

**PROPOSED LONDON LOW
EMISSION ZONE ECONOMIC
AND BUSINESS IMPACT
ASSESSMENT**

Non-Technical Summary

Report

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Transport for London

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1. NON TECHNICAL SUMMARY

What is the Low Emission Zone

- 1.1 The Mayor of London is proposing to designate Greater London as a Low Emission Zone (LEZ) to help move London closer to achieving national and EU air quality objectives and thereby improve the health and quality of life of those who live in, work in and visit London. The LEZ would seek to improve air quality in Greater London by discouraging the most individually polluting heavy goods vehicles (HGVs), buses and coaches from driving within Greater London. Vehicles that did not meet certain emissions standards would be required to pay a daily charge to drive within the zone.
- 1.2 The LEZ would encourage operators to upgrade or replace their vehicles to meet an emission standard of Euro III for particulate matter (PM) by 2008 followed by the tighter emission standard of Euro IV for PM in 2012. The heavier more-polluting light goods vehicles (LGVs) and minibuses would be required to meet an emission standard of Euro 3 for PM from late 2010.

Objectives of the study

- 1.3 The objectives of this study are to assess the scale and distribution of impacts that the proposed LEZ might have on businesses and households, from its inception in 2008 through to 2015/16.
- 1.4 The analysis has investigated how the scheme would affect economic activity and employment in London and beyond. These costs and benefits would not only be seen in the London economy, but also in the counties neighbouring London and in the rest of the country. These dispersion effects are assessed and the geography and scale of the effects are presented.
- 1.5 The monetised health benefits of the proposed LEZ are analysed in a separate Health Impact Assessment that TfL has also commissioned. These benefits are therefore outside the scope of this study.

Scale of effects

The costs of compliance

- 1.6 Without any change in fleet management practices, 61% of HGVs, 75% of LGVs, 51% of coaches and buses, and 55% of minibuses that currently travel in the LEZ would already be compliant with the LEZ's proposed minimum emissions standards by the time these standards would be introduced.

- 1.7 On the introduction of the scheme, owners and operators of non compliant vans (i.e. LGVs), trucks (i.e. HGVs), coaches and minibuses would be likely to consider a range and combination of options to ensure that their fleet of vehicles would comply with the scheme, including:
- Paying the charge or risking the charge
 - Replacing non-compliant vehicle with *new* compliant vehicle;
 - Replacing non-compliant vehicle with *used* compliant vehicle;
 - Fitting particulate trap abatement equipment to non-compliant vehicles;
 - Modifying operating procedures by only using compliant vehicles in London and using others elsewhere (re-deployment of fleet).
- 1.8 The approach taken by any individual vehicle operator to manage the costs of compliance would be dependent on many factors including the number of vehicles they have in their fleet, the proportion that are non-compliant, the availability of finances to invest in newer vehicles and the amount of business that occurs within London.
- 1.9 Our analysis has segmented the market into 18 operator types and has researched the way that businesses within each of these groups are likely to respond to the scheme. The average costs for affected operators to produce a compliant fleet (either through purchase of new vehicles or retrofitting) will, for each non-compliant vehicle, be anticipated to be:
- £1,100 to £4,200 for operators of HGVs
 - £1,600 to £1,900 for operators of diesel LGVs
 - £6,200 to £9,500 for operators of buses and coaches
 - £1,400 to £2,500 for operators of minibuses
- 1.10 On this basis, we estimate that, in present value terms measured over the ten years to 2016, the total costs associated with making the vehicle fleet compliant would be approximately £300m to £470m.

Who pays

- 1.11 The economic impact analysis also considers the proportion of the costs of compliance that will be absorbed directly by the owners of the vehicles, and the proportion that will be passed through to the wider economy through higher fares for passenger transport services, and through higher transport costs for freight (and thus higher product prices, employment costs and fees).

- 1.12 The analysis provides a range of costs to account for the uncertainty in the assumptions about predictions in the number of vehicles affected, the way owners of non-compliant vehicles would respond and how costs would be passed through the economy over time. The range is presented in terms of High Cost and Low Cost scenarios. The assumptions within the High Cost scenario are based on interpretations of the available data and confidence intervals that would lead to higher cost estimates. Similarly, the Low Cost scenario is based on interpretations of the same data that would lead to lower costs.
- 1.13 The table below shows estimates of the total costs for the vehicles that are expected to be made compliant with the scheme. The analysis shows that overall owners of the affected vehicles would be likely to absorb about £100m to £160m (33%) of the total costs of making vehicles compliant.

TABLE 1.1 COSTS ABSORBED BY VEHICLE OPERATORS AND PASSED THROUGH TO THEIR CUSTOMERS¹

Vehicle Type	Cost (£m)		Cost absorbed by vehicle operators £m (%)		
	Low Cost	High Cost	(%)	Low Cost	High Cost
HGV	200	320	24%	47	76
LGV	54	76	59%	32	44
Coach and Bus	45	63	50%	22	31
Minibus	7	17	29%	2.1	5
Total	300	470	33%	100	160

Source: SDG analysis based on TfL Operator Cost Model, 2006 TfL Operator Survey and DVLA data

The effects of additional costs on economic activity and employment

- 1.14 Some smaller vehicle operators may find it difficult to meet the costs needed to comply with the LEZ and may potentially choose to exit the London market or to reduce the scale or scope of their operations.
- 1.15 However, we can assume that virtually all the vehicles exiting the London market would be replaced by compliant vehicles owned by other transport providers.
- 1.16 The analysis within the report suggests that, in the long term, operators exiting the London market would not cause job losses. However, there might be a redistribution of work to businesses that are better placed to

¹ Rounded to two significant figures.

operate in London with compliant vehicles.

Costs absorbed by vehicle owners

- 1.17 The costs of compliance would mean that businesses owning affected vehicles would have less money to spend on other economic activity. Overall, owners of non-compliant vehicles that respond to the introduction of the scheme by making their vehicles compliant would have £100m to £160m² less funds (than they would have had without the scheme).
- 1.18 The macro economic analysis shows that the costs of compliance with the scheme would represent a *very small fraction* of the total value of economic activity within the key sectors owning these vehicles. Even in the transport and storage sector, where the fleet management costs are a significant component of all business costs, the additional costs of compliance with the LEZ would only represent an average increase of 0.7% of *total annual operating costs*. It is important to note that the costs of compliance are not evenly spread over the evaluation period. Rather, most of the costs would be incurred at the beginning of the scheme, and for some businesses this might mean a reduction in profits in the first year of the scheme.
- 1.19 Across all sectors owning affected vehicles the additional direct costs of complying with the scheme represent a very small fraction (0.001%) of total annual revenues.
- 1.20 We estimate that this cost increase might lead to a net reduction in FTE employment of approximately 240 to 430 FTE jobs over the evaluation period (2006/07- 2015/16), once redistribution of driving and hauling jobs from less efficient operators to more efficient ones is taken into account.

Costs passed onto customers

- 1.21 Overall about £200m to £310m of the costs of compliance would be passed onto the customers of the businesses owning affected vehicles.. Our research into different operator segments indicates that this is most likely to be the case for some of the coach markets (tourists and contract hires), as well as the majority of the freight market (goods carried by HGVs).

² As with all ranges quoted in this chapter, unless otherwise stated, it has been calculated using the low cost and high cost scenarios explained in Chapter 2.

- 1.22 This increase in costs, however, would be likely to spread out over a large area and spending base (beyond London and surrounding counties), and as such would constitute a very small impact on prices. The impact on household incomes and spending over the evaluation period (2006/07- 2015/16) would therefore be negligible.
- 1.23 Using regional multipliers as a means of estimating the knock-on (indirect) impacts throughout the economy suggests an overall reduction in economic activity in the range of £100m to £270m based on the comparison and base scenarios and a total reduction of about 140 to 420 FTE jobs over the ten year period 2006 - 2015.

Ancillary Sectors

- 1.24 The resources used to make vehicles compliant with the scheme would not be complete losses to the UK economy. Much of these costs would be spent in ancillary sectors, including
- Vehicle repair and maintenance (for retrofitting particulate traps and upgrading existing vehicles);
 - Vehicle leasing companies (for increased demand of compliant vehicles on lease);
 - Dealers of new vehicles (from increased demand); and
 - Dealers of used vehicles (from increased churn in the market due to speeded up replacement cycle).
- 1.25 The economic impact model indicates that the LEZ would lead to additional spending of up to £2.0bn on new vehicles, £680m on used vehicles and £280m on vehicle retrofitting, and installation of particulate traps. As a result of this increase in economic activity the value of these sectors would be expected to increase by 0.1%, with the potential to create in the region of 430 to 680 additional FTE jobs in the sector over 10 years, of which approaching 50% can be expected to be located in London over the ten year period 2006 - 2015.
- 1.26 However, the increase in demand in these sectors would be likely to be short-lived. For example, there would be a significant surge in demand for retrofitting vehicles initially ahead of the times when the LEZ standards come into effect, or are tightened, (in 2008, 2010 and 2012), but the demand would return to near pre-LEZ levels once all the operators that choose to comply have managed to do so.

Overall summary of impacts

1.27 The overall net estimated costs (measured in present value terms over 10 years) to the UK economy for the introduction of the scheme could be from a total £100m PV to £270m PV³ (compared to £80m to £110m direct impact), with a total net loss of between approximately 140 to 420 FTE jobs. These ranges reflect best case and worst case interpretations of the data available.

1.28 The best case (Low Cost scenario) assumes that:

- Numbers of vehicles operating within the LEZ based on the mid range of TfL estimates.
- Low compliance with scheme- only 86% operators with non-compliant vehicles choose compliance options that reduce emissions in London rather than pay (or evade) the charge.
- Operators passing costs onto customers will increase prices so as to cover the costs of compliance over the full ten year evaluation period of the scheme.
- All short term increases in employment in vehicles sales and maintenance sectors are sustained in the longer term.

1.29 The worst case (High Cost scenario) assumes that:

- Numbers of vehicles operating within the LEZ based on higher end of confidence limits of TfL estimates.
- Higher compliance with scheme: 95-100% operators with non-compliant vehicles choosing compliance options that reduce emissions in London rather than pay (or evade) the charge.
- Operators passing costs onto customers will increase prices so as to cover the costs of compliance over a shorter five year period.
- Only half expected short term increases in employment in vehicles sales and maintenance sectors are sustained in the longer term.

³ The value of money changes over time due to inflation. PV (Present Value) is a standard method of using a discount rate to present future costs, payments, or receipts at today's prices. In other words it can be used to compare different values from different dates in the future in a standard manner. The annual discount rate assumed for this report is 3.5%.

TABLE 1.2 SUMMARY OF PROJECTED ECONOMIC IMPACTS (DIRECT AND INDIRECT EFFECTS)⁴

		Scenario	
		Low Cost	High Cost
Direct LEZ impact (PV £m)	Cost	(300)	(470)
	Benefit	220	360
	Net Impact	(80)	(110)
Total UK GVA impacts (PV direct, indirect and induced impacts)	Cost	(380)	(720)
	Benefit	280	450
	Net Impact	(100)	(270)
Total Employment impact (FTE 2006 - 2015)	Cost	(570)	(1100)
	Benefit	430	680
	Net Impact	(140)	(420)

Source: SDG analysis

Redistribution of economic activity

1.30 The greatest impacts of the LEZ would be a redistribution of economic activity between sectors and from one type of transport operator to another. This might include:

- Moving freight haulage and passenger transport businesses towards greater consolidation, and dominance of large operators with newer vehicles;
- Movement away from own-account operations to contract hire and leased vehicles; and
- Movement away from spending on construction and transport services to increased spending on vehicle sales, repairs and maintenance

Effects on business sectors

1.31 The sectors of the economy that would be likely to be most affected financially by LEZ are Transport and Storage, Construction sectors, and commuter services to and from London.

1.32 Transport and Storage businesses (including most HGV freight companies and coach and bus operators) would be the most affected sector due to their extensive use of the vehicles that will be within the scope of the proposed LEZ. It is anticipated that the necessary costs of compliance (which would vary for different operators depending on their fleets) will be largely absorbed by these vehicle owners because of the

⁴ Rounded to two significant figures.

very competitive markets in which they operate. Our assessment is that some of these smaller businesses may not be able to find the financing to invest in the best value and most sustainable options for complying with the scheme. As a consequence it may be that these businesses would need to resort to a contraction of the size of their fleet to be able to pay for particulate traps to be fitted and maintained. Overall the expected loss of employment in the transport and storage sector would be around 240 to 430 FTE jobs (High Cost and Low Cost scenarios) over the evaluation period (2006/07- 2015/16).

1.33 The Construction sector is also likely to be affected by the scheme as a result of:

- The costs that HGV operators pass on to their customers in the Construction sector (52% of compliance costs according to our analysis); and
- The costs borne by LGV private owner-operators who are in the construction business (42%).

1.34 It is likely that small Construction businesses in the London area would be affected more than other sectors in the short run to deliver a compliant vehicle stock as costs associated with the LEZ compliance could potentially constitute a large proportion of these businesses' cash flows. As these businesses are small and participate in competitive markets, they could be less likely to be able to pass the costs of compliance onto their customers. As a result, in some circumstances, some of these small Construction businesses may be forced to exit the market as the LEZ costs erode their operating margins. In the long run, any businesses exiting the London market would be replaced by other businesses with compliant fleet. The overall long term increases in costs in the construction sector would be expected to lead to a small reduction in employment (approximately 110 to 190 FTE jobs) over the evaluation period (2006/07- 2015/16).

1.35 Operators of coach commuter services between London and surrounding counties would be expected to pass on around £1.4m to £2m PV of the LEZ related costs over the next 10 years (out of a total cost incurred by coach operators of between £45m and £63m PV). This increase in costs may total a loss of 0.003% in revenue per year amongst all affected operators⁵. We judge that at this magnitude there are unlikely to be any noticeable employment impacts.

⁵ This is calculated according to demand elasticities published in the *The Demand for Public Transport: A Practical Guide*, TRL, 2004.

Distribution of effects by geography

- 1.36 About 33% of the costs of the scheme are likely to be absorbed by owners of non-compliant vehicles. The locations of these affected vehicles can be identified using registrations data available from the DVLA.
- 1.37 However, the majority of the costs of the scheme (67% versus the 33% which is absorbed by vehicle owners) would be passed on by the owners of non-compliant vehicles to their customers, and many of these customers would, in turn, pass the costs onto others. These indirect impacts cannot be mapped, and all that can be inferred is that potentially a large proportion of these wider impacts would be carried by consumers outside of London.
- 1.38 The majority of affected vehicles that regularly use London's roads are based outside of London. Only about 40% of vans and about 30% of coaches using London's roads are owned and kept by individuals or businesses within the capital.

Conclusions

- 1.39 On the basis of our research, we would estimate that the costs of compliance associated with asset replacement and vehicle upgrade/retro fitting consequent on the introduction of the LEZ would result in net economic costs of £120m to £270m (PV to 2015/6) and lead to a net loss of between 140 and 420 jobs over the period to 2015/16. This cost would be carried not solely by London – but more widely across the UK economy
- 1.40 Some two thirds of these costs would be passed directly to customers. Given the overall geographical area impacted and the size of the economy affected, these increased costs will be almost negligible.
- 1.41 The final one third of the compliance costs would be absorbed by the vehicle owners/ operators. In aggregate net terms the impact would be very small: the estimated range of increased costs (£100 to £160 m PV to 2015/6) represents around only one tenth of one per cent (0.1%) of the total operating costs of the industry. On this basis, we have estimated that in the transport sector itself this could lead to the loss of 240-430 FTE jobs over the period to 2015/6.
- 1.42 However, the analysis does suggest that the introduction of the LEZ might have some re-distributional impact of FTE. The low net figure for jobs loss would include numbers of jobs lost in some firms compensated for by job gains in others.

- 1.43 In recognising these economic impacts, TfL should consider the need to find out more information about the sectors (especially smaller business and the voluntary and community sectors) that would be most affected by the proposed LEZ prior to a decision being taken on Scheme Order confirmation. The public and stakeholder consultation on the Scheme Order provides an opportunity to engage with these sectors.
- 1.44 TfL should ensure that information is made widely available on the requirements and implications of the policy, and more detailed advice is provided in a format that is readily understandable by people in small businesses, the public sector and the voluntary sector in making decisions about the best way to manage their fleet.