging on the public highway. 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 for some North Yorkshire streets, is the conversion of street lighting columns into electric vehicle charge points.

6.0 Way forward

6.1 As indicated in Section 1 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 County Council has a role, alongside district council partners, 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 in the County, including potentially on-street chargers.

6.2 In addition to considering provision of publicly available chargers Highways and Transportation officers are currently investigating with the corporate property team the potential installation of a dedicated fast charge point at Leeming Bar depot to serve a new electric vehicle available for street lighting inspections.

6.3 Officers will continue the review of our electric vehicle charging policy and approach to the provision of charging facilities and also monitor the changes in electric vehicle and associated charging infrastructure technologies in the coming years. We will continue to engage with the Office for Low Emission Vehicles to explore the options for new charging infrastructure in North Yorkshire.

7.0 Legal Implications

7.1 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 NYCC decide in the future to proceed with installing electric vehicle charging infrastructure.

8.0 Equalities Implications

8.1 Consideration has been given to the potential for any equality impacts arising from the recommendation. 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 NYCC decide in the future to proceed with installing electric vehicle charging infrastructure. See Appendix A.

9.0 Finance

9.1 Consideration has been given to the potential for any financial implications arising from the recommendations. It is the view of officers that the recommendations have no financial implications. Further consideration will be given to the financial implications should NYCC decide in the future to proceed with installing electric vehicle charging infrastructure.

10.0 Recommendation

10.1 It is recommended that:

i) Members note the content of the report.

ii) Officers continue with the review of our policy and approach to the provision of electric car charging facilities in light of the growing popularity of ULEVs.

DAVID BOWE
Corporate Director - Business and Environmental Services

Author of Report: Victoria Hutchinson, Senior Strategy and Performance Officer

Background Documents: None

Initial equality impact assessment screening form
(As of October 2015 this form replaces 'Record of decision not to carry out an EIA')

This form records an equality screening process to determine the relevance of equality to a proposal, and a decision whether or not a full EIA would be appropriate or proportionate.

Directorate	Business and Environmental Services
Service area	Highways and Transportation
Proposal being screened	Report to Transport, Economy and Environment Overview and Scrutiny Committee
Officer(s) carrying out screening	**Victoria Hutchinson**
What are you proposing to do?	To provide members with an overview of the progress installing electric charge points in the county for electric/hybrid vehicles and to discuss strategies to lever in investment to increase the number of charge points and to promote the use of electric/hybrid vehicles.
Why are you proposing this? What are the desired outcomes?	Members request for information
Does the proposal involve a significant commitment or removal of resources? Please give details.	No

Is there likely to be an adverse impact on people with any of the following protected characteristics as defined by the Equality Act 2010, or NYCC's additional agreed characteristics?
As part of this assessment, please consider the following questions:

- To what extent is this service used by particular groups of people with protected characteristics?
- Does the proposal relate to functions that previous consultation has identified as important?
- Do different groups have different needs or experiences in the area the proposal relates to?

If for any characteristic it is considered that there is likely to be a significant adverse impact or you have ticked 'Don't know/no info available', then a full EIA should be carried out where this is proportionate. You are advised to speak to your Equality rep for advice if you are in any doubt.

Protected characteristic	**Yes**	**No**	**Don't know/No info available**
Age		No	
Disability		No	
Sex (Gender)		No	
Race		No	
Sexual orientation		No	
Gender reassignment		No	
Religion or belief		No	
Pregnancy or maternity		No	
Marriage or civil partnership		No	

NYCC additional characteristic				
People in rural areas		No		
People on a low income		No		
Carer (unpaid family or friend)		No		
Does the proposal relate to an area where there are known inequalities/probable impacts (e.g. disabled people's access to public transport)? Please give details.	No			
Will the proposal have a significant effect on how other organisations operate? (e.g. partners, funding criteria, etc.). Do any of these organisations support people with protected characteristics? Please explain why you have reached this conclusion.	No			
Decision (Please tick one option)	EIA not relevant or proportionate:	Yes	Continue to full EIA:	
Reason for decision	For information report			
Signed (Assistant Director or equivalent)	*Barrie Mason*			
Date	09/10/18			