

Title: The Roads Vehicles (Registration & licensing) (Amendment) (No. 2) Regulations 2012 Lead department or agency: Department for Transport Other departments or agencies: DVLA VOSA HMT Defra	Impact Assessment (IA)
	IA No: DfT00132
	Date: 23/11/2011
	Stage: Final
	Source of intervention: Domestic
	Type of measure: Secondary legislation
Contact for enquiries: Melanie Harris	

Summary: Intervention and Options

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

Emissions of air pollutants from heavy duty vehicles such as NOx and PM10 have negative impacts on human health and the natural environment. The UK has legally binding European standards to meet for dangerous air pollution. Vehicles with more stringent exhaust standards than are currently mandatory will be coming on to the market over the next few years. However without Government intervention it is unlikely that vehicle operators/manufacturers will purchase/supply the Euro VI vehicles before they become compulsory. The positive impacts of reducing emissions through purchasing vehicles with more stringent exhaust standards cannot be captured by vehicle operators. There is also a cost premium for the technology required for vehicles to meet the Euro VI standard.

What are the policy objectives and the intended effects?

Budget 2011 announced that a time-limited reduced pollution certificate (RPC) scheme will be introduced for the early introduction of Euro VI vehicles. The regulations will enable the administration of incentives to individuals that purchase Euro VI emission standard heavy duty vehicles lorries/buses for use ahead of the date on which they become mandatory for sale on 1 January 2014. The incentives; a reduction in Vehicle Excise Duty, would support the early uptake of these vehicles and bring about an improvement in air quality and public health that the Euro VI regulation is intended to provide. Such vehicles produce lower emissions than the Euro V vehicles which are the currently the minimum standard permitted for sale.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

There were broadly two options:

- Introduce the scheme as proposed (preferred option)
- Do nothing (the base case)

Amendments to existing regulations enable the administration of market based incentives announced in Budget 2011. The scheme is voluntary in that Euro VI operators can choose whether to purchase a vehicle early and qualify for a tax disc at the reduced rate (provided the RPC is valid at the time of application). The costs and benefits to business depend on how many vehicles the operators decide they want to purchase. The preferred implementation option is option 2c below. This is the least administratively burdensome of the options, and the least burdensome option for operators. Vehicles will return to standard VED rates when their tax disc naturally expires from 31 December 2016.

Will the policy be reviewed? It will not be reviewed. **If applicable, set review date:** Month/Year

What is the basis for this review? Not applicable. **If applicable, set sunset clause date:** Month/Year

Are there arrangements in place that will allow a systematic collection of monitoring information for future policy review?

Yes

SELECT SIGNATORY Sign-off For final proposal stage Impact Assessments:

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) the benefits justify the costs.

Signed by the responsible Minister:

Norman Baker

Date: 20/02/2012

Summary: Analysis and Evidence

Policy Option 1

Description: Regulations to implement reduced pollution certificate (RPC) scheme for Euro VI vehicles

Price Base Year 2011	PV Base Year 2011	Time Period Years 11	Net Benefit (Present Value (PV)) (£m)		
			Low: Optional	High: Optional	Best Estimate: -15

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate	0	2	22

Description and scale of key monetised costs by 'main affected groups'

Economic - Costs (incurred voluntarily by business; the RPC scheme is not mandatory) of: more stringent emissions control technology; costs due to fuel penalty; and the reagent required for the new technology
 Environmental - CO₂ emissions due to fuel consumption penalty of 1% to 3% (depends on uptake of RPCs)
 Administrative - Training agency staff: £1,000; £19-£32 fee to operators to test vehicle conformity; reduction in Government revenue (reduced vehicle excise duty rates) to vehicles with an RPC £5-£500 per vehicle

Other key non-monetised costs by 'main affected groups'

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate	0	0.6	7

Description and scale of key monetised benefits by 'main affected groups'

Depends on operators' choice to purchase a Euro VI vehicle earlier than is mandatory because of the RPC
 Environmental: Air quality benefits lower NO_x and PM emissions due to early uptake of cleaner vehicles
 Business: a reduction in annual payment of vehicle excise duty to heavy duty vehicle operators, ranging from £5-£500 per vehicle

Other key non-monetised benefits by 'main affected groups'

Social: Potentially higher benefits from reduction in air pollution in relatively deprived areas

Key assumptions/sensitivities/risks

Discount rate (%) 3.5

The scheme is assumed to incentivise early purchase of Euro VI vehicles than would otherwise have been the case. Impacts are derived by comparing Euro VI to a Euro V vehicle. These are not imposed by the policy, as the scheme is voluntary, it will remain up to the operator to decide whether to apply for the RPC. Costs and benefits are sensitive to the uptake of RPCs. As uptake is based on factors that cannot be known at this stage (number of Euro VI vehicles that come on to the market, behavioural response of operators and so on), a range (3%-6% of new registrations) attempts to reflect this uncertainty. This is based on analysis of historic uptake rates for the previous scheme. The scheme reduces the risk of the UK being infringed for non-compliance with EU limit values for air pollutants.

Direct impact on business (Equivalent Annual) £m):			In scope of OIOO?	Measure qualifies as
Costs:	Benefits:	Net:	No	NA

Enforcement, Implementation and Wider Impacts

What is the geographic coverage of the policy/option?			United Kingdom		
From what date will the policy be implemented?			01/01/2012		
Which organisation(s) will enforce the policy?			DVLA/VOSA		
What is the annual change in enforcement cost (£m)?			N/A		
Does enforcement comply with Hampton principles?			Yes		
Does implementation go beyond minimum EU requirements?			No		
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)			Traded: Nil	Non-traded: 0.03	
Does the proposal have an impact on competition?			No		
What proportion (%) of Total PV costs/benefits is directly attributable to primary legislation, if applicable?			Costs: N/A	Benefits: N/A	
Distribution of annual cost (%) by organisation size (excl. Transition) (Constant Price)	Micro 0	< 20 0	Small 0	Medium 0	Large 0
Are any of these organisations exempt?	No	No	No	No	No

Specific Impact Tests: Checklist

Set out in the table below where information on any SITs undertaken as part of the analysis of the policy options can be found in the evidence base. For guidance on how to complete each test, double-click on the link for the guidance provided by the relevant department.

Please note this checklist is not intended to list each and every statutory consideration that departments should take into account when deciding which policy option to follow. It is the responsibility of departments to make sure that their duties are complied with.

Does your policy option/proposal have an impact on...?	Impact	Page ref within IA
Statutory equality duties¹ Statutory Equality Duties Impact Test guidance	No	15
Economic impacts		
Competition Competition Assessment Impact Test guidance	No	15
Small firms Small Firms Impact Test guidance	No	16
Environmental impacts		
Greenhouse gas assessment Greenhouse Gas Assessment Impact Test guidance	Yes	16
Wider environmental issues Wider Environmental Issues Impact Test guidance	No	16
Social impacts		
Health and well-being Health and Well-being Impact Test guidance	Yes	16
Human rights Human Rights Impact Test guidance	No	16
Justice system Justice Impact Test guidance	No	16
Rural proofing Rural Proofing Impact Test guidance	No	16
Sustainable development Sustainable Development Impact Test guidance	No	16

¹ Public bodies including Whitehall departments are required to consider the impact of their policies and measures on race, disability and gender. It is intended to extend this consideration requirement under the Equality Act 2010 to cover age, sexual orientation, religion or belief and gender reassignment from April 2011 (to Great Britain only). The Toolkit provides advice on statutory equality duties for public authorities with a remit in Northern Ireland.

Evidence Base (for summary sheets) – Notes

Use this space to set out the relevant references, evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Please fill in **References** section.

References

Include the links to relevant legislation and publications, such as public impact assessments of earlier stages (e.g. Consultation, Final, Enactment) and those of the matching IN or OUTs measures.

No.	Legislation or publication
1	European Regulation EC 595/2009
2	Impact Assessment DFT00033
3	Vehicle Excise and Registration Act 1994, section 61B
4	The Road Vehicles (Registration and Licensing) Regulations 2002, Schedule 2 Regulation 5
5	Air Pollution: Action in a Changing Climate - Defra March 2010
6	Air Quality and Climate Change: A UK Perspective. Air Quality Expert Group. 2007. (Available at http://www.defra.gov.uk/environment/airquality/aqeg).

+ Add another row

Evidence Base

Ensure that the information in this section provides clear evidence of the information provided in the summary pages of this form (recommended maximum of 30 pages). Complete the **Annual profile of monetised costs and benefits** (transition and recurring) below over the life of the preferred policy (use the spreadsheet attached if the period is longer than 10 years).

The spreadsheet also contains an emission changes table that you will need to fill in if your measure has an impact on greenhouse gas emissions.

Annual profile of monetised costs and benefits* - (£m) constant prices

	Y ₀	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅	Y ₆	Y ₇	Y ₈	Y ₉	Y ₁₀	Y ₁₁
Transition costs												
Annual recurring cost												
Total annual costs	8.5	1.8	1.9	1.6	1.7	1.5	1.5	1.4	1.4	1.1	1.0	1.0
Transition benefits												
Annual recurring benefits												
Total annual benefits	0.7	0.8	0.8	0.7	0.8	0.7	0.7	0.7	0.7	0.6	0.5	0.5

* For non-monetised benefits please see summary pages and main evidence base section



Microsoft Office
Excel Worksheet

Evidence Base (for summary sheets)

1. Introduction

- 1.1. This impact assessment considers the impacts associated with amending the Road Vehicles (Registration and Licensing) Regulations 2002, in order to implement a tax incentive for the early uptake of less polluting heavy duty vehicles. The regulations will prescribe the emissions requirements, known as 'Euro VI', necessary for relevant vehicles 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).
- 1.2. The VED rate is reduced because compliance with the relevant emission standards in advance of being required to do so is voluntary. The intention is that this provides an incentive to purchase the vehicle before the emission standard becomes mandatory and brings forward the air quality and health benefits that the standard provides. The relevant vehicles are heavy-duty vehicles falling within the scope of European Regulation 595/2009/EU and which are registered before the standard becomes mandatory. These, broadly, are lorries, buses, and coaches with masses over 3.5 tonnes. The regulations implement a commitment of a tax incentive from the 2011 Budget, and pose no mandatory burden on business and so are out of scope of one-in one-out.

2. Problem under consideration

- 2.1. Poor air quality remains a significant public health problem. Fine particulate matter is strongly implicated in cardiovascular and lung disease and oxides of nitrogen (NO_x) can cause lung irritation, as well as lowering resistance to pneumonia, bronchitis and other respiratory infections. Current estimates are that poor air quality reduces average life expectancy in the UK by six months (ref 5). Because of the health impacts of poor air quality, the UK, in common with other European Member States, has legally binding air quality targets.
- 2.2. Road transport is a significant contributor to air quality problems, particularly in heavily populated urban areas. Exhaust emission standards are set for road vehicles in order to address these problems. The standards set, which are known as "Euro" emissions standards, have become more stringent over the years, as the enabling technologies have developed and become affordable. The current standard for new heavy-duty vehicles is Euro V, and a new, Euro VI, standard will become mandatory for all new registrations from 1 January 2014. To incentivise early uptake of the newest vehicles (and reduce emissions from the total vehicle fleet), a reduced pollution certificate (RPC) scheme was introduced in 1999.
- 2.3. Similar schemes have been available to relevant heavy-duty vehicles meeting new emissions standards before they became mandatory with each new emissions standard introduced. Having obtained an RPC the keeper of the vehicle will be liable to a reduced rate of VED. This is available each year for the life of the vehicle as long as it passes an annual inspection to confirm compliance with the required standard. The RPC scheme was closed to new Euro V vehicles registered on and after 1 October 2009 on which date the Euro V standard became mandatory.
- 2.4. The Government committed in its Budget Statement of 2011 that a time-limited RPC Scheme will be introduced from 1 January 2012 for the early introduction of vehicles that meet the Euro VI emission limit values as manufactured. The Euro VI standard for registered vehicles will become mandatory from 1 January 2014, so the scheme would close to vehicles registered on or after this date. The main targeted effect of the measure will be to reduce emissions of oxides of nitrogen (NO_x) and Particulate Matter (PM). Unlike the previous issuing of RPCs for Euro V standard and previous standards, the proposed scheme will be time-limited, with no re-issuing of RPCs to relevant vehicles after 2017.
- 2.5. The Road Vehicles (Registration and Licensing) Regulations 2002 provide for the current issue of RPCs to vehicles that satisfy the reduced pollution requirements. At present, the reduced pollution requirements relate to old emissions standards only. The amending regulations will extend the current scheme to the most recently agreed Euro VI standard. Without these new regulations, there is no incentive to purchase a new lower emitting Euro VI vehicle to meet the new Euro standard before it becomes mandatory.

3. Rationale for intervention;

- 3.1. Emissions of air pollutants from heavy duty vehicles such as NO_x and PM₁₀ have negative impacts on human health and the natural environment.
- 3.2. A regulation is in place such that manufacturers meet the latest Euro emission standard requirements, Euro VI, from 1 January 2014, in accordance with EU law. Euro VI vehicles will provide benefits over and above those of preceding Euro Standards especially in terms of lower NO_x and PM₁₀ emissions.
- 3.3. Early supply and uptake of Euro VI vehicles would result in positive impacts that cannot be captured by manufacturers and operators and so there is little incentive to introduce these vehicles before they become compulsory. Furthermore, the technology required for vehicles to meet the Euro VI standard will push up the price of new vehicles and may, at least initially, carry a penalty in terms of fuel consumption.
- 3.4. Apart from Euro Standards there are few other effective and cost-effective policy tools available to Government to deal with such emissions. A Euro VI RPC to incentivise early uptake of the Euro VI standard enhances the effect of more stringent Euro standards in the short to medium term and should, therefore, bring about positive benefits of reducing the health and environmental impacts of air pollution.

4. Policy objective;

- 4.1. Incentivise the early uptake of Euro VI vehicles before they become mandatory and achieve the improvements in public health that the Euro VI regulation is intended to provide.

5. Description of options considered

Option 1

- 5.1. Do Nothing- the RPC scheme remains closed to new vehicles purchased after 1 October 2009.

Option 2

- 5.2. Do Something – amend the existing regulations to extend to the most recently agreed standard, Euro VI, allowing vehicles which meet the requirements of this new standard to be entitled to a reduced rate of VED. There are a number of closure options under this option that would have financial implications for DfT agencies.
- 5.3. Euro VI vehicles registered before 1 January 2014 would be able to apply for a RPC. A reduced rate of VED would be available once the operator, with an RPC applies for a tax disc for the new vehicle. An RPC can be renewed until the scheme closure date, 31 December 2016. Administratively, there are 3 possible closure options.

2a	2b	2c
RPCs no longer renewed. RPCs already issued will no longer be valid	RPCs no longer renewed. But existing RPCs already issued remain valid for their full year.	RPCs remain valid until the vehicles tax disc expires naturally.
All Euro VI vehicles that hold a discounted VED tax disc will be required to apply for a new part-year tax disc at the standard HGV/Bus VED rate.	Vehicles will qualify for the reduced rate as long as the RPC is valid. If the RPC expires before the tax disc is due for renewal, the keeper must exchange the tax disc for one at the full rate and pay the difference.	Vehicles will qualify for the reduced rate as long as the RPC is valid. Tax disc is allowed to run on until it expires naturally. The vehicle only needs to re-tax at the standard rate when the tax disc expires.

- 5.4. The preferred implementation option is option 2c. This is the least administratively burdensome of the options, and the least burdensome option for operators. This implementation option was announced in Budget 2011; *“All Euro VI vehicles will return to standard VED rates when their tax disc naturally expires from 31 December 2016. (Finance Bill 2011) (30)”*.

6. Consultation

- 6.1. Interested Departments and Agencies including Defra, HM Treasury, DVLA and VOSA have been kept informed and have contributed to work in developing the options considered, the regulations and the closure options. Representative bodies of both manufacturers and hauliers have expressed the desire for the scheme to extend to Euro VI vehicles to encourage purchase of these vehicles (before the date their sale becomes mandatory).

7. Key Costs and benefits relevant to all options

- 7.1. The proposed 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 vehicles. It will also impact on members of the public impacted by the air quality improvements that it is designed to bring forward. There will also be an impact on DfT agencies to administer the scheme.
- 7.2. The costs and benefits of revising the regulations (to enable the administration of the reduced rate of Vehicle Excise Duty to Euro VI vehicles), depend on the number of vehicles that are purchased earlier than would have been otherwise as a result of the incentive provided and what vehicles they replace. There is uncertainty in forecasting the take-up of the time-limited RPC scheme; a range of factors are taken into account in purchase decisions and cost effectiveness / vehicle attributes will depend on the exact vehicle model under consideration.
- 7.3. Approximately 27,000 RPCs (DfT Licensing statistics) were issued for HGVs under the RPC scheme for the Euro V standard. Over the 3 years for which the incentive was available, the uptake rate was approximately 16% of new registrations on average (excluding older vehicles which became eligible for inclusion in the scheme by virtue of having been retrofitted with pollution abatement technologies). As in the previous scheme, the incentive provided is unlikely to fully cover the additional costs associated with the Euro VI vehicle (on average). Although for some owners/operators it will provide enough coverage at the margin to incentivise the purchase of a Euro VI over a Euro V vehicle (along with other factors taken into consideration in their purchasing decision), as evidenced by uptake in the previous scheme.
- 7.4. Given the limited evidence attributing early uptake to the level of incentive offered (these vehicles are yet to be on sale and take-up will depend on cost-effectiveness for a particular vehicle type, which could vary significantly, as well as a range of other factors such as other vehicle attributes) the evidence supporting analysis on a per vehicle basis is relatively stronger. On the basis of evidence from the previous scheme and taking into account that the value of the incentive over the vehicle lifetime is lower (only 3-5 years worth of incentive versus approximately 11 years under the previous scheme) under the time-limited scheme proposed and that the cost premium of a Euro VI over a Euro V is larger than that of a Euro V over a Euro IV, an uptake rate of 3%-6% of new registrations per annum for the two years the RPC is available appears a reasonable assumption (compared with the estimate of 16% uptake in the previous scheme).
- 7.5. The costs and benefits have been assessed over an 11 year appraisal period, based on the estimated vehicle lifespan.

Costs

Economic

Business

- 7.6. Reaching the Euro VI standard implies an increase in vehicle costs due to the adoption of additional and more advanced technology. Euro VI Vehicles are not currently available, but the estimates provided by manufacturers are that there will be up to a £6,000 - £10,000 cost premium over Euro V Vehicles (**capital and operating cost**). A Euro V vehicle has been used as the comparator because this is the current alternative new vehicle; earlier Euro standards would be second-hand purchases and evidence suggests vehicles are more likely to be replaced by the next most stringent standard.
- 7.7. The tables below outline the additional costs (which are capital, fuel and reagent costs) of moving from a Euro V vehicle to a Euro VI Heavy goods vehicle on a per vehicle basis and the assumptions that underpin this. (Goods vehicles constituted around 80% of vehicles with RPCs under the previous scheme). A differentiation is made between rigid and articulated goods vehicles in table 1, below. This differentiation reflects the fact that rigid vehicles are, on average, smaller and less heavy than articulated vehicles, and the fact that articulated vehicles are somewhat more likely to be used for long-distance haulage, involving extensive periods of running at relatively high speeds, than are rigid ones.
- 7.8. Most Euro V standard vehicles use a reagent, injected into the exhaust system, in order to control emissions of oxides of nitrogen (NO_x), and it is expected that all Euro VI vehicles will do so. The rate at which this reagent is dosed depends upon the precise strategy chosen by the manufacturer, and is expected to change with the transition to the Euro VI standard. The range of dosing rates assumed in our analysis is shown in table 1.
- 7.9. Since the early purchase of a vehicle that meets Euro VI standards under the RPC scheme is voluntary, the Regulations discussed here **will not impose any additional mandatory costs** on vehicle purchasers. Operators will only purchase these vehicles if it is cost-effective to do (e.g. take into consideration whether to buy a Euro VI one or two years earlier and benefit from the incentive, rather than when the standard becomes mandatory) or if there are other criteria that the Euro VI vehicles meet over Euro V standard vehicles. The analysis here considers the impacts for the average Euro VI vehicle, average mileage etc and so cannot completely capture the full range of potential impacts.
- 7.10. Where an operator wants to obtain an RPC, a declaration of conformity is required to confirm compliance with the required standard and an annual inspection has to be undertaken to verify continued compliance. The **cost of the inspection** ranges from £19 to £32 (VOSA estimate) per vehicle depending on whether the test is undertaken at the same time as the mandatory annual vehicle test. These estimates are based on accounting data on tests currently undertaken for previous Euro standards. There may be additional minimal charges if the test is conducted outside normal working hours or at premises other than the testing facility.
- 7.11. 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 if the test were undertaken separately from the annual test which could potentially be equivalent to one day off the road.

Table 1: General vehicle assumptions

	RIGID				ARTICULATED			
	Euro V		Euro VI		Euro V		Euro VI	
	Low	High	Low	High	Low	High	Low	High
Cost premium (£) over previous euro standard*	1,646	1,646	1,887	2,305	1,500	1,500	3,376	3,833
Cost of vehicle (£)*	62,013	62,013	63,900	64,318	71,500	71,500	74,876	75,333
NOx (g/km)**	1.65	1.65	0.33	0.33	3.52	3.52	0.70	0.70
PM10 (g/km)**	0.02	0.02	0.00	0.01	0.05	0.05	0.01	0.02
Fuel consumption premium over previous euro standard **	1%	1%	1%	3%	1%	1%	1%	3%
Fuel consumption (l/100k) **	27.14	27.14	27.41	27.95	36.32	36.32	36.68	37.41
Reagent as % of fuel **	0.0%	5.0%	5.0%	6.5%	0.0%	5.0%	5.0%	6.5%

Source: * Ricardo (2007) ** DfT engineering advice and analysis,

Lifetime of Vehicle Years*	11
Rigid vehicle kms per annum (average) *	60,000
Artic vehicle kms per annum (average) *	110,000
Carbon emissions (tonnes) per litre of diesel *	0.0025
Fuel price elasticity *	-0.2
Rigid % of fleet *	73%
Arctic % of fleet *	27%
HGV new registrations (past 2 year average) *	30,639
Inspection cost per annum (low-high)**	£19 -£32

Source: DfT analysis/ Vehicle Licensing statistics*, VOSA estimate**

Table 2: Technology and operating costs of a Euro VI over a Euro V (per vehicle), PV (2011-2022)

PVC (2011-2022)	Central	Low	High
Vehicle Purchase	£2,504	£2,290	£2,719
Fuel	£1,769	£726	£2,812
Reagent	£3,048	£32	£6,064
Admin (inspection)	£119	£89	£150
TOTAL	£7,324	£3,050	£11,597

DfT analysis

- 7.12. There is also a welfare cost associated with the reduction in mileage driven as a result of higher fuel costs. This is calculated assuming a fuel price elasticity of 0.2% and valued consistent with DfT's Transport Analysis Guidance¹. The welfare loss ranges from £0.01m to £0.02m.
- 7.13. The impact on the second hand market with regards to resale of vehicles of older Euro standards is expected to be limited. A small fall in demand for Euro V vehicles could affect the price of a Euro V vehicle (reduce it), however demand for these vehicles from operators of older Euro standards increases. This could be passed down the chain to the oldest Euro standard vehicles on the road at the time.

¹ <http://www.dft.gov.uk/webtag/documents/expert/unit3.5.3.php>

Government

- 7.14. Granting a RPC enables the operator to be taxed at a lower rate, which implies a cost to Government in terms of **lower revenue from vehicle excise duties**. The scheme offers a reduction in Vehicle Excise Duty ranging from £5 - £500 per annum for a maximum of 5 years. Vehicle operators with a RPC would receive a total benefit via lower operating costs equal to this loss in VED revenue; such that the net impact is zero i.e. the payment represents a transfer. For a more detailed description of this impact, see paragraph 7.23.
- 7.15. The implementation of the scheme will not heavily impact on the Department and its agencies. There will be little change administratively from the current Euro V RPC System. RPCs will continue to be issued by or on behalf of the Vehicle Operator and Standards Agency (VOSA). VOSA staff are already required to check those vehicles with existing RPCs.
- 7.16. As in the previous scheme additional administration staff would be required depending on the level of take up of Euro VI vehicles purchased early. Based on similar levels of uptake to the previous scheme, approximately two temporary administrative staff and two inspectors would be required. It is unlikely that uptake would be as large as for the previous scheme, therefore a more conservative estimate, of one temporary administrative member of staff and one inspector is assumed.
- 7.17. For the Driver and Vehicle Licensing Agency (DVLA) there will be a small cost associated with training and communicating implementation details of the new time limited RPC scheme. These can be incorporated into existing training practices therefore additional costs are expected to be negligible.

Environmental

- 7.18. The Euro VI standard is expected to lead to an **increase in carbon dioxide (CO₂)** emissions over Euro V vehicles (as a result of affecting fuel efficiency l/km). At the time that the original Euro VI impact assessment was done, the increase was estimated between a realistic three percent and extreme eight per cent. Current evidence and analysis by DfT suggests that in consequence of significant research and development work by manufacturers, the actual carbon dioxide penalty is likely to be no more than three percent, and may well be lower (1% - 3% has been tested in this assessment).
- 7.19. The RPC scheme could bring forward those increases in CO₂ two years earlier than would have occurred. The additional per vehicle CO₂ emissions resulting from incentivising the purchase of a Euro VI vehicle are shown in Table 1. The emissions have been valued in a way consistent with DECC guidance.

Table 3: Cost of carbon emissions of a Euro VI over a Euro V (per vehicle), PV (2011-2022)

	PV (2011 - 2022)		
	Central	Low	High
CO ₂	£583	£120	£1,390

Source: DfT analysis, DECC guidance on valuation

Social

- 7.20. There would be no social costs in introducing an RPC for relevant Euro VI vehicles.

Benefits

Economic

7.21. Heavy duty vehicles are a significant source of air pollution and exceedences of air quality targets in urban areas [reference 6]. Providing an incentive for early up-take of relevant Euro VI vehicles will contribute to meeting air quality objectives in terms of reducing the extent of exceedences and thereby reducing the risk of infraction proceedings against the UK under the EU Air Quality Daughter Directive.

Business

7.22. The scheme offers a **reduction in vehicle excise duty** ranging from £5 - £500 per annum to vehicle operators who purchase the Euro VI vehicles before the mandatory date for their sale (January 2014). The RPC can be re-issued for up to 5 years until the scheme closure date in December 2016. Depending on when the vehicle is purchased, the number of years for which the reduced VED is available ranges from 3 years (if the vehicle is purchased in December 2013) to 5 years (if the vehicle is purchased in January 2012).

7.23. The reduction in operating costs over the vehicle's lifespan (for a maximum of 5 years) ranges from £14 to £2,340 (PV) for a HGV and £0 to £1,565 (PV) for a bus. The present-value weighted average discount offered to HGV operators/owners ranges from £1,210 to £1,960 and to bus operators/owners ranges from £650 to £1,050. Estimates for the likely distribution of vehicles among tax classes have been derived from historic data on the number of vehicles registered in the reduced pollution tax class, by tax band in 2009 (DfT vehicle licensing statistics). By way of comparison, the old RPC scheme would have offered a present-value weighted average discount of almost double this - HGV operators/owners of £3,900 and to bus operators/owners of £2,095.

Table 4: VED discount and vehicle registrations by tax band (per vehicle), PV (2011-2022)

HGV	Registrations (reduced tax) by tax band	Annual VED Discount (£)	PV Minimum discount (£) (RPC 3 years)	PV Maximum discount (£) (RPC 5 years)
A	4%	5	14	23
B	3%	40	116	187
C	2%	240	696	1122
D	33%	370	1073	1729
E	55%	500	1450	2337
F	1%	500	1450	2337
G	3%	500	1450	2337
Weighted average discount		419	1214	1956

Bus	Registrations (reduced tax) by tax band	Annual VED Discount (£)	PV Minimum discount (£) (RPC 3 years)	PV Maximum discount (£) (RPC 5 years)
10 to 17 seats	1%	0	0	0
18 to 36 seats	23%	55	159	257
37 to 61 seats	25%	165	478	771
62 and over	51%	335	971	1565
Weighted average discount		225	652	1051

Source: DVLA rates of vehicle tax and DfT vehicle licensing statistics

7.24. This payment to operators will represent a transfer from Government to businesses and therefore the net impact will be zero.

Environmental

- 7.25. The RPC scheme, by encouraging early uptake of Euro VI vehicles, could bring about improvements in air quality, namely NO_x and PM, therefore benefits to health and the natural environment.
- 7.26. For information, the limit values for the Euro VI standard are set out in the table below, alongside those for the Euro V standard. The table shows the emissions limits in grams per kilowatt hour when measured using the European Transient test cycle. The reduction in the limit values from Euro V to Euro VI for particulates and oxides of nitrogen (NO_x) are significant: an 80% reduction in NO_x and a 67% reduction in particulates.

Table 5: Emissions limits Euro V and Euro VI heavy duty vehicle

Standard	Mass of carbon monoxide (CO) g/kWh	Hydrocarbons Total (THC) g/kWh	Hydrocarbons Non-methane (NMHC) g/kWh	Hydrocarbons Methane (CH ₄) g/kWh	Mass of oxides of nitrogen (NO _x) g/kWh	Mass of particulates (PT) g/kWh
Euro V	4.0		0.55	1.1	2.0	0.03
Euro VI	4.0	0.16			0.4	0.01

- 7.27. For this analysis, weighted average emissions factors have been derived from TRL research (2009)² that provided emission factors (speed-emission curves) for different vehicle types. These were weighted by HGV fleet composition, vehicle weight and road type. Using average speeds, a Euro VI vehicle over a Euro V offers a saving of 1.32-2.82g NO_x/km and 0.02-0.04g PM/km.
- 7.28. The RPC scheme could bring forward the NO_x and PM savings on a per vehicle basis, depending on the number of vehicles purchased early, up to two years earlier than would have occurred. We have assessed the impact over the vehicle lifespan. The impact on NO_x and PM emissions has been valued consistent with guidance from the Interdepartmental Group on Costs and Benefits (Air Quality), using damage costs. The present value benefit over the vehicle lifespan is estimate to be £2,500 per vehicle (central estimate).

Table 6: Benefit of a Euro VI over a Euro V (per vehicle), PV (2011-2022)

<i>PV per vehicle (2011 - 2022)</i>			
	Central	Low	High
NO _x	£1,554	£1,072	£1,903
PM	£984	£531	£1,319
Total	£2,538	£1,604	£3,223

Social

- 7.29. There is evidence from UK studies that shows that air quality 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 VI vehicles could result in general benefits of reducing roadside NO_x concentrations, the measure may result in a relatively high benefit to more deprived areas.

² <http://www2.dft.gov.uk/pgr/roads/environment/emissions/>

Summary of key impacts

Table 7: Monetised costs and benefits (per vehicle estimate):

	<i>PV per vehicle (2011 - 2022)</i>		
	Central	Low	High
<i>Benefits</i>			
NOx	£1,554	£1,072	£1,903
PM	£984	£531	£1,319
<i>Costs</i>			
Vehicle Purchase	£2,504	£2,290	£2,719
Fuel	£1,769	£726	£2,812
Reagent	£3,048	£32	£6,064
CO2	£583	£120	£1,390
Welfare	£3	£3	£3
Admin	£119	£89	£150
	Central	Low	High
Net Benefit	-£5,488	-£9,915	-£1,655

7.30. As can be seen in Table 7 above, the per vehicle costs are greater than the per vehicle benefits. However, the costs to business are entirely voluntary, and for some the incentive will provide enough coverage (along with other factors) to incentivise early purchase of the Euro VI vehicle. Furthermore, the cost benefit results must be balanced against the risk that without additional measures to tackle air quality exceedences, the UK faces the risk of EU infraction (and the possibility of unlimited fines).

7.31. The uptake of RPCs is difficult to forecast and so estimates of the aggregate impact will be uncertain. This will depend on how many Euro VI vehicles are put on to the market by suppliers and the factors taken into account by those operators deciding whether to purchase a new Euro V or Euro VI. Assuming that 3% to 6% of new registrations (30,000 average over the past 2 years) are awarded RPCs (as described in paragraph 7.4), based on past evidence from previous schemes, would imply around 1,800 to 3,600 vehicles.

Table 7: Monetised costs and benefits (aggregate estimate):

	<i>PV vehicles based on assumed uptake (2011 - 2022) £m</i>		
	Central	Low	High
<i>Benefits</i>			
NOx	£4.2	£2.0	£6.9
PM	£2.7	£1.0	£4.8
	£6.9	£2.9	£11.7
<i>Costs</i>			
Vehicle Purchase	£6.8	£4.2	£9.9
Fuel	£4.8	£1.3	£10.2
Reagent	£8.3	£0.1	£22.1
CO2	£1.6	£0.2	£5.1
Welfare	£0.0	£0.0	£0.01
Admin	£0.3	£0.2	£0.5
	£21.9	£5.9	£47.9
	Central	Low	High
Net Benefit	-£15.0	-£3.0	-£36.1

Costs and Benefits specific to different closure options

7.32. It is assumed that the different closure options are unlikely to have a significant impact on the number of vehicles purchased early. There is a maximum of 1 year additional discount available between the options. Analysis of this impact on the cost premium, and the potential number of vehicles affected, shows the additional time would provide little additional coverage of the cost premium therefore in most cases have little material impact on purchase decisions. It would be

reasonable to assume therefore, that the main impacts from the different closure options will be that on VOSA and the DVLA.

Costs

2a – RPCs no longer renewed. RPCs already issued will no longer be valid. All Euro VI vehicles that hold a discounted VED tax disc will be required to apply for a new part-year tax disc at the standard HGV/Bus VED rate.

- The spike in the period immediately after the scheme closure date will increase work for DVLA as RPC holders will have to reapply for a new tax disc.
- DVLA have quoted £60,000 for processing 30,000 tax disc exchange applications.
- VOSA have quoted £1,000 to cover training
- Currently DVLA unable to quantify costs of indentifying and enforcing against keepers who do not take out a tax disc at standard rate when the scheme ends
- Only vehicles purchased in January 2012 would benefit from the maximum 5 years VED discount. Operators purchasing vehicles in Dec 2013 however will only receive a maximum of 3 years VED discount.

2b – RPCs no longer renewed. But existing RPCs already issued remain valid for their full year. Vehicles will qualify for the reduced rate as long as the RPC is valid. If the RPC expires before the tax disc is due for renewal, the keeper must exchange the tax disc for one at the full rate and pay the difference.

- VOSA have indicated that this option would put a huge strain on VOSA resources as it is anticipated that it would lead to a number of operators wanting to recertify in the last month of the RPC test being available.
- VOSA have priced on the basis of 15,000 vehicles requiring an otherwise unnecessary test (half of the expected Euro VI take up) which will have to be done at overtime rate of £20 per hour, only some of which will be recovered by test fees. Training costs of £20,000 would be to train some enforcement staff to carry out RPC testing. It is also anticipated that there will be a spike in booking for VOSA statutory testing for that period.

2c (preferred option) – RPCs no longer renewed. But existing RPCs already issued remain valid for their full year. Vehicles will qualify for the reduced rate as long as the RPC is valid. Tax disc is allowed to run on until it expires naturally. The vehicle only needs to re-tax at the standard rate when the tax disc expires. This is our preferred option and was announced in Budget 2011; “All Euro VI vehicles will return to standard VED rates when their tax disc naturally expires from 31 December 2016. (Finance Bill 2011) (30)”.

- Least burdensome of the options on VOSA/DVLA. VOSA have quoted a total cost of £1000 to cover training costs for all staff.
- Least burdensome option for operators as there will be no need for an early exchange of tax discs.

Table 8: Summary of agency costs

	Agency	IT	Staffing	Training	Enforcement	Description
2a	DVLA		£30,000		Currently un-quantifiable costs of identifying and enforcing against keepers who do not take out a tax disc at the standard rate when the RPC closes.	Up to £30,000 for processing a maximum of 15,000 tax disc exchange applications.
	VOSA			£1,000		
2b	DVLA					Small cost associated with updating forms/websites (negligible). Otherwise BAU
	VOSA		£50,000	£20,000		
2c	DVLA					
	VOSA			£1,000		

Benefits

- Option 2c offers a greater period of discount compared with options 2a and 2b. The length of additional time (months) will depend on which month the RPC and tax disc are first obtained.

8. Risks and assumptions;

8.1 The key vehicle assumptions are outlined in Table 1. A key risk is that uptake will be much smaller than under the previous scheme. This has been attempted to be reflected in the range used for the assumed uptake, however if, unlike previous schemes, very few of the latest standard (in this instance Euro VI) vehicles become available, the number of RPCs issued may be even lower.

9. Summary costs and benefits table

Total lifetime cost per vehicle: economic, environmental, social	Total lifetime benefit per vehicle: economic, environmental, social
<p><i>Economic</i></p> <ul style="list-style-type: none"> • Technology costs, fuel costs, reagent costs <p><i>Environmental</i></p> <ul style="list-style-type: none"> • Additional carbon emissions due to fuel consumption penalty <p><i>Social</i></p> <ul style="list-style-type: none"> • None 	<p><i>Economic</i></p> <ul style="list-style-type: none"> • Contribution toward UK air quality objectives <p><i>Environmental</i></p> <ul style="list-style-type: none"> • Improved air quality - lower NOx and PM emissions <p><i>Social</i></p> <ul style="list-style-type: none"> • Potentially higher benefits in relatively deprived areas

10. Statutory Equality Duties

10.1. The policy has been examined for relevance to the equality duties with regards to race disability and gender, including gender reassignment. We believe that there are no impacts in these areas and have not included separate impact assessment for the duties in our evidence base.

11. Competition Assessment

11.1. The incentive offered by the RPC is unlikely to alter current vehicle and engine manufacture/supply market structure given that all operators, therefore manufacturers, would be subject to the same incentives.

11.2. Take up of the RPC scheme is entirely voluntary. The Euro VI standard becomes mandatory on 1 January 2014 when new Heavy Duty Vehicles must meet this standard. This scheme incentivises the early purchase of Euro VI vehicles ahead of the scheme start date for the purpose of contributing towards Air Quality targets. The main markets that could be affected would be: vehicle and engine manufacturers and suppliers; manufacturers and suppliers: manufacturers of chemical reagent for after-treatment systems; and owners/operators of vehicles

11.3. The potential competition impacts as covered in the Euro VI implementing measures impact assessment 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 VI standard - with potentially higher unit costs due to smaller production runs.
- Increased demand for Euro VI vehicles may result in a larger number of firms operating in the Euro VI 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 VI becomes mandatory).

12. Small Firms Impact Test

12.1. The impact on small firms should in principal be no different from that on medium and large firms. Smaller operator firms purchasing relevant Euro VI vehicles will be full entitled to obtain an RPC. Engine manufacturing companies are all large businesses. However, most new vehicles will be purchased by larger firms, who tend to replace their vehicle fleet with the latest Euro standard more often than smaller operators.

13. Human Rights & Justice

13.1. The possibility that the proposed implementation of the RPC scheme might impinge upon human rights in the areas of privacy, property freedom to choose and practice a profession and the right to a fair hearing have been considered. We do not believe that the proposal will impinge upon these or other human rights.

13.2. It is not anticipated that the implementation of the Euro VI RPC scheme would either increase or decrease the work of the courts. In consequence, no impact upon the legal budget is anticipated.

14. Sustainable Development

14.1. The direct impact of the proposed scheme upon sustainable development is expected to be negligible.

15. Greenhouse Gas Assessment

15.1. The direct impact of the RPC scheme upon emission of carbon and other greenhouse gases is expected to small. The monetised estimate ranges from £120 to £1,400 per vehicle depending on the assumed fuel consumption penalty, with a central estimate of £580. The central estimate for the total cost is £1.6m (0.03 Million tonnes CO₂e).

16. Health Impacts

16.1. The beneficial health impacts of the improvements in air quality that would flow from the adoption of the RPC scheme, as described in section 7.21.

17. Rural Proofing

17.1. The proposed introduction of the RPC scheme is not expected to have a disproportionate impact upon rural communities.

Annex 1: Post Implementation Review (PIR) Plan

A PIR should be undertaken, usually three to five years after implementation of the policy, but exceptionally a longer period may be more appropriate. If the policy is subject to a sunset clause, the review should be carried out sufficiently early that any renewal or amendment to legislation can be enacted before the expiry date. A PIR should examine the extent to which the implemented regulations have achieved their objectives, assess their costs and benefits and identify whether they are having any unintended consequences. Please set out the PIR Plan as detailed below. If there is no plan to do a PIR please provide reasons below.

Basis of the review: .
Review objective:
Review approach and rationale:
Baseline:
Success criteria:
Monitoring information arrangements:
Reasons for not planning a review: The RPC scheme for Euro VI vehicles is time-limited and will cease to have effect for any qualifying vehicles at the end of 2017.