Executive **19 March 2020**

Report of the Director of Economy and Place
Portfolio of the Executive Member for Transport and Planning

Electric Vehicle Charging Strategy

Summary

1. In light of the climate change emergency the council is looking across all areas in which it can make a tangible difference. To this end the Executive received a report in September 2019 which updated on the project to develop rapid and ultra-rapid charger points at two park and ride sites. It also reported the progress of moving from 44% of charges being operational to 84% and this work is now complete with 100% operational by the end of 2019. The council also recognise that our existing Fast charging network needs improving both in quality and quantity.

2. The Executive also committed to the development of an Electric Vehicle (EV) Charging Strategy. This report presents that strategy which is contained with Annex A – Public EV Charging Strategy, upon approval this will receive further design work and be published.

3. This Strategy explains the rationale for choosing the number and location of charging, sets out the principles of tariff setting to ensure the network is self-financing through user payments and explains the approach to determining appropriate infrastructure by matching charging power to dwell times.

4. The Strategy also sets CoYC's approach to providing charging for residents living in terraced streets without off road parking.

5. The proposed Strategy sets out a path to move York back into a leading position in EV charging infrastructure. York was a pioneer in providing public charging from 2013, now is the time to restate our commitment to provide a world class public charging network which will benefit York and act as an exemplar for local authorities who want to learn from our experience.

6. The Energy Saving Trust, through the Local Government Support Programme, has provided free expert advice during the development of this Strategy. EST has agreed to the use of its logo on the final version of the Strategy and has recognised the leading role that City of York Council is taking by becoming one of the first local authorities to develop a comprehensive approach and publish a public document.

Recommendations

7. The Executive is asked to:

1) Approve the EV Charging Strategy for adoption

   Reason: The Strategy is necessary to provide direction on future investments into the public charging network. With the predicted growth in plug-in vehicle sales, it is important to formalise the Council's approach ahead of investment decisions.

2) Endorse the ambition set out in the Strategy that a minimum of 5% of bays in council owned car parks will be charging bays by 2023. Based on initial costing estimates this is expected to cost circa £0.8m and delivery of the ambition will be subject to successful external funding bids. This is in addition to agreed budgets for Hyperhubs at Monks Cross and Poppleton Bar (£2.2 million) and renewal of the existing charging estate (£0.25 million).

   Reason: In order to assist with the acceleration of EV take up and to ensure there is robust provision of EV charging points across the City and meet carbon reduction targets, 5% is consistent with current planning policy for developments.

3) To agree approach to bay management; To endorse the recommendations of Scrutiny Committee (**paragraphs 31 – 35**).

   Reason: To provide a fair system for charging and parking, prevent bay blocking and allow efficient management of car parks and charging bays;

4) Executive to agree to a standard tariff of 20 p/kWh for Fast chargers and 25 p/kWh for Rapid and Ultra Rapid chargers, to be reviewed on an annual basis as part of budget setting;

Reason: To ensure a fair tariff for all residents and a sustainable approach to Council managed EV charging estate;

5) Executive to note that officers continue to explore options where viable for on street parking.

   Reason: To ensure there is equal opportunity for all potential users;

6) Executive to note that officers will explore options for EV taxi charging in the City centre.

   Reason: To assist Taxi drivers to utilise EV.

Background

8. Since 2013 council has provided a public charging network for electric vehicles. The network currently consists of 20 fast double headed charge points (40 sockets) and 5 rapid chargers.

9. Fast charge points provide between 7 – 22 kW of power. The council network is almost entirely made up of 7 kW charge points. The maximum rate of charging is dependent on the type of on-board charger that the car has, not just the power output of the charger. All modern electric cars can charge at 7 kW, whereas generally a plug-in hybrid will be limited to 3 kW. This means that a 7 kW charge point will provide around 20 - 30 miles of range for every hour that a pure electric car is charging and around 10 -15 miles of range for every hour that a plug-in hybrid car is charging. The Fast charge points are intended to provide top up charging for day to day driving ranges.

10. Rapid chargers provide 44 kW AC (used by manufacturers such as Renault), and 50 kW DC. Rapid chargers are used when you need to charge a car more quickly. Plug-in hybrids generally can't use Rapid chargers at all or where they can they get a reduced amount of power. So Rapid chargers are for pure electric cars. A Rapid charger bypasses the on board charger so can deliver significantly quicker charge times, typically providing around 150 miles of range for every hour that a pure electric car is charging.

11. Ultra-rapid chargers are designed to support the new generation of EV's which have bigger battery capacities. Ultra-rapid is defined as more than 150 kW, which is capable of providing around 320 miles of range for every hour that a pure electric car is charging. Ultra-rapid chargers are

backward compatible so a car that is capable of accepting 50 kW's will receive 50 kW's from a 150 kW charger. This means that they can be used by new and existing EV's.

12. EV users can access the network through either the "Charge Your Car" or "Polar Network" services, using web based apps or dedicated access cards. They pay a tariff to the council, which is intended to cover electricity and back office fees of the network. The current tariff of 15 p/kWh was set in 2013 by the Council and hasn't been revised since. New Rapid and Ultra Rapid chargers will allow customers to use a bank card without the need to join a network.

13. The "Charge Your Car" service is a pay as you go service where the EV user accesses a web based app or pays an annual fee of £20 for an RFID access card. Charge Your Car is used by several local authorities around the country and provides access to over 1,000 chargers in the UK. For regular users "Polar Plus network" is available where the EV user pays a monthly subscription and then pays a reduced tariff for the electricity they use. Polar Plus provides access to around 10,000 chargers around the UK, including Charge Your Car chargers. Both services are operated by BPChargemaster and together offer the largest network of chargers in the UK. The table in **paragraph 25** sets out the different tariff options available and the benefits to users of each option.

14. Over time the network has become more heavily utilised as the number of plug-in vehicles has increased. As a result it can be hard to find an available charge point and the council receives regular requests from residents for additional infrastructure.

15. The difficulty in finding an available charge point has been compounded by unreliability, which resulted in less than 50% of the infrastructure being operational in early 2019. This was due to a combination of life expired charge points, lack of proactive maintenance, and lack of expertise within the Council to provide effective oversight of the network.

16. During 2019 actions were taken, following interim budget approval, to improve uptime including securing a budget to appoint a temporary maintenance contractor, and establishing a virtual EV team which has eliminated the single point of failure by providing significant resilience. This resulted in 100% of charge points being available by the end of 2019.

17. Despite this dramatic short term improvement, there remain significant underlying issues that need addressing including life expired chargers, including some chargers that have 3 pin sockets which are no longer appropriate, insufficient number of chargers overall, poor geographical distribution, issues with the number and location of rapid chargers, no ultra-rapid chargers to support next generation cars, and poor communication between back office provider, hardware provider, and maintenance provider.

18. The EV Charging Strategy seeks to address these longer term issues by setting out how we will provide a future proofed, high quality charging network that meets the needs of residents, fleets, through traffic and commuters.

19. The Council has applied for £1.5m funding to complement the Council's existing investment to assist with delivering the ambition of 5% charging bays in Council owned long stay car parks and a third Hyperhub site at the hospital. A decision on this funding is expected in the Spring.

EV charging tariffs, parking charges and enforcement

20. A key element of the strategy is the tariff price point. The driver for the Council's involvement providing EV charging infrastructure is to offer equal opportunity for all users (with on street and off street parking) and to ensure that tariffs for charging are at a fair rate. With a tariff of 15 p/kWh an electric car consuming 200 Wh/km costs the equivalent as a petrol car achieving 120 mpg or a diesel car achieving 125 mpg. The table below shows how different tariff rates compare with the cost of petrol or diesel.

Tariff	Petrol mpg equivalent (based on 200 Wh/km consumption)	Diesel mpg equivalent (based on 200 Wh/km consumption)
15 p/kWh	120	125
20 p/kWh	90	94
25 p/kWh	65	68
30 p/kWh	60	63
35 p/kWh	52	54
40 p/kWh	45	47
45 p/kWh	40	42

21. At present, the Council charges 15 p/kWh, which has been fixed since 2013, and this will need to increase in order to cover the costs of electricity and the operation of the charging points.

22. The council's proposed tariff approach is based on the Council's standard tariff for electricity (at the moment 15p/kWh, which will increase in 20/21) plus an additional charge to cover the operation and support costs. The recommendation is a tariff of 20 p/kWh for Fast chargers and 25 p/kWh for Rapid and Ultra Rapid. Customers paying by contactless bank card at Rapid and Ultra Rapid chargers will be charged the same tariff of 25 p/kWh. Bank card payment isn't currently available at Fast chargers. This will cover the Council's costs for electricity and day to day costs, whilst passing the benefit to the customer as the Council will make no surplus from this.

23. The Council's energy prices are fixed for 12 months (from the 1st April), which enables the Council to set a tariff for the whole year. It is therefore suggested that there is a 12 monthly review of the tariff moving forward as part of regular fees and charges setting.

24. It is important to note that the electricity delivered from the Council's charging estate is part of the Council's energy contract which purchases renewable energy.

25. See the table below (an extract of the strategy) user guidance.

	Regular User	Occasional User	One off
Network	Polar Plus	Charge Your Car	Pay by contactless bank card (No Network)
Best deal for	Fast – more than 100 kWh per month Rapid – more than 80 kWh per month Ultra-Rapid – more than 160 kWh per month	Fast – less than 100 kWh per month Rapid – less than 80 kWh per month Ultra-Rapid – less than 160 kWh per month	Fast – N/A Rapid – less than 80 kWh Ultra-Rapid – less than 160 kWh
Access to	Fast, Rapid, Ultra Rapid (All chargers)	Fast, Rapid, Ultra Rapid (All chargers)	New Rapid, Ultra Rapid
Monthly subscription	£7.85 a month	No monthly subscription	No monthly subscription
Annual fee	None	£20 for RFiD access card (recommended option as most reliable method of accessing chargepoints) None for web based app	None
Tariff to the customer	Fast 12 p/kWh Rapid 15 p/kWh Ultra-Rapid 20 p/kWh	Fast 20 p/kWh Rapid 25 p/kWh Ultra-Rapid 25 p/kWh	 Rapid 25 p/kWh Ultra-Rapid 25 p/kWh
Parking fee	Fast bays – parking fee applies Rapid/Ultra Rapid – no parking fee	Fast bays – parking fee applies Rapid/Ultra Rapid – no parking fee	Fast bays – parking fee applies Rapid/Ultra Rapid – no parking fee
Other benefits	Access to over 10,000 chargepoints across the UK	Access to over 1,000 chargepoints across the UK	

26. For Rapid and Ultra-Rapid chargers the commercial tariff will generally be between 30 – 45 p/kWh. For Fast chargepoints the commercial tariff will generally be between 18 - 30 p/kWh.

27. A secondary element of management of EV charging is the parking bays that service the charging points. A Fast charging unit services two bays. At present EV charging bays in Council car parks are inconsistently marked and have a charging unit between two bays at the foot of the bays. The EV user uses their own cable to attach their vehicle to the charging unit for Fast chargers. The EV user is charged for the power they draw down. The Council monitors the usage through a back office system, which gives sight of how long the vehicle is connected to the charger and how much power was drawn down.

28. The EV user is not, as it currently stands, charged any parking fee. This gives the EV user free parking even when the car has finished charging. The current system is open to abuse as an EV owner can park all day free of charge and may only actually charge for a few minutes.

29. The consequence is that the bay is then not available for other EV users who do need to charge and lost parking revenue.

30. There will be a condition that users of EV bays are using them principally to charge and enforcement action will be taken where a vehicle is using a bay and is not plugged into the charging point.

31. Options to manage bays have been considered by Scrutiny Committee and the following recommendations have been made:

    - Parking charges should be made on Fast charging (parking bay type) EV charging points;
    - Free parking for residents at Fast chargers overnight;
    - A penalty regime should be in place for rapid/ultra-rapid charging bays;
    - Availability of EVs through car clubs;
    - To continue to explore options for on street charging;
    - Energy feeding the chargers should be from a renewable source;

32. In light of these recommendations parking fees will be applied to Fast charging bays. This will dissuade users who currently plug-in to get free parking when they have a nearly full battery and don’t need to use the chargepoint, making the space available to customers who do need to charge. This will also support the roll out of additional Fast chargers.

33. For residents, free overnight parking will be available by applying for the Regular User Discount Pass which costs £30 for 2 years. This will ensure that residents without charging facilities at home can use Council car park chargers without paying parking fees. This is in recognition that they would not pay for parking at home.

34. To manage churn at Rapid charging bays, these will be treated as medium stay bays and have a time limit on the bay. A limit of 90 minutes will allow sufficient time to charge the vehicle. After 90 minutes a £10 overstay fee will be charged. For every additional 60 minutes a further £10 fee will apply.

35. The Ultra Rapid charging points at the Hyperhubs will operate in a different way, more like a service station where a customer will pull into the bay for the duration of the charge then exit once they have their required charge. A limit of 90 minutes will be placed on the bays to provide enough time for all users to be able to get a full charge. After 90 minutes a £10 overstay fee will be charged. For every additional 60 minutes a further £10 fee will apply.

Consultation

36. The development of the Strategy has been informed by taking on board requests from residents and users of the existing network who regularly contact the Council with issues and suggestions. We have also had informal meetings with residents who have more detailed suggestions of how the network could develop.

37. To complement this we have used free support available from Energy Saving Trust (EST) who have been tasked with supporting Local Authorities to develop EV plans. EST have provided an independent expert review of the Strategy.

38. Scrutiny Committee has provided valuable input into the final version of the Strategy by providing recommendations for bay management.

39. The Strategy outlines the next steps for consultation and what needs to be undertaken when considering individual EV charging schemes.

Options

40. The following options are available:

    1) Do nothing

    2) Approve EV Charging Strategy for adoption

Analysis

Option 1 - Do nothing

41. This option would not address the underlying issues with the existing network. This would lead to a very poor customer experience and wouldn't support the Council's aspirations around encouraging EV uptake.

Option 2 - Approve EV Charging Strategy and tariff level

42. This would provide clear policy direction to enable investment in the network delivering a World class solution allowing York to retake a position at the forefront of EV promotion.

Council Plan

43. The Strategy outlines an equitable approach to charging infrastructure that will support improved Air Quality, Climate Change objectives, financial vitality and aligns with wider Transport Policy objectives. It aligns with Council Plan objectives of Getting Around Sustainably, and Greener and Cleaner City.

Implications

44. **Financial**
    The model for the Council's EV charging provision is based on it being self-financing and the annual monitoring and setting will manage the risk of increases in energy and other costs. The strategy will steer prudential investment in charging infrastructure.

45. **Human Resources**
    There are no HR implications

46. **One Planet Council / Equalities**
    Public charging infrastructure is designed to be accessible and will generally be supported by wider bay widths which match existing disabled spaces, making it easier for users with mobility issues to use any charging space in York. The Better Decision Making tool is in **Annex B**.

47. **Legal**
    The proposed new car park layouts will require a new Off Street Parking Places Order as the proposals would significantly amend the current car parks, and the ability to charge will need to be included in the Order.

48. **Crime and Disorder**
    There are no Crime and Disorder Implications

49. **Information Technology**
    There are no Information Technology implications from the Strategy itself. Future work streams will look at how to make best use of IT solutions to encourage user behaviour and determine the potential for integrating parking payment and user tariffs.

50. **Property**
    There are no Property implications

51. **Other**
    There are no other implications

Risk Management

52. There are no known significant risks associated with the Strategy itself. Work that is delivered following the principles of the Strategy will be subject to the usual risk management processes.

Contact Details

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Wards Affected: List wards or tick box to indicate all **All** ☑

For further information please contact the author of the report

Background Papers:
None

Annexes
Annex A – EV charging strategy
Annex B – Better Decision Making tool

List of Abbreviations Used in this Report
EV – Electric Vehicle
Pure EV – a battery electric vehicle with no conventional engine. The vehicle must be recharged with electricity to be used.
Plug-in Hybrid – a vehicle that has a smaller battery and a conventional engine. This provides a short electric range (typically 20 – 50 miles) and the ability to drive the vehicle on petrol or diesel for longer distances. The vehicle can be used when the battery is empty.