

Subject: Electric Vehicles

Report to: Environment Committee

Report of: Executive Director of Secretariat

Date: 23 June 2011

This report will be considered in public.

1. Summary

- 1.1 This report sets out background information on electric vehicles (EVs), their perceived environmental benefits and the Mayor's plans to develop an electric vehicle network in London, in preparation for a Committee briefing with the Mayor's Director of Environment and other invited guests on 12 July 2011.

2. Recommendation

- 2.1 **That the Committee notes this report as background to the public briefing session to be held on 12 July 2011.**

3. Background

- 3.1 EVs have existed for over 100 years and have been extensively researched since the 1960s. Concerns about the price and security of oil supply and the need to better understand how EVs might contribute to reducing reliance on carbon-based fuels and the long term reduction of the UK's carbon dioxide (CO₂) emissions have acted as a spur to electric vehicle development.¹
- 3.2 EVs can offer benefits of improved air quality in urban areas through zero tailpipe emissions of nitrogen oxides (NO_x), sulphur oxides (SO_x) and particulates (PM₁₀). But on the down-side, EVs can produce higher emissions levels of NO_x and SO_x as a result of power sector emissions (principally from coal plants), and there is the potential for these emissions to contribute to 'acid rain'.² However these impacts could be reduced over time with increased use of renewable energy.
- 3.3 EVs are thought to offer significant CO₂ and greenhouse gas emissions reductions over time compared to conventional petrol/diesel fuelled vehicles.³ But a recent study commissioned by the Low Carbon Vehicle Partnership challenges this position pointing to the potential for EVs to produce

¹ Investigation into the Scope for the Transport Sector to Switch to Electric Vehicles and Plug-in Hybrid Vehicles, published by the Department for Business Enterprise and Regulatory Reform and Department for Transport, October 2008

² Ibid, p13

³ Based on the full life cycle of the vehicle and taking account of emissions from power generation and emissions relating to production and disposal. Ibid, p13

higher emissions than conventional vehicles over their lifetime because of the energy consumed in making their batteries.⁴

- 3.4 There are two types of EVs which potentially offer lower CO₂ emissions than normal internal combustion engine vehicles:
- All-electric EVs are vehicles with an electric motor powered by a rechargeable battery, and
 - Plug-in Hybrid Electric Vehicles (PHEVs), are powered by both mains chargeable batteries and a normal internal combustion engine. It is likely that PHEVs could be run in all-electric mode for short to medium distance journeys with the petrol engine used for longer journeys.⁵
- 3.5 There are around 71,000 plug-in and hybrid EVs in the UK, with just under a quarter registered in London - 2,100 of the former and 14,600 of the latter.⁶

National policy

- 3.6 The Government has a range of policies to support the development of EVs and their adoption into the wider commercial market, including the technologies related to their manufacture, maintenance and future development.⁷ It published the UK strategy for Ultra Low Carbon Vehicles setting out an overview of the Government's activity over the next 5 years for research, demonstration and incentives, for consumers and industry.⁸
- 3.7 The national programme of work on low carbon vehicles is driven forward by the Department for Transport and Cenex, a UK Centre of Excellence for low carbon and fuel cell technologies, established with support from the Department for Business, Innovation and Skills. Close liaison is maintained with the Department of Energy and Climate Change (DECC) which brings together energy policy and climate change mitigation policy.⁹ DECC sets the overall policy framework to reduce carbon emissions and support emission reduction policies.

The Mayor's Electric Vehicle Delivery Plan

- 3.8 The Mayor is committed to the introduction of EVs in London on a wider scale. On 19 May 2009 he launched an Electric Vehicle Delivery Plan for London (EVDP), pledging to make London the electric car capital of Europe.¹⁰ In the EVDP the Mayor committed to delivering:
- 100,000 EVs on London's streets as soon as possible;
 - 25,000 charge points across London by 2015; and
 - 1,000 EVs in the GLA fleet by 2015.¹¹
- 3.9 The EVDP is one strand of the Mayor's overall strategy to decarbonise transport and improve air quality in London.¹² The EVDP sits alongside the Mayor's draft London Electric Vehicle

⁴ Preparing for a Life Cycle CO₂ Measure, May 2011 <http://www.lowcvp.org.uk/resources-library/reports-and-studies.asp>

⁵ <http://www.dft.gov.uk/pgr/scienceresearch/technology/lowcarbonelecvehicles/>

⁶ As at November 2010

⁷ See <http://www.dft.gov.uk/pgr/scienceresearch/technology/lowcarbonelecvehicles/#>

⁸ [The strategy was published jointly by the Department for Transport \(DfT\) and the Department for Business Enterprise and Regulatory Reform \(BERR\).](#)

⁹ Energy policy was previously dealt with by the former Department for Business, Enterprise and Regulatory Reform (BERR). Climate change mitigation policy was previously dealt with by the Department for Environment, Food and Rural Affairs

¹⁰ [Mayor's press release 19 May 2009](#)

¹¹ [An electric vehicle delivery plan for London, May 2009, pages 3, 21](#)

¹² [An electric vehicle delivery plan for London, May 2009, page 3](#)

Infrastructure Strategy (LEVIS).¹³ The LEVIS sets out an overarching strategy for delivering the electric vehicle charging infrastructure, and provides targets and processes for its roll-out across London.

4. Issues for Consideration

Programme delivery and funding

- 4.1 In the EVDP the Mayor committed to a phased delivery of the infrastructure up to 2015, providing 2,500 charging points in on-street and off-street public locations and 22,500 located in employers' car parks and retail and leisure locations.¹⁴ The Mayor estimated that it would cost £60 million to deliver the infrastructure requirements set out in the EVDP, with investment coming from a mixture of public and private sector sources (£40 million and £20 million respectively).¹⁵ Following the May 2010 election and the Comprehensive Spending Review, public sector commitment was revised down to around £16 million - £6.6 million from Transport for London (TfL) and £9.3 million from the Government's 'Plugged in Places' grant. This funding is expected to deliver at least 1,300 charging points by 2013, through Source London, launched on 26 May 2011.^{16,17}
- 4.2 The understanding is (from the Mayor's responses to Assembly Members' questions and officer discussions with project personnel) that revision to the quantities and types of charging points to be installed, are in part due to a better understanding of evolving technology, and of London's electric vehicle network requirements since the EVDP and LEVIS were published in 2009.

Environmental benefits

- 4.3 According to the LEVIS achieving targeted rates of electric vehicle adoption could save up to 80,000 tonnes of CO₂ each year by 2020, and a total of up to 400,000 tonnes up until that date. EVs may also reduce annual NO_x emissions by up to 100 tonnes across London, lower PM₁₀ emissions, and generate minimal noise pollution.¹⁸ Initiatives outlined in the Mayor's Transport Strategy and the Climate Change Mitigation and Energy Strategy alongside current Government commitments could result in annual transport-related CO₂ emissions of 6.4 million tonnes.¹⁹ Annual NO_x emissions are likely to reduce to around 10,000 tonnes in 2015 through the implementation of a range of measures, and PM₁₀ emissions in central London to around 105,000 tonnes.²⁰

Areas for exploration during the briefing

- 4.4 Members would benefit from a public briefing to further explore:
- Questions and issues around progress of delivering the EVDP
 - *What has driven changes to the delivery programme?*
 - *What are the barriers to progressing electric vehicle take up in London and how might these be mitigated?*
 - What are the environmental benefits to be gained from wide scale electric vehicle use?

¹³ [Published December 2009](#)

¹⁴ [An electric vehicle delivery plan for London, May 2009, page 3](#)

¹⁵ [An electric vehicle delivery plan for London, May 2009, page 11](#)

¹⁶ [Mayor's Question Time, 15 December 2010. See question 3989/2010](#)

¹⁷ For more information on delivery and Source London, see Mayoral press release <http://www.london.gov.uk/priorities/transport/green-transport/electric-vehicles>

¹⁸ [London Electric Vehicle Infrastructure Strategy, page 41](#)

¹⁹ Paragraph 589, Transport Strategy http://www.london.gov.uk/sites/default/files/MTS_Chapter_5_pt5.pdf

²⁰ Chapter 5, Mayor's Air Quality Strategy <http://www.london.gov.uk/sites/default/files/Air%20Quality%20Strategy%20v3.pdf>

- *What are the tensions in delivering environmental benefits for London through electric vehicle car use?*
- *What benefits can the delivery programme in its current form realistically seek to achieve?*
- (From an environmental perspective), the value for money of delivering an electric vehicle charging network for London
- *Do the environmental benefits to be gained warrant the Mayor's level of financial investments to date via TfL?*

Guests

- 4.5 It is suggested that the Committee receive a briefing and put questions to Kulveer Ranger, the Mayor's Director of Environment. It is likely that Mr Ranger will be supported by officers from TfL leading on delivery of the project.
- 4.6 To help provide a balanced discussion on the issue Members might want to consider also inviting the following guests:
- A car manufacture representative such as Nissan or BMW to provide an industry perspective;
 - An academic/environmental professional to provide more detailed information on the environmental impacts;
 - A representative from the Society of Motor Manufacturers and Traders to provide insight on technological developments and market barriers;
 - A motoring expert to help provide a consumer perspective.
- 4.7 A summary report will be published following the session.

5. Legal Implications

- 5.1 The Committee has the power to do what is recommended in this report.

6. Financial Implications

- 6.1 There are no direct financial implications arising from this report.

List of appendices to this report:

None.

Local Government (Access to Information) Act 1985	
List of Background Papers: None	
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