GOVERNMENT OF ROMANIA

DECISION
on the promotion of cogeneration based on a useful heat demand

On the basis of art. 108 of the Romanian Constitution, republished, and in accordance with the provisions of art. 69 and 70 of the European Agreement establishing an association between Romania, on one hand, and the European Communities and their Member States on the other, signed in Brussels on the 1st of February 1993, ratified by the Law no 20/1993, as amended

The Government of Romania adopts the present decision.

CHAPTER I
General provisions

Art. 1. - The present decision establishes the legal framework for the promotion and development of high efficiency cogeneration of heat and electricity, based on useful heat demand and primary energy savings in the energy market, in order to increase energy efficiency and improve security of supply, taking into account Romania's specific climatic and economic conditions.

Art. 2. - The present decision shall apply to cogeneration as defined in art. 3 and cogeneration technologies listed in annex no 1.

Art. 3. - For the purpose of the present decision, the following definitions shall apply:

a) *cogeneration* - simultaneous generation, in one process, of heat and electricity and/or mechanical energy;

b) *useful heat* - heat produced in a cogeneration process to satisfy an economically justifiable demand for heat or cooling;

c) *economically justifiable demand* - 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* - electricity generated simultaneously and in a process with the production of useful heat and calculated in accordance with the methodology laid down in annex no. 2;

e) *overall efficiency* – the annual sum of electricity and mechanical energy production and useful heat output, divided by the energy stored in the fuel input used for these energies' output in a cogeneration process;

f) *efficiency* - efficiency calculated on the basis of lower calorific values of fuels;

g) *high efficiency cogeneration* – cogeneration process meeting the criteria established in annex no. 3;

h) *efficiency reference value for separate production* – efficiency of the separate production of heat, respectively of electricity and/or mechanical energy, in alternative processes, that the cogeneration process is intended to substitute;

i) *power to heat ratio* - the ratio between electricity and useful heat produced in an exclusive cogeneration mode, using the operational data of that specific cogeneration unit;

j) *cogeneration unit* - a unit that can operate in cogeneration mode;

k) *micro-cogeneration unit* – a cogeneration unit with a maximum installed capacity below 50 kWe;

l) *small scale cogeneration unit* - cogeneration unit with an installed capacity below 1 MWe;

m) *cogeneration production* - the sum of electricity, mechanical energy and useful heat from cogeneration;

n) *guarantee of origin* – document isued by the Romanian Energy Regulatory Authority certifying to an electricity producer that at the origin of an electricity quantity there is a high-efficiency cogeneration process;

o) *bonus-type support scheme* – support scheme where the producer of cogeneration electricity and heat receives for each electricity unit produced in high efficiency conditions a fixed amount of money called bonus.

p) *contribution* – the fixed amount of money payed by the supplier for each electricity unit sold to end consumers.

q) *resort ministries* – Ministry of Economy and Commerce, Ministry of Administration and Internal Affairs;

r) *RERA* - Romanian Energy Regulatory Authority;

s) *RAEC* - Romanian Agency for Energy Conservation.

CHAPTER II
Efficiency criteria of cogeneration

Art. 4 - (1) Efficiency of the cogeneration process shall be determined, in accordance with the criteria laid down in annex no. 3, on the basis of harmonized efficiency reference values for separate production of electricity and heat.

(2) – The values referred to in par. (1), applicable at a national level, are the harmonized efficiency reference values for separate production of electricity and heat, established by the Decision of the European Union Commission 2007/47/EC, published in the Official Journal of the European Committee, no. L 32 of 6 February 2007.

(3) Harmonized reference values referred to in par. (2) and the correction factors applicable at a national level shall be adopted by an order of the RERA president, within 90 days from the entry into force of this decision.

CHAPTER III
Guarantee of origin of electricity from high-efficiency cogeneration

Art. 5. - (1) The guarantee of origin referred to in art. 3 lett. n) shall be issued upon the written request of the producers selling electricity produced from high-efficiency cogeneration.

(2) On the basis of the harmonized efficiency reference values referred to in art. 4 par. (3), RERA shall lay down the regulating framework necessary to ensure that the origin of electricity produced from high-efficiency cogeneration can be guaranteed according to objective, transparent and nondiscriminatory criteria.

(3) RERA shall draw up, within 120 days from the entry into force of the present decision, the procedure of issuing the guarantees of origin for electricity produced from high efficiency cogeneration, which shall be approved by a Government decision.
to ensure that of the electricity enable producers to demonstrate that the electricity they sell is and is issued to this effect in response to a request from the producer.

(4) The regulating framework referred to in par. (2) and the procedure referred to in par. (3) must ensure that the guarantees of origin issued are both accurate and reliable. The report referred to in art. 13 par. (1) must outline the measures taken to ensure that these requirements are met.

(5) Criteria on the basis of which the guarantees of origin shall be issued, do not by themselves imply the right to benefit from national support schemes.

Art. 6. - The guarantee of origin shall specify:

a) the lower calorific value of the fuel source from which the electricity was produced, the use of the heat generated together with the electricity and finally specify the period and the place of production;

b) the quantity of electricity produced from high efficiency cogeneration in accordance with the provisions of annex no. 2 that the guarantee represents;

c) the primary energy savings calculated in accordance with the provisions of annex no. 3 based on the efficiency reference values established in accordance with art. 4 par. (2);

d) other data which RERA may consider useful.

Art. 7. - The guarantees of origin for high-efficiency cogeneration, issued according to the provisions of art.5, par. 1 of Directive 2004/8/EC in the Member States of the European Union, are mutually recognized on the territory of Romania. Any refusal to recognise the guarantee of origin, in particular for reasons relating to the prevention of fraud, must be based on objective, transparent and non-discriminatory criteria.

CHAPTER IV
National potential for high-efficiency cogeneration

Art. 8. - (1) The Ministry of Economy and Commerce and the Ministry of Administration and Internal Affairs shall designate, within a term of 30 days from the entry into force of the present decision, a commission of experts to analyse the national potential for the application of high-efficiency cogeneration, including high-efficiency micro-cogeneration.

(2) The analysis of the national potential referred to in par.(1) shall:

a) be based on well-documented scientific data and comply with the criteria listed in annex no. 4;

b) identify the useful heating demand suitable for application of high-efficiency cogeneration, as well as the availability of the existing or future units, of fuels and renewable energy sources to be utilized in electricity and heat produced in cogeneration;

c) include a separate analysis of barriers, which may prevent the realization of the national potential for high-efficiency cogeneration; in particular, this analysis shall consider aspects relating to the prices, costs of and access to fuels, access to the to grid system, administrative procedures, as well as aspects related to the situation of internalization of the external costs in energy prices.

(3) The first report of the national high-efficiency cogeneration potential shall be finalized no later than 30 June 2008. Periodically progress towards increasing the share of high-efficiency cogeneration production shall be evaluated. The due date of the reports shall be coordinated with the reporting requirements of the European Commission.

CHAPTER V
Support scheme for electricity produced from cogeneration based on useful heat demand

Art. 9. - (1) In the light of opportunities available for reducing overall energy demand and the positive impact on the environment, the support scheme for electricity produced from cogeneration, both for existing and future units, is based on the useful heat demand and primary energy savings carried out by the combined and simultaneous production of heat and electricity.

(2) Seeking to promote high-efficiency cogeneration and to ensure a stable environment conducive to investments and development, an allocation-type support scheme shall be set up, applied to the electricity production from cogeneration.

(3) Main spring minister and RERA shall establish the criteria and conditions necessary for the implementation of the allocation-type support scheme provided for in par. (2). The support scheme shall be notified to the European Commission by the Ministry of Economy and Commerce and shall be approved by a decision of the Government, after the European Commission's decision has been obtained.

(4) For the establishment of the criteria and conditions provided for in par. (3), for the units for the production of electricity from cogeneration, which do not fully comply with the criteria on the basis of which guarantees of origin are issued, the alternative calculations provided for in art. 15 shall be taken into account.

CHAPTER VI
Grid access

Art. 10. - (1) Without prejudice to the maintenance of the reliability and safety of the grid, grid operators shall take the necessary measures to ensure the priority connection of all units producing electricity from high-efficiency cogeneration, as a response to the

producer's request, and must ensure, on the basis of a contract, the transmission and distribution of the electricity produced.

(2) Without prejudice to the maintenance of the reliability and safety of the grid, for small-scale cogeneration installations and micro-cogeneration units, RERA shall issue specific regulations which should facilitate their access to the grid and priority in electricity dispatching.

(3) The Ministry of Economy and Commerce shall notify the European Commission of the specific regulations provided for in par. (2).

Art. 11. - RERA shall adapt the rules for the functioning of electricity markets for priority dispatching, for commercial purposes, of electricity produced from cogeneration, with the condition to maintain the secure operation of the National energy system.

CHAPTER VII
Administrative procedures

Art. 12. (1) Within a term of maximum one year of the date of entry into force of this decision, under the coordination of the Ministry of Economy and Commerce, the competence ministries, RERA and RECA, shall evaluate the existing legislative and regulatory framework with regard to the improvement and the alignment to the European codes of good practice. This evaluation shall also include the analysis of the authorization procedures in force or of or any other legal procedures which are applicable to high-efficiency cogeneration units, with a view to:

a) encouraging the installation of high-efficiency cogeneration units and/or modernizing the existing cogeneration units, strictly within the limits of economically justifiable demands of useful heat;

b) reducing the regulatory barriers and other types of barriers to the promotion of cogeneration;

c) streamlining and expediting procedures at the appropriate administrative level in order to obtain the necessary authorizations;

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

(2) Competence ministries shall examine periodically and shall report according to the provisions of art.13 the stage reached and the progress recorded specifically in:

a) coordination between the different administrative bodies as regards deadlines, reception and treatment of applications for authorizations;

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

c) the process of mediation of disputes between authorities responsible for issuing authorizations and applicants for authorizations.

CHAPTER VIII

European Commission reporting

Art. 13. (1) Competence ministries shall elaborate and publish a report with the results of the analysis and evaluations carried out in accordance with art. 5 par. (4), art. 8, par. (1) and art. 12, within one year from the date of entry into force of this decision.

(2) Competence ministries shall publish the first result of the evaluation carried out referred to in art. 8 par. (3) within maximum one year of the entry into force of this decision and thereafter periodically, in accordance with the reporting requirements of the European Commission.

(3) RERA shall collect and communicate to the Ministry of Economy and Commerce, the Ministry of Administration and Internal Affairs and the European Commission, statistics on national electricity and heat production from cogeneration, determined in accordance with the method for the calculation of electricity from cogeneration established in annex no. 2. The first communication shall be submited in December 2007 covering data for the year 2006, and thereafter on an annual basis.

(4) Annually, RERA shall submit to the Ministry of Economy and Commerce, the Ministry of Administration and Internal Affairs and the European Commission, statistics on cogeneration capacities and fuels used for cogeneration. RERA may also submit statistics on primary energy savings achieved by application of cogeneration and determined in accordance with the methodology shown in annex no. 3.

Art. 14. - Within 6 months of the date of entry into force of this Decision, RERA shall elaborate the methodology for reporting, monitoring and control related to the means of implementation of the provisions of this decision.

CHAPTER IX
Alternative calculations

Art. 15. (1) To determine the electricity produced from cogeneration, RERA may use, under objective and non-descriminating conditions, until the end of 2010, and subject to prior approval by the European Commission, other methods than the one provided for in annex no. 2, lett. (b) to subtract possible electricity production not produced in a cogeneration process from the reported figures. However, for the purposes referred to in art. 5 par. (2) and (3) and art. 13 par. (3), the quantity of electricity from cogeneration shall be determined in accordance with the calculation method established in annex no. 2.

(2) Primary energy savings from a combined and simultaneous production of heat and electricity and mechanical energy according to annex no. 3, lett. (c), may be calculated without using the calculations established in annex no. 2 to exclude the non-cogenerated heat and electricity parts of the same process. In this case, such a production can be regarded as high-efficiency cogeneration provided it fulfils the efficiency criteria in annex no. 3 lett. (a) and, for cogeneration units with an electrical capacity larger than 25 MW, the overall efficiency is above 70 %. However, specification of the quantity of electricity from cogeneration produced in such a process, for issuing a guarantee of origin and for statistical purposes, shall be determined in accordance with annex no. 2.

(3) Until the end of 2010, it may be possible, using an alternative method, different from the ones established in annex no. 3, to define a cogeneration as high-efficiency cogeneration without verifying that the cogeneration production fulfils the criteria in annex no. 3 lett. (a), if it is proved that, on national level, the cogeneration production identified by such a method fulfils on average the criteria in annex no.3 lett. (a). If guarantees of origin are issued based on the alternative calculation method referred to in par. (1), then the efficiency of the cogeneration production specified in the guarantee shall not exceed the threshold values of the criteria in annex no. 3, lett. (a), unless calculations in accordance with annex no. 3 prove otherwise. However, specification of the quantity of electricity from cogeneration produced in such a process, for issuing a guarantee of origin and for statistical purposes, shall be determined in accordance with annex no. 2.

Art. 16. – Annexes no 1-4 are part of this decision.

This decision transposes Directive 2004/8/EC of the European Parliament and of the Council of the European Union of 11 February 2004, on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC, published in the Official Journal of the European Communities no. L52 of 21 February 2004.

PRIME - MINISTER

CĂLIN POPESCU – TĂRICEANU

Countersign:
f. Ministry of economy and commerce,
Darius Mesca,
Secretary of State
Ministry of Adminsitration and Internal Affairs,
Vasile Blaga
President of the Romanian Energy Regulatory Authority,
Nicolae Opris
Ministry of European integration,
Anca Daniela Boagiu

Bucharest, 28 February 2007.
No 219.

ANNEX No. 1

Cogeneration technologies covered by this decision

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 Rankine cycles;
k) any other type of technology or combination thereof falling under the definition laid down in art. 3 lett. a).

ANNEX No. 2

Calculation of electricity from cogeneration

Usually, values used for calculation of electricity from cogeneration shall be determined on the basis of:

- the actual operation, under normal conditions of use, of the cogeneration units which have been in use for at least one year ;
- the expected operation of the cogeneration units under normal conditions of use, in the first year of operation after new or upgraded units have been put into operation.

For micro-cogeneration units the calculation may be based on certified values.

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, if:

(i) in cogeneration units of type b) - (h), referred to in annex no. 1, with an annual overall efficiency of at least 75 %;

(ii) in cogeneration units of type a) and c) referred to in annex no. 1with an annual overall efficiency of at least 80 %.

b) In cogeneration units with an annual overall efficiency below the value referred to in par. a) (i) or with an annual overall efficiency below the value referred to in par. a) (ii), the energy produced from cogeneration is calculated according to the following formula:

$$E_{CHP} = H_{CHP} * C$$

where:

E_{CHP} - the amount of electricity from cogeneration;

C - the power to heat ratio;

H_{CHP} - the amount of useful heat from cogeneration (calculated for this purpose as total heat production of the cogeneration unit 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, determined on the basis of the technical characteristics of the cogeneration unit. If the actual power to heat ratio of a cogeneration unit can not be determined on the basis of the technical characteristics, the following default values may be used, notably for statistical purposes, for units of type a) - e) referred to in annex no. 1, provided that the calculated cogeneration electricity is less or equal to the total electricity production of the unit:

Type of the unit	Default power to heat 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

Default values may be introduced for power to heat ratios for units of type f) - k), referred to in annex no. 1, such default values shall be published and shall be notified to the European 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 par. a) and b).

d) When operating in cogeneration mode at a lower capacity, the electricity/heat ratio may be determined using the operational data of that specific unit at lower capacity.

e) Reporting periods other than one year may be used for the purpose of the calculations according to par. a) and b).

ANNEX No. 3

Methodology for determining the efficiency of the cogeneration process

Usually, values used for calculation of efficiency of cogeneration and primary energy savings shall be determined on the basis of:

- the actual operation, under normal conditions of use, of the cogeneration units which have been in use for at least one year;
- the expected operation of the cogeneration units under normal conditions of use, in the first year of operation after new or upgraded units have been put into operation.

a) **High-efficiency cogeneration**

For the purpose of this decision high-efficiency cogeneration shall fulfill the following criteria:

- cogeneration production from cogeneration units shall provide primary energy savings calculated according to pt. b) or c), of at least 10 % compared with the references for separate production of electricity and heat;

- production from small scale and micro cogeneration units providing primary energy savings opposite to the reference values of the efficiency of the separate electricity and heat procedure may qualify as high-efficiency cogeneration.

b) **Calculation of primary energy savings**

The amount of primary energy savings provided by cogeneration production defined in accordance with annex no. 2 shall be calculated on the basis of the following formula:

$$PES = \left[1 - \frac{1}{\frac{CHP\ H\eta}{Ref\ H\eta} + \frac{CHP\ E\eta}{Ref\ E\eta}} \right] \times 100\ \%$$

where:

PES - primary energy savings;

CHP Hη - 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;

Ref Hη - the efficiency reference value for separate heat production;

CHP Eη - 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. Where a cogeneration unit generates directly mechanical energy, the annual electricity from cogeneration may be increased by

an additional element representing the amount of electricity which is equivalent to that of mechanical energy. This additional element will not create a right to issue guarantees of origin in accordance with art. 5;

Ref Eη - the efficiency reference value for separate electricity production.

c) **Calculations of energy savings using alternative calculation according to art. 15 par. (2)**

If the criteria for the application of the allocation-type support scheme, established in accordance with art. 9 par. (3), are based on the provisions of art. 15 par. (2), the primary energy savings shall be calculated using the following formula:

$$PES = \left(1 - \frac{1}{\frac{H\ \eta}{\mathrm{Re}\quad fH\quad \eta} + \frac{E\ \eta}{\mathrm{Re}\quad fE\quad \eta}} \right) * 100\ \%$$

where, besides notes in pt. b):

Hη - 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;

Eη - 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. Where a cogeneration unit generates directly mechanical energy, the annual electricity from cogeneration may be increased by an additional element representing the amount of electricity which is equivalent to that of mechanical energy. This additional element will not create a right to issue guarantees of origin in accordance with art. 5.

d) Reporting periods other than one year may be used for the purpose of the calculations supposed by the application of the criteria referred to in par. b) and c);

e) For micro-cogeneration units the calculation of primary energy savings may be based on certified data.

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

The principles for defining the efficiency reference values for separate production of heat and electricity referred to in art. 4 par. (2) and in the formula set out in pt. 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 for separate production of electricity and heat shall be calculated according to the following principles:

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

2. Each cogeneration unit shall be compared with the best available and economically justifiable technology for separate production of electricity and heat on the market in the year of construction of the cogeneration unit.

3. The efficiency 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 efficiency reference values for separate electricity production and heat production shall reflect the specific climatic differences between Member States.

ANNEX No. 4

Criteria for analysis of national potential for high-efficiency cogeneration

a) The analysis of national potentials referred to in art. 8 shall consider:

- the type of fuels that are likely to be used to realize the cogeneration potentials, including specific considerations on the potential for increasing the use of renewable energy sources in the heat production via cogeneration;
- the types of cogeneration technologies as listed in annex no. 1 that are likely to be used to realize the national potential of high-efficiency cogeneration;
- the types of separate production of and electricity, heat or, where feasible, mechanical energy that high-efficiency cogeneration is likely to substitute;
- a division of the potential into modernization of existing capacity and construction of new capacity.

b) The analysis shall include appropriate mechanisms to assess the cost effectiveness, expressed 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, where feasible, appropriate cost estimates for each of the timeframes.