# STRATEGIES AND POLICIES OF PARTIES AND SIGNATORIES TO THE CONVENTION FOR THE ABATEMENT OF AIR POLLUTION

## 2010 QUESTIONNAIRE FOR PRIORITY COMPLIANCE REVIEW

#### **Answers Ireland**

### II. THE 1988 NITROGEN OXIDES PROTOCOL

- 1. The questions in this section are based on the reporting obligation of Parties in accordance with <u>article 8</u> and enable Parties to provide information on the implementation of the obligations under articles 2, 4 and 7 of the Protocol.
- 2. They refer to the following Parties to the Protocol: Austria, Belarus, Belgium, Bulgaria, Canada, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Liechtenstein, Lithuania, Luxembourg, the Netherlands, Norway, the Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, the United Kingdom, the United States and the European Community.
- 3. Question 2: With reference to article 7, please provide up-to-date information on the national programmes, policies and strategies your country has developed to implement the obligations under the Protocol that serve as a means of controlling and reducing emissions of nitrogen oxides  $(NO_x)$  or their transboundary fluxes. If your country is a Party to the Gothenburg Protocol, you may cross-refer to question 39.

The main overarching legislative instrument to address  $NO_x$  emissions is the European Communities (National Emissions Ceilings) Regulations 2004 which transposed the National Emissions Ceilings Directive 2001/81/EC for certain atmospheric pollutants. The directive sets a national emission ceilings for, inter alia, oxides of nitrogen ( $NO_x$ ). The emission ceiling to be achieved by Ireland by 2010 is 65kt for  $NO_x$  (44% reduction). Total  $NO_x$  emissions for Ireland in 2009 were 88.8 kt (CLRTAP Inventory Submissions 2011) comfortably in compliance with the Sofia Protocol objective of maintaining emissions below 115.4 kt, the 1987 base year total (figures adjusted to take into account fuel tourism).

The 2003 Discussion Paper: Strategy to Reduce Emissions of Transboundary Air Pollution by 2010 set out the main national challenged to address transboundary emissions. Following public consultation, a National Programme to address transboundary pollutants was issued in 2005 and this was updated in July 2007 to reflect additional sectoral measures which have been adopted and/or implemented by the Irish Government since the Programme was finalised in 2005.

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<sup>1</sup> http://www.ceip.at/submissions-under-clrtap/2011-submissions/

The acute economic downturn in Ireland has resulted in a significant reduction in economic activity from end 2008 onwards. National emission projections are currently under revision on the basis of recent post-downturn economic data. Revisions will also take into account a number of changes to estimate methodologies for the transport and residential sectors.

Click this link to access the National Programme and 2007 Update.

Emissions of  $NO_x$  in Ireland are affected by 'fuel tourism' where fuel is sold in Ireland but consumed outside the state. The factors that drive fuel tourism, have meant that for the Sofia Protocol base year of 1987, there was a net inflow of fuel from the state, thus depressing actual base year emission but in recent years the situation has reversed and there has been a net outflow of fuel from the state which inflates national emissions. The  $NO_x$  emissions inventory is compiled using two methodologies, (i) based on fuel sold and (ii) an adjusted estimate to correct for fuel tourism. Adjusted  $NO_x$  emissions were 115.4 kt in 1987 and rose to a high of 127 kt in 2001 and have since fallen to 88.8 kt in 2009.

Ireland in collaboration with the European Commission the other EU member states is revising the NEC directive (2001/81/EC) to set targets for  $NO_x$  for 2020.

4. Question 3: With reference to <u>article 2</u>, paragraph 2 (a), please specify the national  $NO_x$  emission standards applied to major stationary sources and/or major source categories in your country, taking into consideration the <u>technical annex</u> to the Protocol. For the purpose of this question, "major stationary source" means any stationary source, the construction or substantial modification of which commenced after 14 February 1993 and which has a thermal input of at least 50 MW<sub>th</sub>. Please complete the table below.

 $NO_x$  emission from major stationary sources in Ireland are regulated by the EU Large Combustion Plant directive (2001/80/EC) transposed into law in Ireland by the Large Combustion Plant Regulations (SI No 644 of 2003) and the EPA Licensing Regulations, as amended (S.I. No 85 1994). The Regulations are implemented through the Integrated Pollution Prevention and Control (IPPC) regime which applies the principle of BAT. The ELVs set out in Table 1 apply from 27 November 2003, for plant granted permissions before that date, the ELVs in Table 4 apply. Statistical treatment is prescribed in the relevant legislation.

Table 1: Question 3

| Major stationary sources or major source category2/ for NOx   | National emission<br>standards1/                               | National legislation<br>and comments (e.g.<br>BAT2 applied)  |
|---|--|--|
| 1. Public power, cogeneration and district heating plants:  | Directive 2001/80/EC<br>ELVs (mg/Nm³)                          | Large Combustion<br>Plant Regulations (SI<br>No 644 of 2003)   |
| (a) Boilers   |  |  |
| (b) Stationary combustion turbines and internal combustion engines  |  |  |
| 2. Commercial, institutional and residential combustion plants:   |  |  |
| (a) Commercial boilers  | Directive 2001/80/EC<br>ELVs (mg/Nm³)                          | Large Combustion<br>Plant Regulations (SI<br>No 644 of 2003)   |
| (b) Domestic heaters  | Oil Firing Technical<br>Association standard OFS<br>A100 (ppm) | Not enshrined in law   |
| 3. Industrial combustion plants and processes with combustion   |  |  |
| (a) Boilers and process heaters (no direct contact between flue gas and products)   | Directive 2001/80/EC<br>ELVs (mg/Nm <sup>3</sup> )             | Large Combustion<br>Plant Regulations (SI<br>No 644 of 2003)   |
| (b) Processes (direct contact); (e.g. calcinations processes in rotary kilns; production of cement, lime, etc.; glass production; metallurgical operation; pulp production) |  |  |
| 4. Non-combustion processes, e.g. nitric acid production  | NA   |  |
| 5. Extraction, processing and distribution of fossil fuels  | Directive 2001/80/EC   | Large Combustion<br>Plant Regulations (SI<br>No 644 of 2003)   |
| 6. Waste treatment and disposal, e.g. incineration of municipal and industrial waste  | Waste Incineration<br>Directive<br>(2000/76/EC)                | European<br>Communities<br>(Incineration of<br>Waste) Regulations,<br>2003 (S.I. No. 275 of<br>2003) |

<sup>1/</sup> Specify the units and statistical treatment.

Ireland has opted to develop a national emissions reduction plan (NERP) under Article 4 (6) of the Large Combustion Plants directive (2001/80/EC) to address emissions from 'existing plant' defined in the directive as any combustion plant for which the original construction licence or, in the absence of such a procedure, the original operating licence was granted before July 1<sup>st</sup> 1987. The NERP provides flexibility for

<sup>2/</sup> For the definition of major source category see article 1, paragraph 10.

<sup>&</sup>lt;sup>2</sup> Best available technologies.

plant operators to identify the most cost effective abatement options available, across a portfolio of plant, while still achieving the environmental objective of directive 2001/80/EC. The NERP option was chosen because it provides both an environmentally ambitious and a cost effective compliance route for Ireland. Many existing plant, particularly those in the electricity supply industry will be operated at low load factor in the future to cater for reserve requirements including back up capacity for wind generation. Low-load factor plant have limited potential for emission reductions and make the installation of advanced abatement technologies very costly per tonne of pollutant abated. Estimates developed in the preparation of the plan indicate potential costs of up to  $\leq 50,000$  per tonne of NO<sub>x</sub> abated for some existing plant if the plant-specific emission limit value compliance route was chosen.

The NERP developed by Ireland sets limits for emissions of  $SO_2$  and  $NO_x$  from existing plant which are significantly more ambitious than the minimum requirements of Directive 2001/80/EC. In the period from 2008 - 2016, the NERP is 27 % more ambitious for  $SO_2$  and 46 % more ambitious for  $NO_x$  emissions. Detailed emission projections for  $SO_2$  and  $NO_x$  were developed by the interested sectoral operators in consultation with relevant Government Departments and agencies to prepare the NERP using industry system models based, inter alia, on merit order dispatch and catering for system constraints.

Question 4: With reference to article 2, paragraph 2 (c), please provide details of the pollution control measures for  $NO_x$  emissions introduced in your country for major stationary sources with a thermal input of at least 100 MW<sub>th</sub>, the construction of which commenced on or before 14 February 1993, taking into consideration the technical annex to the Protocol. Please complete the table below.

 $NO_x$  emission from major stationary sources in Ireland are regulated by the EU Large Combustion Plant directive (2001/80/EC) transposed into law in Ireland by the Large Combustion Plant Regulations (SI No 644 of 2003) and the EPA Licensing Regulations, as amended (S.I. No 85 1994). The Regulations are implemented through the Integrated Pollution Prevention and Control (IPPC) regime which applies the principle of BAT. The ELVs set out in Table 2 apply before 27 November 2003. Statistical treatment is prescribed in the relevant legislation.

Table 2: Question 4

| Major stationary sources or major source category2/ for NOx                       | National emission<br>standards1/                               | National legislation<br>and comments (e.g.<br>BAT3 applied)  |
|---|--|--|
| 1. Public power, cogeneration and district  |  |  |
| heating plants:   |  |  |
| (b) Boilers   | Directive 2001/80/EC<br>ELVs (mg/Nm <sup>3</sup> )             | Large Combustion<br>Plant Regulations (SI<br>No 644 of 2003) |
| (b) Stationary combustion turbines and internal combustion engines                | Directive 2001/80/EC<br>ELVs (mg/Nm <sup>3</sup> )             | Large Combustion<br>Plant Regulations (SI<br>No 644 of 2003) |
| 2. Commercial, institutional and residential combustion plants:                   |  |  |
| (a) Commercial boilers  | Oil Firing Technical<br>Association standard OFS<br>A100 (ppm) | Not enshrined in law   |
| (b) Domestic heaters  | Oil Firing Technical<br>Association standard OFS<br>A100 (ppm) | Not enshrined in law   |
| 3. Industrial combustion plants and processes with combustion                     |  |  |
| (a) Boilers and process heaters (no direct contact between flue gas and products) | Directive 2001/80/EC<br>ELVs (mg/Nm <sup>3</sup> )             | Large Combustion<br>Plant Regulations (SI<br>No 644 of 2003) |

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<sup>&</sup>lt;sup>3</sup> Best available technologies.

| (b) Processes (direct contact); (e.g. calcinations processes in rotary kilns; production of cement, lime, etc.; glass production; metallurgical operation; pulp production) | IPPC directive<br>96/61/EC<br>BAT (mg/Nm <sup>3</sup> ) | EPA Licensing<br>Regulations, as<br>amended (S.I. No 85<br>1994).                                    |
|---|---|--|
| 4. Non-combustion processes, e.g. nitric acid production  | IPPC directive<br>96/61/EC<br>BAT (mg/Nm <sup>3</sup> ) | EPA Licensing<br>Regulations, as<br>amended (S.I. No 85<br>1994).                                    |
| 5. Extraction, processing and distribution of fossil fuels  | Directive 2001/80/EC                                    | Large Combustion<br>Plant Regulations (SI<br>No 644 of 2003)   |
| 6. Waste treatment and disposal, e.g. incineration of municipal and industrial waste  | Waste Incineration<br>Directive<br>(2000/76/EC)         | European<br>Communities<br>(Incineration of<br>Waste) Regulations,<br>2003 (S.I. No. 275 of<br>2003) |

5. Question 5: With reference to <u>article 2, paragraph 2 (b)</u>, please specify the national  $NO_x$  emission standards applied to newly registered mobile sources in all major source categories, taking into consideration the <u>technical annex</u> to the Protocol and the relevant decisions taken within the framework of the Inland Transport Committee of UNECE. If your country is a Party to the Gothenburg Protocol, you may cross-refer to questions 51-56. Please complete the table below. Table 3: Question 5

The emission standards for  $NO_x$  from road vehicles are set out in a series of EU directives and regulations known as Euro Standards<sup>4</sup>. Since 1993, robust emission standards have been progressively introduced for vehicles. These standards have substantially reduced, inter alia, NOx from passenger cars and heavy goods vehicles. The relevant directives and regulations have been transposed as necessary into Irish Law by national regulation. Relevant values for the below table can be found in the Directives and Regulations listed in the footnote below.

 $NO_x$  emissions from non-road mobile machinery are regulated under Directives 1997/68/EC as amended by Directives 2001/63/EC, 2002/88/EC and 2004/26/EC. The Directives are transposed into Irish law by the European Communities (Control

<sup>&</sup>lt;sup>4</sup> Euro Standard I -Directive 91/444/EEC, Directive 93/59/EEC and Directive 91/542/EEC

Euro Standard II – Directive 94/12/EC, Directive 96/69/EC and Directive 91/542/EEC

Euro Standard III - Directive 98/69/EC

Euro Standard IV - Directive 98/69/EC and Directive 2002/80/EC

Euro Standard V – Regulation 715(EC)/2007

Euro Standard VI - Regulation 715(EC)/2007

of Emissions of Gaseous and Particulate Pollutants from Non- Road Mobile Machinery) Regulations (SI No 147). Relevant values for the section of the table relating to non-road mobile machinery can be found in the Directives listed above.

|                                  | NO <sub>x</sub> emission           |        |      | National    |  |
|----------------------------------|------------------------------------|--------|------|-------------|--|
| Mobile source category           | standards (unit:<br>g/km or g/kWh) |        | Date | National    |  |
|                                  |                                    |        |      | legislation |  |
|                                  | Petrol                             | Diesel |      |             |  |
| 1. Road vehicles                 |                                    |        |      |             |  |
| (a) Passenger cars:              |                                    |        |      |             |  |
| (b) Light commercial vehicles    |                                    |        |      |             |  |
| Class I                          |                                    |        |      |             |  |
| Class II                         |                                    |        |      |             |  |
| Class III                        |                                    |        |      |             |  |
| (c) Heavy-duty vehicles          |                                    |        |      |             |  |
| (HDV)                            |                                    |        |      |             |  |
| (d) Motorcycles and mopeds       |                                    |        |      |             |  |
| (e) Tractors (agricultural and   |                                    |        |      |             |  |
| forestry)                        |                                    |        |      |             |  |
| 2. Non-road engine applications: |                                    |        |      |             |  |
| agricultural, mobile industrial  |                                    |        |      |             |  |
| and construction machinery       |                                    |        |      |             |  |
| ≤ 18 kW                          |                                    |        |      |             |  |
| $19 \le kW \le 37$               |                                    |        |      |             |  |
| $37 \le kW \le 75$               |                                    |        |      |             |  |
| $75 \le kW \le 130$              |                                    |        |      |             |  |
| $130 \le kW \le 560$             |                                    |        |      |             |  |
| 3. Other mobile sources          |                                    |        |      |             |  |
| (a) Rail transport               |                                    |        |      |             |  |
| Self-propelled rail cars         |                                    |        |      |             |  |
| Locomotives                      |                                    |        |      |             |  |
| 130 < kW < 560                   |                                    |        |      |             |  |
| > 560 kW                         |                                    |        |      |             |  |
| > 2000  kW and > 5               |                                    |        |      |             |  |
| litres/cylinder                  |                                    |        |      |             |  |
| (b) Ships and other marine       |                                    |        |      |             |  |
| craft                            |                                    |        |      |             |  |
| Recreational craft               |                                    |        |      |             |  |
| Inland shipping                  |                                    |        |      |             |  |
| (c) Aircraft                     |                                    |        |      |             |  |

| 6. Question 6: With reference to <u>article 4</u> , has your country made unleaded fuel sufficiently available, in particular cases as a minimum along main |  |                   |  |  |  |
|---|--|-------------------|--|--|--|
| • • • •   | sit routes, to facilitate the circulation of vehicles eq   |                   |  |  |  |
| Yes 🗹   | No 🗆   |                   |  |  |  |
| directive 98/70/E0  | ten banned in Ireland since 1 <sup>st</sup> January 2000 under and transposed into law in Ireland through the A ecifications for Petrol and Diesel Fuels) Regulation of 2000). | Air Pollution Act |  |  |  |
|   | urther details. However, if your country is a Party to<br>ou should provide further details under question 37  | •                 |  |  |  |

#### IV. THE 1994 SULPHUR PROTOCOL

The questions in this section are based on the reporting obligation of Parties in accordance with <u>article 5</u>, paragraph 1 (a) and (c), and enable Parties to provide information on the implementation of the obligations under articles 2.5 and 4.1 of the Protocol. By virtue of article 2, paragraph 5, questions 15 and 16 do not apply to Parties subject to the United States/Canada Air Quality Agreement of 1998.

They refer to the following Parties to the Protocol: Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, The Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Liechtenstein, Luxembourg, Monaco, the Netherlands, Norway, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom and the European Community.

Question 13: With reference to <u>article 4</u>, <u>paragraph 1(a)</u>, please provide details of the national strategies, policies and programmes your country has adopted to implement obligations under article 2 of the Protocol. If your country is a Party to the Gothenburg Protocol, you may cross-refer to question 39.

The main overarching legislative instrument to address  $SO_2$  emissions is the European Communities (National Emissions Ceilings) Regulations 2004 which transposed the National Emissions Ceilings Directive 2001/81/EC for certain atmospheric pollutants. The directive set national emission ceilings for, inter alia, sulphur dioxide ( $SO_2$ ). The emission ceiling to be achieved by Ireland by 2010 is 42kt for  $SO_2$  (77% below 1990 levels).

The 2003 Discussion Paper: Strategy to Reduce Emissions of Transboundary Air Pollution by 2010 set out the main national challenged to address transboundary emissions. Following public consultation, a National Programme to address transboundary pollutants was adopted in 2005 and this was updated in July 2007 to reflect additional sectoral measures which have been adopted and/or implemented by the Irish Government since the Programme was announced in 2005.

Click this link to access the National Programme and 2007 Update

In 1990 SO<sub>2</sub> emissions in Ireland were 182.5 kt5 and fell for the first time below Ireland's Protocol limit of 155kt in 2000. Emissions of SO<sub>2</sub> have continued to fall sharply since 1998 reaching a level of 45.2 kt in 2008 and 32.7kt in 2009. Further measures to reduce SO<sub>2</sub> emissions should ensure that emissions will continue to fall and are projected to be 30 kt in 2010 (under the National Programme on Air Emissions under the NEC Directive), comfortably below the target of 42 kt set for Ireland in the Gothenburg Protocol and the EU National Emission Ceiling directive (2001/81/EC).

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<sup>5</sup> http://www.ceip.at/submissions-under-clrtap/2011-submissions/

Question 14: With reference to <u>article 2</u>, <u>paragraph 4</u>, please provide details of how your country is making use of the most effective measures, appropriate to your country's particular circumstances, for reducing sulphur emissions for new and existing sources. This could include measures to:

- (a) Increase energy efficiency;
- (b) Increase the use of renewable energy;
- (c) Reduce the sulphur content of particular fuels and to encourage the use of fuel with low sulphur content, including the combined use of high-sulphur with low-sulphur or sulphur-free fuel;
- (d) Apply BAT not entailing excessive costs, using the guidance in <u>annex IV</u>.

Please see details of the various initiatives taking place on a sectoral basis in the <u>National Programme</u> and the <u>2007 Update</u>.

<u>Maximising Ireland's Energy Efficiency</u>, The National Energy Efficiency Action Plan 2009 – 2020 was published on 8 May, 2009

This major Government policy document sets out Government plans and actions to achieve its target of 20% energy efficiency savings across the economy in 2020.

Improving Ireland's energy efficiency is an essential part of Ireland's sustainable energy policy, and will play a vital role in reducing our dependence of fossil fuels.

The Government set out an energy policy framework in its White Paper: <u>Delivering a Sustainable Energy Future for Ireland - the Energy Policy Framework for 2007-2020</u>. This policy framework is designed to steer Ireland to a new and sustainable energy future; one that helps us reduce greenhouse gas emissions and energy costs. Efficient energy use directly contributes to security of energy supply, sustainable transport, affordable energy, competitiveness and environmental sustainability.

The overall trend of emissions from the power generation sector is one of decline. Over the period 2006 – 2009, emissions of SO2 decreased by 57%. The strategy of reducing emissions from power plants has two facets; reduced operation of sulphur intensive (oil fired) plants, and installation of abatement technologies. Ireland has opted to develop a national emissions reduction plan (NERP) under Article 4 (6) of the Large Combustion Plants directive (2001/80/EC) to address emissions from 'existing plant' as defined in the directive. The NERP sets ceilings for emissions of SO<sub>2</sub> which are significantly more ambitious than the minimum requirements of directive 2001/80/EC

Total emissions of SO<sub>2</sub> have fallen sharply in recent years, from 139.4 kt in

2000 to 32.7kt in 2009, a fall of 77% over the period. This reduction was driven by sharp falls in the powergen sector, which fell by 80% from 79.9 kt to 15.7kt over the same period largely as a result of the reduction of sulphur in heavy fuel oil from 3% to 1% (directive 99/32/EC) and reduced operation of oil fired plant. Emissions from the construction and industry sector fell by 84% over the period 2000 - 2009, a reduction of 32.1 kt. The most significant reduction within the sector came from the non-ferrous metals sub-sector which, as a result of conversion from conventional oilfired boilers to gas-fired CHP, fell 92% over the period, a total of 16.2 kt. Emissions from the road transport sector have also fallen with the introduction of low sulphur fuels on an appropriately balanced geographical basis for petrol and diesel since 2005 (directive 98/70/EC) and all petrol and diesel has been sulphur free fuels (10 ppm) since 1 January 2009 (directive 2003/17/EC). In addition, regulations restricting the sulphur content of heavy fuel oil, gas oil and marine fuels, came into force in 2008 (Sulphur Content of Heavy Fuel Oil, Gas Oil, and Marine Fuels Regulations 2008, SI 119 of 2008). Further legislation is due to be introduced shortly will reduce the sulphur level of gas oil for use in non-road mobile machinery, inland waterway vessels and recreational craft from 1,000 parts per million (ppm) to 10 ppm sulphur.

To promote a <u>shift from polluting fuels to cleaner alternatives</u>, a ban on the use of bituminous coal for heating, initially introduced in Dublin in 1990, has been extended to Cork (since 1995), Arklow, Drogheda, Dundalk, Limerick and Wexford (since 1998), Celbridge, Galway, Leixlip, Naas and Waterford (since 2000) and Bray, Kilkenny, Sligo and Tralee (since 2003). In 2002, a study estimated that the ban had saved around 360 lives annually in Dublin and reduced health costs by between EUR 71 million and EUR 142 million (Clancy, 2002). In 2002, the ban was complemented by a voluntary agreement by importers and distributors of solid fuel to reduce the sulphur content in coal and petroleum coke. The Agreement was renewed in 2006 and 2008.

Question 15: With reference to <u>article 2, paragraph 5 (a)</u>, and <u>annex V</u>, please provide details of the emission limit values applied in your country to all major stationary combustion sources, the construction or substantial modification of which was authorized after 31 December 1995. If your country is a Party to the Gothenburg Protocol, you may cross-refer to questions 40 and 41. Please complete the table below.

SO<sub>2</sub> emission from major stationary sources in Ireland are regulated by the EU Large Combustion Plant directive (2001/80/EC) transposed into law in Ireland by the Large Combustion Plant Regulations (S.I. No 644 of 2003). It is implemented through the Integrated Pollution Prevention and Control (IPPC) regime which applies the principle of BAT. Emission limit values in table 7 below relate to any major stationary source which was granted a permit and came into operation after 27<sup>th</sup> November 2003. The emission limit values (ELVs) which apply to plant granted a permit between 31 December 1995 and 27<sup>th</sup> November 2003 are set out in Table 8.

Table 7: Question 15

| Major stationary                    | O <sub>2</sub> % | <b>Emission limit</b>                       | Desulphurizat       | National        | Commen    |
|-------------------------------------|------------------|---|---------------------|-----------------|-----------|
| combustion source                   | in flue          | value (mg SO <sub>2</sub> /Nm <sup>3)</sup> | ion rate indigenous | legislatio<br>n | ts        |
|                                     | gas              |   | fuels (%)           | 11              |           |
| 1.Solid fuels                       |                  |   | (, , ,              |                 |           |
| (a) $50-100 \text{ MW}_{\text{th}}$ |                  | 850   | 92 %                | S.I. No         | EU        |
|                                     |                  |   |                     | 644 of          | directive |
|                                     |                  |   |                     | 2003            | 2001/80/  |
|                                     |                  |   |                     |                 | EC        |
| (b) 100-500                         | 6%               | 200   | 92 %                |                 |           |
| $MW_{th}$ 1/                        |                  |   |                     |                 |           |
| (c) $> 500 \text{ MW}_{th}$         |                  | 200   | 95 %                |                 |           |
| 2. Liquid fuels                     |                  |   |                     |                 |           |
| (a) $50-300 \text{ MW}_{th}$        | 3%               | <100 MW 850                                 |                     | S.I. No         | EU        |
|                                     |                  | 100-300 MW                                  |                     | 644 of          | directive |
|                                     |                  | 400 - 200                                   |                     | 2003            | 2001/80/  |
|                                     |                  | linear decrease                             |                     |                 | EC        |
| (b) 300-500                         |                  | 200   |                     |                 |           |
| $MW_{th}$                           |                  |   |                     |                 |           |
| (c) $> 500 \text{ MW}_{th}$         |                  | 200   |                     |                 |           |
| 3. Gaseous fuels                    |                  |   | n.a.                |                 |           |
| (a) Gaseous fuels                   | 3 %              | 35  |                     | S.I. No         | EU        |
| in general                          |                  |   |                     | 644 of          | directive |

|                    |                | 2003 | 2001/80/<br>EC |
|--------------------|----------------|------|----------------|
| (b) Liquified gas  | 5              |      |                |
| (c) Low calorific  | 400 coke ovens |      |                |
| gases from         |                |      |                |
| gasification of    | 200 blast      |      |                |
| refinery residues, | furnace        |      |                |
| coke oven gas,     |                |      |                |
| blast furnace gas  |                |      |                |

<sup>1/</sup>If you apply, as an alternative, a desulphurisation rate, the category should be split up into 100-167 and 167-500  $MW_{th}$ .

Question 16: With reference to <u>article 2</u>, <u>paragraph 5</u> (b), and <u>annex V</u>, please provide details of the emission limit values applied in your country to major stationary combustion sources, the construction of which was authorized on or before 31 December 1995. If other emission limitations or other appropriate provisions are applied, please describe these, taking due account of the conditions for such alternatives as specified in article 2, paragraph 5 (b). If your country is a Party to the Gothenburg Protocol, you may cross-refer to question 41. Please complete the table below.

 $SO_2$  emission from major stationary sources in Ireland are regulated by the EU Large Combustion Plant directive (2001/80/EC) transposed into law in Ireland by the Large Combustion Plant Regulations 2003 S.I. No 644 of 2003. It is implemented through the Integrated Pollution Prevention and Control (IPPC) regime which applies the principle of BAT. Emissions limit values are specified below, however, such plants are covered by an National Emission Reduction Plan under the Large Combustion Plant directive (2001/80/EC) which specifies annual total emissions for each plant determined using the ELVs specified and average operations over a base period (1996 – 2001).

Table 8: Question 16

| Major<br>stationary<br>combustion<br>source<br>relevant age<br>of plant                           | Carbon dioxide O <sub>2</sub> in flue gas (%) | Emission<br>limit<br>values<br>(mg SO <sub>2</sub><br>/Nm <sup>3</sup> ) | Desulphur-ization<br>rate indigenous<br>fuels (%) | Alternative<br>emission<br>limitations<br>(where<br>appropriate) | National<br>legislation   | Comments                      |
|---|---|--|---|--|---------------------------|-------------------------------|
| 1. Solid fuels (a) 50-100 MW <sub>th</sub> (b) 100-500 MW <sub>th</sub> (c) >500 MW <sub>th</sub> | 6%  | 2000 –<br>2000 –<br>400 linear<br>decrease<br>400                        | 60%<br>< 300: 75%<br>> 300: 90%<br>94 %           |  | S.I. No<br>644 of<br>2003 | EU<br>directive<br>2001/80/EC |
| 2. Liquid<br>fuels (a) 50-300 MW <sub>th</sub> (b) 300-500 MW <sub>th</sub>                       | 3%  | 1,700<br>1700 –<br>400 linear  |   |  | S.I. No<br>644 of<br>2003 | EU<br>directive<br>2001/80/EC |

|              |    | decrease |      |         |            |
|--------------|----|----------|------|---------|------------|
| (c) > 500    |    | 400      |      |         |            |
| $MW_{th}$    |    |          |      |         |            |
| 3. Gaseous   |    |          | n.a. |         |            |
| fuels        |    |          |      |         |            |
| (a) Gaseous  | 3% | 35       |      | S.I. No | EU         |
| fuels in     |    |          |      | 644 of  | directive  |
| general      |    |          |      | 2003    | 2001/80/EC |
| (b)          |    | 5        |      |         |            |
| Liquified    |    |          |      |         |            |
| gas          |    |          |      |         |            |
| (c) Low      |    | 800      |      |         |            |
| calorific    |    |          |      |         |            |
| gases from   |    |          |      |         |            |
| gasification |    |          |      |         |            |
| of refinery  |    |          |      |         |            |
| residues,    |    |          |      |         |            |
| coke oven    |    |          |      |         |            |
| gas, blast   |    |          |      |         |            |
| furnace gas  |    |          |      |         |            |

Question 17: With reference to <u>article 2</u>, <u>paragraph 5</u> (c), <u>and annex V</u>, please provide details of the national standards for the sulphur content of gas oil applied in your country. Please complete the table below.

Table 9: Question 17

| Type                            | Sulphur content             | National legislation          |
|---------------------------------|-----------------------------|-------------------------------|
|                                 | (% or ppm)                  |                               |
| 1. Diesel for on-road vehicles  | 10 ppm from 1 <sup>st</sup> | SI No 541 of 2003             |
|                                 | January 2009                | Air Pollution Act, 1987       |
|                                 |                             | (Environmental                |
|                                 |                             | Specifications for Petrol and |
|                                 |                             | Diesel Fuels) Regulations     |
|                                 |                             | 2003                          |
| 2. Other types (e.g. diesel for | 1000 ppm from 1st           | SI No 541 of 2003             |
| off-road vehicles gas oil for   | January 2008 and            | Air Pollution Act, 1987       |
| inland navigation, for heating, | scheduled to reduce         | (Environmental                |
| etc.)                           | to 10 ppm during            | Specifications for Petrol and |
|                                 | Q1 2011 under               | Diesel Fuels) Regulations     |
|                                 | legislation to              | 2003                          |
|                                 | transpose Fuel              |                               |
|                                 | Quality Directive           |                               |
|                                 | 2009/30/EC                  |                               |
|                                 |                             | In addition, non-road mobile  |
|                                 |                             | machinery cannot be placed    |
|                                 |                             | on the market unless it meets |
|                                 |                             | the provisions of             |
|                                 |                             | SI No 147 of 2007             |
|                                 |                             | European Communities          |
|                                 |                             | (Control of Emissions of      |
|                                 |                             | Gaseous and Particulate       |
|                                 |                             | Pollutants from Non Road      |
|                                 |                             | Mobile Machinery)             |
|                                 |                             | Regulations 2007              |