PURPOSE OF REPORT

This report provides a summary on the uptake and use of Electric vehicles across Greater Manchester.

Uptake of Ultra Low emission vehicles is key to the success of a future low emission transport network and Greater Manchester’s ambitious climate change and air quality targets.

RECOMMENDATIONS:

The Board is requested to:

- Note the contents and comment upon the recommendations of the report and discuss opportunities and removal of barriers to improve uptake.

CONTACT OFFICERS:

Contact Officers: Mathew Roberts, Carbon and Freight Lead
Matthew.roberts@tfgm.com
Stuart Blackadder, Reporting and Governance Officer
Stuart.Blackadder@tfgm.com

<table>
<thead>
<tr>
<th>TRACKING/PROCESS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Does this report relate to a Key Decision, as set out in the GMCA Constitution or in the process agreed by the AGMA Executive Board</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXEMPTION FROM CALL IN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Are there any aspects in this report which means it should be considered to be exempt from call in by the AGMA Scrutiny Pool on the grounds of urgency?</td>
<td>NA</td>
</tr>
</tbody>
</table>

AGMA Commission
19th January 2018
NA
NA
1 Background

1.1 The UK government has reaffirmed its commitment to a future zero emission vehicle fleet with the announcement this year of plans to ban the sale of new petrol and diesel cars in Britain by 2040.

1.2 The GM Mayor made manifesto commitments to be a global leader in tackling climate change and reducing transport emissions must be a part of this ambition. The introduction and proliferation of zero emission tailpipe solutions are a key measure identified and advocated in GM’s 2040 Transport Strategy, Climate Change Strategy and Air Quality Action Plan.

1.3 75% of NOx, 80% of PMs and 32% of CO2 in Greater Manchester are derived from Road Transport, with private car trips responsible for 43% of NOx and 58% of CO2 road emissions. TfGM and the GMCA seek to reduce private car emissions by encouraging a switch to ultra-low emission vehicles (ULEV) and providing access to a car share solution allowing customers to reduce/remove private car use where possible.

2 National trends

2.1 The UK is seeing an increasing shift towards urban living, the population of large city centres in England and Wales has more than doubled between 2001 -2011. Greater Manchester has seen similar densification.

2.2 This pattern of densification closely correlates with levels of car ownership and use. This is down to a variety of factors including socio-economic characteristics, ease of access to other forms of transport and proximity to services and places of work, removing the need for journeys by car.

2.3 Interestingly the number of residents aged 20-29 in these centres have nearly tripled. This group now makes up almost half (49%) of the total population of large city centres.
2.4 Coupled with this younger generations, known as “Millennials” (currently aged 20 -36) have displayed less inclination to use or purchase cars.

2.5 Examples of this include lower mileage driven and fewer individuals in this group holding a driving license. Record numbers of teenagers are not learning to drive, the total taking driving tests per year has fallen by 100,000 (28%) since 2007/8.

2.6 The cause of this slowdown is unclear. Undoubtedly a major impact is the recession and recovery which has disproportionately impacted employment and wage growth for under 30’s. The lack of disposable income, the high cost of housing and insurance all act as barriers to car access.

2.7 There are however other factors at play, these include changes in population composition and distribution; travel demand saturation; increased congestion; improvements in public transport; changing rules relating to tax treatment of company cars; and technological changes, particularly in relation to the internet and mobile communications technology. There is also some indication that attitudes towards car ownership as a “status symbol” have changed alongside a greater willingness to embrace the sharing economy.

2.8 As younger generations move through “life events” (for example having children) at a delayed stage in comparison to previous generations, it remains to be seen whether this pattern of ownership will continue.

2.9 Despite the decline in younger owners, cars being registered for the first time reached a record high of 2.69m in 2016. The level of annual registrations recovered to pre-recession levels in 2016. However more recent data indicates a downward trend beginning in 2017. The market share of diesels has also notably declined over 2017 from 47% to 38%.
2.10 Greater Manchester residents travel 37 million km per day averaging 6.4km per person. 77% of all kilometres travelled are done so by car (either as driver or passenger).

3 National EV trends

3.1 The Office of Low Emission Vehicles (OLEV) was established to kick-start growth in the electric vehicle market. Current UK objectives are set as;

- **every new car an ULEV from 2040** and an effectively **decarbonised fleet by 2050** to meet our Carbon Plan targets;
- a network of **supporting infrastructure** that ensures ULEVs are an attractive customer proposition;
- world class skills and facilities for the **development and manufacture of ULEV technologies, exporting vehicles globally**;
- a **smarter electricity grid** that maximises the benefits to vehicle owners and the electricity system from the shift to ULEVs; and
- All of the above combining to make the UK **the best place in Europe**.

3.2 During 2016, nearly 42,000 new ultra-low emission vehicles (ULEVs) were registered in the United Kingdom, an increase of 40% on 2015.

3.3 The UKs total ULEV vehicle parc (including both electric and plug in electric) now stands at 96,000. This represents growth of 750% between 2011 and 2017.

3.4 To put this into context, despite the phenomenal growth this portion of the market remains minute when compare to the 3m vehicles sold each year. The current market share is approx. 1.8% of total sales. There are approx. 37m vehicles on the UK’s roads, this means that EVs make up approx. 0.25% of all vehicles.
3.5 When compared with other major European nations such as Germany and France, the UK has slightly better uptake. Norway is the clear leader in Europe (and the world) in terms of market share. Norway has achieved this through significant incentives including removal of purchase taxes, VAT and recurring fees making EVs price competitive with conventional cars. However to put this into context the Norwegian vehicle market amounts to 150k vehicle sales per annum, making it the equivalent of circa 5% of the UK market.

4 GM EV trends

4.1 There are currently 1,808 registered plug in vehicles in Greater Manchester. The graph below shows the uptake profile and is annotated to highlight the impact of the installation of the GMEV network and the increase in vehicle choice. There has been a significant increase from nine small ULEVs types available on the market (eligible for plug-in grant) to a wider choice of 36 vehicles.

4.2 When compared to other northern cities Greater Manchester is on par. For example Leeds has 2,300 vehicles, while Merseyside has only 645 registered.

4.3 However when compared to other major UK conurbations GM is trailing behind. Both London (inner and outer boroughs) and the Birmingham City region each have 9,400 ULEVs.

N.B. The dataset does have some weaknesses in that it displays the current registration address and does not necessarily indicate where the vehicle is kept or operated.
4.4 Broken down by local authority, it is clear that the pattern of growth (by registered keeper address) is fairly even, however higher uptake is indicated in Manchester, Trafford, Bury and Stockport and lower uptake in Tameside.

Greater Manchester registered plug-in vehicles

Increased vehicle choice

GMEV Installed

Greater Manchester (Met County)

N. Vehicles

Bolton
Bury
Manchester
Oldham
Rochdale
Salford
Stockport
Stockport
Trafford
Tameside
Wigan
5 GM EV Infrastructure

5.1 Prior to 2011 no clear business models existed for EV network development and the customer base was non-existent for private investment (particularly in first generation technology).

5.2 The OLEV ran a Plugged in Places (PiP) funding competition in 2010, with funding award in 2011. The PiP funding call focused on exploring business models, infrastructure solutions, and market demand.

5.3 GM secured PiP funding and installed 324 public charging sockets comprised of 160 dual headed 15kKW posts (7KW per unit) with 4 rapid chargers.

5.4 The network currently has:

- 1,755 Members are now registered to GMEV (September 2017), with membership growing monthly

- 127,560 Individual charging sessions since installation, likely to reach 150,000 by March 2018

- Average 39,000 KW/h drawn from the GMEV network each month (41,630 KW/h in December 2016 alone)

- Members are accessing the network on average 41 times each per year with an average power drawn per charging session of 8.7 KW/h
5.5 Usage varied in each of the ten districts. Manchester has the most extensive GMEV charging point network, with 53 chargepoints (106 total outlets), while Tameside has the fewest chargepoints with only 7 (14 total outlets).

5.6 The distribution of the GMEV network is represented in the following map:
6.3 The number of charging sessions and amount of energy drawn (kWh) are two similar key indicators for measuring usage of the network. The below graph breaks down usage by district, with levels evening out with a slow upward trend since the spring. The spring dip was caused by the operator’s national communication that they would be introducing charges. This is not the case on the GMEV network.

![Total no. Charging Sessions by District](image)

5.7 Of further interest is the distribution of registered GMEV users. Using Charge Your Car registration data, the below map suggests that the number of local inhabitant registered users does not impact the number of charging sessions in each local authority network. For example, there appear to be a similar number of registered users in Tameside and Rochdale to Bury and Oldham, however the number of charging sessions at Bury and Oldham local charge points is considerably higher, reflecting the inter-district work patterns typical in Greater Manchester.
6 Future opportunities and challenges

6.1 OLEV established Plugged in Places at a time where an electric vehicle customer base was almost non-existent across U.K. It would not have been viable at the time for any commercial operator to install infrastructure and get a return on investment when so few customers were available.

6.2 It is clear from UK and local trends and continued incentivisation of ultra low emission vehicles that the customer base is now rapidly increasing and will soon move from early adaptors to an increasing mass take-up. This brings with it the need to upgrade/replace existing infrastructure and expand provision to support the decarbonisation of transport.

6.3 Historically, funding has been released competitively with Greater Manchester having success early on (funding for current GMEV network). It is expect that more funding opportunities will be made available, particularly to support the drive to improve air quality across the country.

6.4 TfGM is currently considering options for investment to expand the network. This would see upgrades to charge points and back office hardware/software and the introduction of more rapid chargers.
6.5 There are significant challenges for GM’s plan to increase ULEVs. Not least in the necessity to supply the required energy to meet demand and the infrastructure to access that energy spatially. An Electricity North West forecast determined:

Assumes in Region by 2030;
- 720,000 domestic EVs
- 80,000 Electric Vans
- Drawing 3- 8kw for 8hours (mostly topping up over night)
- This would add an additional demand of 2 GigaWatts
- As a reference point, all of Manchester currently draws 400 MegaWatts

7 Conclusion

7.1 It is clear that decarbonisation of transport is inevitable and growth in ULEVs has been sustained since quarter one of 2014, it is therefore expected that there will be further, and likely rapid increase over the next ten years.

7.2 A strong partnership with public sector and business is needed to meet the demands of a growing fleet of ULEV vehicles.

7.3 In addition, to public network expansion there needs to be continued local and national support to:

- Educate the public about the benefits of ULEVs in terms of air quality, GHG reduction and whole life costs.
- Actively promote ULEV both directly and indirectly – through public events and demonstration of the technology.
- Provide leadership by implementing ULEVs in publically owned fleets, taxi and bus fleets.
- Jointly work with DNO Electricity North West to address potential barriers to infrastructure and uptake – including on-street charging.