

ANNEX G

Planning and Environmental Policy Group

**Part III of the Environment (Northern Ireland)
Order 2002**

Local Air Quality Management Guidance

Worked Examples for the Practice Guidance

December 2009

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www.airqualityni.co.uk

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YEAR	Discount Factor
0	1
1	0.9662
2	0.9335
3	0.9019
4	0.8714
5	0.8420
6	0.8135
7	0.7860
8	0.7594
9	0.7337
10	0.7089
11	0.6849
12	0.6618
13	0.6394
14	0.6178
15	0.5969
16	0.5767
17	0.5572
18	0.5384
19	0.5202
20	0.5026
21	0.4856
22	0.4692
23	0.4533
24	0.4380
25	0.4231
26	0.4088
27	0.3950
28	0.3817
29	0.3687
30	0.3563

for Government recommended 3.5% discount rate

Example of the use of discounting

This shows how the present value of £1,000 declines in future years with a discount rate of 3.5 per cent.

The value of £1000 in each year is multiplied by the discount factor

Year	0	1	2	3	4	5
Value	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000
Discount factor	1	0.9662	0.9335	0.9019	0.8714	0.842
Discounted Present Value	£1,000	£966	£934	£902	£871	£842

from HMT scheme (left)

Source: Green Book, Annex 6, Page 100.

http://www.hm-treasury.gov.uk/media/F/D/Green_Book2_03.pdf

In this example, the costs of the scheme are expressed as a present value
 See Box 6 of economic guidance document

Note that it is assumed that the base year is year 0, so the discount factor for year 0 is 1

Scheme A	0	1	2	3	4	5
Capital costs	£50,000					
Operating costs	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000
Costs	£51,000	£1,000	£1,000	£1,000	£1,000	£1,000
Discount factor	1	0.9662	0.9335	0.9019	0.8714	0.842
Present value	£51,000	£966	£934	£902	£871	£842
Sum of PV	£55,515					

from HMT scheme (previous worksheet)

The value in each year is multiplied by the discount factor
 The sum of these present values give the present value

Scheme B	0	1	2	3	4	5
Capital costs	£10,000					
Operating costs	£10,000	£10,000	£10,000	£10,000	£10,000	£10,000
Costs	£20,000	£10,000	£10,000	£10,000	£10,000	£10,000
Discount factor	1	0.9662	0.9335	0.9019	0.8714	0.842
Present value	£20,000	£9,662	£9,335	£9,019	£8,714	£8,420
Sum of PV	£65,150					

from HMT scheme (previous worksheet)

The value in each year is multiplied by the discount factor
 The sum of these present values give the present value

In this example, the equivalent annual cost of the schemes are estimated
See Box 7 of economic guidance document

The net present value (previous sheet) can be used to derive an equivalent annualised cost (EAC)

The formula to do this is Equivalent annualised Cost =

$$\left[\frac{r(1+r)^n}{(1+r)^n - 1} \right]$$

where r is the discount rate (3.5% in the UK, i.e. 0.035) and n is the scheme length in years

However, there is an excel function that can be used to generate this value

take a NPV of £10000 and ten year	
NPV	£10,000
Discount rate, r	3.50%
Number of year, n	10
Fomula	£1,202
Excel	£1,202

There is an excel formula to do this (see cell). Note strictly speaking, this formula (and formula above) provides an EAC for a scheme starting in year 1

This can be applied to the example scheme

Scheme A	0	1	2	3	4	5
Capital costs	£50,000					
Operating costs	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000
Costs	£51,000	£1,000	£1,000	£1,000	£1,000	£1,000
Discount factor	1	0.9662	0.9335	0.9019	0.8714	0.842
Present value	£51,000	£966	£934	£902	£871	£842
Sum of PV	£55,515					
Discount rate	3.50%					
Number of years	6					
EAC (formula)	£10,418					
EAC (excel)	£10,418					

from HMT scheme (previous worksheet)

The value in each year is multiplied by the discount factor

The sum of these present values give the present value

The EAC formula is applied to the sum of PV to generate the equivalent annual cost (annualised costs)

It requires the discount rate - 3.5% - and the number of years to annualise over - in this case 6

Scheme B	0	1	2	3	4	5
Capital costs	£10,000					
Operating costs	£10,000	£10,000	£10,000	£10,000	£10,000	£10,000
Costs	£20,000	£10,000	£10,000	£10,000	£10,000	£10,000
Discount factor	1	0.9662	0.9335	0.9019	0.8714	0.842
Present value	£20,000	£9,662	£9,335	£9,019	£8,714	£8,420
Sum of PV	£65,150					
Discount rate	3.50%					
Number of years	6					
EAC (formula)	£12,227					
EAC (excel)	£12,227					

from HMT scheme (previous worksheet)

In this case example A has a lower equivalent annualised cost of 10418 compared to 12227

In this example, the cost-effectiveness of the schemes are compared
See Box 7 of economic guidance document

The cost-effectiveness calculation combines the EAC (annualised) costs with the annual emission reduction

Option A reduces emissions by 10 tonnes of NOx a year in the area.

Option B reduces emissions by 14 tonnes of NOx a year in the area

The cost-effectiveness is then the annual emission reduction divided by the equivalent annual cost
EAC was given on previous work sheet

	EAC	Tonnes abated/year		Costs per tonne abated
Option A	10418		10	1042
Option B	12227		14	873

So option B is the more cost-effective option, as it achieves a reduction in NOx for lower cost per tonne

Note that to consider other environmental objectives, the 'net' cost-effectiveness should be estimated

SPC In this example, the economic benefits of GHG reductions are estimated
See Box 4 of economic guidance document

Guidance available at

<http://www.defra.gov.uk/environment/climatechange/research/carboncost/step1.htm>.

Year	2007	2008	2009	2010	2011	2012
CO ₂ reduction (tonnes)	100	80	60	40	20	0

Year	2007	2008	2009	2010	2011	2012
SPC in 2007 prices (w2%)	25.5	26	26.5	27	27.6	28.1

Total Values	2550	2080	1590	1080	552	0
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Discount factor	1	0.9662	0.9335	0.9019	0.8714	0.842
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Discounted value	2550	2010	1484	974	481	0
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Net Present Value	7499
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Multiply CO₂ reduction by SPC value

from HMT scheme (previous worksheet)

The value in each year is multiplied by the discount factor

The sum of these present values give the net present value

In this example, the economic benefits of NOx reductions are estimated
See Box 9 of economic guidance document

The benefits of air pollution reductions can be valued in economic terms

These benefits can be obtained using 'damage costs', which provide the benefits of marginal air quality improvements, in benefits (£) per tonne of pollutant reduced.

These damage costs are presented on the Defra web-site

<http://www.defra.gov.uk/environment/airquality/panels/igcb/guidance/index.htm>

To estimate benefits, it is necessary to select the pollutant, and specify the year that the scheme starts and the length of time

	Tonnes abated/year	Nox	Present Value benefits (£)
Option A		10	53148
Option B		14	74407

These calculations can be undertaken with the damage cost calculator, as below

1. What length (in years) is your policy appraisal?	6
2. When is the first year of your appraisal?	2007
3. What pollutant are you assessing? (click box to select from drop-down menu)	1
4. Input the annual changes in emissions below (in tonnes)	

Year	2007	2008	2009	2010	2011	2012	2013
Change in emissions (tonnes)	10	10	10	10	10	10	

CALCULATED RESULTS	
Central Estimate Present Value	£ 0.05 Million £ 53,148

1. What length (in years) is your policy appraisal?	6
2. What is the base year for the appraisal?	2007
3. What pollutant are you assessing? (click box to select from drop-down menu)	1
4. Input the annual changes in emissions below (in tonnes)	

Year	2007	2008	2009	2010	2011	2012
Change in emissions (tonnes)	14	14	14	14	14	14

CALCULATED RESULTS	
Central Estimate Present Value	£ 0.07 Million £ 74,407

If additional PM10 emissions are included
 With the location

	Tonnes abated/year	PM10	Present Value benefits (£)	NOX + PM10
Option A		0.1	65,602	118,750
Option B		0.05	32801	107,208

1. What length (in years) is your policy appraisal?	6
2. What is the base year for the appraisal?	2007
3. What pollutant are you assessing? (click box to select from drop-down menu)	12
4. Input the annual changes in emissions below (in tonnes)	

Year	2007	2008	2009	2010	2011	2012	
Change in emissions (tonnes)	0.1	0.1	0.1	0.1	0.1	0.1	

CALCULATED RESULTS	
Central Estimate Present Value	£ 0.07 Million
	£ 65,602

1. What length (in years) is your policy appraisal?	6
2. What is the base year for the appraisal?	2007
3. What pollutant are you assessing? (click box to select from drop-down menu)	12
4. Input the annual changes in emissions below (in tonnes)	

Year	2007	2008	2009	2010	2011	2012	
Change in emissions (tonnes)	0.05	0.05	0.05	0.05	0.05	0.05	

CALCULATED RESULTS	
Central Estimate Present Value	£ 0.03 Million
	£ 32,801

In this example, the cost benefit analysis is undertaken
See Box 9 of economic guidance document

First if only NOx is included

	Present Value costs (£)	Present Value benefits (£)	Net Present Value	
Option A	55515	53148	-2367	This scheme has a negative net present value
Option B	65150	74407	9257	This scheme has a positive net present value
	see earlier sheet	see earlier sheet	benefits - costs	

Then in NOX and PM10 are included

	Present Value costs (£)	Present Value benefits (£)	Net Present Value	
Option A	55515	118750	63235	This scheme now has a positive net present value
Option B	65150	107208	42058	and it is now greater than scheme B
	see earlier sheet	see earlier sheet	benefits - costs	

In this example, a 'net' cost-effectiveness analysis is undertaken
See Box 10 of economic guidance document

The estimation of the net cost-effectiveness analysis nets benefits from the pure cost aspects to give the cost-effectiveness ranking

Option A reduces emissions by 10 tonnes of NOx a year in the area.

Option B reduces emissions by 14 tonnes of NOx a year in the area

The cost-effectiveness is then the annual emission reduction divided by the equivalent annual cost for costs, the EAC was given on previous work sheet
For benefits, the total benefits (NOx and PM) have to be annualised

	A	B
Sum of PV	£118,750	£107,208
Discount rate	3.50%	3.50%
Number of years	6	6
EAC (formula)	£22,286	£20,120
EAC (excel)	£22,286	£20,120

	EAC	EAB	Net	NOx Tonnes abated/year	Costs per tonne abated	
Option A	10418	£22,286	-£11,867	10	-1187	option A now is more cost-effective when the other environmental aspects are taken into account
Option B	12227	£20,120	-£7,893	14	-564	

Cost-Effectiveness

Example on Retrofit technology

This is for a DPF, using the costs from the IGCB economic analysis

Base year	2008	
Scheme start	2008	Note in this example, the base year is the same as the start year, so the discount factor is 1 for year 0
Discount rate	3.50%	
Number of years	5	

	2008	2009	2010	2011	2012
Equipment - bus	Year 0	Year 1	Year 2	Year 3	Year 4
DPF capital (resource)	1,750				
DPF maintenance	240	240	240	240	240
DPF fuel	0	0	0	0	0
Total	1,990	240	240	240	240
Discount factor	1.00000	0.96620	0.93350	0.90190	0.87140
Discounted cost	1,990	232	224	216	209
Present value	2,872				
Equivalent annualised cost	£636				

from HMT scheme (previous worksheet)

The value in each year is multiplied by the discount factor

The sum of these present values give the present value

Use equation or the simple excel formula (PMT)

Annual emission benefits

PM10	emissions g/km	emission per year tonnes	benefit at 90% cost abatement	cost per tonne
Euro II	0.194	0.00387	0.0035	£182,409
Euro III	0.139	0.00279	0.0025	£253,346
Euro IV	0.029	0.00058	0.0005	£1,216,062
Euro IV+ (2008)	0.029	0.00058	0.0005	£1,216,062

source NAEI Assume
20 000 km
peryear in area

Cost-benefit analysis

The benefits for a Euro II bus are based on a five year lifetime

benefit at 90%
abatement

Euro II 0.0035 in the central zone

This value is entered into the Defra damage cost calculator

<http://www.defra.gov.uk/environment/airquality/panels/igcb/guidance/index.htm>

The length of the scheme and the base year need to be entered
In this case, we are using a 2008 base year and a 5 year scheme

To estimate benefits, it is necessary to select the pollutant, and specify the year that the scheme starts and the length of time

A 5 year lifetime

The central zone corresponds with area location 12 - inner conurbation

1. What length (in years) is your policy appraisal?	5
2. What is the base year for the appraisal?	2008
3. What pollutant are you assessing? (click box to select from drop-down menu)	12
4. Input the annual changes in emissions below (in tonnes)	

Year	2008	2009	2010	2011	2012		
Change in emissions (tonnes)	0.00349	0.00349	0.00349	0.00349	0.00349		

CALCULATED RESULTS	
Central Estimate Present Value	£ 0.00 Million
	£ 1,966

Estimated Range	£ 0.00	-	0.00	Million
	£ 1,537	-	2,231	

This gives the benefits, however, the total benefits are relevant for the Cba, so it is also necessary to add the benefits outside the zone
 We assume the vehicle also does 30 000 km outside the zone each year

Annual emission benefits

PM10	emissions g/km	emission per year tonnes	benefit at 90% abatement
Euro II	0.194	0.00581	0.00523

source NAEI Assume
 30 000 km
 peryear in area

This value is also entered into the damage cost spreadsheet.
 However, for PM, the location of emissions is important, and so a new page must be used

The outer zone corresponds with area location 13 - outer conurbation

1. What length (in years) is your policy appraisal?	5
2. What is the base year for the appraisal?	2008
3. What pollutant are you assessing? (click box to select from drop-down menu)	13
4. Input the annual changes in emissions below (in tonnes)	

Year	2008	2009	2010	2011	2012		
Change in emissions (tonnes)	0.00523	0.00523	0.00523	0.00523	0.00523		

CALCULATED RESULTS	
Central Estimate Present Value	£ 0.00 Million
	£ 1,832

Estimated Range	£ 0.00 - 0.00 Million
	£ 1,433 - 2,080

The main page then shows the total benefits, i.e. the two sets of benefits are added together

IGCB Damage Cost Calculator - Total Appraisal Results

Key:
Central Estimate: This is the most likely estimate of damage costs based on the probability distribution used for Monte-Carlo analysis of air quality impacts
Estimated Results: This is the main central results of the calculator using the range of damage cost values as agreed by the IGCB.
Sensitivity Damage Cost Range: These are the sensitivity low and high values of the central damage costs.

Central Estimate Present Value	£ <input type="text" value="0.0"/> Million
	£ <input type="text" value="3,798"/>

Estimated Range	£ <input type="text" value="0.0"/> - <input type="text" value="0.0"/> Million
	£ <input type="text" value="2,970"/> - <input type="text" value="4,311"/>

This is compared against the NPV of costs

Equipment - bus	NPV Benefits	NPV Costs	Net NPV
DPF	3,798	2,872	926

To estimate the net cost-effectiveness analysis, the benefits need to be expressed as an equivalent annual cost.

A	
Sum of PV	£3,798
Discount rate	3.50%
Number of years	5
EAC (formula)	£841
EAC (excel)	£841

Net cost effectiveness	EAC Costs £636	EAC Benefits Net £841	-£205	Tonnes abated 0.00349 in central area	Net cost effectiveness -£58,853
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Annualised Costs

In this example, we are estimating the costs of alternative schemes

	Base scheme	Scheme A Bus	Scheme B Heavy	Scheme C All
Start-up (capital)				
Equipment	150,000	250,000	250,000	350,000
Central system	50,000	100,000	150,000	200,000
Other	70,000	100,000	200,000	250,000
Total	270,000	450,000	600,000	800,000
Operating costs (end of year 1)				
Maintainance	10,000	20,000	20,000	30,000
Central system, premises and supplies	65,000	75,000	80,000	150,000
Staff costs	120,000	170,000	230,000	330,000
Total	195,000	265,000	330,000	510,000

BASE

Base year	2007	This is year 0
Scheme start year	2008	This is year 1. This is important in picking the correct discount factor note below that this starts with year 1 discount factor
Discount rate	3.50%	
Number of years	8	

	2008 Year 1	2009 Year 2	2010 Year 3	2011 Year 4	2012 Year 5	2013 Year 6	2014 Year 7	2015 Year 8		
Base										
Capital costs	270,000									
Ongoing costs	195,000	195,000	195,000	195,000	195,000	195,000	195,000	195,000		
Total	465,000	195,000	195,000	195,000	195,000	195,000	195,000	195,000		
Discount factor	0.96620	0.93350	0.90190	0.87140	0.84200	0.81350	0.78600	0.75940		
Discounted cost	449,283	182,033	175,871	169,923	164,190	158,633	153,270	148,083		
Net present value	1,601,285									
Equivalent annualised cost	£232,949									

Scheme A

Discount rate	3.50%
Number of years	8

A	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Capital costs	450,000							
Ongoing costs	265,000	265,000	265,000	265,000	265,000	265,000	265,000	265,000
Total	715,000	265,000	265,000	265,000	265,000	265,000	265,000	265,000
Discount factor	0.96620	0.93350	0.90190	0.87140	0.84200	0.81350	0.78600	0.75940
Discounted cost	690,833	247,378	239,004	230,921	223,130	215,578	208,290	201,241
Present value	2,256,374							
Equivalent annualised cost	£328,250							

Scheme B

Discount rate	3.50%
Number of years	8

B	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Capital costs	600,000							
Ongoing costs	330,000	330,000	330,000	330,000	330,000	330,000	330,000	330,000
Total	930,000	330,000	330,000	330,000	330,000	330,000	330,000	330,000
Discount factor	0.96620	0.93350	0.90190	0.87140	0.84200	0.81350	0.78600	0.75940
Discounted cost	898,566	308,055	297,627	287,562	277,860	268,455	259,380	250,602
Present value	2,848,107							
Equivalent annualised cost	£414,333							

Scheme c

Discount rate	3.50%
Number of years	8

Capital costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Capital costs	800,000							
Ongoing costs	510,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Total	1,310,000	510,000	510,000	510,000	510,000	510,000	510,000	510,000
Discount factor	0.96620	0.93350	0.90190	0.87140	0.84200	0.81350	0.78600	0.75940
Discounted cost	1,265,722	476,085	459,969	444,414	429,420	414,885	400,860	387,294
Present value	4,278,649							
Equivalent annualised cost	£622,444							

Thee summary of present value and equivalent annual cost values are shown below

	Base	A	B	C
PV	1,601,285	2,256,374	2,848,107	4,278,649
EAC	232,949	328,250	414,333	622,444

The EAC can be compared against the emission benefits of the schemes, to look which is most cost-effective

The PV can be used to compare against the present value of (economic) benefits to look at the net present value of the scheme

However, to assess cost-effectiveness and cost-benefit analysis fully, it is necessary to also consider the costs to operators

This would include, for example, the costs of fitting DPF to older vehicles, see retrofit example

Cost-Effectiveness

Example on Retrofit technology

This is for a SCR using the costs from the IGCB economic analysis

Base year	2008	
Scheme start	2008	Note in this example, the base year is the same as the start year, so the discount factor is 1 for year 0
Discount rate	3.50%	
Number of years	10	

For fuel consumption

Annual mileage	50000	km per year		Conversion (DfT)	
Fuel efficiency	2.8	km per litre	7.8 miles per gallon source TSGB, table 3.4	1 kilometre = 0.6214 mile	1 Gallon = 4.546 litres
Cost fuel per litre (resource)	0.947	no tax included	source TSGB, table 3.3		
Change in efficiency	-6%				
Fuel cost	17148				

<http://www.dft.gov.uk/pgr/statistics/datatablespublications/tsgb/2007edition/section3energyenvironment.pdf>

Equipment - bus	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
SCR capital (resource)	430									
SCR additive	219	219	219	219	219	219	219	219	219	219
SCR fuel penalty	1029	1029	1029	1029	1029	1029	1029	1029	1029	1029
Total	1,678	1,248	1,248	1,248	1,248	1,248	1,248	1,248	1,248	1,248
Discount factor	1.00000	0.96620	0.93350	0.90190	0.87140	0.84200	0.81350	0.78600	0.75940	0.73370
Discounted cost	1,678	1,206	1,165	1,125	1,087	1,051	1,015	981	948	916
Net present value	11,172									
Equivalent annualised cost	£1,343									

Annual emission benefits

Nox	emissions	emission per	cost
	g/km	year tonnes	per tonne
Euro IV	3.629	0.07259	
LEV	1.815	0.03629	
Difference	1.815	0.036	£37,011

£38,237

source NAEI Assume
20 000 km
per year in area

This is for a EGR using the costs from the IGCB economic analysis

Base year	2008
Scheme start	2008
Discount rate	3.50%
Number of years	6
For fuel consumption	
Annual mileage	25000
Fuel efficiency	11 km per litre
Cost fuel per litre (resource)	0.947
Change in efficiency	-2%
Fuel cost	2229

1 kilometre = 0.6214 mile

1 Gallon = 4.546 litres
source TSGB, table 3.4

Diesel cars 39 miles per gallon, increase fc by 130% for LGVs

Equipment - bus	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5		
SCR capital (resource)	288							
SCR maintenance	12	12	12	12	12	12		
SCR fuel	45	45	45	45	45	45		
Total	345	57	57	57	57	57		
Discount factor	1.00000	0.96620	0.93350	0.90190	0.87140	0.84200		
Discounted cost	345	55	53	51	49	48		
Present value	600							
Equivalent annualised cost	£113							

Annual emission benefits

0.084925 20%
reduction

Nox	emissions	emission per	cost
	g/km	year tonnes	per tonne
Euro IV	0.425	0.00849	
LEV	0.340	0.00679	
Difference	0.085	0.0017	£66,302
Annual emission benefits			
PM10	emissions	emission per	cost
	g/km	year tonnes	per tonne
Euro IV	0.051	0.00102	
LEV	0.005	0.00010	
Difference	0.046	0.001	£122,764

0.045866 90%

20 000 inside the main area, 5000 outside

Cost-benefit analysis

The benefits for a LEV rigid vehicle based on a ten year lifetime

Additional benefits outside the zone double total benefits

LEV benefit 0.0726

This value is entered into the Defra damage cost calculator

<http://www.defra.gov.uk/environment/airquality/panels/igcb/guidance/index.htm>

To estimate benefits, it is necessary to select the pollutant, and specify the year that the scheme starts and the length of time

a ten year lifetime

a 2008 base year

1. What length (in years) is your policy appraisal?	10	14. PM 10
2. What is the base year for the appraisal?	2008	15. PM 2.5
3. What pollutant are you assessing? (click box to select from drop-down menu)	1	16. PM 10
4. Input the annual changes in emissions below (in tonnes)		17. PM 2.5
		18. PM 10
		19. CO ₂
		20. Ammonia

Year	2008	2009	2010	2011	2012	2013	2014	2016	2017
Change in emissions (tonnes)	0.07259	0.07259	0.07259	0.07259	0.07259	0.07259	0.07259	0.07259	0.07259

CALCULATED RESULTS	
Central Estimate	£ 0.00 Million
Present Value	£ 640

The same approach is used for the EGR

Note for PM, it is necessary to enter the location of the emissions

The benefits are

Nox

PM (central conurbation)

PM (outer conurbation)

For all 25000 annual mileage

Annual emission benefits

Nox	emissions	emission per	
	g/km	year tonnes	
Euro IV	0.425	0.01062	
LEV	0.340	0.00849	
0.084925 20% reduction Difference	0.085	0.0021	
Annual emission benefits			
PM10	emissions	emission per	
	g/km	year tonnes	
Euro IV	0.051	0.00102	
LEV	0.005	0.00010	
0.045866 90% Difference	0.046	0.001	

central zone

Annual emission benefits			
PM10	emissions	emission per	
	g/km	year tonnes	
Euro IV	0.051	0.00025	
LEV	0.005	0.00003	
0.045866 90% Difference	0.046	0.000	

outer zone

Total present value benefits

724

Equipment - bus	PV Benefits	PV Costs	Net Present Value
EGR LGV	724	600	124
SCR rigid	640	11,172	-10532
	640	11,542	-10902

Note that in this case, the scheme should also take account of the changes in fuel consumption, and GHG emissions using the SPC values to provide estimates of the monetary benefits or costs of changes in CO2 emissions

This is particularly important for LEVs (though not included in this example)