

**EXPLANATORY MEMORANDUM TO
THE ROAD VEHICLES (REGISTRATION AND LICENSING)
(AMENDMENT) (No. 3) REGULATIONS 2007**

2007 No. 2553

- 1.1 This explanatory memorandum has been prepared by the Department for Transport and is laid before Parliament by Command of Her Majesty.
2. Description
 - 2.1 These Regulations prescribe the emissions requirements to be met by relevant vehicles if they are to be eligible for a Reduced Pollution Certificate (RPC). Those emissions requirements equate to what is known as the "Euro V" emissions standard for type approval. Vehicles which hold a valid RPC are entitled to a reduced rate of vehicle excise duty (VED). The VED rate is reduced because compliance with the relevant emission standard is voluntary and in advance of being required to do so for type approval purposes. The relevant vehicles are goods vehicles, buses, haulage vehicles and vehicles used for carrying loads of exceptional size or weight.
3. Matters of special interest to the Joint Committee on Statutory Instruments
 - 3.1 None
4. Legislative Background
 - 4.1 Section 61B of the Vehicle Excise and Registration Act 1994 provides for regulations to be made in relation to RPCs and in particular that the emissions standards (i.e. the reduced pollution requirements) to be met in order to obtain one may differ according to when a vehicle is registered.
 - 4.2 These Regulations amend Schedule 2 to the Road Vehicles (Registration and Licensing) Regulations 2002 which concerns reduced pollution requirements and certificates. For vehicles meeting those reduced pollution requirements which equate to the Euro V standard, an RPC may only be issued and remain in force in order to obtain a reduced rate of VED if the vehicle meeting or exceeding that standard is registered before 1st October 2009.
 - 4.3 These 'Euro V' reduced pollution requirements are prescribed in the Regulations by reference to emissions standards set out in Directive 2005/55/EC as amended. This is a type approval Directive in relation to vehicles with heavy duty diesel or gas engines, the implementation of which is the subject of other legislation. These Euro V emissions standards will not be obligatory for type approval purposes for such vehicles for sale until 1st October 2009.
 - 4.4 Under European law relevant vehicles that do not meet the Euro V standard cannot be registered on or after 1st October 2009.
5. Extent

5.1 This instrument applies to all of the United Kingdom.

6. European Convention on Human Rights

6.1 As the instrument is subject to the negative resolution procedure and does not amend primary legislation, no statement is required.

7. Policy background

7.1 The RPC scheme began in 1999 and has been available to relevant vehicles that, through adaptation, meet specified (particulate) emission standards higher than those legally required of a vehicle marketed at the time. The underlying purpose of the scheme was to reduce emissions from such vehicles. Having obtained an RPC the keeper of the vehicle would be liable to a lower rate of VED than would otherwise have been the case. The particulate based scheme was closed in 2006 to vehicles registered after 30 September 2006.

7.2 The purpose of this instrument is to provide an incentive (by means of a reduced rate of VED) for relevant vehicles registered before 1st October 2009 to comply with the 'Euro V' reduced pollution requirements in advance of being required to do so for the sale or registration of vehicles after 30th September 2009.

7.3 The Government committed in its Budget statement for 2007 to introduce early incentivisation of Euro V vehicles through the RPC scheme from October 2007.

7.4 Whereas previously the RPC scheme focused on particulate emissions and on retrofitting emission reduction technology, relevant vehicles under the Euro V RPC scheme will be required to meet the full range of Euro V emission limit values as manufactured or retrofitted. While other pollutants will also be reduced, the main effect of the measure will be to reduce emissions of oxides of nitrogen (NO_x).

7.5 The issues relating to a Euro V RPC scheme have been discussed in a number of fora with individual manufacturers and with representative bodies of both manufacturers and hauliers. There has thus not been any further formal consultation on the changes to the Regulations.

8. Impact

8.1 A Regulatory Impact Assessment has been prepared in relation to the opening of the RPC scheme to Euro V vehicles.

9. Contact

Mark Schuck at the Department for Transport can answer any queries regarding the instrument. Tel: 020 7944 2509 or e-mail: mark.schuck@dft.gsi.gov.uk

Department for Transport	Impact Assessment for the Road Vehicles (Registration and Licensing) (Amendment) (No. 3) Regulations 2007
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Stage	Version # dd/mm/yy	Related Publications
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Available to view or download at: www.//////////

Contact name for enquiries: Mark Schuck

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What is the problem under consideration? Why is government intervention necessary?

The regulation represents an opportunity to extend an existing HGV emission reduction scheme the potential of which is now spent, to further target the control of such emissions.

What are the policy objectives and the intended effects?

The regulations will have the effect of incentivising the early introduction of "Euro V" lorries/buses, that is, their use ahead of the date on which they become mandatory for sale in October 2009. Such vehicles produce lower emissions than the Euro IV vehicles which are currently the minimum standard permitted for sale. Specifically, and as compared with previous Euro standards, the Euro V standard includes a challenging reduction in permissible emissions of NO_x (oxides of nitrogen).

What policy options have been considered? Please justify any preferred option.

There were broadly two options i.e.

- extend the scheme as proposed or
- do nothing

To have done nothing would have been to pass up one of the few existing levers available to Government to act on reduction of NO_x in the transport sector.

The regulations grasp that opportunity at relatively low cost to both public and private sectors. Moreover they are based on the administrative framework of an existing scheme with which potential users are already familiar. To that extent they therefore facilitate a smooth transition

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects? 11/2009

Ministerial Sign-off:

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs.

Signed by the responsible Minister:
Rosie Winterton

Date: 1st September 2007

SUMMARY: ANALYSIS & EVIDENCE

Policy Option	Description	
<p>ANNUAL COSTS</p> <p>One off (Transition) £32m Yrs 1</p> <p>Average Annual Cost (excluding one-off)</p> <p style="text-align: center;">£3.5m (+ £6m)</p>	<p>Description and scale of key monetised costs by 'main affected groups' Owners/operators of relevant vehicles: price premium of EURO IV over EURO V assumed to be £1,500 per vehicle (for an artic or a rigid), test fee to obtain RPC, additional fuel costs (due to technology fitted reducing fuel efficiency), additional urea costs, welfare loss due to reduced mileage (following increased fuel cost). Costs have been calculated for rigids and artics separately, with totals estimated based on uptake assumptions as set out in the IGCB report published alongside the Air Quality Strategy (July 2007). See 'Key Assumptions' box below. The additional amount shown in brackets represents the cost to the Exchequer of providing the VED discount. This estimate is highly uncertain and based on assumptions on uptake and 'average' VED discount.</p>	<p style="border: 1px solid black; padding: 5px; background-color: #e0ffe0;">£53m (+ £42m)</p>

Other key non-monetised costs by 'main affected groups'		
<p>ANNUAL BENEFITS</p> <p>One off £0 Yrs 1</p> <p>Average Annual Benefit (excluding one-off)</p> <p style="text-align: center;">£2m - £3m (+ £6m)</p>	<p>Description and scale of key monetised benefits by 'main affected groups'</p> <p>Social benefits: NO_x savings (less monetised estimate of increased carbon emissions due to small change in fuel efficiency). The upper and lower ends of the range presented correspond to high or low NO_x damage cost estimates, published by Defra in the Air Quality Strategy (July 2007). The additional amount shown in brackets represents the benefit to vehicle operators of receiving the VED discount. This estimate is highly uncertain and based on assumptions on uptake and 'average' VED discount.</p>	<p style="border: 1px solid black; padding: 5px; background-color: #e0ffe0;">£15m - £22m (+ £42m)</p>

<p>Other key non-monetised benefits by 'main affected groups'</p> <p>Some potentially significant benefits are not captured by the quantitative analysis. In particular, analysis carried out for the Air Quality Strategy suggests the early uptake of Euro Standards can lead to a reduction in the number of exceedences of air quality objectives and a have a positive impact on ecosystems, through reduced nutrient nitrogen deposition and acidity levels.</p> <p>There may be some additional non-monetised impacts of incentivising the shift to Euro V engines. For the smaller HGVs, the reduced mileage brought about by the fall in fuel economy may result in less severe congestion, lower risk of accidents, less wear to the road network and lower levels of traffic noise. However, these impacts are likely to be small.</p> <p>Manufacturers and suppliers of exhaust after-treatment systems and manufacturers of chemical reagent for after-treatment systems: likely increase in market for pollution abatement technologies and chemical reagents</p> <p>Social benefits: environmental benefits likely to be relatively higher in more deprived areas</p>

<p>Key Assumption/Sensitivities/Risks</p> <p>The assumptions used in the main scenario are that Euro V HGVs cost £1,500 more than a Euro IV vehicle, Euro V engines incur a 1% fuel penalty and Euro V SCR (Selective Catalytic Reduction) engines use urea at 5% of the volume of their fuel consumption compared with 4% used by Euro IV. Sensitivity analysis has been conducted to test these assumptions and although the cost and benefit estimates vary with changes to the assumptions, they do not change sufficiently to affect the overall conclusion that based on monetised impacts NO_x abatement is cost-beneficial when incentivising artic HGVs but not rigid HGVs. It has not been possible to predict what levels of uptake of cleaner vehicles would result from the incentives outlined here. Assumed levels of uptake are as set out in the analysis underpinning the Air Quality Strategy (published July 2007).</p>
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Price Base Year 2006	Time Period Years 8	Net Benefit Range (NPV) -£31m to -£38m	NET BENEFIT (NPV) Best estimate) -£34m
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What is the geographic coverage of the policy/option?	UK Wide			
On what date will the policy be implemented?	1 October 2007			
Which organisation(s) will enforce the policy?	VOSA and DVLA			
What is the total annual cost of enforcement for these organisations?	£-£			
Does enforcement comply with Hampton principles?	Yes/No			
Will implementation go beyond minimum EU requirements?	N/A			
What is the value of the proposed offsetting measure per year?	N/A			
What is the value of changes in greenhouse gas emissions? (Reported figures are the combined impact of an expected reduction in NOx, an indirect GHG, and a slight increase in CO ₂)	£2.7m			
Will the proposal have a significant impact on competition?	Yes/No			
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Med	Large
Policy is a voluntary measure, costs shown are per vehicle estimates	£106-£346	£106-£346	£106-£346	£106-£346
Are any of these organisations exempt?	N/A	N/A	N/A	N/A
Impact on Admin Burdens Baseline (2005 Prices)				
Increase of	£ 353k	Decrease of	£ 0	Net Impact (Increase - Decrease) £ 353k
Key:		Annual Cost: Constant Prices	(Net) Present Value	

Evidence Base for Summary Sheets

[Use this space (with a recommended maximum of 30 pages) to set out the evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Ensure that the information is organised in such a way as to explain clearly the summary information on p.1 and p.2 of this form.]

Evidence for Regulatory Impact Assessment The Road Vehicles (Registration and Licensing) (Amendment) (No. 3) Regulations 2007

1. Title of proposal

The Road Vehicles (Registration and Licensing) (Amendment) (No. 3) Regulations 2007 (“the Regulations”).

2. Purpose and intended effect

The purpose of the Regulations is to prescribe the emissions requirements (the Euro V European Type Approval emission limits) to be met by goods vehicles, buses, haulage vehicles and vehicles used for carrying loads of exceptional size or weight ('relevant vehicles') necessary if they are to be eligible for a Reduced Pollution Certificate (RPC). Vehicles which hold a valid RPC are entitled to a reduced rate of vehicle excise duty (VED).

The intended effect of the Regulations is to open the RPC scheme to relevant vehicles meeting the Euro V standard (and therefore provide an incentive by means of a reduced rate of VED) that are registered before 1st October 2009 when the standard becomes mandatory.

The regulatory impact of opening the RPC scheme to Euro V vehicles is assessed in this Regulatory Impact Assessment.

- **Background**

The RPC scheme began in 1999 and has been available to relevant vehicles that, through adaptation, meet specified particulate emission standards higher than those legally required of a vehicle marketed at the time. The underlying purpose of the scheme was to reduce emissions from such vehicles. Having obtained an RPC the keeper of the vehicle would be liable to a lower rate of VED than would otherwise have been the case.

Last year The RPC scheme was closed to Euro IV vehicles registered on or after 1 October 2006 on which date the Euro IV standard became mandatory for all HGVs etc offered for sale. On and from 1st October 2009 European law requires relevant vehicles to meet the Euro V standard.

The Government committed in its Budget statement for 2006 to consider the case for early incentivisation of Euro V vehicles. This has been duly considered and a decision taken to provide tax incentives for the early introduction of vehicles that meet the Euro V emission standard through the RPC scheme.

Whereas previously the RPC scheme focused on particulate emissions and on retrofitting emission reduction technology, relevant vehicles under the Euro V RPC scheme will be required to meet the full range of Euro V emission limit values as manufactured. The main and targeted effect of the measure will be to reduce emissions of oxides of nitrogen (NO_x). Other pollutants will be reduced, however there is no difference between the Euro IV and Euro V particulate emission limits.

- **Rationale for government intervention**

The intention is to provide an incentive for the early uptake by hauliers and others - and early supply by manufacturers - of new Euro V vehicles. Euro V vehicles provide benefits over and above those of preceding Euro standards especially in terms of lower NO_x emissions. The reduction in overall UK NO_x emissions is a major target in the UK's Air Quality Strategy. The bulk of NO_x emissions are produced by the transport sector and Government intervention is therefore intended to help reduce NO_x emissions from road transport, in the case from heavy duty vehicles. Apart from Euro standards there are few other policy tools available to Government to deal with such emissions. A Euro V RPC in incentivising the Euro V standard ahead of its mandatory date usefully enhances the effect of higher Euro standards in the short to medium term.

The results of an economic assessment of using RPCs to incentivise the early uptake of Euro V vehicles suggest that the measure will contribute to meeting national air quality objectives by reducing the extent of roadside exceedences and towards reducing the negative impacts of air pollution on our ecosystems. The NPV estimate (a weighted average of the results derived for artic and rigid HGVs) of the monetised impacts is negative suggesting that, on average, incentivising NO_x abatement through this policy is not cost-beneficial. However, the non-monetised impacts which are not captured by this calculation should also be taken into account. These are described in detail in Section 5.

3. Consultation

- **Within government**

Interested Departments and Agencies including Defra, HM Treasury, DVLA and VOSA have been kept informed and have contributed to work in developing the regulations.

- **Public consultation**

This matter has been discussed in a number of fora with individual manufacturers and with representative bodies of both manufacturers and hauliers. There is broad support for the policy of introducing RPCs for Euro V vehicles.

4. Options

Option 1 - Do nothing: Do not introduce an RPC for relevant Euro V vehicles

Doing nothing is likely to result in limited early take-up of Euro V vehicles and would mean that the emission savings envisaged in option 2 below would not accrue.

Option 2 - Introduce an RPC to encourage the early uptake of relevant Euro V vehicles

The aim of providing an incentive for the early uptake of Euro V vehicles would be to encourage the purchase (and manufacture) of Euro V vehicles where a buyer might otherwise opt for a Euro IV vehicle. This would bring forward the health and other benefits associated with reduced NOx emissions.

5. Costs and benefits

• Sectors and groups affected

The proposed Euro V RPC scheme will affect vehicle and engine manufacturers and suppliers, manufacturers and suppliers of exhaust after treatment systems, manufacturers of chemical reagent for after-treatment systems, and owners/operators of relevant vehicles.

There is one truck manufacturer producing significant volumes of trucks in the UK, one engine manufacturer producing significant volumes of heavy duty engines in the UK and four UK manufacturers of buses. The UK has one major manufacturer of exhaust after treatment systems. A wide range of manufacturers import goods vehicles and buses to the UK, some of which are currently producing Euro V compliant vehicles.

The main assumptions used in the analysis presented below are:

- A Euro V HGV is expected to cost approximately £1,500 more than a Euro IV
- Euro V engines incur a 1% fuel penalty.
- Euro V SCR engines use urea at approx. 5% of the volume of their fuel consumption, compared with approx 4% used by Euro IV.

• Benefits

Option 1: Do nothing

There would be no economic, environmental or social benefits in not introducing an RPC for relevant Euro V vehicles.

Option 2: Introduce an RPC for relevant Euro V vehicles

Economic

Vehicle operators holding an RPC will receive a VED discount. This is a distributional impact rather than a benefit per se. Making assumptions on uptake of

the VED discount and calculating an 'average' discount (based on the profile of good vehicles registered for the first time in 2006) an estimate of £42m has been calculated as the total present value (using a discount rate of 3.5%) of the vehicle lifetime VED discount. This estimate is highly uncertain.

There may be some non-monetised impacts of incentivising the shift to Euro V engines. For the smaller HGVs, the reduced mileage brought about by the fall in fuel economy may result in less severe congestion, lower risk of accidents, less wear to the road network and lower levels of traffic noise. However, these impacts are likely to be small.

There may also be an economic benefit to UK manufacturers of pollution abatement technologies and chemical reagents in increasing the market for their products.

Environmental

The economic costs of air quality exceedences are potentially high and it is therefore important to consider this impact alongside the main quantified results for the measure when assessing its overall merits. Not meeting air quality objectives can result in large economic costs (e.g., air quality exceedences can prevent the building of new transport infrastructure), in addition to the risk of infraction proceedings against the UK.

While it is not possible to determine the precise impact on exceedences of just the early uptake of Euro V HGVs (to indicate the potential effectiveness of RPC in reducing exceedences), analysis carried out for the UK's new Air Quality Strategy Review (AQS) can give an indication of the likely scale of the impact.

The AQS looked at a policy scenario incentivising the early uptake of Euro V and Euro VI vehicles. Results estimated that exceedences of the NO₂ air quality objective at urban roadside were reduced by 47% (in 2020, compared to the baseline) due to the early incentivisation of Euro standards, compared to a 43% reduction in the absence of the early uptake.

The excess deposition of pollutants can also have an adverse impact on ecosystems. The reduction in NO_x emissions and concentrations from policy interventions (such as the RPC, which generates NO_x emission reductions) can lead to a reduction in the area of ecosystems exceeding the critical load (excess level) of nutrient nitrogen deposition and acidity levels.

While it is not possible to determine the precise impact on exceedences of just the early uptake of Euro V HGVs (to indicate the potential effectiveness of RPC in reducing exceedences), analysis carried out for the AQS can give an indication of the likely scale of the impact.

The AQS looked at a policy scenario incentivising the early uptake of Euro V and Euro VI vehicles. Results estimated that such a measure would lead to a 4.3% reduction in the accumulated ecosystem area exceeding the critical load for acidity (compared to the baseline) and a 4.0% reduction for accumulated area exceeding

nutrient nitrogen critical loads. (This compares to respective 4.1% and 3.8% reductions in the absence of the early uptake).

Although Option 2 is expected to lead to air quality improvements in the UK, the magnitude of the benefits is difficult to predict with certainty since it will depend on the level of take-up of the incentive. The analysis published alongside the Air Quality Strategy estimated uptake rates based on what is thought to be technologically feasible and realistic given past experience and these have been used, together with expected new HGV registrations (based on past experience) and the current split of the fleet between rigid and artic HGVs to arrive at total estimates. However, these totals are highly uncertain and therefore 'per vehicle' estimates have also been presented.

Table 1 below shows the estimated air quality impacts of a Euro V HGV, a combination of:

- Reduced NO_x emissions
- Increased carbon emissions as a result of the 1% fuel penalty

Table 1

Lifetime benefits of a Euro V HGV(NPV)		
	Artic	Rigid
Carbon	-£187	-£57
NO _x (low estimate)	£1,948	£376
NO _x (high estimate)	£2,841	£548

The sum lifetime NPV of all these impacts ranges from £1,761 to £2,654 (artic) and £319 to £491 (rigid). The upper and lower ends of these savings correspond to high or low NO_x damage cost estimates¹. The calculated total (based on the assumptions set out above) is estimated to be £15m-£22m (present value).

The range of values used to estimate NO_x savings reflects in part the uncertainty regarding the length of time (lag) between exposure to emissions and the resulting health impacts. Recent advice from the Committee on the Medical Effects of Air Pollutants (COMEAP)² indicates that assuming a short lag between exposure and impact is the most appropriate assumption when calculating damage costs and this is represented by the high NO_x damage cost estimate.

Social

There is evidence from UK studies³ that shows that air pollution is higher among some communities who rate poorly on social deprivation indices. To the extent that providing an incentive for the early uptake of Euro V vehicles will result in general

¹ <http://www.defra.gov.uk/environment/airquality/publications/stratreview-analysis/index.htm> (July 2007)

² <http://www.advisorybodies.doh.gov.uk/comeap/statementsreports/airpol7.htm>

³ King, K. and Stedman, J. (2000) 'Analysis of Air Pollution and Social Deprivation' report for the Department for the Environment, Transport and the Regions, The Scottish Executive, The Welsh Assembly and the Department for the Environment for Northern Ireland:
Pye, S. (2001) 'Further analysis of NO₂ and PM₁₀ Air Pollution and Social Deprivation'. AEAT.

benefits of reducing roadside NO_x concentrations, the measure may result in relatively high benefit to more deprived areas.

- **Costs**

Option 1: do nothing

There would be no economic, social or administrative costs in not introducing an RPC for relevant Euro V vehicles, although the environmental benefits described above was not be realised.

Option 2: RPC for relevant Euro V vehicles

Economic

Granting an RPC implies a cost to Government in terms of lower VED revenue - the VED discount offered by the RPC ranges from £5 for vehicles in lorry band A to £500 in lorry band G.

Table 2

Lorry VED Band	Annual VED Discount (£)	Present value of lifetime VED discount per vehicle
A	5	36
B	40	285
C	240	1707
D	370	2632
E	500	3557
F	500	3557
G	500	3557

Making assumptions on uptake of the VED discount and calculating an ‘average’ discount (based on the profile of good vehicles registered for the first time in 2006) an estimate of £42m has been calculated as the total present value (using a discount rate of 3.5%) of the vehicle lifetime VED discount. This is a distributional impact rather than a cost per se and the estimate presented is highly uncertain.

Reaching the Euro V standard implies an increase in vehicle costs due to the adoption of additional and more advanced technology. However, since the purchase of a vehicle that meets Euro V standards is voluntary (until 1st October 2009), the Regulations discussed here will not impose any additional mandatory costs on vehicle purchasers.

Estimates of the additional costs to vehicle operators of Euro V are presented below.

Table 3

Additional Costs of Euro V (NPV)		
	Artic	Rigid

Fixed Costs ⁴	£1,523	£1,523
Lifetime running costs ⁵		
<i>Fuel</i>	£688	£211
<i>Urea</i>	£1,375	£422
Welfare loss	£3	£0.8
Total cost	£3,588	£2,157

The difference in annual running costs of rigid and artic HGVs arises because of the difference in their average mileages. A typical rigid HGV drives around 59% fewer miles a year than an artic HGV.

Incorporated into the costs of the Euro V vehicle is the loss of welfare. This is because, for a given expenditure, total annual mileage is reduced because of the fuel penalty increasing average fuel costs per km.

Over the life-time of the vehicle, the NPV of all these additional costs is £3,588 (artic) and £2,157 (rigid). Based on the assumptions set out in the benefits section above, a total cost of £53m (present value) has been estimated.

Social

There would be no social costs in introducing an RPC for relevant Euro V vehicles.

Administrative

Operators would be required to present a vehicle for an initial test to confirm compliance with the required standard and to undertake annual tests to verify continued compliance. The cost of the test ranges from £17 to £28 depending on whether the test is undertaken at the same time as the mandatory annual vehicle test (this test fee is included in the cost estimate presented in the previous section). There may be additional minimal charges to conduct a test outside normal working hours or at premises other than the testing facility.

The impact on admin burdens baseline (presented in the summary page above) includes the administrative cost of booking the vehicle test and the time taken to complete the test (including the time taken to take the HGV to the testing station). A cost per vehicle has been estimated and then this cost has been factored up to a total in the same way as the 'per vehicle' cost and benefit estimates have been factored up.

If the RPC test were undertaken at the same time as the mandatory annual vehicle test (which is standard practice) there would be no additional cost to the operator in terms of vehicle downtime. There may be some cost over and above that indicated at page three of this impact assessment if the test were undertaken separately from the annual test which could potentially be over £100 per test (accounting e.g. for the drivers paid time) but would vary depending on vehicle and test centre locations.

⁴ Fixed cost includes the expected cost differential between a Euro IV HGV and a Euro V vehicle and a test fee to obtain a RPC.

⁵ Working lifetime of both rigid and artic HGVs is assumed to be 8 years.

Small Firms Impact Test

The impact on small firms should in principle be no different from that on medium and large sized firms. Smaller operator firms purchasing relevant Euro V vehicles will be fully entitled to obtain an RPC. Engine manufacturing companies are all large businesses.

6. Competition assessment

The main markets affected would be the: vehicle and engine manufacturers and suppliers; manufacturers and suppliers of exhaust after treatment systems; manufacturers of chemical reagent for after-treatment systems; and owners/operators of vehicles. The incentive offered by the RPC is unlikely to alter the current vehicle and engine manufacture/supply market structure given that all manufacturers would be subject to the same incentives. In addition, Euro V standards will be compulsory from 1st October 2009, so the incentive is aimed at bringing forward developments that would be happening anyway.

The potential competition impacts are as follows:

- Manufacturers may have to produce a greater range of models to satisfy markets with and without incentives for vehicles meeting the Euro V standard - with potentially higher unit costs due to smaller production runs.
- Increased demand for Euro V vehicles may result in a larger number of firms operating in the Euro V market - increasing competition in that segment of the market.
- In terms of suppliers of abatement equipment, firms that manufacture the required technologies will have a competitive advantage over those that do not and could gain a greater market share potentially reducing competition.
- In terms of suppliers of chemical reagent for after-treatment systems, firms that manufacture the required reagent will have a competitive advantage over those that do not and could gain a greater market share potentially reducing competition.
- Firms owning/operating vehicles that are able to take advantage of these incentives may gain an advantage over those that are required to purchase vehicles after the incentivisation period had ended (once Euro V becomes mandatory).

The magnitude of each of these impacts is expected to be small.

7. Enforcement, sanctions and monitoring

Entitlement to a reduced rate of VED would be established by the presentation of a valid RPC upon first licensing or re-licensing a vehicle. Should an RPC be determined to be false or otherwise defective, sanctions exist for prosecution under section 45 of the Vehicle Excise and Registration Act 1994.

Entitlement to an RPC would be established by the presentation of a relevant vehicle for test. Should a vehicle be falsely declared sanctions exist for prosecution under section 45 of the Vehicle Excise and Registration Act 1994.

Officers testing vehicles to determine compliance with RPC requirements will use any tools available to them to satisfy themselves that the RPC requirements are met. However, there is currently no practical method by which NO_x levels can be tested directly.

Vehicles fitted with certain exhaust after treatment systems, such as Selective Catalytic Reduction (SCR), rely on the consumption of a chemical reagent to effect full conversion of NO_x and thereby maintenance of and compliance with the Euro V NO_x emission standard. Although vehicle handbooks must inform owners / operators that filling-up and consumption of the right quality reagent is a requirement for the vehicle to remain roadworthy, the vehicles can safely run without consuming urea. This leaves NO_x emissions untreated.

Officers are currently exploring the feasibility of using certain instruments to undertake roadside spot checks of vehicle compliance. However, European requirements will ensure self-regulation of new vehicles from 1st October 2007. From this date new Euro V vehicles will be required to have a stringent NO_x monitoring system combined with a self-policing system that will limit the available performance of the vehicle if there is a NO_x control system failure. Since 1st October 2006 European law has required Euro V vehicles to have on-board diagnostic systems to monitor the effectiveness of the emission control system but this has not been linked to a performance limiter.

8. Implementation and delivery plan

There will be little change administratively from the current Euro IV RPC system. RPCs will continue to be issued, though in a slightly different format, by or on behalf of the Vehicle Operator and Standards Agency (VOSA).

The DVLA will continue to accept the RPC as proof of entitlement to licensing a vehicle in the Reduced Pollution tax class. An RPC will entitle the keeper to the reduced rate of VED subject to the vehicle's date of registration.

Familiarisation of staff in the local offices of the two agencies will be carried out as necessary to ensure accurate implementation and delivery.

9. Post-implementation review

The Government will assess the success of the scheme in encouraging early introduction of relevant Euro V vehicles using figures collected and provided by VOSA of the number of RPCs issued to relevant Euro V vehicles.

11. Equalities

This policy has been examined for relevance to the equality duties of Age, Disability, Gender and Race. We believe that there are no impacts in these areas and have not included separate impact assessments for the duties in our evidence base.

12. Summary and recommendation

Total costs and benefits of the measure are difficult to estimate with certainty as they depend on the level of take-up. The costs and benefits have, therefore, been estimated on a per vehicle basis.

Summary costs and benefits table

Option	Total lifetime benefit per vehicle: economic, environmental, social	Total lifetime cost per vehicle: - economic, environmental, social - policy and administrative
1	None	None
2	<p>Economic: contribution towards air quality objectives.</p> <p>Environmental: lower NO_x emissions (although slightly higher CO₂ emissions)</p> <ul style="list-style-type: none"> • Rigid HGV: £319 - £491 • Artic HGV: £1,761 - £2,654 <p>Social: potentially higher impacts in relatively deprived areas.</p> <p>Total benefit estimate: £15m-£22m (present value)</p>	<p>Economic: reduction in VED collected, price premium paid on Euro V HGVs (assumed to be £1,500 per vehicle)</p> <p>Lifetime running costs:</p> <ul style="list-style-type: none"> • Rigid HGV: £633 • Artic HGV: £2,063 <p>Test fees:</p> <ul style="list-style-type: none"> • £17-28 <p>Total cost estimate: £53m (present value)</p>

Use the table below to demonstrate how broadly you have considered the potential impacts of your policy options.

Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.

Type of testing undertaken	Results in Evidence Base? (Y/N)	Results annexed? (Y/N)
Competition Assessment	Y	N
Small Firms Impact Test	Y	N
Legal Aid	N/A	
Sustainable Development	Y	N
Carbon Assessment	Y	N
Other Environment	Y	N
Health	Y	N
Race Equality	See Para 10 of evidence base	
Disability Equality	Ditto	
Gender Equality	Ditto	
Human Rights	N/A	
Rural Proofing	N/A	