

# BRIEFING TO LONDON ASSEMBLY ENVIRONMENT COMMITTEE LONDON ULTRA LOW EMISSION ZONE (ULEZ)

11 July 2013

## 1 LONDON'S AIR QUALITY AND EMISSIONS

- 1.1 This year, the Mayor has published a progress report on his Air Quality Strategy (GLA, 2010). Significant improvements have been made over recent years and London is now broadly compliant with EU limit values for Particulate Matter (PM), however, ongoing reductions are needed (especially PM<sub>2.5</sub>) to further protect human health. Conversely, like most European cities, many UK cities and indeed even smaller UK towns, London does not currently meet limit values for NO<sub>2</sub>.
- 1.2 In February 2013, the Mayor announced additional investment for air quality improvements during his second term and up until 2020. This included the proposal for an Ultra Low Emission Zone (ULEZ) in central London. In support of this proposal, data available from the latest London Atmospheric Emissions Inventory (LAEI 2010) demonstrates that central London is forecast to have the highest NO<sub>2</sub> concentrations in the Capital (see Figure 1), combined with the highest overall human exposure.

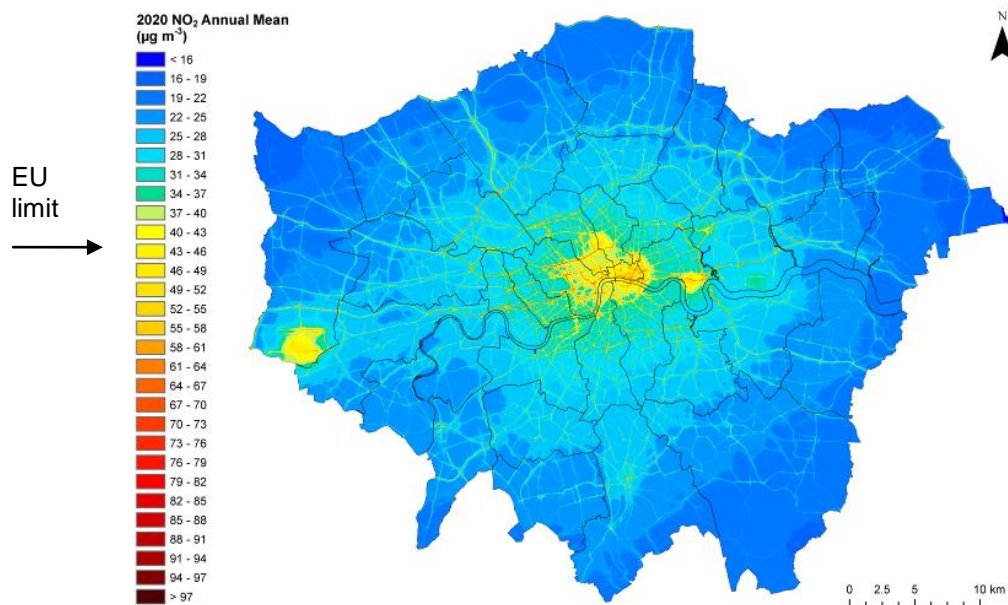


Figure 1: Annual mean NO<sub>2</sub> concentrations for Greater London in 2020  
(Source – London Atmospheric Emissions Inventory 2010)

- 1.3 The Mayor recognises that other parts of London continue to face their own air quality challenges and is developing an Air Quality and Emissions Action Plan considering all air quality emissions sources and geographic areas. An ULEZ feasibility study forms part of this work.

## **2 LONDON'S LOW EMISSION ZONE (LEZ)**

- 2.1 The Mayor's Air Quality Strategy (MAQS) proposed to include a Euro IV NO<sub>x</sub> requirement in 2015 for larger diesel engine vehicles entering the LEZ (aka LEZ Phase 5). However, the poor performance of Euro IV and Euro V vehicles, which produce more NO<sub>x</sub> emissions than anticipated (especially in urban driving environments) and the fact that the government did not introduce a verification scheme for engine compliance, coupled with the fact that the majority of savings from LEZ Phase 5 could be gained from TfL buses, led the Mayor to conclude that pursuing a TfL buses only option would be the most cost effective solution.
- 2.2 The new proposal will ensure that all TfL Buses meet at least a Euro IV requirement for NO<sub>x</sub> by December 2015. It is estimated to save 600 tonnes (instead of 790 tonnes originally envisaged for LEZ Phase 5), or 76% of the benefits, with no cost to vehicle operators and a maximum investment of £18m from TfL to accelerate the early uptake of Euro VI within the TfL buses fleet. Retrofitting the remaining 900 Euro III buses was not cost effective as they only have two years on average remaining in service. Nevertheless, more is needed to be done to tackle emissions in the medium to long-term.

## **3 PROPOSAL FOR AN ULTRA LOW EMISSION ZONE (ULEZ)**

- 3.1 On 13 February 2013, the Mayor announced his vision for an ULEZ in central London by 2020. The following objectives were developed:
- (a) Reduce air pollutant emissions from ground-based transport, particularly those with greatest health impacts, to support Mayoral strategies and contribute towards compliance with EU limit values
  - (b) Reduce CO<sub>2</sub> emissions from ground-based transport, to support Mayoral strategies and contribute to a London-wide reduction
- 3.2 Consistent with proposals in the MTS, the ULEZ is expected to reduce car use and promote sustainable travel / mode shift (e.g. cycling). It will increase the proportion of ultra low or zero emission vehicles in London and stimulate the uptake / development of low emission vehicles, benefiting the Capital in terms of jobs and growth from the emergence of a new low emission economic sector.

## **4 KEY QUESTIONS CONSIDERED**

### **What should be regarded as Ultra Low?**

- 4.1 All new vehicles registered from 2014/15/16 (depending on vehicle type) will meet the next Euro standard (Euro VI) and it is expected that more than 40 per cent of the vehicles operating in central London will meet this standard by 2020 (see **Appendix 1**). TfL will continue to work with its

European partners to evaluate the success of the new standard in reducing emissions, as and when vehicles become available.

- 4.2 Euro VI is considered to currently be *Ultra Low* for NO<sub>x</sub> emissions as it is likely to achieve a significant reduction in NO<sub>x</sub> from diesel engines compared to older vehicles. However the feasibility study will explore options beyond this too, including zero emission vehicles, that would maximise emissions benefits for PM<sub>10</sub>, NO<sub>x</sub> and CO<sub>2</sub>.
- 4.3 Over the past years, drivers have purchased diesel fuelled vehicles over petrol. This is owing to tax incentives as part of the Government's drive to reduce CO<sub>2</sub> emissions and fuel efficiency savings. Duty and new-car CO<sub>2</sub> targets for car manufacturers are in place to encourage lower CO<sub>2</sub> vehicles. This has led to new diesel car sales in the UK dramatically increasing, from an approximate 14% share in 2000 to 50% in 2012.
- 4.4 Whilst an increase in the proportion of diesel vehicles has helped reduce CO<sub>2</sub> emissions, it has led to more air pollutants emitted on London's roads. Diesel vehicles tend to have lower CO<sub>2</sub> emissions than petrol but have in situ produced significantly higher NO<sub>x</sub> emissions than anticipated. An ULEZ needs to address the 'dieselisation' of London's fleet as this has been a particular cause of air pollution in recent years.

#### **What area will the zone cover?**

- 4.5 Central London is projected to remain an air quality hotspot beyond 2020. It is not projected to achieve compliance with NO<sub>2</sub> EU limit values by 2020 (alongside aviation and construction hotspots elsewhere in the Capital). It is also home to the West End, an area with one of the highest entertainment, business and tourist concentrations in the country and approximately 200 million visitors annually. Consequently, public exposure to air pollutants is likely to remain at its highest in this area.
- 4.6 The Congestion Charging Zone (CCZ) has a natural boundary shaped by the inner ring road, which has become embedded in travel behaviour. It is proposed this area is used as a basis for the ULEZ option development. Its exact detail is reliant on further feasibility work and other small areas within this area will also be considered (e.g. West End).

#### **Who will be included in the zone?**

- 4.7 A starting position for this work is that the ULEZ will affect all vehicles entering central London. Further work will be undertaken to examine the economic and equalities impact on different users including residents and where necessary, critical exemptions will be identified.

#### **What time will the zone operate?**

- 4.8 Roads with high flows have consistently high NO<sub>2</sub> concentrations throughout an entire day, whilst urban background sites tend to start

exceeding limit values around 4am, with concentrations reducing around 7pm.

- 4.9 For the purposes of option development, the effect of ULEZ operating during CC charging hours, daytime and 24/7 will be modelled during the next stage of the feasibility study.

#### **What about compliance costs?**

- 4.10 As part of the assessment of options for the ULEZ, it will be necessary to consider potential compliance costs on individuals and businesses, particularly on more vulnerable users. The Mayor will need to balance these economic and social costs with any potential environmental benefits when designing the final scheme.

#### **What about other emission sources?**

- 4.11 The MAQS states that the Mayor will oppose additional runway capacity at Heathrow airport. To progress this policy, the Mayor has asked Transport for London (TfL) to design and develop an aviation capacity solution that best meets the needs of London and the UK.
- 4.12 The MAQS also acknowledges that further mitigation of air quality impacts of existing operations at London's airports needs to be undertaken. Through initiatives such as the Mayor's Air Quality Fund, TfL is working with the boroughs and other stakeholders to implement measures that reduce emissions in other hotspot areas.
- 4.13 The Mayor's River Action Plan includes work to reduce emissions to air from river boat operations and will be considered in parallel.
- 4.14 The ULEZ is designed to reduce ground-based transport emissions. The GLA is developing separate policies to reduce non-transport emissions, which account for a high percentage of background emissions. This includes new measures to address emissions at construction sites (e.g. a low emission zone for Non-Road Mobile Machinery), further retrofit of homes and buildings, new CHP/biomass emissions standards, and providing new guidance on the application of "air quality neutral" in the planning system. The GLA is also taking a lead in integrating air quality into the public health system.

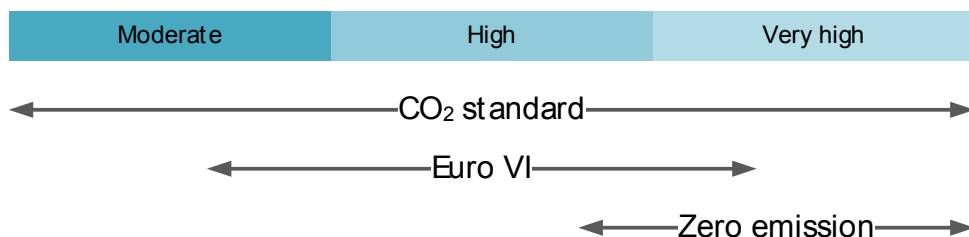
#### **What about the rest of London?**

- 4.15 As indicated in paragraph 1.3, the Mayor has asked TfL to develop an Air Quality & Emissions Action Plan, which will consider further London-wide and area-based measures to reduce emissions, exposure and raise awareness.

## 5 ULEZ OPTION DEVELOPMENT

- 5.1 At the Mayor's request, a wide ranging option development process to consider different ULEZ policy proposals has been undertaken. Options most effective in reducing emissions and considered reasonably acceptable and feasible were recommended for further study.
- 5.2 As part of this process, air quality sensitivity tests were undertaken to provide a benchmark assessment. These tests assumed wholesale changes to vehicle fleets, providing an indication of how an ULEZ might influence NO<sub>2</sub> and PM<sub>10</sub> concentrations within the CCZ under different scenarios. The initial output from this exercise for NO<sub>x</sub> emissions are illustrated in **Appendix 2** for these benchmark tests and the baseline assumptions.
- 5.3 Using these tests as a benchmark for emissions reduction, ULEZ option packages were created dependent on likely acceptability, technological and operational constraints. Figure 2 provides an indication of the level of ambition for each package.

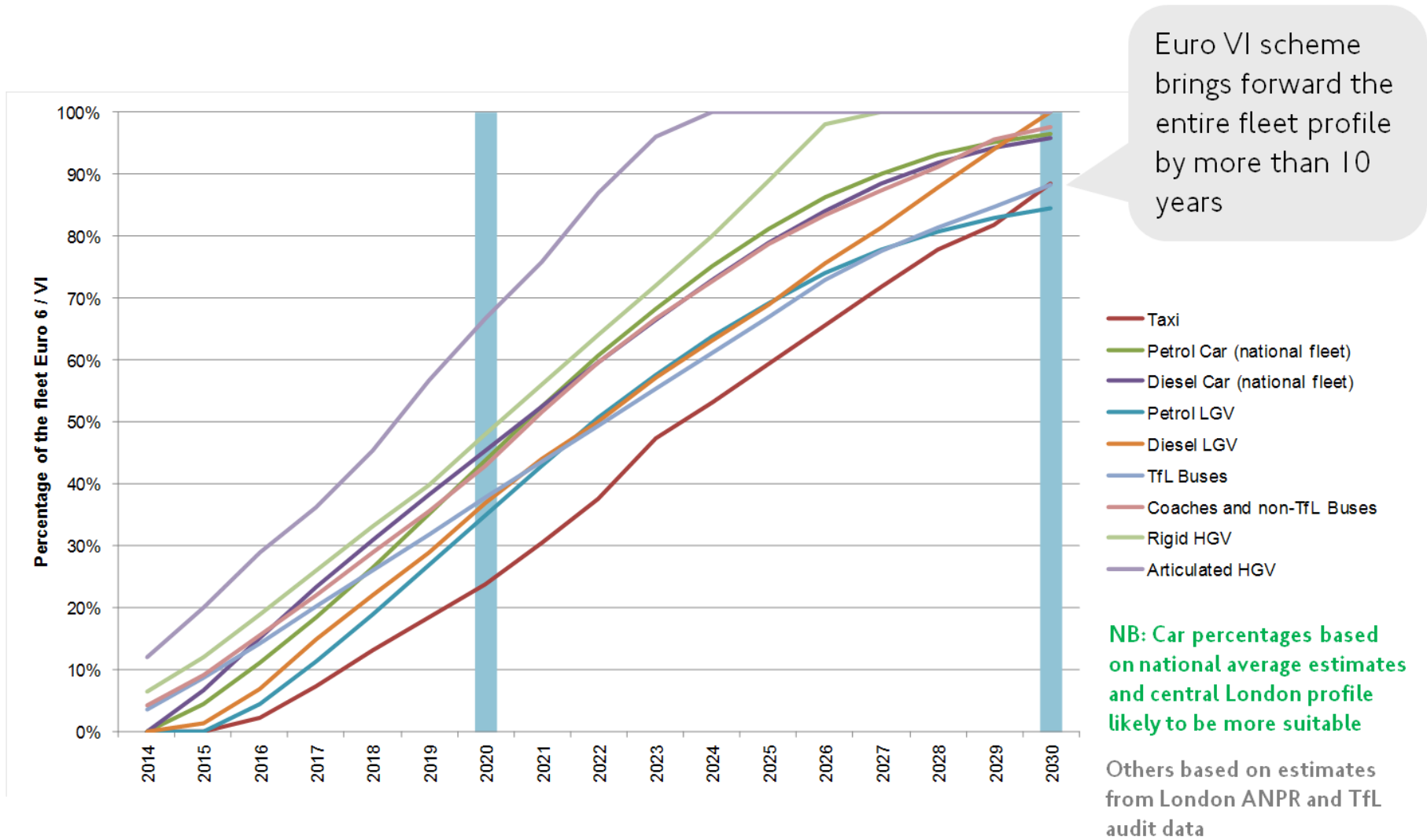
**Figure 2: Initial option packages for the ULEZ**



## 6 TIMESCALES AND NEXT STEPS

- 6.1 A successful ULEZ will deliver a step change in the level of emissions from ground-based transport. The next stage of our feasibility will include engagement with stakeholders. This engagement will outline the feasibility study objectives and programme and will take place from now until the end of the year. This will enable TfL to develop a better understanding of acceptability, feasibility and likely user behaviour. In parallel, additional work will assess the deliverability and operational cost of an ULEZ and its broader economic impact
- 6.2 A preferred ULEZ package will be recommended to the Mayor by the end of 2013, with likely supporting measures also considered at this time. Following discussion with the Mayor, TfL will report back to the London Assembly Environment Committee with its recommendation.

## APPENDIX 1: PROJECTED UPTAKE OF EURO VI VEHICLES



## APPENDIX 2: NO<sub>x</sub> SAVINGS (TONNES PER ANNUM) IN THE CCZ IN 2020, SET AGAINST BENCHMARKS AND TRAJECTORY

