

REGULATORY AND ENVIRONMENTAL IMPACT ASSESSMENT FOR DIRECTIVE 2001/80/EC ON THE LIMITATION OF EMISSIONS OF CERTAIN POLLUTANTS INTO THE AIR FROM LARGE COMBUSTION PLANTS

Purpose and Intended Effect of the Measure

Objective

1. The revised Large Combustion Plant Directive (Directive 2001/80/EC – the revised LCPD) aims to reduce acidification, ground level ozone and particles throughout Europe by controlling emissions of sulphur dioxide (SO₂), nitrogen oxides (NO_x) and dust (particulate matter – PM) from combustion plants above 50 megawatts thermal (MWth). These include plants in power stations, refinery boilers and industrial processes running on solid, liquid and gaseous fuel.
2. The revised LCPD takes into account advances in combustion and abatement technologies. It will replace the original LCPD (88/609/EEC) adopted in November 1988.

The issue

3. SO₂, NO_x and particles can travel long distances from their sources before being deposited onto land, surface waters or oceans, or forming ozone (NO_x forms ozone in the presence of VOCs and sunlight). Emissions from the UK contribute to pollution problems in other Member States, while Germany, Netherlands, France, Ireland and Belgium are the principal non-domestic contributors to sulphur and nitrogen deposition, and ambient concentrations of pollutants, in the UK. A Europe-wide approach to reducing these pollutants and their impacts is therefore required.

Risk assessment

4. The Directive will reduce air pollution with benefits to public health arising from the lower emissions from this sector reducing the number of deaths brought forward as a result of pollution, and benefits to the environment by reducing damage to ecosystems. Combustion plants contribute very roughly some 25% of NO_x, 75% of SO₂, and 25% of particulate emissions in the UK. The Directive will add to the cost of operating some older large combustion plants by requiring reductions in emissions. The additional cost of reducing these emissions may lead to increased costs to consumers. We do not expect that these additional costs will be such that industry ceases to operate combustion plants.

Main provisions

5. The Directive will update the regulatory structure for large combustion plants.

Compliance Options

6. Transposition of the Directive is a mandatory requirement. Not to transpose would risk infraction proceedings and the UK would be subject to substantial penalties. There are a number of alternative approaches to implementation for older plant but these were not the subject of the recent consultation which covered only transposition for post-1987 plant. The proposed method of transposition is compatible with all of the approaches to implementation; there will be further consultations on implementation in due course.

7. Plants subject to the revised LCPD are also subject to the provisions in other Community legislation. The measures include Directive 96/61/EC (Integrated Pollution Prevention and Control Directive – IPPC Directive), and Directive 2001/81/EC (National Emissions Ceilings Directive – NECD). The precise requirements under the IPPC Directive for this sector have yet to be finalised. Consultations on transposition of the NECD ran in parallel with those on transposition of the LCPD. The Scottish Executive intends to publish answers to a number of Frequently Asked Questions about these interactions; some uncertainties about interactions will remain until decisions on implementation of these Directives are further advanced.

‘New’ and ‘New-New’ Plants

8. There is only one compliance option for plants licensed in or after July 1987, but before the Directive comes into force (‘new’ plants), and plants licensed after the revised LCPD comes into force (‘new-new’ plants) – they must all comply with the emission limit values (ELVs) set out in the revised LCPD.

‘Existing’ Plants (pre 1987 plants)

9. Member States have two options for controlling emissions from plants licensed before July 1987 (‘existing’ plants):
 - To apply the ELVs in the revised LCPD to each ‘existing’ plant by 1 January 2008. Under this approach all ‘existing’ plants that have not opted for the limited life derogation will have to meet specific ELVs for NO_x, SO₂ and dust by certain dates. Plants operating at low load factors or with certain fuels may be subject to less stringent ELVs.
 - To implement a UK National Plan. A National Plan must reduce the total annual emissions of NO_x, SO₂ and dust from ‘existing’ plants to the levels that would have been achieved if the ELVs for ‘existing’ plants, in operation in the year 2000, had been applied. The level that ‘would have been achieved’ takes the form of a ‘bubble’ for each pollutant based on each plant’s actual annual operating time, fuel used and thermal input (averaged over the last five years of operation up to and including 2000).
10. As an alternative to having to meet the ELVs or be included in a National Plan, operators of ‘existing’ combustion plants can commit to close the plant within 20,000 operational hours starting from 1 January 2008. The operator must inform the competent authority of this decision before 30 June 2004. This derogation has an end date of 31 December 2015.

Issues on the options

11. A National Plan would be more flexible than the ELV approach because some plants could emit more than the ELVs in balance with other plants emitting less. Costs are sensitive to the legal interpretation of the Directive, to the implementation option adopted, and to the extent to which plants opt for derogations.

Identifying the Benefits

‘New’ and ‘new-new’ plants

12. All plants built since 1987 and those after the revised LCPD comes into force must meet the specified ELVs. Since ‘new’ plants in the UK are generally

expected to meet the revised ELVs already and ‘new-new’ plants will have to achieve requirements under existing UK legislation, there are not expected to be significant additional benefits as a result of implementing the revised LCPD for these plants, nor any additional costs for this sector.

13. Throughout Europe, the Commission estimated that their proposed ELVs for new large combustion plants would reduce emissions across the European Community over the period 2000 - 2010 of:

- 1000 kilotonnes of sulphur dioxide
- 4000 kilotonnes of nitrogen oxides and
100 kilotonnes of particulate matter.

14. The Commission estimated that the monetised benefits (of the emission limit values for new large combustion plant) in terms of less material damage, morbidity and mortality would amount to €38,444 million (some £25,000m) over the period. They did not attempt to monetise the ecosystem benefits. The Commission claimed a benefit to cost ratio of greater than seven for boilers and greater than twenty-six for gas turbines.

‘Existing’ plants

15. The anticipated benefits of the revised LCPD to the UK from controlling emissions from ‘existing’ plants depend on whether the ELV or National Plan approach is implemented. The benefits are related to the emission reductions that will be achieved (Table 1) compared to the business as usual scenario (BAU).

Table 1 Estimated Actual Incremental Emissions Reductions in Comparison to BAU Emissions

Implementation Approach	2008 Compliance Year (kilo tonnes per annum)			2016 Compliance Year (kilo tonnes per annum)			2018 Compliance Year (kilo tonnes per annum)			Total Emissions Reductions from 2008 to 2026 (Note 1) (kilo tonnes)		
	SO2	Nox	PM	SO ₂	NO _x	PM	SO ₂	NO _x	PM	SO ₂	NO _x	PM
National Plan	0 to 157	0 to 30	0 to 4	13 to 109	7 to 50	1 to 3	18 to 111	24 to 70	1 to 5	143 to 1315	147 to 401	5 to 34
ELV	116 to 235	9 to 27	2 to 4	105	62	3	107	73	3	1533 to 1954	445 to 496	28 to 34

Note

1. 2026 is used as an end year for the assessment time horizon as it represents the latest estimated BAU closure date for ‘existing’ coal fired power stations.

16. Using the predicted emissions reductions it has been possible to estimate the quantifiable benefits for each approach (Table 2). The benefits and costs have been calculated using the best available information, sound statistical techniques and common valuation methods. The human health benefits have been quantified following the approach advised by the Committee on the Medical Effects of Air Pollutants (COMEAP) using the dose-response relationships recommended for quantification of acute effects of exposure to

SO₂, particles and ozone and following the more recent advice from COMEAP on the long term effects of particles on mortality. The values associated with reductions in damage to crops and buildings are taken from the European Commission ExternE project.¹ However, it should be recognised that there is inevitably a degree of uncertainty in the data for costs and benefits which is reflected in the ranges given.

17. The quantified benefits of each compliance option shown in Table 2 are likely to underestimate the total benefits gained by compliance with the revised LCPD because they do not take account of certain benefits that cannot readily be quantified with confidence. Those that cannot be quantified include:
- Reductions in chronic (long-term) health effects of pollutants, except for the long-term effects of particles which have been quantified.
 - Reductions in health effects directly due to NO_x.
 - Reductions in other morbidity effects, which might be less significant but which could affect a larger number of people.
 - Reductions in damage to forestry and other ecosystems.

Table 2 - Quantified benefits due to implementation of the Revised LCPD (Note 1)

Implement- ation Approach	Type of benefit	Annual Benefits for 2008 Compliance Year	Annual Benefits for 2016 Compliance Year	Annual Benefits for 2018 Compliance Year	Total Benefits from 2008 to 2026
National Plan	No. of deaths not brought forward	0 to 40	5 to 35	10 to 45	90 to 395
	No. of RHAs avoided or not brought forward	0 to 40	5 to 45	15 to 50	90 to 435
	No. of cardiovascular admissions avoided	0 to 1	0 to 1	0 to 1	1 to 3
	No of life years gained	0 to 600	60 to 450	60 to 750	300 to 5100
	Reductions in acidity exceedences of ecosystems km ² (%)	0 to 273 (0 to 1%) (Note 2)	-	-	-
	Reductions in nutrient nitrogen exceedences of ecosystems km ² (%)	0 to 18 (0%) (Note 2)	-	-	-
	Reductions in building damage (£m)	0 to 80	5 to 55	10 to 55	70 to 655
	Reductions in crop damage (£m)	0 to 15	5 to 20	10 to 30	60 to 170
	Reductions in building soiling (£m)	0 to 1	0 to 1	0 to 1	1 to 9
	Total monetised benefits (£m)	0 to 100	10 to 80	20 to 90	130 to 840
ELV	No. of deaths not brought forward	25 to 55	40	45	450 to 550
	No. of RHAs avoided or not brought forward	25 to 60	45	50	495 to 600
	No. of cardiovascular admissions avoided	0 to 1	0 to 1	0 to 1	1 to 3
	No of life years gained	120 to 600	180 to 450	180 to 450	1680 to 5100
	Reductions in acidity exceedences of ecosystems km ² (%)	1336 to 1666 (2%) (Note 2)	-	-	-
	Reductions in nutrient nitrogen exceedences of ecosystems km ² (%)	12 to 19 (0%) (Note 2)	-	-	-
	Reductions in building damage (£m)	60 to 120	55	55	775 to 985
	Reductions in crop damage (£m)	5 to 10	25	30	190 to 210
	Reductions in building soiling (£m)	0 to 1	0 to 1	0 to 1	7 to 9
¹ For a more detailed discussion of the approach used to quantify the benefits, see "The determination of the costs and benefits of the Revised Large Combustion Plant Directive" (Defra, October 2001).					
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	Total monetised benefits (£m)	65 to 130	80	85	970 to 1200
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Note

1. Figures are rounded.
2. Modelling undertaken for selected scenarios only
3. RHAs = respiratory hospital admissions

18. It is important to note that:

- The emission reductions (and hence environmental benefits) gained under the business as usual scenario will be considerably greater than the additional reductions gained under either implementation option.
- A high degree of protection for human health and ecosystems from emissions of SO₂, NO_x and particles will be maintained by policies on air quality, although there remains uncertainty as to the precise measures. In addition to the revised LCPD, these policies would include the Air Quality Strategy for England, Scotland, Wales and Northern Ireland, and, if appropriate measures taken under the NECD.

19. There will also be considerable benefits to the UK through emissions reductions made by other countries; it has not been possible to quantify these benefits.

Identifying the costs

Business sectors affected

20. The sectors potentially affected by the proposal are electricity generation, oil refining and other operators of large boilers such as chemical manufacturers, car manufacturers, sugar refiners, distillers, the primary and secondary iron and steel producers, aluminum production and paper manufacturers. Overall, any impact of the revised LCPD is expected to be most significant on existing large plants in the Electricity Supply Industry due to their relatively high business as usual emissions and the more stringent ELVs that apply to the largest plants. The costs arise as a result of industry needing to operate plants so that emissions are reduced, either by different operating practices or by additional emissions control equipment.
21. Charities and voluntary organizations are unlikely to be directly affected.

'New' and 'new-new' plants

22. Under the Department of Trade and Industry (DTI) energy projections (EP68), large CCGTs are the most typical type of 'new-new' plant likely to be built within the next ten years. Under the revised LCPD a new gas turbine would be of an inherently low-NO_x design and should be able to meet the 'new-new' ELVs. The regulatory agencies would already require this standard of control under the existing Integrated Pollution Control (IPC) regime (and the Integrated Pollution Prevention and Control (IPPC) regime that will supersede it), so the additional cost of this proposal would be zero.
23. In the case of 'new' plants, the revised LCPD is not expected to impose significant incremental costs because ELVs for these plants are either the same as those they are committed to complying with already (under the original LCPD), or are not significantly more stringent and will be met, in general, by business as usual performance.

'Existing' Plants

24. The cost of implementing the revised LCPD for 'existing' plants depends on whether the ELV approach or a UK National Plan is implemented. While the assumptions are based on a good understanding of energy supply markets, anticipated life of plants and other influences, they should be recognised as predictions that contain some uncertainty that will need to be verified and modified over time.
25. Costs of the ELV approach can be calculated by determining the cost of additional control equipment required to meet the revised ELVs compared to the costs of the business as usual scenario. The business as usual scenario includes estimates of future emissions performance, load factors and plant closures. The compliance costs for the ELV approach are presented in Table 3.
26. Estimating the costs of a National Plan is not quite so straightforward since the costs will depend on what plants are in the Plan, how it is implemented and market influences. In order to estimate costs it was necessary to develop a National Plan model using certain assumptions.
27. The assessment of the National Plan approach also assumes that any practical difficulties can be overcome that might prevent taking full advantage of the flexibility that would be the benefit of this approach to allow compliance costs to be reduced. Flexibility arises because some plants can emit more than the ELVs in balance with other plants emitting less than the ELVs. Such practical issues would need to be identified and addressed as part of process of deciding whether to adopt the ELV or National Plan approach.

Table 3 Incremental Costs of Compliance with the National Plan and ELV approaches (£m) (Note 1)

Implementation approach	2008 Year Compliance	2016 Year Compliance	2018 Year Compliance	Total
National Plan Approach	0 to 360	20 to 230	30 to 190	150 to 770
ELV Approach	1030 to 1130	470	10	1520 to 1620

Note

1. The assessment time horizon has been taken as the period up to 2026, which represents the latest estimated BAU closure date for 'existing' coal fired power stations. Assumptions are based on EP 68 and figures are rounded to nearest £10 million.

28. The total cost of implementing the revised LCPD via the UK National Plan approach is estimated to range between £150m and £770m in present value terms, assuming a 6% discount rate.
29. The total cost of implementing the revised LCPD via the ELV approach is estimated to range between £1,520m and £1,620m in present value terms, assuming a 6% discount rate.
30. The cost estimates are based on the DTI energy projections that assume high range estimates of fuel prices in the future, as recommended. If low range estimates of fuel prices were used, the cost estimates would be significantly

lower because under this scenario a much smaller quantity of coal-fired power generation is projected to occur in the future. Assumptions made about the implementation of the Directive are set out in the appendix.

Compliance costs for a typical business

'New' and 'new-new' plants

31. It is expected that, in general, the revised LCPD will not require any additional abatement equipment or combustion technology improvements beyond those already required under IPPC regimes in force in the UK. In which case there will be no extra costs for 'new' and 'new-new' plants.

'Existing' plants

32. As described above, costs for typical 'existing' large combustion plants, including some in Scotland, depend on which approach is taken to implement the revised LCPD. Costs will also depend on the age of the plant, size of the plant, existing emissions control equipment, whether the plant opts for a derogation, and the type of fuel used.
33. Under a UK National Plan, the ELVs that apply in 2008 are estimated to require between 0 to 8 plants each incurring incremental costs ranging from £0m to £130m in present value terms. For the ELVs that apply in 2016, 1 to 5 plants are predicted each to incur incremental costs ranging from £20m to £70m in present value terms. For the ELVs that apply in 2018, 1 to 2 plants are predicted each to incur incremental costs ranging from £20m to £170m in present value terms.
34. Under the ELV approach, the ELVs that apply in 2008 are estimated to require between 26 to 35 plants each incurring incremental costs ranging from below £10m to £150m in present value terms. For the ELVs that apply in 2016, 9 plants are predicted each to incur incremental costs ranging from below £10m to £200m in present value terms. For the ELVs that apply in 2018, 1 plant is predicted to incur incremental costs of approximately £10m in present value terms.

Consultation with Small Business - The Litmus Test

35. The revised LCPD sets standards for large industrial plant. It does not introduce any new requirements for small business.

Other costs

36. No other costs are expected for the combustion sector as a whole. Operators already meet the costs of regulation under the existing IPC regime, and the IPPC regime which will eventually supersede it. These costs are unlikely to change as a result of the revised LCPD.

Competition Assessment

37. We have applied the competition filter to the combustion sector and that suggests the proposals do not give rise to any significant competition issues. However the national plan approach would have less effect on international competitiveness than the alternative implementation option, as present indications are that it is likely to be cheaper overall.

Summary

38. The costs and benefits of implementing the revised LCPD depend on whether the ELV approach or National Plan approach is adopted for existing plants.
39. The benefits that can be monetised of implementing the revised LCPD under the ELV approach are estimated to be in the approximate range £950m to £1200m, and under the National Plan approach in the approximate range of £150m to £800m.
40. Costs of implementing the revised LCPD under the ELV approach are estimated to be in the approximate range of £1,500m to £1,600m in present value terms, and under the National Plan approach in the approximate range of £150m to £800m in present value terms.
41. Table 4 below sets out the full range in costs and benefits under the ELV and National Plan approaches. The net monetised benefit obtained from implementing the revised LCPD will vary according to the implementation approach adopted and the scenario assumed. The net monetised benefits range from -£20m to + £70m for the National Plan approach and from -£550m to -£420m for the ELV approach depending on the scenario considered. These scenarios are set out in Table A2 in the Appendix to this REIA.

Table 4 Comparison of net monetised benefits for the least- and highest-cost scenarios

Implementation approach	Scenario no.	Total Cost of Compliance £m	Total Monetised Benefits £m	Net Monetised Benefits £m
National Plan	4	770	840	+70
	5	150	130	-20
ELV	10	1620	1200	-420
	11	1520	970	-£550

42. It is important to stress that the values given in Table 4 are net *monetised* benefits, the monetised benefits arising from reductions in crop damage and reductions in damages to buildings. In particular, they do not include the health and ecosystem benefits resulting from reductions in air pollution. The health benefits have been quantified but not been valued because of the Department of Health's view on the uncertainty in the health values to apply in the air pollution context. However, Table 2 shows that these quantified benefits are potentially significant. In terms of reductions in acute deaths brought forward, the National Plan estimates between 90 to 395 over the period 2008 to 2026. In comparison the ELV approach is estimated to lead to reductions in acute deaths between 450 to 550.

Enforcement, Sanctions, Monitoring and Review

- 43. Emissions to air from large combustion plant are already regulated by the Environment Agency in England and Wales and by the Scottish Environment Protection Agency in Scotland under Part I of the Environmental Protection Act 1990, and by the Chief Industrial Pollution Inspector in Northern Ireland under the Industrial Pollution Control (Northern Ireland) Order 1997. By 2007 new Regulations made under the Pollution Prevention and Control Act 1999 for England and Wales, and for Scotland, will implement the Integrated Pollution Prevention and Control (IPPC) Directive and replace Part I of the Environmental Protection Act 1990; Northern Ireland will also introduce new regulations to implement the IPPC Directive. By 2007 the various UK regulatory bodies will regulate emissions from large combustion plants under this new legislation.
- 44. Permits granted under PPC Regulations contain conditions on the operation of the plant, including particular standards of emissions performance and provision for measuring emissions to check compliance. Any differences in monitoring regimes will be taken into account in preparing revised regulations.
- 45. For all processes regulated under the PPC (England and Wales) Regulations 2000, the sanctions for noncompliance are a maximum fine of £20,000 and/or up to six months' imprisonment if convicted in a Magistrates Court or an unlimited fine and/or imprisonment for up to five years for conviction in the Crown Court. The fines and sentences for the regulations in Scotland are the same, but in relation to a summary and indictment conviction.
- 46. Review REIAs will be conducted in line with decisions taken on whether to follow the National Plan or ELVs route.

Regulatory Quality

Declaration. I have read the Regulatory Impact Assessment and I am satisfied that the benefits justify the costs.

Signed by the responsible Minister.....

Date.....

Allan Wilson MSP
Deputy Minister for Environment and Rural Development

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Appendix

ASSUMPTIONS MADE FOR THE PURPOSE OF THIS REIA

Assumptions made

1. For the purposes of the REIA, preliminary assumptions have been included based on those made by the European Commission DG Environment in their second draft report *Development of a guidance document to assist Member States in the preparation of national emission reduction plans for large combustion plants*.
2. The REIA assumes the DTI energy projections (EP68) for the electricity supply industry. Although analysis has been based on this particular scenario, other energy market outcomes are possible. Alternative outcomes could significantly effect the environmental impact, and the costs, of the two main implementation options for 'existing' plants, both changing the absolute levels of benefits and costs expected, and changing the relative levels of benefits and costs as between them.
3. The business as usual scenario also assumes for existing plants:
 - Measures introduced under the Sulphur Content of Liquid Fuels Regulations 2000 will reduce emissions of SO₂.
 - No additional controls on plants subject to the LCPD will be required to comply with the NECD.
 - The installation of flue gas desulphurisation at plants where this has already been announced or where serious consideration is known to be being given to the possibility.
 - Additional measures will be taken to reduce NO_x emissions from power stations.
 - Load factors and closure dates for the electricity supply industry compatible with EP68.

Calculation of the 'bubble'

4. For the electricity supply industry it is assumed that plants likely to close before 31 December 2015 (derogation end date) which are not expected to operate for more than 20,000 hours from 1 January 2008, may potentially opt for the derogation. Although an alternative case, i.e. that the limited life derogation is not taken up by any plant, has also been considered. The estimated 'bubbles' for plants in the Plan are based on their actual operating time, fuel used and thermal input (averaged over the last five years of operation up to and including 2000).
5. Combustion plants associated with industrial activities are also included, as these are likely to be included in a National Plan rather than seeking a derogation. As the emission 'bubbles' depend on a number of operational factors as well as assumptions on which plants may opt to be included in a National Plan (operators have until 30 June 2004 to make this decision), the figures given can be only indicative of what might be included in a National Plan.

6. Note also that the composition of a National Plan may potentially be affected by the inter LCPD and the applicability of plant closure as a means of compliance.
7. On the basis of these assumptions, Table A1 gives the estimate of the size of the emissions approach.

Table A1 Emissions bubble estimates in kilotonnes per annum

	Total UK emissions bubble (ktpa)				
	SO ₂ - 2008 onwards	NO _x - 2008 to 2015	NO _x - 2016 to 2017	NO _x - 2018 onwards	PM - 2008 onwards
Emissions bubble under National Plan (ktpa)	187 to 269	187 to 278	112 to 157	95 to 139	16 to 26

Assumptions about dust

8. The 'dust' ELV refers to total suspended particulate emitted from combustion plants. It is less than 10 microns in diameter (PM₁₀) that are the basis for many health effects. Combustion plants have particulate control equipment to remove the coarser particles, so suspended particulate is PM₁₀. Therefore to assess the health benefits, it has been assumed entirely of PM₁₀ (referred to as PM in the tables).

Alternative Interpretations

9. There are a number of aspects of the revised LCPD where different interpretations have implications. A number of these have been examined for the purpose of this REIA. This is shown in Table A2.

Table A2 Scenarios for cost - benefit analysis

Scenario Number	Implementation approach	Meaning of combustion plant	Applicability of closures as a means of compliance	Uptake
1	National Plan approach	Power station	Yes	Yes
2	ditto	Power station	Yes	No
3	Ditto	Power station	No	Yes
4	ditto	Power station	No	No
5	Ditto	Unit	Yes	Yes
6	ditto	Unit	Yes	No
7	Ditto	Unit	No	Yes
8	ditto	Unit	No	No
9	ELV approach	Power station	Not relevant	Yes
10	ditto	Power station	Not relevant	No
11	Ditto	Unit	Not relevant	Yes
12	Ditto	Unit	Not relevant	No

10. Where the alternatives interpretations considered are:

- Meaning of combustion plant: 'power station' means that all units on a site venting through the combustion plant. Typically a UK electricity generating station consists of several units operating independently; each is considered separately under the 'unit' option .
- Applicability of closure as a means of compliance: There is an issue under the National Plan whether the closure of a plant can be used as a compliance technique. If it can – 'yes' - remains the same whether or not a plant closes. If not – 'no' – the bubble reduces as a result.
- Uptake of limited life derogation: Whether operators opt for the limited life derogation, depends on the cost of the derogation relative to the cost of the plant.

11. The effect of these alternatives on costs (rounded to the nearest £10m) is given in Table A4, broken down by country (within the UK) in Table A4.

Table A3 Comparison of costs of complying with the LCPD under the 12 assessment scenarios

Scenario Number (See Table 1)	Implementation approach	Compliance Costs (£M NPV)			
		2008	2016	2018	Total
1	National approach Plan	40	90	30	170
2	ditto	160	20	30	210
3	ditto	210	200	190	600
4	ditto	360	230	190	770
5	ditto	0	100	40	150
6	ditto	160	20	30	210
7	ditto	140	230	190	560
8	ditto	360	230	190	770
9	ELV approach	1080	470	10	1560
10	ditto	1130	470	10	1620
11	ditto	1030	470	10	1520
12	ditto	1100	470	10	1580

Table A4 Comparison of costs of complying with the LCPD under the 12 assessment scenarios for England, £

Scenario Number	Implementation approach	Meaning of combustion plant	Applicability of closures as a means of compliance	Uptake of limited operating life derogation	Compliance	
					England	Scotland
1	National Plan approach	Power station	Yes	Yes	150	0
2	ditto	Power station	Yes	No	170	20
3	ditto	Power station	No	Yes	470	110
4	ditto	Power station	No	No	610	130
5	ditto	Unit	Yes	Yes	120	0
6	ditto	Unit	Yes	No	170	20
7	ditto	Unit	No	Yes	510	20
8	ditto	Unit	No	No	610	130
9	ELV approach	Power station	Not relevant	Yes	1070	320
10	ditto	Power station	Not relevant	No	1110	320
11	ditto	Unit	Not relevant	Yes	1030	320
12	ditto	Unit	Not relevant	No	1070	320

Notes

1. Rounded to the nearest £10 million and based on figures estimated in the Draft Final Report for DEFRA and the Devolved Administrations, "Costs and benefits of the Large Combustion Plant Directive for existing plant", July 2002.