S.I. No. 644/2003 — Large Combustion Plants Regulations 2003

STATUTORY INSTRUMENTS

S.I. No 644 OF 2003

LARGE COMBUSTION PLANTS REGULATIONS 2003

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The Minister for the Environment, Heritage and Local Government, in exercise of the powers conferred on him by sections 10 and 51 of the Air Pollution Act 1987 (No. 6 of 1987) and by sections 6 and 53 of the Environmental Protection Agency Act 1992 (No. 7 of 1992) for the purpose of giving effect to Council Directive 2001/80/EC([1]) of the European Parliament and of the Council of 23 October 2001 concerning the limitation of emissions of certain pollutants into the air from large combustion plants, hereby makes the following Regulations:-

Citation and Commencement

1 (1) These Regulations may be cited as the Large Combustion Plant Regulations 2003.

(2) These Regulations come into operation on 27 November 2003.

Interpretation

2 (1) In these Regulations:

"the 1963 Act" means the Local Government (Planning and Development) Act 1963 (No. 28 of 1963);

"the 1987 Act" means the Air Pollution Act 1987 (No. 6 of 1987);

"the 1992 Act" means the Environmental Protection Agency Act 1992 (No. 7 of 1992);

"the 2000 Act" means the Planning and Development Act 2000 (No. 30 of 2000);

"the Agency" means the Environmental Protection Agency established under section 19 of the 1992 Act;

"the Commission" means the Commission of the European Communities;

"the Directive" means Council Directive 2001/80/EC;

the "1996 Directive" means Council Directive 96/61EC of 24 September 1996 concerning integrated pollution prevention and control([2])

"rated thermal input" means the operating thermal input of a plant designated by the manufacturer of the plant;

"the Minister" means the Minister for the Environment. Heritage and Local Government;

"Type A plant" means a combustion plant for which a permission under Part IV of the 1963 Act, or Part III of the 2000 Act, or a licence or revised licence under Part III of the 1987 Act, has been granted on or after 1 July 1987 and for which an application for a licence or revised licence under Part IV of the 1992 Act is considered by the Agency to have been made before 27 November 2002, and provided a licence or revised licence under Part IV of the 1992 Act is granted and the plant is put into operation no later than 27 November 2003;

"Type B plant" means a combustion plant for which a permission under Part IV of the 1963 Act, or Part III of the 2000 Act, or a licence or revised licence under Part III of the 1987 Act, has been granted on or after 1 July 1987, and for which an application for a licence or revised licence under Part IV of the 1992 Act, is made after the coming into operation of these Regulations, or for which a licence or revised licence under Part IV of the 1992 Act has been granted but the plant has not been put into operation on or before the 27 November 2003;

"Type C plant" means a combustion plant for which a permission under Part IV of the 1963 Act has been granted before 1 July 1987.

(2) In these Regulations -

(a) any reference to an article or sub-article which is not otherwise identified is a reference to an article or sub-article of these Regulations;

(b) any reference to an Annex which is not otherwise identified is a reference to an Annex of the Directive;

(c) a letter, word, phrase or symbol which has been assigned a meaning by the Directive, or is used in the Directive, has that meaning where the context requires except where otherwise indicated.

(3) In these Regulations, a reference to an enactment shall be construed as a reference to the enactment as amended by any subsequent enactment,

including these Regulations.

Combustion plants to which these Regulations apply

3 (1) These Regulations, subject to sub-article 2, shall apply to combustion plants designed for production of energy, the rated thermal input of which is equal to or greater than 50 MW, irrespective of the type of fuel used (solid, liquid or gaseous).

(2) These Regulations shall not apply to:

(a) plants which make direct use of the products of combustion in manufacturing processes;

(b) plants in which the products of combustion are used for the direct heating, drying, or any other treatment of objects or materials e.g. reheating furnaces, furnaces for heat treatment;

(c) post-combustion plants i.e. any technical apparatus designed to purify the waste gases by combustion which is not operated as an independent combustion plant:

(d) facilities for the regeneration of catalytic cracking catalysts:

(e) facilities for the conversion of hydrogen sulphide into sulphur;

(f) reactors used in the chemical industry;

(g) coke battery furnaces;

(h) cowpers;

(i) any technical apparatus used in the propulsion of a vehicle, ship or aircraft;

(j) a gas turbine for which an application for a licence under Part IV of the 1992 Act is considered by the Agency to have been made before 27 November 2002 and provided a licence is granted and the plant is put into operation no later than 27 November 2003;

(k) a gas turbine used on an offshore platform; or

(l) plant powered by diesel, petrol and gas engines.

Common Stack

4 Where two or more Type A or Type B plants are installed in such a way that, taking technical and economic factors into account, their waste gases could, be discharged through a common stack, the combination formed by such plants shall be regarded as a single plant for the purposes of these Regulations.

5 In considering an application for, and the granting of, a licence or revised licence under Part IV of the 1992 Act for a Type B plant, or a plant provided for in article 6, the Agency shall examine the technical and economic feasibility of providing for the combined generation of heat and power.

Alteration or reconstruction

6 (1) Where a proposed alteration to, or reconstruction of, a combustion plant would add at least 50 MW rated thermal input to the capacity of the plant, the emission limit values specified in article 7 for Type B plant shall apply to the alteration or reconstruction on the basis of the thermal capacity of the entire plant, except in the case of plants covered by articles 11(2) and 12.

(2) Where the operator of a combustion plant is envisaging a change according to Articles 2(10)(b) and 13(2) of the 1996 Directive, the emission limit values specified in article 7 for Type B plant shall apply.

Emission Limit Values

7 (1) The emission limit values relating to SO_2, NO_x and dust for Type A and Type C plants shall be as set out in the First Schedule and for Type B plants as set out in the Second Schedule.

(2) The emission limit values specified in paragraph 1, subject to the requirements of the First and Second Schedules, shall have effect from the coming into operation of these Regulations.

National Emission Reduction Plan

8 (1) Notwithstanding article 7, the Minister may define and notify to the Commission a national emission reduction plan, hereinafter referred to as "the plan", for Type C plants.

(2) The plan shall:-

(a) take into account compliance with the ceilings as set out in Annexes I and II;

(b) reduce the total annual emissions of NO_x, SO_2 and dust from Type C plants to the levels that would have been achieved by applying the relevant emission limit values specified in article 7 to those plants operating in the year 2000, on the basis of each plant's actual operating time, fuel used and thermal input averaged over the last five years of operation up to and including 2000;

(c) ensure the closure of a plant included in the plan shall not result

in an increase in the total annual emissions from the remaining plants covered by the plan;

(d) not exempt a plant from the provisions laid down in relevant Community legislation including the 1996 Directive; and

(e) comprise objectives and related targets, measures and timetables for reaching these objectives and targets, and a monitoring mechanism.

(2) The Agency shall have the functions, duties and responsibilities for the implementation of the plan.

Exemption for Type C Plants

9 (1) Notwithstanding articles 7 and 8, Type C plants may be exempted from the emission limit values specified in article 7, and the requirements of a plan defined in article 8, where the operator of a plant undertakes, in a written declaration submitted to the Agency by 30 June 2004, not to operate the plant for more than 20,000 operational hours commencing on 1 January 2008 and ending no later than 31 December 2015.

(2) The operator shall submit each year to the Agency a record of the used and unused time allowed for the plant's remaining operational life in accordance with paragraph 1.

(3) From 1 January 2008 the Agency shall report annually to the Commission those plants exempted under paragraph 1 together with the records obtained under paragraph 2.

10 (1) Notwithstanding article 7:-

(a) the emission limit value relating to sulphur dioxide shall be 800 mg/Nm^3, in the case of a Type A and Type C plant with a rated thermal input equal to or greater than 400 MW, which is not operated for more than the following number of hours per year, calculated on a rolling average over a period of 5 years:-

(i) 2.000 hours until 31 December 2015:

(ii) 1.500 hours from 1 January 2016.

(2) The Agency shall report annually to the Commission any application of paragraph 1.

Multi-Firing Units

11 (1) Where two or more fuels are used simultaneously in a multi-fuel firing unit the emission limit values for the type of combustion plant concerned shall be determined as specified in the Third Schedule.

(2) Notwithstanding paragraph 1, in the case of a multi-firing unit in a refinery in which the distillation and conversion of residues from the refining of crude oils for own consumption will be used alone or

simultaneously with other fuels, the emission limit values for the plants concerned shall be as specified in the Fourth Schedule.

(3) In the case of a multi-fuel firing unit involving the alternate use of two or more fuels, the relevant emission limit values specified in the First and Second Schedules shall apply in relation to each such fuel.

12 (1) Notwithstanding article 11(2), and irrespective of the fuel combination used, but provided emissions from Type C plants are not increased, the following emission limits may be applied:-

(a) in the case of Type A and Type C plants an emission limit value relating to sulphur dioxide of 1,000 mg/Nm^3, averaged over all such plants within a refinery; and

(b) in the case of Type B plants an emission limit value relating to sulphur dioxide of 600 mg/Nm^3, averaged over all such plants within a refinery, with the exception of gas turbines.

Compliance

13 (1) The emission limit values specified in articles 7, 10 and 12 shall be regarded as having been complied with for Type A and Type C plants where:-

(a) in the case of measurements carried out on a continuous basis for operating hours within a calendar year none of the calendar monthly mean values exceed the relevant emission limit values and 97% of all the 48 hourly mean values for emissions of sulphur dixoide and dust and 95% of all the 48 hourly mean values for emissions of oxides of nitrogen do not exceed 110% of the relevant limit values; or

(b) in the case of discontinuous measurements or other appropriate determination procedures, the results of each of the series of measurements or other procedures do not exceed the relevant emission limit values.

(2) The emission limit values specified in articles 7, 10 and 12 shall be regarded as having been complied with for Type B plants where no validated daily average value, determined as set out in point A.6 of Annex VIII, exceeds the relevant figures specified in article 7, and 95% of all the validated hourly average values over the calendar year do not exceed 200% of the relevant figures specified in article 7.

(3) For the purposes of assessing compliance with the emission limit values the periods during which a plant is started up or is shut down and the periods referred to in Article 7 of the Directive shall be disregarded.

Revocation

14 The Air Pollution Act 1987 (Emission Limit Values for Combustion Plant) Regulations 1996 (S.I. No. 264 of 1996) are revoked with effect from the coming into operation of these Regulations.

FIRST SCHEDULE

EMISSION LIMIT VALUES FOR TYPE A AND TYPE C PLANTS

SULPHUR DIOXIDE: SOLID FUELS

Rated Thermal Input of Plant	Emission Limit Values (mg/Nm^3)*
Not < 50 MW and not > 100 MW	2000
> 100 MW and not > 500 MW	2400 — 4ti**
> 500 MW	400

Where the emission limit values above cannot be met due to the characteristics of the fuel, a rate of desulphurisation of at least 60% shall be achieved in the case of plants with a rated thermal input of less than or equal to 100 MWth, 75% for plants greater than 100 MWth and less than or equal to 300 MWth and 90% for plants greater than 300 MWth. For plants greater than 500 MWth, a rate of desulphurisation of at least 94% shall apply.

SULPHUR DIOXIDE: LIQUID FUELS

Rated Thermal Input of Plant	Emission Limit Values (mg/Nm^3)*
Not < 50 MW and not > 300 MW	1700
> 300 MW and not > 500 MW	3650 — 6.5ti**
> 500 MW	400

SULPHUR DIOXIDE: GASEOUS FUELS

Fuel Type	Emission Limit Values (mg/Nm^3)*
Gaseous fuels in general	35
Liquefied gas	5
Low calorific gases from gasification of refinery residues, coke oven gas, blast-	

furnace gas	800

OXIDES OF NITROGEN

(MEASURED AS NO_2)

Type A plants and Type C plants with effect until 31 December 2007

Fuel Type	Emission Limit Values (mg/Nm^3)
Solid in general	650
Solid with less than 10% volatile compounds	1300
Liquid	450
Gaseous	350

Type A plants and Type C plants with effect from 1 January 2008

Fuel Type	Emission Limit Values (mg/Nm^3)*
Solid > 50 MWth but not > 500 MWth	600
Solid > 500 MWth to 31 December 2015	500
Solid > 500 MWth from 1 January 2016	200
Liquid > 50 MWth but not > 500 MWth	450
Liquid > 500 MWth	400
Gaseous > 50 MWth but not > 500 MWth	300

Gaseous > 500 MWth	200

Until 31 December 2015 plants of a rated thermal input greater than 500 MW burning solid fuel, which from 1 January 2008 onwards do not operate more than 2,000 hours a year (rolling average over a period of five years) shall: -

- in the case of a Type C plant licensed in accordance with article 7 be subject to an emission limit value for nitrogen oxides (measured as NO_2) of 600 mg/Nm^3.

- in the case of a Type C plant licensed in accordance with article 8 have its contribution to the plan assessed on the basis of an emission limit value of 600 mg/Nm^3.

From 1 January 2016 such plants which do not operate more than 1,500 hours a year (rolling average over a period of five years) shall be subject to an emission limit value for nitrogen oxide emissions (measured as NO_2) of 450 mg/Nm^3.

Until 1 January 2018 in the case of plants that in the 12 months period ending on 1 January 2001 operated on, and continue to operate on, solid fuels whose volatile content is less than 10%, an emission limit value of 1,200 mg/Nm^3 shall apply.

DUST

Type A plants and Type C plants

Type of Fuel	**Rated Thermal Input**	**Emission Limit Values(mg/Nm^3)***
Solid	Equal to or greater than 500 MW	50
Solid	Less than 500 MW	100
Liquid	All plant	50
Blast-furnace gas	All plant	10
Gases produced by the steel industry which can be used elsewhere	All plant	50
Other gases	All plant	5

An emission limit value of 100 mg/Nm^3 may be applied to plants with a rated thermal input of less than 500 MWth burning liquid fuel with an ash content of more than 0.06%.

In the case of a Type C plant licensed in accordance with article 7, an emission limit value of 100 mg/Nm^3 may be applied to plants with a rated thermal input greater than or equal to 500 MWth burning solid fuel with a heat content of less than 5,800 kJ/kg (net calorific value), a moisture content greater than 45% by weight, a combined moisture and ash content greater than 60% by weight and a calcium oxide content greater than 10%.

SECOND SCHEDULE

EMISSION LIMIT VALUES FOR TYPE B PLANTS

SULPHUR DIOXIDE: SOLID FUELS (OTHER THAN GAS TURBINES)

	50 to 100 MWth	**100 to 300 MWth**	**> 300 MWth**
Fuel Type	**Emission Limit Values (mg/Nm^3)***		
Biomass	200	200	200
General Case	850	200	200

Where the emission limit values above cannot be met due to the characteristics of the fuel, installations shall achieve 300 mg/Nm^3 SO_2, or a rate of desulphurisation of at least 92% shall be achieved in the case of plants with a rated thermal input of less than or equal to 300 MWth and in the case of plants with a rated thermal input greater than 300 MWth a rate of desulphurisation of at least 95% together with a maximum permissible emission limit value of 400 mg/Nm^3 SO_2 shall apply

SULPHUR DIOXIDE: LIQUID FUELS (OTHER THAN GAS TURBINES)

	50 to 100 MWth	**100 to 300 MWth**	**> 300 MWth**
Emission Limit Values	850	400 to 200 (Linear decrease)	200

**(mg/Nm^3)*

SULPHUR DIOXIDE: GASEOUS FUELS

Type of Fuel	**Emission Limit Values (mg/Nm^3)***
Gaseous fuels in general	35
Liquefied gas	5
Low calorific gases from coke oven	400
Low calorific gases from blast furnace	200

OXIDES OF NITROGEN (MEASURED AS NO_2)

SOLID FUELS (OTHER THAN GAS TURBINES)

	50 to 100 MWth	**100 to 300 MWth**	**> 300 MWth**
Fuel Type	**Emission Limit Values (mg/Nm^3)***		
Biomass	400	300	200
General Case	400	200	200

OXIDES OF NITROGEN (MEASURED AS NO_2)

LIQUID FUELS (OTHER THAN GAS TURBINES)

	50 to 100 MWth	**100 to 300 MWth**	**> 300 MWth**

Emission Limit Values (mg/Nm^3)*	850	400 to 200 (Linear decrease)	200

OXIDES OF NITROGEN (MEASURED AS NO_2)

GASEOUS FUELS (OTHER THAN GAS TURBINES)

	50 to 300 MWth	**> 300 MWth**
Fuel Type	**Emission Limit Values (mg/Nm^3)***	
Natural gas**	150	100
Other gases	200	200

OXIDES OF NITROGEN (MEASURED AS NO_2)

GAS TURBINES (APPLIED BY A SINGLE UNIT)*

	> 50 MWth (thermal input at ISO conditions)
Fuel Type	**Emission Limit Values (mg/Nm^3)****
Natural gas***	50****
Liquid fuels*****	120
Gaseous fuels (other than natural gas)	120

- gas turbines, used in combined heat and power systems having an overall

efficiency greater than 75%;

- gas turbines, used in combined heat and power systems having an annual average overall electrical efficiency greater than 55%;

- gas turbines for mechanical drives.

For single cycle gas turbines not falling into any of the above categories, but having an efficiency greater than 35% - determined at ISO base load conditions - the emission limit values shall be $50^{*}\eta/35$ where η is the gas turbine efficiency expressed as a percentage (and at ISO base load conditions).

DUST

SOLID FUELS (OTHER THAN GAS TURBINES)

	50 to 100 MWth	**> 100 MWth**
Emission Limit Values (mg/Nm^3)*	50	30

LIQUID FUELS (OTHER THAN GAS TURBINES)

	50 to 100 MWth	**> 100 MWth**
Emission Limit Values (mg/Nm^3)*	50	30

GASEOUS FUELS (OTHER THAN GAS TURBINES)

	Emission Limit Values (mg/Nm^3)*
As a rule	5

For blast furnace gas	10
For gases produced by the steel industry which can be used elsewhere	30

THIRD SCHEDULE

Determination of emission limit values in multi-fuel firing units using two or more fuels simultaneously

1. Determine the emission limit values for sulphur dioxide, oxides of nitrogen and dust in respect of each individual fuel in accordance with the requirements of article 7, as appropriate.

2. Multiply each individual emission limit value by the thermal input of the fuel with which it is associated.

3. Divide each resulting product by the sum of the thermal inputs delivered by all the fuels.

4. Aggregate the resulting fuel-weighted emission limit values.

FOURTH SCHEDULE

Determination of emission limit values in multi-fuel firing units in a refinery using distillation and conversion residues from crude oil refining for own consumption, alone or with other fuels

1. Where the fuel with the highest emission limit value (hereinafter referred to as the determinative fuel) contributes at least 50% to the sum of the thermal inputs delivered by all the fuels used in the plant the emission limit value of that fuel determined in accordance with the requirements of article 7 by reference to the nature of the fuel used shall be the appropriate emission limit value.

2. Where the fuel with the highest emission limit value contributes less than 50% to the sum of the thermal inputs delivered by all fuels used in the plant, the emission limit value shall be determined as follows:-

   (i) determine the emission limit values for sulphur dioxide, oxides of nitrogen and dust in respect of each individual fuel in accordance with the requirements of article 7, as appropriate;

   (ii) calculate the emission limit values of the determinative fuel (in the case of two fuels having the same emission limit values, the fuel with the higher thermal input being the determinative fuel) by:

(a) multiplying the individual emission limit value for that fuel by two;

(b) subtracting from the product the individual emission limit value for the fuel with the lowest emission limit value;

(iii) multiply the result of (ii)(b) by the thermal input of the determinative fuel;

(iv) multiply the other individual emission limit values by the thermal input delivered by their associated fuel;

(v) divide the product of (iii) and (iv) by the sum of the thermal inputs delivered by all the fuels; and

(vi) aggregate the result of (v) to obtain the fuel-weighted emission limit value.

Given under the Official Seal of the Minister for the Environment, Heritage and Local Government this 25 day of November 2003.

Martin Cullen

Minister for the Environment, Heritage and of the Environment and Local Government

EXPLANATORY NOTE

(This note is not part of the Instrument and does not purport to be a legal interpretation).

These Regulations transpose Directive 2001/80/EC into Irish law by specifying emission limits for emissions of sulphur dioxide, oxides of nitrogen and dust from large combustion plant with a rated thermal input equal to or greater than 50 MW. The Regulations also provide, where appropriate, for the definition and implementation of a national emission reduction plan for certain older plants, or the limitation of operation of such plants for not more than 20,000 operational hours between 1 January 2008 and 31 December 2015. The Regulations repeal the Air Pollution Act 1987 (Emission Limit Values for Combustion Plant) Regulations, 1996.

[1] O.J. L309/1 of 27.11.2001

[2] O.J. L257 26 of 10.10.96

* O_2 content 6%

** where ti is the rated thermal input of the plant expressed as megawatts (MW)

* O_2 content 3%

** where ti is the rated thermal input of the plant expressed as megawatts (MW)

* O_2 content 3%

* O_2 content 6% for solid fuels, 3% for liquid and gaseous fuels.

* O_2 content 6% for solid fuels, 3% for liquid and gaseous fuels.

* O_2 content 6%.

* O_2 content 3%.

* O_2 content 3%.

* O_2 content 6%.

* O_2 content 3%.

* O_2 content 3%.

** Natural gas is naturally occurring methane with not more than 20% (by volume) of inerts and other constituents.

* Emission limit values only apply above 70% load.

** O_2 content 15%.

*** Natural gas is naturally occurring methane with not more than 20% (by volume) of inerts and other constituents.

**** 75 mg/Nm^3 in the following cases, where the efficiency of the gas turbine is determined at ISO base load conditions:

***** This emission limit value only applies to gas turbines firing light and middle distillates.

* O_2 content 6%.

* O_2 content 3%.

* O_2 content 3%.