

NOx Emission Assessment 2022

Introduction

September 2022

This paper provides the RHA NOx Emission Assessment for 2022. This assessment updates the estimates made by the RHA between 2018 and 2020.

These new estimates are based on DfT data for the lorry fleet up to the end of 2021, with RHA modelling applied for the use of the vehicles and the fleet composition from 2022 to 2025.

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 2025 of the British lorry fleet. This estimate shows that by the end of 2021, NOx emission from lorries fell by over 72%. Our estimate to the end of 2025 is that the NOx emissions from the British lorry fleet will have fallen by 82%. 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 8 years is in the region of £2.2 billion.

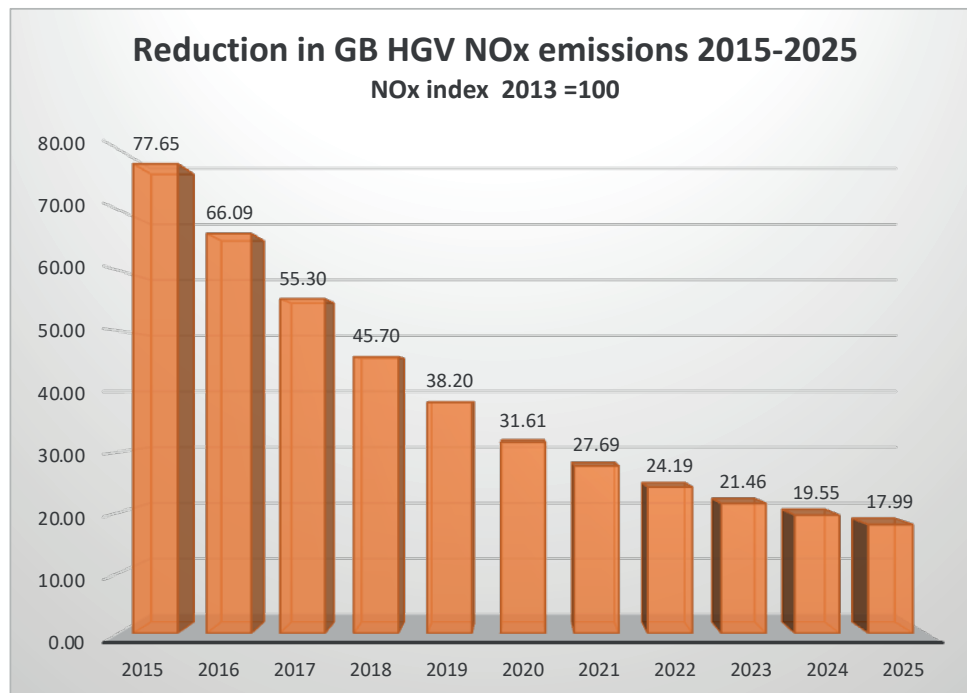


Figure 1: RHA 2022 estimates of NOx emissions from lorries in Great Britain. NOx Index 2013 = 100.

¹ DfT data - VEH0520

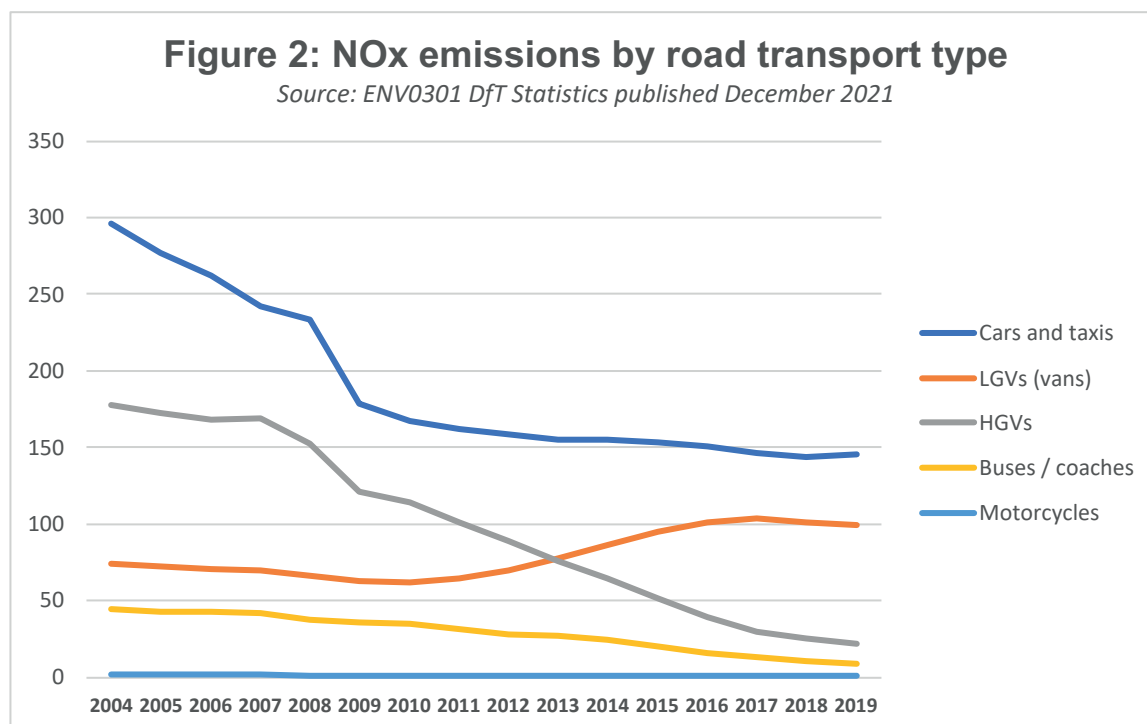
² NAEI figures shown in the annex at figure A3 show a higher reduction from all heavy duty vehicles, in excess of 74% from 2013 to end of 2019.

This assessment is based on lorry fleet numbers to the end of 2021 published by DfT in May 2022³, with estimates of the fleet change by Euro class over time from 2022 to 2025 by the RHA.

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 addition, 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.

Compounded by a failure to understand this effect on used vehicle values and vehicle life cycles, COVID and the residual impact of the pandemic has slowed the supply of new lorries. Replacement rates in 2020 and 2021 were down about 25% from normal. The lack of availability of new lorries to meet demand is an ongoing issue for the sector.

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 have been brought into sharp focus by the opposition to the Manchester Clean Air Zone since January 2022. It should be noted that the fall in the vehicle replacement rate for coaches has been even more dramatic. New coach supply more than halved in 2020 and 2021.

We believe a change of approach by JAQU is needed. If low emission zones are necessary, 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 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.

³ DfT table VEH0520 – <https://www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-tables>

Concluding Remarks

The RHA predictions are clear. By 2025 there will be at least an 82% 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 35% of UK NOx emissions came from transport in 2019. Within that 35% heavy duty vehicles (lorries, buses and coaches) were responsible for 7.3%. Continued reductions will happen as a result of cleaner vehicles, and that is right.

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.

RHA Policy

Appendix

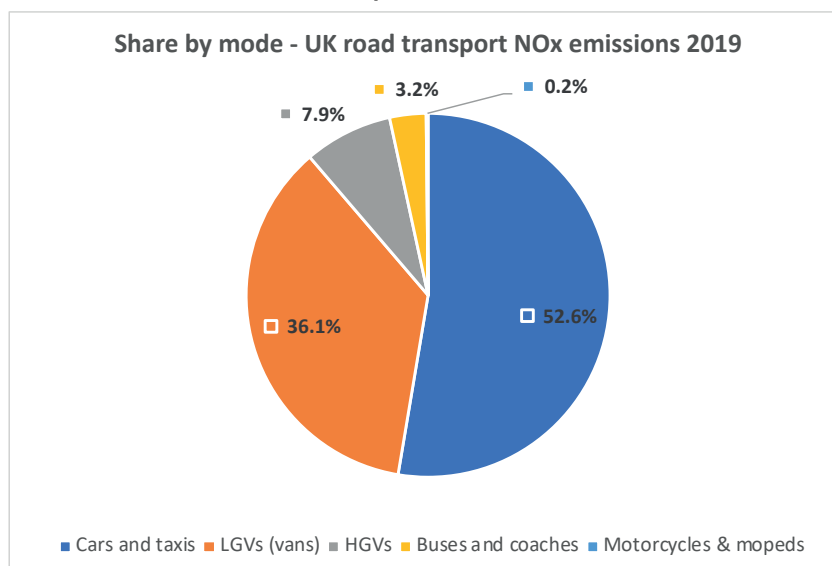
Table A1 below shows **Euro NOx emission standards for HGVs** over time:

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 IV	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 2019



DfT Statistics ENV 0301 – latest data as at 31 August 2022