

NOx Emission Assessment 2023

Introduction

23 December 2023

This paper provides the RHA NOx Emission Assessment for 2023. This assessment updates the estimates made by the RHA between 2018 and 2022.

These new estimates are based on DfT data for the lorry fleet up to the end of 2022, with RHA modelling applied for the use of the vehicles and the fleet composition from 2022 to 2026.

We have again used 2013 as the base year for comparison. There are 2 reasons for this. First, it is the base year used for assessing ULEZ by TfL and, secondly, it is the year prior to application of the Euro VI standard for the sale of new lorries.

Progress: Lorry NOx Emissions continue to fall

Haulage operators have made great progress in reducing NOx emissions. This has been achieved largely through the introduction of the very effective Euro VI standard for lorries since the beginning of 2014.

The data at figure 1 below shows the RHA estimate for change in NOx emissions from the end of 2013 to the end of 2026 of the British lorry fleet. **This estimate shows that by the end of 2022, NOx emission from lorries fell by around 70%.** Our estimate to the end of 2026 is that the NOx emissions from the British lorry fleet will have fallen by 80%. These estimates have been benchmarked against other sources of information it shows that the RHA estimates are conservative and if anything are likely to be an underestimate of the fall in emissions from lorries.

This progress has come at significant cost to the sector over the last 8 years. EURO VI lorries are more expensive than the simpler EURO V lorries provided before 2014. The RHA has estimated that the extra cost to the industry of the EURO VI upgrade over the last 10 years is in the region of £2.2 billion with an asset value loss in non-EURO VI vehicles being £1.2bn.

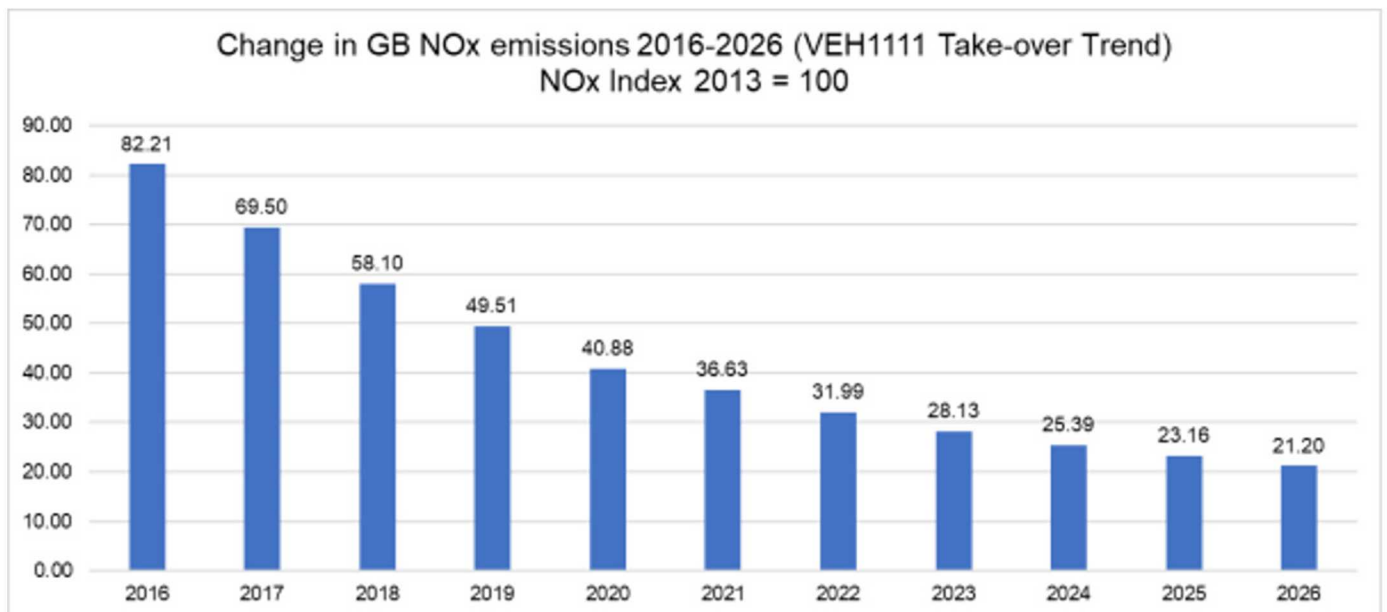


Figure 1: RHA 2023 estimates of NOx emissions from lorries in Great Britain. NOx Index 2013 = 100.

This assessment is based on lorry fleet numbers to the end of 2022 published by DfT in June 2023, with estimates of the fleet change by Euro class over time from 2022 to 2026 by the RHA.

¹ DfT data - VEH1111

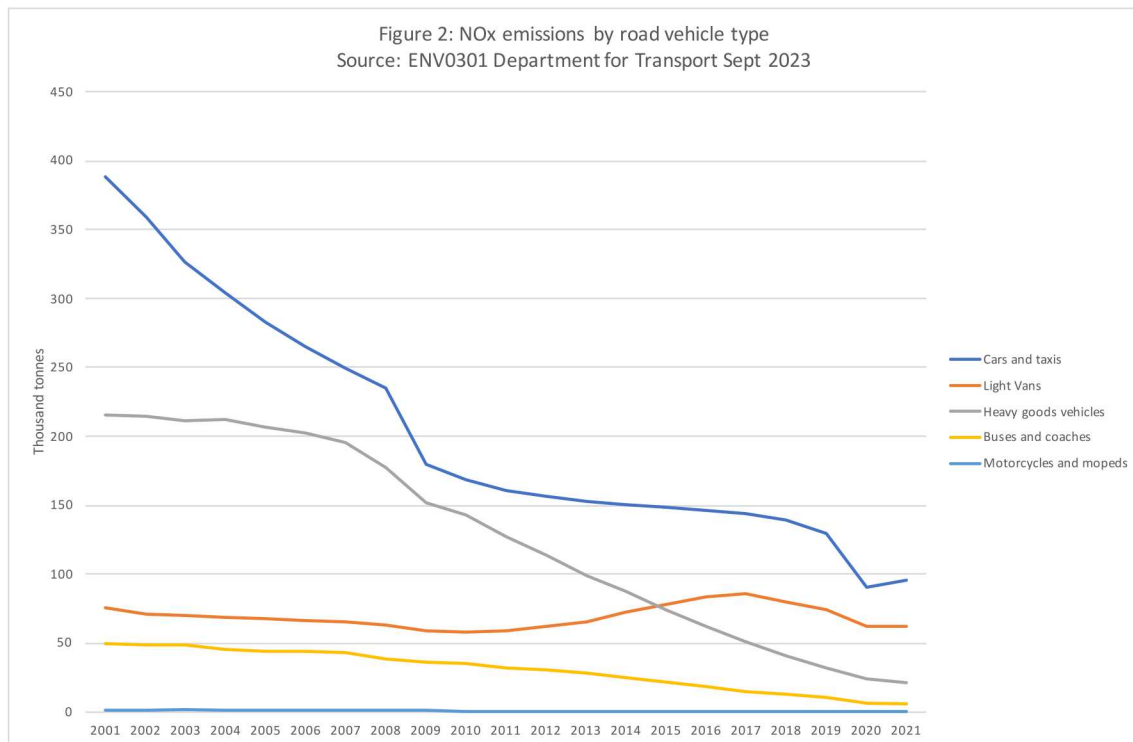
² Equivalent NAEI figures show a higher reduction from all heavy duty vehicles, in excess of 74% from 2013 to end of 2019.

Comment on Clean Air Zones

The DEFRA Clean Air Zone Framework (2017) requires local authorities to improve air quality in their areas. The RHA supports the UK government's aims to improve local air quality but disagrees with the approaches promoted so far by Joint Air Quality Unit of DEFRA and the Department for Transport. The CAZ approach has been to create a model that emphasises high charges for pre-Euro VI diesel vehicles and which discriminates by vehicle type through the creation of inappropriate CAZ classes (e.g. targets lorries and coaches rather than just the most polluting vehicles).

Focusing Clean Air Zones almost exclusively on commercial vehicles and failing to target the most polluting older diesel vehicles across all vehicle classes (Euro 3 and Euro 4) has been a mistake in our view.

In particular, the premise of deterring "undesired" vehicles through punitive charges to encourage a switch to "desired" vehicles does not work if the supply of "desired" vehicles is not available. In such circumstances, the State is encouraging excessive demand to chase limited supply. The impact is price inflation on the "desired" vehicles and the collapse of asset values on "undesired" vehicles. This is anti-SME and anti-competitive.



The subsequent reliance by politicians on public funds via highly wasteful, expensive and inefficient scrappage schemes is unnecessary when, if the policy conditions are set correctly, industry can instead phase in the "desired" vehicles through natural vehicle replacement cycles.

In our experience, CAZ has poor outcomes for those least able to afford expensive vehicle upgrades – all of which has been brought into sharp focus by the backlash in 2023 against the controversial expansion of London's Ultra Low Emission Zone and the opposition to the Manchester Clean Air Zone since January 2022.

Following the Uxbridge byelection result in July 2023, politicians across the political spectrum in England have recognised that the public must be brought along the journey to reduce emissions. We welcome this debate and have been assured by subsequent cross-party messaging that the journey to reduce emissions must be pragmatic and evidence-based. This aligns with our long-held positions and we are determined to continue leading this debate.

Worryingly however, the Welsh Government in 2023 took powers via the Senedd to impose Clean Air Zones anywhere on the Welsh trunk road network, with an assurance by the Welsh Government that there were "no current plans" to impose charges. We strongly urge Welsh policymakers to learn lessons from the London ULEZ backlash and opposition within Manchester.

If low emission zones must be used as an absolute last resort before all other policy measures are exhausted first, the size of the zone, the standard set and available supply of "desired" vehicles must be carefully considered. With such a framework in place, Clean Air Zone rules should then be amended so that:-

- no charges are levied on any lorry less than 12 years old, or any coach less than 16 years old;
- obligations are placed on authorities to reduce road traffic congestion in identified hot spots through targeted road traffic management initiatives;
- where charges are introduced, auto payment systems for operators are introduced alongside the auto-fine systems proposed.

Concluding Remarks

The RHA predictions are clear. By 2026 there will be at least an 80% decline in NOx emissions level from the GB lorry fleet compared to 2013 - without imposing any restrictive measures on any lorry movements. This reduction excludes any change due to alternative fuels or electrification – both of which may add to the reduction in NOx in coming years.

Using changes to mandated vehicle standards to improve emissions over time has been the right thing to do. However, the approach taken by the Joint Air Quality Unit to push change through their Clean Air Zone standards and timings has been expensive, inflexible and not as effective as it should have been.

We must ensure the same mistakes, where vehicle life cycles, users and SME's are ignored, are not made in future as we decarbonise the road transport fleet over the next 20 years or more.

Understanding emission sources, real world impacts and respecting vehicle life cycles is essential.

Just 19% of UK NOx emissions came from road transport in 2021. Within that 19%, heavy duty vehicles (lorries, buses and coaches) were responsible for a combined 14.8% (or 2.9% of national NOx emissions). Continued reductions will happen as a result of cleaner vehicles, which is the right approach to take.

It is vital that policy makers understand there are other factors that must be dealt with. Most pressing of these is how we manage our road networks to minimise congestion in those specific locations where there are hot spots of high pollution.

This requires a fundamental change of approach nationally and locally.

Annex - Information on vehicle fleets and emissions

Table A1 below shows Euro NOx emission standards for HGVs over time:

Table A1: NOx emissions - maximum permitted by Euro Standard

Euro Standards	Year	NOx Standard*
Euro VI	2014 on	0.4
Euro V	2009 to 2013	2.0
Euro VI	2006 to 2008	3.5
Euro III	2001 to 2005	5.0
Pre Euro III	1997 & older	7.5

(Rounded to a full year)

Table A2: Road Transport NOx emission sources 2023

