**COUNCIL OF THE EUROPEAN UNION**

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**NOTE**

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|---|---|
| from : | General Secretariat of the Council |
| to : | Delegations |
| prev. doc. | 7961/03 ENER 87 ENV 191 CODEC 383 |
| No. Cion prop.: | 11381/02 ENER 167 ENV 433 CODEC 975 (COM (2002) 415 final) |
| Subject : | Proposal for a Directive of the European Parliament and of the Council on the promotion of cogeneration based on a useful heat demand in the internal energy market |

Delegations will find at Annex the operative part of the above proposal, as resulting from discussions in the Energy Working Party on 8 April 2003.

The Presidency takes the view that this text, which takes also into account further comments provided by delegations and the Commission representative, constitutes a good basis for reaching agreement.

Discussions at the next meeting of the Energy Working Party should therefore, in the estimation of the Presidency, focus on still outstanding issues such as:

1. the legal basis
2. the definition of "cogeneration production" (Article 3)
3. coherence of grid system issues with existing Community legislation (Article 8)
4. alternative calculations (Article 12)
5. threshold values in Annex II and Annex III.

It is recalled that issues linked to the preamble, and notably to recitals 14 and 16, will be dealt with at a later stage.

Suggested changes are in **bold**, deletions are indicated by [].

**ANNEX**

Proposal for a

**DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**on the promotion of cogeneration based on a useful heat demand in the internal energy market**[1]

[][2]

*Article 1*

**Purpose**

The purpose of this Directive is to increase energy efficiency and improve security of supply by creating a framework for promotion and development of high efficiency cogeneration of heat and power based on useful heat demand and primary energy savings in the internal energy market, taking into account the specific national circumstances especially concerning climatic and economic conditions.

*Article 2*

**Scope**

This Directive shall apply to cogeneration as defined in Article 3 and cogeneration technologies listed in Annex I.

*Article 3*

**Definitions**

For the purpose of this Directive, the following definitions shall apply:

(a) "cogeneration" shall mean the simultaneous generation in one process of thermal energy and electrical and/or mechanical energy[3].

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1 Recital to state:
" Member States operate different mechanisms of support for **cogeneration** at the national level []. One important means to achieve the aim of this Directive is to guarantee the proper functioning of these mechanisms, until a **harmonised** Community framework is put into operation, in order to maintain investor confidence. []".

2 The preamble will be examined at a later stage

3 Recital to state: For practical reasons and based on the fact, that the use of the heat output for different purposes requires different temperature levels of the heat, and that these and other differences influence efficiencies of the cogeneration, cogeneration could be divided into classes such as: "industrial cogeneration", "heating cogeneration" and "agricultural cogeneration";

(b) “useful heat” is heat produced in a cogeneration process to satisfy an economically justifiable demand for heat or cooling;

(c) "economically justifiable demand" means the demand that does not exceed the needs for heat or cooling and which would otherwise be satisfied at market conditions by energy generation processes other than cogeneration;

(d) “electricity from cogeneration” shall mean electricity generated in a process linked to the production of useful heat and calculated in accordance with the methodology laid down in Annex II;

[]

(e) “back-up electricity” shall mean the electricity supplied through the electricity grid whenever the cogeneration process is disrupted, including maintenance periods, or out of order;

(f) “top-up electricity” shall mean the electricity supplied through the electricity grid in cases where the electricity demand is greater than the electrical output of the cogeneration process.

(g) “overall efficiency” shall mean the annual sum of electricity production and useful heat output divided by the fuel input used for heat produced in a cogeneration process and gross electricity production;

(h) ”efficiency” shall mean efficiency calculated on the basis of "net calorific values" of fuels (also referred to as "lower calorific values") ;

(i) “high efficiency cogeneration” shall mean cogeneration meeting the criteria of Annex III a);

(j) “efficiency reference value for separate production“ shall mean efficiency of the alternative separate productions of heat and electricity that the cogeneration process is intended to substitute.

(k) “power to heat ratio” shall mean the ratio between electricity and useful heat when operating at full capacity in cogeneration mode using operational data of the specific unit;

(l) “cogeneration unit” shall mean a unit that can operate in cogeneration mode;

(m) "small scale cogeneration"[4] shall mean [] cogeneration units with an installed capacity below 1MWe.

In addition, the relevant definitions in Directive 2003/../EC and in Directive 2001/77/EC shall apply.

[4] **Recital to state that small scale cogeneration comprises i.a. micro scale and isolated/residential cogeneration**

*Article **4***

**Efficiency criteria of cogeneration**

1. For the purpose of determining the efficiency of cogeneration in accordance with Annex III, the Commission shall, in accordance with the procedure referred to in Article **15** (2), not later than **two** years after the entry into force of this Directive, establish harmonised efficiency reference values for separate production of electricity and heat. These harmonised efficiency reference values must be based on a well-documented analysis taking i.a. into account data from operational use under realistic conditions, **as well as applied technologies** [] **in accordance with the principles in Annex III**.

2. The Commission shall, in accordance with the procedure referred to in Article **15** (2), review the efficiency reference values for separate production of electricity and heat referred to in paragraph 1, for the first time seven years after the entry into force of this Directive, and every four years thereafter, to take account of technological developments and changes in the distribution of energy sources.

3. Member States bringing this Directive into force before the establishment by the Commission of harmonised reference values for separate production of electricity and heat referred to in paragraph 1, should, until the date referred to in paragraph 1, adopt their national efficiency values for separate production of heat and electricity to be used for the calculation of primary energy savings from cogeneration in accordance with the methodology set out in Annex III.

*Article **5***

**Guarantee of origin of electricity from high efficiency cogeneration**

1. On the basis of the harmonised efficiency reference values referred to in Article 4(1), Member States shall, **not later than six months after adoption of these values,** ensure that the origin of electricity produced from high efficiency cogeneration can be guaranteed according to objective, transparent and non-discriminatory criteria laid down by each Member State. They shall ensure that this guarantee of origin of the electricity enable producers to demonstrate that the electricity they sell is produced from high efficiency cogeneration and is issued to this effect in response to a request from the producer.

2. Member States may designate one or more competent bodies, independent of generation and distribution activities, to supervise the issue of the guarantee of origin referred to in paragraph 1.

3. Member States or the competent bodies shall put in place appropriate mechanisms to ensure that the guarantee of origin are both accurate and reliable and they shall outline in the report referred to in Article 10(1) the measures taken to ensure the reliability of the guarantee system.

4. A guarantee of origin[5] shall:

   – specify the lower calorific value of the fuel source from which the electricity was produced, specify the use of the heat generated together with the electricity and finally specify the dates and places of production;

   – specify the quantity of electricity from **high efficiency** cogeneration in accordance with Annex II that the guarantee represents;

   – specify the primary energy savings calculated in accordance with Annex III based on harmonised reference values established by the Commission as referred to in Article 4(1).

   Member States may include additional information on the guarantee of origin.

5. Such guarantees of origin, issued according to paragraph 1, should be mutually recognised by the Member States, exclusively as proof of the elements referred in paragraph 4. Any refusal to recognise a guarantee of origin as such proof, in particular for reasons relating to the prevention of fraud, must be based on objective, transparent and non-discriminatory criteria. In the event of refusal to recognise a guarantee of origin, the Commission may compel the refusing party to recognise it, particularly with regard to objective, transparent and non-discriminatory criteria on which such recognition is based.

*Article 6*

**National potentials for high-efficiency cogeneration**

1. Member States shall establish an analysis of the national potential for the application of high-efficiency cogeneration.

2. The analysis shall:

   - be based on well-documented scientific data and comply with the criteria listed in Annex IV.

   - identify all potential for useful heating and cooling demands, suitable for application of high-efficiency cogeneration, as well as the availability of fuels and other energy resources to be utilised in cogeneration [].

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[5] Recital to state: "[] To facilitate trade in electricity produced from **high efficiency** cogeneration and to increase transparency for the consumer's choice between electricity produced from non- cogeneration and electricity produced from **high efficiency** cogeneration, the guarantee of origin of such electricity is necessary. Schemes for the guarantee of origin do not by themselves imply a right to benefit from national support mechanisms established in different Member States. It is important that all forms of electricity produced from **high efficiency** cogeneration are covered by such guarantees of origin. It is important to distinguish guarantees of origin clearly from exchangeable [] certificates."

- include a separate analysis of barriers, which may prevent the realisation of the national potential for high-efficiency cogeneration. In particular, this analysis shall consider barriers relating to the prices and costs of and access to fuels, barriers in relation to grid system issues, barriers in relation to administrative procedures, and barriers relating to the lack of internalisation of the external costs in energy prices.

3. Member States shall for the first time not later than three years after the entry into force of this Directive and thereafter every four years, following a request by the Commission at least six months before the due date, evaluate progress towards increasing the share of high-efficiency cogeneration.

*Article 7*

**Support schemes**

1. Member States shall ensure that support for cogeneration **- existing and future units -** is based on the useful heat demand and primary energy savings, in the light of opportunities available for reducing energy demand through other economically feasible or environmental advantageous measures like **other** energy efficiency measures.

2. Without prejudice to Articles 87 and 88 of the Treaty[6], the Commission shall evaluate the application of support mechanisms used in Member States according to which a producer of cogeneration receives, on the basis of regulations issued by public authorities, direct or indirect support, which could have the effect of restricting trade.

   The Commission shall consider whether those mechanisms contribute to the pursuit of the objectives set out in Articles 6 and 174(1) of the Treaty.

3. The Commission shall in the report referred to in Article 10 present a well-documented analysis on experience gained with the application and coexistence of the different support mechanisms referred to in paragraph 2. The report shall assess the success, including cost-effectiveness, of the support systems in promoting the use of high-efficiency cogeneration in conformity with the national potentials referred to in Article 6. The report shall further review to what extent the support schemes have contributed to the creation of stable conditions for investments in cogeneration.

*Article 8*

**Electricity grid system and tariff issues**

1. For the purpose of ensuring the transmission and distribution of electricity produced from high efficiency cogeneration the **relevant** provisions of [] Directive 2001/77/EC [] **and** of Directive 2003/../EC shall apply.

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**6** Recital to state the need for consistency between provisions of the Treaty and the Community guidelines on state aid for environmental protection

2. Unless the cogeneration producer is an eligible customer under national legislation within the meaning of Article 21(1) of Directive 2003/../EC, Member States shall take the necessary measures to ensure that the tariffs for the purchase of electricity to back-up or top-up electricity generation are set on the basis of published tariffs and terms and conditions. [].

**3**. Subject to notification to the Commission, Member States may particularly facilitate access to the grid system of electricity produced from high efficiency cogeneration [] from small scale cogeneration units.

*Article 9*

**Administrative procedures**

1. Member States or the competent bodies appointed by the Member States shall evaluate the existing legislative and regulatory framework with regard to authorisation procedures or the other procedures laid down in Article 6 of Directive 2003/../EC, which are applicable to high efficiency cogeneration units.

   Such evaluation shall be made with a view to:

   (a) encouraging the design of cogeneration units to match economically justified demands for heat output and avoiding production of more heat than useful heat.

   (b) reducing the regulatory and non-regulatory barriers to an increase in cogeneration;

   (c) streamlining and expediting procedures at the appropriate administrative level; and

   (d) ensuring that the rules are objective, transparent and non-discriminatory, and take fully into account the particularities of the various cogeneration technologies.

2. Member States shall – where this is appropriate in the context of national legislation –provide an indication of the stage reached specifically in:

   (a) co-ordination between the different administrative bodies as regards deadlines, reception and treatment of applications for authorisations;

   (b) the drawing up of possible guidelines for the activities referred to in paragraph 1, and the feasibility of a fast-track planning procedure for cogeneration producers; and

   (c) the designation of authorities to act as mediators in disputes between authorities responsible for issuing authorisations and applicants for authorisations.

*Article 10*

**Member States' reporting**

1. Member States shall, not later than two years after the entry into force of this Directive, publish a report with the results of the analysis and evaluations carried out in accordance with the following articles: 5(3), 6(1), 9(1) and 9(2);

2. Member States shall not later than three years after the entry into force of this Directive and hereafter every four years, following a request by the Commission at least six months before the due date, publish a report with the result of the evaluation referred to in Articles 6(3) and 8[];

3. Member States shall submit to the Commission, for the first time before the end of **December** 2004 covering data for the year 2003, and thereafter on an annual basis, statistics on national electricity and heat production from cogeneration, in accordance with the methodology shown in Annex II.

   They shall also submit annual statistics on cogeneration capacities and fuels used for cogeneration.

   **Member States may also submit statistics on primary energy savings achieved by application of cogeneration, in accordance with the methodology shown in Annex III.**

*Article 11*

**Commission reporting**

On the basis of the reports submitted pursuant to Article 10, the Commission shall review the application of this Directive and submit to the European Parliament and to the Council not later than four years after the entry into force of this Directive and thereafter every four years, a progress report on the implementation of this Directive.

In particular, the report shall:

(a) consider the scope for further harmonisation of the criteria to determine the efficiency of cogeneration.

(b) consider progress towards realising national potentials for high-efficiency cogeneration referred to in Article 6.

(c) assess the extent to which rules and procedures defining the framework conditions for cogeneration in the internal energy market are set on the basis of objective, transparent and non-discriminatory criteria taking due account of the benefits of cogeneration.

(d) examine the experiences gained with the application and coexistence of different support mechanisms for cogeneration.

(e) review reference values for separate production on the basis of the current technologies.

If appropriate, the Commission shall submit with the report further proposals to the European Parliament and the Council.

*Article 12*

**Alternative calculations**

1.[7] Until the end of 2010 and subject to prior approval by the Commission, Member States may use other methods than the one provided for in paragraph b) of Annex II [] to subtract possible electricity production not produced in a cogeneration process from the reported figures. **However, for the purposes referred to in Article 10(3) and in Article 5(1), the quantity of electricity from cogeneration shall be determined in accordance with Annex II.**

**2**. Member States may **calculate** primary energy savings from **a production of heat and electricity according to Annex III c)** without using Annex II to exclude the non-cogenerated heat and electricity parts of the same process **Such a production can be regarded as high efficiency cogeneration** provided it fulfils the efficiency criteria in Annex III a) **and for cogeneration units with an electrical capacity larger than 25 MW provided that the overall efficiency is above 70%**. However, **specification of the quantity of electricity from cogeneration produced in such a production**, **for issuing** a guarantee of origin **and for statistical purposes** [], shall **be** [] determined in accordance with Annex II.

**3**. Until the end of 2010, Member States may, using an alternative methodology, define a cogeneration [] as high efficiency cogeneration without verifying that the cogeneration production fulfils the criteria in Annex III a), if it is proved on national level that the cogeneration production identified by such an alternative calculation methodology on average fulfils the criteria in Annex III a). If a guarantee of origin is issued for such production then

[7] **From a strictly legal point of view, this paragraph may not be necessary**

the efficiency of the cogeneration production specified on the guarantee shall not exceed the threshold values of the criteria in Annex III a) unless calculations in accordance with Annex III prove otherwise.

*Article **13***

**Review**

1. The **threshold** values used for calculation of electricity from cogeneration referred to in Annex II **a)** shall be adapted to technical progress in accordance with the procedure referred to in Article **15**(2) [].

2. The **threshold** values used for calculation of efficiency of cogeneration production and primary energy savings referred to in Annex III **a)** shall be adapted to technical progress in accordance with the procedure referred to in Article **15**(2).

*Article **14***

**Compatibility with Directive 92/42/EEC**

**Directive 92/42/EEC shall not apply to cogeneration units.**

*Article **15***

**Committee**

1. The Commission shall be assisted by a Committee.

2. Where reference is made to this paragraph, Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

   The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. The Committee shall adopt its rules of procedure.

*Article **16***

**Transposition**

Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive not later than two years after the entry into force of this Directive. They shall forthwith inform the Commission thereof.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such a reference on the occasion of their official publication. The Member States shall lay down the methods of making such reference.

*Article **17***

**Entry into force**

This Directive shall enter into force on the twentieth day following that of its publication in the Official Journal of the European Union.

*Article **18***

**Addressees**

This Directive is addressed to the Member States.

Done at Brussels,

| | |
|---|---|
| *For the European Parliament*<br>*The President* | *For the Council*<br>*The President* |

## ANNEX I

### Cogeneration technologies covered by the Directive

a) Combined cycle gas turbine with heat recovery

b) Steam backpressure turbine

c) Steam condensing extraction turbine

d) Gas turbine with heat recovery

e) Internal combustion engine

f) Microturbines

g) Stirling engines

h) Fuel cells

i) Steam engines

j) Organic Ranking cycles

k) Any other type of technology or combination thereof falling under the definition laid down in Article 3 a).

## ANNEX II

### Definition of electricity from cogeneration

Values used for calculation of electricity from cogeneration shall be determined on the basis of the expected or actual operation of the unit under normal conditions of use.

a) Electricity production from cogeneration shall be considered equal to total annual electricity production of the unit measured at the outlet of the main generators.

- in cogeneration units of type b), d), e), f), g), and h) referred to in Annex I, with an annual overall efficiency higher or equal to 75%, and
- in cogeneration units of type a) and c) referred to in Annex I with an annual overall efficiency higher or equal to 85%.

b) In cogeneration units with an annual overall efficiency below 75% (cogeneration units of type b), d), e), f), g), and h) referred to in Annex I) or with an annual overall efficiency below 85% (cogeneration units of type a) and c) referred to in Annex I) cogeneration is calculated according to the following formula :

$$E_{CHP} = H_{CHP} \cdot C$$

where

$E_{CHP}$ is the amount of electricity from cogeneration

C is the power to heat ratio

$H_{CHP}$ is the **amount** of useful heat from [] cogeneration [] (defined as total heat production minus any heat produced in separate boilers or by live steam extraction from the steam generator before the turbine).

The calculation of electricity from cogeneration must be based on the actual power to heat ratio. If the actual power to heat ratio of a cogeneration unit is not known, the following default values may be used for units of type a), b), c), d), and e) referred to in Annex I provided that the calculated cogeneration electricity is less or equal to total electricity production of the unit:

| **Type of the unit** | **Default power to heat capacity ratio, C** |
|---|---|
| Combined cycle gas turbine with heat recovery | 0,95 |
| Steam backpressure turbine | 0,45 |
| Steam condensing extraction turbine | 0,45 |
| Gas turbine with heat recovery | 0,55 |
| Internal combustion engine | 0,75 |

If Member States introduce default values for power to heat ratios for units of type f), g), h), i), j) and k) referred to in Annex I, such default values shall be published and shall be notified to the Commission.

c) If a share of the energy content of the fuel input to the cogeneration process is recovered in chemicals and recycled this share can be subtracted from the fuel input before calculating the overall efficiency used in paragraph a) and b).

d) Member States may determine the power to heat ratio **as the ratio between electricity and useful heat when operating in cogeneration mode at a lower capacity using operational data of the specific unit**.

e) Member States may use other reporting periods than one year for the purpose of the calculations according to paragraphs a) and b) of this Annex.

## ANNEX III

### Methodology for determining the efficiency of cogeneration production

Values used for calculation of efficiency of cogeneration [] and primary energy savings shall be determined on the basis of the expected or actual operation of the unit under normal conditions of use.

**a) High-efficiency cogeneration**

For the purpose of this Directive high-efficiency cogeneration [] shall fulfil the following criteria:

– production from [] cogeneration units shall provide primary energy savings of at least **[**10%**]** compared with the references for separate production of heat and power;

[]

**b) Calculation of primary energy savings**

The amount of primary energy savings provided by cogeneration production defined in accordance with Annex II to this Directive shall be calculated on the basis of the following formula:

$$PES = \left( 1 - \frac{1}{\frac{CHP\ H\eta}{Ref\ H\eta} + \frac{CHP\ E\eta}{Ref\ E\eta}} \right) x\ 100\%$$

Where:

PES is primary energy savings

CHP Hηis the heat efficiency of the cogeneration production defined as annual useful heat output divided by the fuel input used to produce the sum of useful heat output and electricity from cogeneration.[1]

Ref Hη is the heat efficiency of the reference for separate heat production

CHP Eη is the electrical efficiency of the cogeneration production defined as annual electricity from cogeneration divided by the fuel input used to produce the sum of useful heat output and electricity from cogeneration.

Ref Eη is the electrical efficiency of the reference for separate electricity production.

**c) Calculations of energy savings using alternative calculation according to article 12(2)**

If primary energy savings for a process are calculated in accordance with Article 12(**2**) the primary energy savings shall be calculated using the formula in **paragraph** b) of this Annex replacing:

"CHP Hη" with "H**η**" and

"CHP Eη" with "E**η**",

where:

H**η** shall mean the **heat efficiency** of the process, **defined as the annual heat output divided by the fuel input used to produce the sum of heat output and electricity output**

E**η** shall mean the **electricity efficiency** of the process, **defined as the annual electricity output divided by the fuel input used to produce the sum of heat output and electricity output**

**d)** Member States may use other reporting periods than one year for the purpose of the calculations according to paragraph b) **and c)** of this Annex.

**e) Efficiency reference values for separate production of heat and electricity**

The principles for defining the references for separate production of heat and electricity referred to in Article 4(1) and in the formula set out in paragraph b) of this Annex shall establish the operating efficiency of the separate heat and electricity production that cogeneration is intended to substitute.

The efficiency reference values shall be calculated according to the following principles:

1) For cogeneration units as defined in Article 3, the comparison with [] separate electricity production shall be based on the principle that the same fuel categories are compared.

[1] Recital to state that measuring the useful heat output at the point of production of the cogeneration plant underlines the need to ensure that advantages of the cogenerated useful heat are not lost in high heat losses from distribution networks.

2) Each cogeneration unit shall be compared with reference values reflecting the **best available technology on the market** in the year of construction of the cogeneration unit[2].
3) The reference values for cogeneration units older than [10] years of age shall be fixed on the reference values of units of [10] years of age.
4) The reference values for separate electricity production and heat production shall reflect the climatic differences between Member States.

[2] Reference values and savings criteria are linked: a strict reference value asks for a less strict criterion.

## ANNEX IV

### Criteria for analysis of national potentials for high-efficiency cogeneration

**a)** The analysis of national potentials referred to in Article 6 shall consider:

- The type of fuels that are likely to be used to realise the cogeneration potentials, including specific considerations on the potential for increasing the use of renewable energy sources in the national heat markets via cogeneration.
- The type of cogeneration technologies as listed in Annex I that are likely to be used to realise the national potential.
- The type of separate production of heat and electricity that high-efficiency cogeneration is likely to substitute.
- A division of the potential into modernisation of existing capacity and construction of new capacity.

**b)** The analysis shall include appropriate mechanisms to assess the cost effectiveness – in terms of primary energy savings - of increasing the share of high-efficiency cogeneration in the national energy mix. The analysis of cost effectiveness shall also take into account national commitments accepted in the context of the climate change commitments accepted by the Community pursuant to the Kyoto Protocol to the United Nations Framework Convention on Climate Change.

**c)** The analysis of the national cogeneration potential shall specify the potentials in relation to the timeframes 2010, 2015 and 2020 and include appropriate cost estimates for each of the timeframes.