COMMISSION DECISION of 21 December 2006 establishing harmonised efficiency reference values for separate production of electricity and heat in application of Directive 2004/8/EC of the European Parliament and of the Council (notified under document number C(2006) 6817) (Text with EEA relevance) (2007/74/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Directive 2004/8/EC of the European Parliament and of the Council on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EC (1), and in particular Article 4(1) thereof,

Whereas:

(1)   Pursuant to Article 4 of Directive 2004/8/EC the Commission is to establish harmonised efficiency reference values for separate production of electricity and heat consisting of a matrix of values differentiated by relevant factors, including year of construction and types of fuel.

(2)   The Commission has completed a well-documented analysis in accordance with Article 4(1) of Directive 2004/8/EC. Developments in the best available and economically justifiable technology which were observed during the period covered by this analysis indicate that for the harmonised efficiency reference values for separate production of electricity, a distinction should be drawn relating to the year of construction of a cogeneration unit. Furthermore, correction factors relating to the climatic situation should be applied to these reference values because the thermodynamics of generating electricity from fuel depend on the ambient temperature. In addition correction factors for avoided grid losses should be applied to these reference values to take account of the energy savings obtained when grid use is limited due to decentralised production.

(3)   By contrast, the analysis showed that concerning the harmonised efficiency reference values for separate production of heat a distinction relating to the year of construction was not necessary as the net energy efficiency of boilers has hardly improved in the period covered by the analysis. No correction factors relating to the climatic situation were required because the thermodynamics of generating heat from fuel do not depend on the ambient temperature. In addition correction factors for heat grid losses are not required as heat is always used near the site of production.

(4)   The harmonised efficiency reference values have been based on the principles mentioned in Annex III (f) of Directive 2004/8/EC.

(5)   Stable conditions for investment in cogeneration and continued investor confidence are needed. In this perspective it is appropriate to maintain the same reference values for a cogeneration unit for a reasonably long period of ten years. However, taking into consideration the main aim of Directive 2004/8/EC to promote cogeneration in order to save primary energy, an incentive for retrofitting older cogeneration units should be given in order to improve their energy efficiency. For these reasons the efficiency reference values for electricity applicable to a cogeneration unit should become stricter from the eleventh year after the year of its construction.

(6)   The measures provided for in this Decision are in accordance with the opinion of the Cogeneration Committee,

HAS ADOPTED THIS DECISION:

Article 1

Establishment of the harmonised efficiency reference values

The harmonised efficiency reference values for separate production of electricity and heat shall be as set out in Annex I and Annex II respectively.

Article 2

Correction factors for the harmonised efficiency reference values for separate production of electricity

1. Member States shall apply the correction factors set out in Annex III(a) in order to adapt the harmonised efficiency reference values set out in Annex I to the average climatic situation in each Member State.

The correction factors for the average climatic situation shall not apply to fuel cell-based cogeneration technology.

If on the territory of a Member State official meteorological data show differences in the annual ambient temperature of 5 oC or more, that Member State may, subject to notification to the

Commission, use several climate zones for the purpose of the first subparagraph using the method set out in Annex III(b).

2. Member States shall apply the correction factors set out in Annex IV in order to adapt the harmonised efficiency reference values set out in Annex I to avoided grid losses.

The correction factors for avoided grid losses shall not apply to wood fuels and biogas.

3. Where Member States apply both the correction factors set out in Annex III(a) and those set out in Annex IV, they shall apply Annex III(a) before applying Annex IV.

Article 3

Application of the harmonised efficiency reference values

1   Member States shall apply the harmonised efficiency reference values set out in Annex I relating to the year of construction of a cogeneration unit. These harmonised efficiency reference values shall apply for 10 years from the year of construction of a cogeneration unit.

2   From the eleventh year following the year of construction of a cogeneration unit, Member States shall apply the harmonised efficiency reference values which by virtue of paragraph 1 apply to a cogeneration unit of 10 years of age. These harmonised efficiency reference values shall apply for one year.

3   For the purpose of this Article the year of construction of a cogeneration unit shall mean the calendar year of the first electricity production.

Article 4

Retrofitting of a cogeneration unit

If an existing cogeneration unit is retrofitted and the investment cost for the retrofitting exceeds 50 % of the investment cost for a new comparable cogeneration unit, the calendar year of first electricity production of the retrofitted cogeneration unit shall be considered as its year of construction for the purpose of Article

3.

Article 5

Fuel mix

If the cogeneration unit is operated with a fuel mix the harmonised efficiency reference values for separate production shall be applied proportionally to the weighted mean of the energy input of the various fuels.

Article 6

Addressees

This Decision is addressed to the Member States.

Done at Brussels, 21 December 2006.

For the Commission

Andris PIEBALGS

Member of the Commission

ANNEX I

Harmonised efficiency reference values for separate production of electricity (referred to in Article 1)

In the table below the harmonised efficiency reference values for separate production of electricity are based on net calorific value and standard ISO conditions (15 oC ambient temperature, 1,013 bar, 60 % relative humidity).

%

	Year of construction: Type of fuel:	1996 and before	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006 2011
Solid	Hard coal/coke	39,7	40,5	41,2	41,8	42,3	42,7	43,1	43,5	43,8	44,0	44,2
	Lignite/lignite briquettes	37,3	38,1	38,8	39,4	39,9	40,3	40,7	41,1	41,4	41,6	41,8
	Peat/peat briquettes	36,5	36,9	37,2	37,5	37,8	38,1	38,4	38,6	38,8	38,9	39,0
	Wood fuels	25,0	26,3	27,5	28,5	29,6	30,4	31,1	31,7	32,2	32,6	33,0
	Agricultural biomass	20,0	21,0	21,6	22,1	22,6	23,1	23,5	24,0	24,4	24,7	25,0
	Biodegradable (municipal) waste Non-renewable (municipal and industrial) waste	20,0	21,0	21,6	22,1	22,6	23,1	23,5	24,0	24,4	24,7	25,0
	Oil shale	38,9	38,9	38,9	38,9	38,9	38,9	38,9	38,9	38,9	38,9	39,0

Liquid		39,7	40,5	41,2	41,8	42,3	42,7	43,1	43,5	43,8	44,0	44,2
	Oil (gas oil + residual fuel oil), LPG Biofuels Biodegradable waste Non-renewable waste	39,7	40,5	41,2	41,8	42,3	42,7	43,1	43,5	43,8	44,0	44,2
		20,0	21,0	21,6	22,1	22,6	23,1	23,5	24,0	24,4	24,7	25,0
		20,0	21,0	21,6	22,1	22,6	23,1	23,5	24,0	24,4	24,7	25,0
Gaseous	Natural gas	50,0	50,4	50,8	51,1	51,4	51,7	51,9	52,1	52,3	52,4	52,5
	Refinery gas/hydrogen Biogas	39,7	40,5	41,2	41,8	42,3	42,7	43,1	43,5	43,8	44,0	44,2
		36,7	37,5	38,3	39,0	39,6	40,1	40,6	41,0	41,4	41,7	42,0
	Coke oven gas, blast furnace gas, other waste gases, recovered waste heat	35	35	35	35	35	35	35	35	35	35	35

ANNEX II

Harmonised efficiency reference values for separate production of heat (referred to in Article 1)

In the table below the harmonised efficiency reference values for separate production of heat are based on net calorific value and standard ISO conditions (15 oC ambient temperature, 1,013 bar, 60 % relative humidity).

%

	Type of fuel:	Steam (*2) /hot water	Direct use of exhaust gases (**3)
Solid	Hard coal/coke	88	80
	Lignite/lignite briquettes	86	78
	Peat/peat briquettes	86	78
	Wood fuels	86	78
	Agricultural biomass	80	72
	Biodegradable (municipal) waste Non-renewable (municipal and industrial) waste	80	72
		80	72
	Oil shale	86	78
Liquid	Oil (gas oil + residual fuel oil), LPG	89	81
	Biofuels	89	81
	Biodegradable waste	80	72
	Non-renewable waste	80	72
Gaseous	Natural gas	90	82
	Refinery gas/hydrogen	89	81
	Biogas Coke oven gas, blast furnace gas + other waste gases	70	62
		80	72

ANNEX III

Correction factors relating to the average climatic situation and method for establishing climate zones for the application of the harmonised efficiency reference values for separate production of electricity (referred to in

Article 2(1))

(a) Correction factors relating to the average climatic situation

Ambient temperature correction is based on the difference between the annual average temperature in a Member State and standard ISO conditions (15 oC). The correction will be as follows: 0,1 %-point efficiency loss for every degree above 15 oC; 0,1 %-point efficiency gain for every degree under 15 oC.

Example: When the average annual temperature in a Member State is 10 oC, the reference value of a cogeneration unit in that Member State has to be increased with 0,5 %-points.

(b) Method for establishing climate zones

The borders of each climate zone will be constituted by isotherms (in full degrees Celsius) of the annual average ambient temperature which differ at least 4 oC.The temperature difference between the average annual ambient temperatures applied in adjacent climate zones will be at least 4 oC.

Example:

In a Member State the average annual ambient temperature in place A is 12 oC and in place B it is 6 oC. The difference is more than 5 oC. The Member State has now the option to introduce two climate zones separated by the isotherm of 9 oC, thus constituting one climate zone between the isotherms of 9 oC and 13 oC with an average annual ambient temperature of 11 oC and another climate zone between the isotherms of 5 oC and 9 oC with an average annual ambient temperature of 7 oC.

ANNEX IV

Correction factors for avoided grid losses for the application of the harmonised efficiency reference values for separate production of electricity (referred to in Article 2(2))

Voltage:	For electricity exported to the grid	For electricity consumed on-site
> 200 kV	1	0,985
100-200 kV	0,985	0,965
50-100 kV	0,965	0,945

0,4-50 kV	0,945	0,925
< 0,4 kV	0,925	0,860

Example:

A 100 kWel cogeneration unit with a reciprocating engine driven with natural gas generates electricity of 380 V. Of this electricity 85 % is used for own consumption and 15 % is fed into the grid. The plant was constructed in 1999. The annual ambient temperature is 15 oC (so no climatic correction is necessary).

According to Annex I of this Decision the harmonised efficiency reference value of 1999 for natural gas is 51,1 %. After the grid loss correction the resulting efficiency reference value for the separate production of electricity in this cogeneration unit would be (based on the weighted mean of the factors in this Annex):

Ref Eη = 51,1%* (0,860 * 85% +0,925 *15%) =44,4%