**Briefing Paper**

**Greater Manchester EV Charging Network Position Paper**

**1.0 Current GM EV Charging Infrastructure Assets**

1.1 TfGM owns the Greater Manchester Electric Vehicle Charging (GMEV) Network which was installed in 2013. The network is currently operated on TfGM’s behalf by Charge Your Car. There are now over 2,405 registered plug in vehicles in GM (Q4 2017) and the GMEV network has good usage (over 150,000 individual charging sessions since installation) with membership at 2,004 members as of February 2018, growing at an average rate of 50 new members per month since inception.

1.2 The network is currently free to use by customers however TfGM covers the costs (operation, maintenance and electricity) which is continually increasing as new members join the scheme.

1. EV Market and Policy Context

2.1 The announcement to ban sales of Internal Combustion Engine (ICE) Petrol / Diesel from 2040, as set within ‘The UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations’, confirms the trajectory for decarbonisation (ban sales of ICE Petrol/Diesel by 2040). It is more likely that the mass adoption of Ultra Low Emission Vehicles (ULEVs) will occur much sooner due to the following, supported by market innovations over recent years including:

* **Extended range and improved performance of EVs** – the best performing vehicles now have a range of over 300 miles on full charge. It is likely that in the next few years a battery capacity of 60kWh to 90kWh will become the norm giving the majority of customers ranges above 200 miles on a single charge;
* **Reduced cost/Affordability** - battery costs have reduced 90% in the past seven years, purchase subsidies (up to £5,000) remain and the second hand ULEV market is also becoming more stable. Market indication is that consumer prices for plug-in vehicles are likely to drop 2020 onwards; and
* **Choice** - as of November 2017, there are 59 vehicles available in the market with more models planned by manufacturers.

1. Points for Strategy

3.1 The increase in battery capacity will lead to a need for enhanced charging support, pointing to the need for well-place rapid and ultra-fast chargers. Across the UK it is estimated that 40% of households do not have space for a dedicated domestic charging point. For the 60% of households that could accommodate a domestic charging unit these would take on average over 19hrs to complete a 75% charge for 90 kWh batteries.

3.2 Given the above points, significant growth is expected from 2020/21 onwards and is reflected in the Automated and Electric Vehicles Bill currently being considered by Parliament. In terms of the policy context there is renewed national interest as supported by focus on Air Quality measures and positioning within Industrial Strategy. It is important to note that the Mayor of Greater Manchester and Leaders have recently identified the modernisation and expansion of the GMEV network as one of significant importance and is keen to understand future revenue generation potential. Furthermore a number of sectors will require support and appropriate nudging towards decarbonisation (private, business, fleets, taxi, bus, freight, car club, etc).

1. Commercial and Funding Opportunities

4.1 It is clear that the current free-to-use GM EV network cannot be maintained and a pricing structure will have to be introduced. For Public Sector, the introduction of a pricing structure, could address current costs and generate an increasing revenue opportunity in time.

4.2 The increase in national policy focus has been matched with new funding opportunities. Budget 2017 signalled that a **£400 million Charging Infrastructure Fund** will be opened up in 2018 and further funding competitions are expected from OLEV (such as a potential **Taxi Infrastructure Fund 2**). At this stage no further details (terms and conditions, eligibility, match-funding, etc.) have been released for either fund. Discussions are ongoing with OLEV to establish how TfGM can take advantage of the new regime.

4.3 On behalf of GM Authorities, TfGM has successfully secured £3m investment from the Early Measures Intervention Fund via the Joint Air Quality Unit. A sum of £1.8m from that allocation if available for installing and commissioning at least 24 dual headed rapid chargers. These assets would be added to the existing GM EV network and remain in TfGM’s ownership

1. Open Market Tender Approach to the new GMEV Contract

5.1 Given the changing environment for EV, early stages in the market and potential for growth and the legal requirement, it is proposed to conduct a formal procurement exercise for a 3-year (plus 2-year optional extension) contract to design, build, install, operate and maintenance of the GMEV Network. It is recommended to continue to explore the longer term opportunities (could be a Special Purpose Vehicle) as the EV charging market matures over the next three to five years. The new contract would be underpinned by a customer pricing structure, which will be informed by external commercial advice and internal analysis. However, initial analysis suggests that a structure could encompass elements of the following

* + - * Pay-As-You-Go as minimum;
      * Membership plus lower rate utilisation pricing (and incentives);
      * Season ticket models;
      * Differential pricing to maximise utilisation of the network; and
      * Differential pricing across user types.

5.2 It is planned to launch the procurement exercise in April/May 2018 for deployment of the new contract by December 2018.

1. Key Considerations

6.1 Market for ULEVS expected to dramatically lift in the next 2yrs (backlash to VW diesel scandal, OEM response in mainstreaming EV models, and further driven by some European Countries/Cities setting 2025 as the cut-off point for sales of petrol/diesel ICE vehicles)

6.2 The capital requirement for deploying charging infrastructure to meet future demands will be significant and therefore the opportunity of creating a GM value opportunity to take to investment funds will be required.

6.3 Policy is crucial to supporting the decarbonisation of transport and responsibility for creating demand for charging will be partly for TfGM and partners to drive.

6.4 Considerable opportunity for innovation – open data API, influencing charging behaviour, Vehicle 2 Grid, smart grid, use of battery storage, renewable energy generation etc. will all become increasingly important as energy and transport become more in twinned.

6.4 Whilst the upcoming tender will focus on offering a predominantly operational concessionary contract, the long term opportunity (public/private partnership or other structure, beyond the lifespan of that tender) will need considerable (and technical) work to ensure a sufficient, well developed commercial opportunity can be brought to market