

Date: 29th November 2019

Subject: GMEV Charging Tariff Proposal

Report of: Eamonn Boylan, Chief Executive GMCA

PURPOSE OF REPORT

This report sets out and seeks approval of a proposal to introduce a tariff on the Greater Manchester Electric Vehicle (GMEV) charging network from early 2020.

RECOMMENDATIONS:

The GMCA is requested to:

1. approve the introduction of the proposed electric vehicle charging tariff on the publicly owned GMEV charging network;
2. note the market research undertaken and used to develop the tariff structure;
3. note the potential financial impact of introducing a tariff, and the uncertainty surrounding electric vehicle charging demand;
4. note that the electric vehicle charging market is a developing one, and a review of the tariff's performance may be required in response to changing demand and supply conditions; and
5. note that a membership scheme will be developed in conjunction with the appointed supplier, that may include customer benefits for example, a discounted tariff.

CONTACT OFFICERS:

| | | |
|-----------------|--|--|
| Steve Warrener | Finance & Corporate Services Director | steve.warrener@tfgm.com |
| Simon Warburton | Transport Strategy Director | simon.warburton@tfgm.com |

Equalities Implications:

There are no detrimental impacts on all the protected characteristic groups in line with the Equality Act and Public Sector Equality Duty.

Climate Change Impact Assessment and Mitigation Measures:

Electric vehicle (EV) charging infrastructure is key driver of Greater Manchester's ambitions for the environment. EV charging is a core enabler of the GM ambition to be a carbon-neutral city region by 2038, and the GM clean air plan is underpinned by encouraging GM businesses to switch to low and zero emissions vehicles. The proposals are a key enabler to the future growth of the GMEV Charging Network and the uptake of zero emission vehicles. Additional information is contained in Paragraph 1

Risk Management:

Not applicable

Legal Considerations:

Not applicable

Financial Consequences – Revenue:

The operating and maintenance costs of the GM Electric Vehicle charging network are currently funded by a contribution from the Transport Levy. The annual cost in financial year 2018/2019 and 2019/20 was c£0.2m. As set out in this report, it is not financially sustainable to continue to operate the GMEV network without introducing a charge within the context of a growing EV market. The financial consequences are detailed at paragraph 4

Financial Consequences – Capital:

Not applicable

Number of attachments to the report: None

Comments/recommendations from Overview & Scrutiny Committee

Short paragraph to be included here:

BACKGROUND PAPERS:

GMCA Transport Revenue Budget 2018/19 26th January 2018, section 4.20

| | | |
|--|-------------------------------|----------------|
| TRACKING/PROCESS | | |
| Does this report relate to a major strategic decision, as set out in the GMCA Constitution | | Yes |
| EXEMPTION FROM CALL IN | | |
| Are there any aspects in this report which means it should be considered to be exempt from call in by the relevant Scrutiny Committee on the grounds of urgency? | | Not applicable |
| GM Transport Committee | Overview & Scrutiny Committee | |
| Not Applicable | 14th November 2019 | |

1. INTRODUCTION

- 1.1 Electric vehicle (EV) charging infrastructure is key driver of Greater Manchester's ambitions for the environment. EV charging is a core enabler of the GM ambition to be a carbon-neutral city region by 2038, and the GM clean air plan is underpinned by encouraging GM businesses to switch to low and zero emissions vehicles. As part of the public conversation held earlier this year on the clean air plan proposals, the availability of charging points was cited as a key barrier for businesses and individuals in switching to an electric vehicle.
- 1.2 Electric charging provision is fundamental in ensuring the long-term ambition for GM to be one of the greenest city regions is realised. Although these ambitions are long-term, the work required to make them happen needs to start in the short term. This paper sets out the immediate plans to ensure charging provision is sustainable across GM for the long-term.
- 1.3 Since the installation of the Greater Manchester Electric Vehicle (GMEV) charging network in 2012/13, TfGM has not charged customers to charge their vehicles. In order to use the GMEV network, customers are currently required to either register for a membership card for an annual fee of £20 that is payable to the third party who operate the network; or use the mobile app for free. The annual cost to TfGM of operating and maintaining the GMEV network in financial year 2018/2019 was c£0.2m
- 1.4 In January 2018, the report to GMCA on the Transport Budget for 2018/19 noted that the Budget Scrutiny Panel had agreed to a proposal to commence charging for use of the service, as it was deemed financially unsustainable to continue to provide the service free of charge given the growth in Electric Vehicle ownership and the number of charging sessions and the wider pressures on transport budgets.
- 1.5 High growth in GMEV usage has occurred since July 2016, with electricity drawn from the GMEV network increasing by 62% in the period from July 2016 to July 2019. A report commissioned by TfGM from 'Zero Carbon Futures' forecasts that the number of ultra-low emission vehicles (ULEV) is set to double between 2020 and 2025 in Greater Manchester (GM), and that GM's share of national targets, set by the UK's Committee on Climate Change, requires higher growth in EV usage than this, if the targets are to be achieved. The network of electric vehicle charging points in GM, including the GMEV charging network, will need to grow to meet this increase in demand and consequently the costs to the public sector of operating and maintaining the GMEV network will increase.
- 1.6 Providing good quality and well-maintained Electric Vehicle (EV) Charging Infrastructure would send a positive signal to the public about the quality of its urban areas, help convert petrol and diesel vehicle owners to EVs, and bring GM a step closer to achieving its wider ambitions as set out in the Greater Manchester Transport Strategy 2040.
- 1.7 TfGM are currently finalising the details of a contract with a third party to update and expand the existing GMEV network. This Contract will also include the upgrade of the existing chargers which will improve the reliability of the network and reduce maintenance requirements as well as brokering private sector investment in a complementary, privately run EV charging network. TfGM have undertaken to work collaboratively with the new

supplier to provide an integrated customer proposition which may include shared branding, common functionality and joint membership schemes.

- 1.8 The proposal to introduce a tariff on the expanding GMEV charging network will secure a long-term revenue stream to assist in funding the costs associated with the publicly owned EV charging infrastructure in GM.

2 MARKET RESEARCH

- 2.1 Both qualitative and quantitative market research has been commissioned by TfGM to develop an understanding of the motivators and barriers to EV ownership, and the main factors that influence customer behaviour in respect of EV charging.
- 2.2 The qualitative research involved ten focus groups, and a number of telephone interviews with Small and Medium sized businesses. Nine of the focus groups contained petrol / diesel owners and one contained plug-in hybrid owners. All focus group attendees claimed they would actively consider buying an EV in the next three years. The businesses interviewed typically ran 5 to 10 company cars.
- 2.3 The market research shows that the environmental benefits of EV ownership is the largest motivator to buying an EV followed by lower running costs (when compared to petrol and diesel vehicles). Conversely, the main barriers for non-EV owners to buying an EV are the initial price of the vehicle, the lack of available charge points, and the limited range of EVs.
- 2.4 Although the market research indicated a preference for a tariff in which everyone pays the same rate, regardless of membership or how much they use the infrastructure, it was acknowledged that the sample size of current EV owners was relatively small. Consequently, further market research will be undertaken, in collaboration with the new supplier, to inform further development of the customer proposition, as noted in paragraph 1.5.
- 2.5 The research indicated that few non-EV owners know how much cheaper it is to run an EV vehicle relative to a petrol / diesel vehicle, and that they would prefer a tariff based on kilowatt hours (kWh) fuelled over alternative options (e.g. a tariff based on time connected to a charging point). The preferred structure closely resembles the current industry standard for petrol and diesel vehicles whereby customers are charged by the litre.
- 2.6 The research also indicated that non-EV owners generally underestimate how quickly EVs can be charged and, importantly in the context of overstay charges as described in paragraph 3.9, had concerns over waiting for another vehicle to be charged before they could charge their own.

3 PROPOSALS FOR CONSIDERATION

- 3.1 It is proposed that TfGM would introduce a Pay-As-You-Charge (PAYC) tariff based on kWh consumed on the GMEV network in early 2020, aligned to when the new supplier will begin to operate, maintain and expand the GMEV network. Whilst, due to the legal restrictions of the 1998 Competition Act, we cannot oblige the new supplier, TfGM is seeking to agree with the new supplier an alignment so that a common tariff structure would be available across the publicly and the new suppliers privately-owned infrastructure. This will help to maintain a single customer proposition and ensure that the EV charging proposition in GM is easily understood and convenient for both residents and visitors.
- 3.2 Furthermore, existing members of the GMEV scheme will be encouraged to register (at no additional cost) for the new scheme that will be operated by the incoming supplier. This registration will allow current GMEV members to receive communications and to access a new membership card that can be used to access the GMEV network. Over the term of the contractual partnership, TfGM will work with the supplier to develop an enhanced customer proposition associated with this membership, that may include, for example, discounted tariff rates.
- 3.3 There are two types of chargers within the GMEV network, rapid chargers and fast chargers. Rapid chargers charge vehicles at a relatively faster rate and typically deliver between 43kW and 50kW, while fast chargers charge a vehicle at a slower rate and typically deliver between 7kW and 22kW.
- 3.4 The proposed EV tariff would require customers to pay £0.25 per kWh when fuelling their vehicle with a fast charger, and £0.35 per kWh when fuelling their vehicle with a rapid charger.
- 3.5 The proposed tariff has been designed to recover the costs of operating and maintaining the publicly owned GMEV network in the financial years following its introduction. Under the proposal, it would cost either £10.00 or £14.00 to charge a Nissan Leaf EV depending on whether a customer uses a fast or a rapid charge point. This is relative to the comparative cost of £20.88 to fuel a Ford Focus petrol car to travel the same distance.
- 3.6 The table below compares charging tariffs on major networks within the UK and compares the cost of charging a Nissan Leaf with a 40kWh battery to 50% battery capacity. The proposed GMEV tariff is included for comparison. Charge Points that are free to use across Greater Manchester have been excluded, such the circa 15 Charging points from Pod Point, several car dealerships and a select number from Polar that charge a connection fee only.
- 3.7 The table at Appendix A shows that the proposed GMEV tariff is competitive when benchmarked against other PAYC tariffed EV charging infrastructure across the United Kingdom.
- 3.8 It is acknowledged that customers may overstay their charging sessions after their vehicles are fully charged. This would prevent other EV users from using the infrastructure, reducing the availability of the GMEV network. This could discourage non-EV owners from making

the shift to EV ownership, as indicated in the market research, and lead to lower revenues. To mitigate against this, it is proposed to apply a maximum stay time of 10 hours for fast chargers, and 1.5 hours for rapid chargers. When the maximum charge time has elapsed, an overstay charge would be applied of £5 per 15 minutes for rapid chargers and £2.50 per 15 minutes for fast chargers. The overstay charge would continue to increase up to a limit of £30. This would likely impact less than 5% of customer charging sessions.

- 3.9 The proposed overstay charges are comparable to overstay charges on other networks as presented below

Competitive Overstay Charge Analysis

| Charging Network | Location | Overstay Charge |
|------------------|---------------------|--|
| Polar Plus | UK wide | £10 fee for each 1 hour after 90 minutes of charging on rapid chargers |
| Polar Instant | UK wide | £10 fee for each 1 hour after 90 minutes of charging on rapid chargers |
| ESB EV Solutions | London and Coventry | £10 fee for charging sessions over 1 hour on rapid chargers |
| Genie Point | England wide | £10 fee for each 1 hour charging on rapid chargers |

- 3.10 The EV vehicle and charging markets are both developing and growing markets and consequently, tariffing for EV charging is a relatively new concept, particularly for GM where the GMEV network has been provided free of charge to the user since 2012/2013. There is a significant degree of uncertainty around future EV supply and demand, and consequently the future of EV charging infrastructure and the associated commercial models. As a result, it is difficult to accurately predict how the existing GMEV demand will react to the introduction of a tariff. TfGM will need to monitor the demand on the GMEV network and periodically review the details of this tariff in response to changing market conditions.

4 FINANCIAL IMPACT

- 4.1 The operating and maintenance costs of the GMEV network are currently funded by a contribution from the Transport Levy. The annual cost in financial year 2018/2019 and 2019/20 was c£0.2m. As set out earlier in this report, it is not financially sustainable to continue to operate the GMEV network without introducing a charge within the context of a growing EV market.
- 4.2 Funding has been made available through the Clean Air Plan Early Measures Fund which has been provided by HM Government to installation and three years of operation and maintenance costs (excluding electricity) of 25 additional rapid chargers due to be installed between January and April 2020.
- 4.3 As part of entering into a contract with the new supplier, TfGM will benefit from a discounted operational cost for the first two years of the contract term.

- 4.4 It is forecast that running costs will subsequently be covered by revenue generated from demand from growth in the market. This would equate to the number of EV charging sessions increasing by a third compared to demand in financial year 2018/2019. This is considered to be achievable based on ULEV usage forecasts between 2020 and 2025.
- 4.5 Whilst the positioning of the proposed tariff is competitive, the precise impact on demand of introducing a tariff for EV charging is unknown. However, the EV market is a growing one and ultra-low emission vehicles figures in GM are forecast to double between 2020 and 2025 and the proposed tariff is significantly cheaper than the equivalent cost of fuelling a petrol or diesel vehicle. It is therefore assumed that any reduction in demand resulting from the introduction of the tariff will be recovered in the short to medium term.
- 4.6 The proposed tariff has been set at a level that is consistent with that charged by other networks when benchmarked against the market, however it is proposed that the tariff be reviewed regularly, including prior to the discounted operational costs increasing in year three.
- 4.7 The table below shows the costs of running the GMEV network in the 2018/2019 financial year, alongside the estimated annual costs for the duration of the contract with the new supplier. Revenue has been estimated based on the current EV charge point demand as noted in paragraph 4.5. Maintenance charges will continue to be recovered from the private sector hosts of a number of charge points.
- 4.8 Revenue generated from the existing £20 annual GMEV membership fee is paid directly to the incumbent supplier to help cover running costs of the GMEV network and is therefore excluded from the table below. Similarly, as over stays would be actively discouraged we have assumed no revenue from that source.
- 4.9 Annual Operation and Maintenance costs and Revenue of the GMEV Network

| | Year | | | | | | | |
|------------------------------------|---------------|------|------|------|------|------|------|------|
| | 2018/ 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
| Tariff per kWh (£) - fast charger | 0 | 0.25 | 0.26 | 0.27 | 0.28 | 0.29 | 0.30 | 0.31 |
| Tariff per kWh (£) - rapid charger | 0 | 0.35 | 0.36 | 0.37 | 0.38 | 0.39 | 0.40 | 0.41 |
| VAT to pay (£000) | 0 | 29 | 30 | 31 | 32 | 33 | 34 | 35 |
| Total cost including VAT (£000) | 215 | 142 | 143 | 233 | 234 | 238 | 242 | 246 |
| Total revenue (£000) | 13 | 155 | 161 | 166 | 172 | 177 | 183 | 188 |
| Surplus / (deficit) (£000) | (202) | 13 | 18 | (67) | (63) | (61) | (59) | (57) |

N.B. Charge point demand is assumed to remain at the same level as financial year 2018/2019.

- 4.10 Based on the figures in the table above, the revenue raised by the proposed charging tariff, which is, subject to agreement at the relevant time, profiled as increasing in line with RPI, is expected to cover no less than 70% of all maintenance and operating costs of the GMEV network, assuming no change in demand. However, it is possible that the demand will reduce in the short term in reaction to the introduction of an EV charging tariff.
- 4.11 It is proposed that any surplus resulting during the first two years of operation would be 'ringfenced' and used to partly or wholly cover any subsequent deficits.

- 4.12 It is further proposed to provide GMCA with six monthly updates on usage, revenues and costs for the first year of operation.

5 RECOMMENDATIONS

- 5.1 Recommendations are set out at the front of this report.

Appendix A - Competitive Charging Rate Analysis

| Rank by Cheapest | Charging Network | Network Location | Fast Chargers (7kW to 22kW) | | Rapid Chargers (43kW to 50kW) | |
|---------------------|----------------------|----------------------|----------------------------------|---|----------------------------------|---|
| | | | Cost per kWh (£) | Cost to charge a Nissan Leaf by 50% (£) | Cost per kWh (£) | Cost to charge a Nissan Leaf by 50% (£) |
| 1 | Polar Instant | UK wide | 0.18 | 3.60 | 0.25 | 5.00 |
| 2 | Proposed GMEV Tariff | Greater Manchester | 0.25 | 5.00 | 0.35 | 7.00 |
| 3 | EV Driver | England wide | 0.25 | 5.00 | N/A | N/A |
| 4 | Alfa Power | England wide | 0.25 via app or 0.33 via QR code | 5.00 or 6.00 | 0.25 via app or 0.33 via QR code | 5.00 or 6.00 |
| 5 | ESB EV Solutions | London and Coventry | N/A | N/A | 0.29 | 5.80 |
| 6 | LiFe | England wide | 0.30 | 6.00 | 0.30 | 6.00 |
| 7 | Polar Contactless | UK wide | N/A | N/A | 0.30 | 6.00 |
| 8 | Source London Flexi | London | 0.119 per min @ 22kW | 6.49 @ 22kWh | N/A | N/A |
| 9 | GeniePoint | England wide | 0.30 plus 0.50 connection fee | 6.50 | 0.30 plus 1.00 connection fee | 7.00 |
| 10 | InstaVolt | England and Scotland | N/A | N/A | 0.35 | 7.00 |
| 11 | Engenie | England wide | 0.36 | 7.20 | 0.36 | 7.20 |
| 12 | Ecotricity Highway | Great Britain wide | 0.39 | 7.80 | 0.39 | 7.80 |
| 13 | Shell Recharge | London Centric | N/A | N/A | 0.39 | 7.80 |
| 14 | Source London PAYG | London | 0.143 per min @ 22kW | 7.80 @ 22kWh | N/A | N/A |

