

Date: 15 July 2014

Item 9: Update on Green Vehicle Initiatives

This paper will be considered in public

1 Summary

- 1.1 This paper provides an update on TfL's work on initiatives to support low emission vehicles. This followed the successful transition of the Source London electric charge point network to a private provider, IER.
- 1.2 This paper provides information on the following work areas through which TfL is encouraging the uptake of green technology in various vehicle fleets:
 - a) Policy framework: supporting uptake of low emission vehicles and proposals for an Ultra Low Emission Zone (ULEZ) in 2020;
 - b) TfL's Fleets: our commitments for buses and our support fleet;
 - c) Taxis Fleet: our commitment to zero emission capable taxis; and
 - d) Commercial Fleets: initiatives to reduce emissions from the private sector

2 Recommendation

- 2.1 **That the Panel notes TfL's progress and the initiatives described in this paper.**

3 TfL Policy Framework

- 3.1 In 2010 the Mayor published his Air Quality Strategy (MAQS) – “Clearing the air”, and in 2011 he published his Climate Change Mitigation and Energy Strategy (MCCMES) – “Delivering London's Energy Future”. Together these contain a range of transport and non-transport measures to reduce emissions, to mitigate climate change and improve London's air quality.
- 3.2 In the MCCMES the Mayor committed London to achieving a reduction in CO₂ emissions across all sectors - to 60 per cent below 1990 baseline levels by 2025. The transport portion of this target translates into a projection for reducing CO₂ emissions from all forms of transport by 4.6 to 5.3 Mt CO₂ by 2025 (which is approximately a 48 per cent reduction from 1990 levels).
- 3.3 In addition, the EU has set limit values for air quality concentrations of air pollutants linked to major public health concerns. Two of these are of principal concern within London: Particulate Matter (PM) and Nitrogen Dioxide (NO₂). Motorised transport is a major contributor to PM and NO₂ emissions in Greater London, accounting for 52 per cent and 63 per cent of emissions of these pollutants respectively in 2010

(as published in MAQS). The MAQS sets out a range of policies to cut PM and NO₂ pollution from all forms of motorised transport.

- 3.4 Levels of PM in London have consistently fallen over recent years. In its most recent report to the EU, DEFRA stated compliance with the EU limit values for PM₁₀ in London.
- 3.5 The EU compliance date for NO₂ limit values was January 2010 but, as with much of the UK and Europe, London is currently not expected to comply until at least 2025. The reasons for this include the failure of new Euro IV and V engines to reduce emissions of oxides of nitrogen (NO_x) as expected, particularly when driving in urban conditions. This has meant that natural fleet turnover has not cut emissions of NO₂ as expected. However, the new Euro VI engines coming onto the market now have radically reduced NO_x emissions which should reduce emissions in future. As larger numbers of Euro VI vehicles come into the fleet, the emissions of NO_x from vehicle exhausts should reduce, taking London closer to compliance with statutory limits on NO₂ pollution.
- 3.6 A further factor has been an increase in diesel fuelled motorised vehicles in the UK, which has led to an increase in air pollution. While diesel vehicles produce less CO₂ than petrol equivalents, they produce significantly more emissions of PM and NO_x. The move to cut CO₂ by introducing tax incentives for diesel vehicles has had unintended impacts on air quality across Europe, and led to higher NO_x emissions.

Ongoing support for Electric Vehicle (EV) uptake

- 3.7 There are a number of alternative technologies available and emerging, making EV an increasingly viable and affordable alternative.
- 3.8 TfL supports the uptake of EVs through a range of long standing policies and activities including:
 - (a) a 100 per cent discount from the Congestion Charge for pure electric and plug-in hybrid vehicles registered with TfL;
 - (b) a requirement through the London Plan for developers to supply charge points in major new developments; and
 - (c) on-going engagement with partners, businesses and stakeholders, for example through the Mayor's Electric 20 Group and Low Emission Vehicle Partnership

Ultra Low Emission Zone (ULEZ)

- 3.9 Looking beyond the measures outlined in the MAQS and MCCMES, TfL is developing a proposal for the creation of an ULEZ in central London in 2020. This initiative was announced by the Mayor in February 2013. The draft proposals were set out in an update to the London Assembly in February 2014 (see background papers) and proposed that the zone would cover the same area as the Congestion Charging zone and operate in tandem with it. Unlike the Congestion Charge, it would operate 24 hours a day, seven days a week. Its objective will be to reduce air pollution (NO₂ and PM) and CO₂ emissions from road transport.

3.10 The ULEZ proposals are not yet confirmed and would be subject to statutory consultation prior to implementation.

4 TfL's Fleets

TfL's Bus Fleet

- 4.1 TfL has already exceeded the aspirations laid out in the MAQS for 300 hybrid buses and five hydrogen buses by 2012. TfL continues to work to reduce the air pollution and carbon dioxide emissions from its own bus fleet. The TfL Business Plan published in 2012 states that TfL will acquire a further 1,700 hybrid buses by 2016, including 600 New Routemasters.
- 4.2 To date, TfL has 641 hybrids operating and is on course to meet the latest target of 1,700. There are seven hydrogen fuel cell buses in operation with the eighth and final hydrogen fuel cell bus due to be introduced into the bus fleet later this year. There are also six pure electric buses in operation and a further two pure electric buses are planned for operations later this year.
- 4.3 TfL will aim to access grant support from the Office of Low Emission Vehicles (OLEV) to bring more clean buses into the TfL fleet. OLEV has announced £500m to support uptake of low emission vehicles in the UK including £30m to support the low emission bus market, and TfL will seek to benefit from such funds.
- 4.4 Alternative technologies will continue to develop in this area and TfL is investing as part of the European funded project, ZEUS. TfL will introduce four induction-charged, hybrid double deck buses with technology to extend their range, by the end of 2014/15.

TfL's Support Fleet

- 4.5 The Mayor has set out an ambitious target for 1,000 EVs in the GLA fleet by 2020. This includes 120 in TfL's support fleet, 10 per cent of the total fleet. To date TfL currently has 11 EVs (4 vans and 7 cars) and 27 standard hybrid vehicles. Achieving this target would mean TfL has the largest public sector fleet of alternatively fuelled vehicles in the UK. TfL continues to introduce electric and plug-in hybrid electric vehicles into its fleet and is working with its contractors to encourage their uptake of these vehicles.

5 Taxi and Private Hire Fleet

- 5.1 There are now age limits in place for both the taxi fleet (15 years) and the private hire fleet (10 years) to remove the oldest and most polluting vehicles from London's licensed fleets.
- 5.2 Recognising that taxis (black cabs) are a major source of air pollutants, particularly in central London, the Mayor has announced his intention that all new taxis licensed by TfL must be zero emission capable from 2018. This proposal will be subject to statutory consultation in summer 2014.

- 5.3 Five vehicle manufacturers are currently developing new taxi models that would either be full electric or range-extended electric vehicles (REEVs). These new taxis will provide significant air quality benefits over the existing diesel fleet. The success of these taxis will be contingent on both the provision of an affordable and convenient rapid-charging infrastructure and on taxi drivers' ability and willingness to buy or lease the new vehicles.
- 5.4 As part of the OLEV low emission fund (see section 4.3) there is around £20m to support the uptake of low emission taxis and it is expected that this will take the form of a grant to help taxi drivers reduce the additional capital cost of buying an electric taxi.
- 5.5 TfL has undertaken a Feasibility Study to investigate the potential need for a bespoke rapid charge network for the taxi (black cab) trade. TfL plans to apply for £32m funding from OLEV for charging infrastructure to 'pump-prime' this network. This would be delivered by a commercial enterprise(s) which could then invest and grow the network in line with identified market needs. This model has worked well for public charging and can be replicated for taxis and other commercial fleets.

6 Commercial Fleets

- 6.1 TfL is working on a number of initiatives to promote the uptake of EVs and other low emission strategies and technologies in commercial fleets. This includes a number of European projects which are set out in section 7 below.
- 6.2 To support uptake of ultra low emission vehicles (ULEVs) in commercial fleets, TfL and DfT commissioned a bespoke service to provide fleet advice on the uses of electric vehicles in 15 commercial fleets across London. The Plugged in Fleets programme advised the fleet operators where ULEVs could replace existing vehicles, and how to optimise the cost savings associated with this switch. This work demonstrated the potential for increased use of ULEVs in the commercial fleet, given the right advice and infrastructure. DfT expanded this approach and has now funded similar reviews and support for 100 fleets nationwide.
- 6.3 TfL has also commissioned research to identify the optimal charge point locations for London businesses. The work is ongoing but this data will help to make the case for bespoke rapid charging to support commercial fleets and will be a useful source of information for fleet managers and potential charge point providers. The project will be completed in summer 2015. The study will identify the best locations for commercial vehicle rapid charging points and will be made available to both borough planning authorities and private sector organisations to help drive investment in this infrastructure. TfL will again apply for funding from OLEV if it is available to support investment in this market.

Car Clubs

- 6.4 TfL supports car clubs as a way of reducing the impact of private car ownership on London's roads in terms of congestion, parking and environmental impacts. The car club fleet is newer than the London car fleet and so tends to have lower CO₂ and air pollutant emissions. Car clubs are also increasingly offering ultra low emission vehicles including electric vehicles (EVs); for example E-car club in Tower Hamlets operate a small number of EVs. IER, which has recently taken over

management of the Source London charge point network, have committed to launching an Autolib style car club in London which will offer a fleet of electric vehicles across the city. IER aim to launch in 2015 and plan to have 3,000 vehicles by 2018 across London. Other car club operators are also considering EVs for their fleets and TfL is actively encouraging this.

- 6.5 The car club sector is already successful and London has the largest market in Europe. However, there is significant potential for growth and new companies are aiming to invest significantly in this growing London market.
- 6.6 TfL has a number of initiatives in place already, including integration of car clubs onto the TfL website, supporting industry relationships with boroughs, and support for car club engagement with businesses. TfL is developing a strategic framework to allow private car clubs to flourish and new operators to enter the market.

7 European projects

- 7.1 TfL is taking part in a number of projects relating to alternative green technologies and initiatives, funded by the European Commission. The following are focussed on the EV market:
- a) LaMiLo (Last Mile Logistics) aims to improve the sustainability of the final part of the supply chain. The project tests ideas such as making more use of rail freight; using bicycles to carry goods to businesses and homes; and more intelligent stock control to reduce the impact of freight in city centres.
 - b) FREVUE (Freight Electric Vehicles in Urban Europe) includes a series of electric freight vehicle trials in London and other cities including Amsterdam, Madrid and Stockholm. It is designed to demonstrate to the freight industry and policy makers how electric vehicles can provide a solution to many problems such as air pollution, noise and congestion.
 - c) Capire (Co-ordinated Action on PPP Implementation for Road transport Electrification) which aims to inform the research agenda for further EU funding by identifying activities to make city logistics cleaner and more efficient.
 - d) I-CVUE (Incentives for Cleaner Vehicles in Urban Europe) which aims to develop a package of incentives to facilitate the rollout of electric vehicles beyond demonstration projects.
 - e) UNPLUGGED which will investigate and trial inductive (wireless) charging to support development of this new charging technology.

List of appendices to this report:

None

List of Background Papers:

Ultra Low Emission Zone - Update to the London Assembly, February 2014
(<http://www.london.gov.uk/sites/default/files/ULEZ%20scrutiny%20briefing%20%E2%80%93%20February%202014.pdf>)

National air quality objectives and European Directive limit and target values for the protection of human health

(http://uk-air.defra.gov.uk/documents/National_air_quality_objectives.pdf)

Office of Low Emission Vehicles: Measures to Support Use and Development of Low Emission Vehicles in the UK

(<https://www.gov.uk/government/publications/ultra-low-emission-vehicles-in-the-uk-measures-to-support-use-and-development-2015-to-2020>)

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