

THE MINISTRY OF THE ECONOMY, LABOUR AND ENTREPRENEURSHIP

2049

Pursuant to Article 8, paragraph 2 of the Electricity Market Act (Official Gazette 177/04), the Minister of the Economy, Labour and Entrepreneurship, hereby issues the

ORDINANCE

ON ACQUIRING THE STATUS OF ELIGIBLE ELECTRICITY PRODUCER

I GENERAL PROVISIONS

Article 1

This Ordinance establishes the conditions for acquiring the status of eligible electricity producer which may be acquired by a project holder or producer who in a single generation plant simultaneously produces electricity and heat, uses waste or renewable energy sources for electricity production in an economically viable manner in compliance with environmental protection (hereinafter referred to as: the eligible producer).

Article 2

(1) The terms used in this Ordinance shall have the meanings laid down in the Energy Act, Electricity Market Act, Act on the Production, Distribution and Supply of Thermal Energy, Tariff system for generation of electricity from renewable energy sources and cogeneration and the Ordinance on the use of renewable energy sources and cogeneration (hereinafter referred to as: the Ordinance on the use of RESC).

(2) For the purpose of this Ordinance, other terms also used shall have the following meanings:

1. annual consumption of primary energy for the operation of a cogeneration plant, Q , – expressed in MJ and calculated as the sum of products of the lower calorific value $H_{d,i}$ and the total annual amount of fuel B_i of each of n fuels:

$$Q = \sum_{i=1}^n H_{d,i} B_i$$

2. annual consumption of primary energy from fossil fuels for the operation of a cogeneration plant, Q_f – expressed in MJ and calculated as the sum of products of the lower calorific value $H_{d,i}$ and the total annual fuel quantity B_i of each of n_f fossil fuels:

$$Q_f = \sum_{i=1}^{n_f} H_{d,i} B_i$$

In the case of a cogeneration plant with co-combustion of waste, biomass, liquid biofuels or biogas, when calculating the energy efficiency of cogeneration only the consumption of fossil fuels shall be taken into account.

3. renewable energy and cogeneration plants (hereinafter referred to as: the plants) – facilities intended for generation of electrical and thermal energy from renewable energy sources and cogeneration,

4. total annual heat produced H_u , – annual heat produced in a cogeneration plant, measured at the plant outlet and expressed in MJ,

5. total annual electricity produced in a cogeneration plant E_u – total electricity produced in a cogeneration plant, measured at the outlet of the main generators and expressed in MWh,

6. total efficiency of a cogeneration plant defined by the formula:

$$\eta_u = \frac{3600 \cdot E_u + H_u}{Q}$$

7. heat produced in a cogeneration plant outside the cogeneration process, H_b – the heat produced in a peak boiler or annual heat produced in a waste heat boiler by combustion of supplemental fuel minus the boiler losses or live steam extraction from the steam generator before the turbine, measured and expressed in MJ,

8. heat losses due to cogeneration, H_g – total annual losses created during the use of generated heat which exceed technologically justifiable losses (e.g. high heat losses in the distribution network), expressed in MJ,

9. return heat, H_p , – total annual heat of a return condensate, measured at the plant outlet and expressed in MJ,

10. useful heat produced in a cogeneration plant in the cogeneration process, H_k – heat produced in the cogeneration process, used in technological processes, heating processes or secondary cooling processes (trigeneration) which does not exceed an economically justifiable demand, or the demand that does not exceed the one which would otherwise be satisfied by an alternate source of thermal energy, expressed in MJ and calculated according to the following formula:

$$H_k = H_u - H_b - H_g - H_p$$

11. electricity from cogeneration, E_k – electricity generated in a cogeneration process, expressed in MWh and defined according to the following formulas:

(a) Electricity production from cogeneration shall be considered equal to total annual electricity production, E_u , of the plant measured at the outlet of the main generators:

$$E_k = E_u$$

(i) in cogeneration plants of type b, d, e, f, g and h referred to in Article 5 of the Ordinance on the use of RESC, with an annual overall efficiency ζ_u at a level equal or higher than 75 %,

(ii) in cogeneration plants of type a and c referred to in Article 5 of the Ordinance on the use of RESC with an annual overall efficiency ζ_u at a level equal or higher than 80 %,

(iii) in cogeneration plants with capacity above 35 MW, Group 4.b. referred to in Article 5 of the Ordinance on the use of RESC, with an annual overall efficiency ζ_u at a level equal or higher than 70 %.

(b) In cogeneration plants with an annual overall efficiency below the value referred to in item (a)(i) or (a)(ii) or (a)(iii) of this Article, electricity production from cogeneration is calculated

according to the following formula:

$$E_{k,\max} = \frac{C \cdot H_k}{3600}$$

The calculation of electricity from cogeneration must be based on the actual power to heat ratio, C. For micro-cogenerations the calculation may be based on certified values. If the actual power to heat ratio is not known, the following default values may be used:

Cogeneration unit type	Power to heat ratio, C
Combined cycle gas and steam turbine	0.95
Steam backpressure turbine	0.45
Steam condensing extraction turbine	0.45
Gas turbine with waste heat recovery	0.55
Internal combustion engine	0.75

If E_u exceeds $E_{k,\max}$ then $E_k = E_{k,\max}$, otherwise $E_k = E_u$

12. overall annual energy efficiency, η_k , – efficiency indicator of primary energy conversion to electricity and useful heat defined by the formula:

$$\eta_k = \frac{3600 \cdot E_k + H_k}{Q}$$

13. average annual efficiency of electricity production in a cogeneration plant, η_e , – defined by the formula:

$$\eta_e = \frac{3600 \cdot E_k}{Q_f}$$

Where a cogeneration plant generates mechanical energy, the annual value of electricity produced from cogeneration may be increased by an additional element representing the amount of electricity which is equivalent to that of the useful mechanical energy.

14. average annual efficiency of useful heat production in a cogeneration plant, η_t , – defined by the formula:

$$\eta_t = \frac{H_k}{Q_f}$$

15. primary energy savings (PES) – energy efficiency indicator of cogeneration, expressed as the relative savings of fuel energy utilisation in relation to the equivalent production in separate reference plants defined by the formula:

$$UPE = 1 - \frac{1}{\frac{\eta_e}{\eta_{ref,e}} + \frac{\eta_t}{\eta_{ref,t}}}$$

16. electrical efficiency of a reference power plant, $\eta_{ref,e}$, – determined depending on the type of fuel used and the year of construction of a cogeneration plant taking into account average climate conditions and avoided losses from the transmission and distribution of electricity. The method for determining the electrical efficiency of a reference power plant, $\eta_{ref,e}$, is laid down in Annex 3 of this Ordinance and forms a constituent part thereof.

17. heat efficiency of a reference boiler room, $\eta_{ref,t}$ – determined depending on the type of fuel used and the method of use of waste heat. The method for determining the heat efficiency of a reference boiler room, $\eta_{ref,t}$ is laid down in Annex 4 of this Ordinance and forms a constituent part thereof.

II CONDITIONS FOR ACQUIRING THE STATUS OF ELIGIBLE PRODUCER

Article 3

The groups of plants using renewable energy sources for electricity production and cogeneration plants for which a project holder or producer may acquire the status of eligible producer are laid down in the Ordinance on the use of RESC.

Article 4

A project holder or producer may acquire the status of eligible producer if he or she is connected to the electricity transmission or distribution network and if, taking into account any natural or spatial limitations as well as requirements and measures of nature and environmental protection, he or she produces electricity in:

- (a) plants using renewable energy sources referred to in Article 4, Group 1 of the Ordinance on the use of RESC,
- (b) plants using renewable energy sources referred to in Article 4, Group 2 of the Ordinance on the use of RESC,
- (c) small scale and micro-cogeneration plants referred to in Article 5, Group 3 of the Ordinance on the use of RESC which provide primary energy savings ($PES > 0$),
- (d) cogeneration plants referred to in Article 5, Group 4 of the Ordinance on the use of RESC which achieve primary energy savings of at least 10% ($PES \geq 0.10$).

Article 5

(1) In the case where a project holder or producer, separately or within a more complex energy producing facilities, together with the plants referred to in Articles 4 and 5 of the Ordinance on the use of RESC, also uses other plants, the status of eligible producer and the rights conferred by this status shall apply only to the production of electricity in plants laid down in Articles 4 and 5 of the Ordinance on the use of RESC.

(2) Each plant where a project holder or producer applies technological processes referred to in Articles 4 and 5 of the Ordinance on the use of RESC shall have its own metering point separate from the metering points relating to the production of electricity by the use of other technological processes.

(3) Depending on the type of a technological process referred to in Articles 4 and 5 of the Ordinance on the use of RESC, each metering point shall be used to measure the total electricity production in a plant (E_u), total heat produced (H_u), heat produced out of cogeneration (H_b), return heat (H_p), and the primary energy consumption for the operation of a plant (Q_f).

(4) For cogeneration plants, the primary energy savings (PES) shall be calculated on the basis

of the fuel input and the useful heat and power production measured over one calendar year of operation.

III ACQUIRING, EXTENDING AND LOSING THE STATUS OF ELIGIBLE PRODUCER

Article 6

(1) The status of eligible producer shall be acquired on the basis of a decision on acquiring the status of eligible producer (hereinafter referred to as: the decision) which is granted by the Agency upon the request of a project holder or producer.

(2) The registry of eligible producers shall be maintained by the Ministry according to the Ordinance on the use of RESC in the Registry of projects and plants for the use of renewable energy sources and cogeneration and of eligible producers (hereinafter referred to as: the OIEKPP Registry).

Article 7

(1) The project holder who intends to construct a plant under the conditions referred to in Articles 4 and 5 of the Ordinance on the use of RESC shall submit to the Agency the application for granting a preliminary decision on acquiring the status of eligible producer (hereinafter referred to as: the preliminary decision).

(2) The application for granting a preliminary decision on acquiring the status of eligible producer shall be submitted to the Agency and shall contain the following information on the applicant or the plant:

- company or name, permanent office or residence, person responsible for the legal person, and phone, fax and e-mail address of the applicant,
- name and group of the plant for which the application is submitted,
- registry number according to the OIEKPP Registry,
- location of the project,
- planned capacity of the plant expressed in MW,
- planned annual electricity production expressed in GWh, or heat production expressed in MJ.

(3) With the application for granting a preliminary decision, the applicant shall also submit:

- the energy approval for plant construction issued by the Ministry,
- the building permit, where the obligation of obtaining a building permit is prescribed,
- a technical description of the designed plant with the description of the technological process and the conditions of use of the plant.

(4) Form of the application for the granting of a preliminary decision is provided in Annex 1 of this Ordinance and forms a constituent part thereof.

Article 8

(1) The period of validity of a preliminary decision shall be two years.

(2) Within the period of two years from the date of finality of the preliminary decision, the project holder shall be obliged to construct the electricity generation plant and submit the application for the granting of a decision.

(3) The two-year period referred to in paragraph 1 of this Article may be extended for a further 12 months at the request of the project holder.

(4) Unless the project holder, within the deadlines referred to in paragraphs 1 and 2 of this Article, does not submit the application for granting a decision or the application for

extending the preliminary decision, the preliminary decision shall cease to be valid with the expiry of the period for which it was granted.

(5) The Agency shall be obliged to deliver the preliminary decision to the Ministry, market operator, transmission system operator and distribution system operator within 8 days from the date it becomes legally valid.

Article 9

(1) The project holder who constructed a plant or the producer shall submit the application for the granting of a decision to the Agency under the conditions referred to in Articles 4 and 5 of this Ordinance.

(2) The decision shall be granted for a period of 12 years.

(3) The application for the granting of a decision shall be submitted to the Agency in written form and shall contain the following information on the applicant or the plant:

- company or name, permanent office or residence, person responsible for the legal person, and phone, fax and e-mail address of the applicant,
- name and group of the plant for which the application is submitted,
- registry number according to the OIEKPP Registry,
- location of the plant,
- installed capacity of the plant expressed in MW,
- planned annual electricity production expressed in GWh, or heat production expressed in MJ.

(4) Along with the application for the granting of a decision, the applicant shall also submit:

- the permit to carry out the energy activity of electricity production, where the obligation of obtaining a permit is prescribed,

- a legally valid use permit, where the obligation of obtaining a use permit is prescribed,
- the network use contract,

– a technical description of the constructed plant with a description of the technological process and the conditions of use of the plant,

– a report on installed metering devices with the scheme of metering points and the method of measurement implementation as well as the certificate on accuracy of metering devices,

– monthly and annual electricity production plans under average meteorological conditions, expected monthly variations in electricity production,

– properties of the production process in a cogeneration plant with monthly and annual electricity and useful heat production plans and the expected monthly variations in production for plants referred to in Article 4, items (c) and (d) of this Ordinance.

(5) Form of the application for the granting of a decision is given in Annex 2 of this Ordinance and forms a constituent part thereof.

Article 10

(1) The decision shall contain information on the eligible producer and the plant, including information on the location and type of the plant, technical description of the constructed plant with the description of the technological process and the conditions of use of the plant as well as the date of starting regular operations and date of the start of exporting electricity to the electricity network.

(2) The Agency shall deliver the decision to the Ministry, market operator, transmission system operator and distribution system operator within a period of 8 days from the date it becomes legally valid.

Article 11

(1) The status of eligible producer shall cease by expiry of the period of validity or by abolishment of the decision.

(2) The Agency shall abolish a decision if:

1. the decision was granted on the basis of untrue information on the project holder or plant,
2. the eligible producer does not continuously maintain the technical-technological properties and/or conditions of use of the plant for which he or she acquired the status of eligible producer,
3. the eligible producer does not submit reports and other documentation prescribed by this Ordinance to the Agency,
4. the permit to carry out the energy activity ceased to be valid, where the obligation of obtaining a permit is prescribed.

(3) In the case of abolishment of a decision referred to in paragraph 2 of this Article, the next application for acquiring the status of eligible producer may be submitted to the Agency at least one year from the date of validity of the decision on abolishment.

IV REPORTING AND SUPERVISION

Article 12

(1) The eligible producer shall be obliged to submit to the Agency a report on the realization of annual electricity production plans for the previous year and must do so individually for each plant or technological process for which he or she acquired the status of eligible producer.

(2) The report referred to in paragraph 1 of this Article shall contain information on the realized monthly production of all useful forms of energy, fuel input and information on any possible problem with the functioning of the network.

Article 13

The eligible producer shall be obliged to submit to the market operator monthly and annual electricity production plans from renewable energy sources and cogeneration, under average meteorological conditions, and the expected monthly variations in electricity production based on measurements on the basis of which the potential of a renewable energy source was determined, production process properties in cogeneration plants and any other relevant information no later than 31 October for each year. The eligible producer shall be obliged to elaborate in detail the possible variations in production with the probability calculation for realizing particular production plans and must do so individually for each plant or technological process for which the project holder acquired the status of eligible producer.

Article 14

(1) The eligible producer shall be obliged to notify the Agency in written form on any planned change of technical-technological properties and/or conditions of use of the plant, changes in the scheme or method of measurement implementation no later than 60 days before starting the planned activity.

(2) In the event that the Agency, within a period of 30 days from the date of receiving the notice referred to in paragraph 1 of this Article, does not state its opinion on the impact of planned changes on the status of eligible producer, it shall be considered that the planned

activities have no impact on the change of conditions according to which the project holder acquired the status of eligible producer.

(3) The Agency shall inform the Ministry of any changes relating to the status of eligible producer within a period of 30 days.

Article 15

(1) The eligible producer must continuously maintain the technical-technological properties and the conditions of use of the plant for which he or she acquired the status of eligible producer.

(2) The Agency shall supervise compliance with the conditions referred to in paragraph 1 of this Article.

VI TRANSITIONAL AND FINAL PROVISIONS

Article 16

(1) The natural or legal person who is a producer shall, on the day of entry into force of this Ordinance, for the purpose of acquiring the status of eligible producer, submit to the Agency the application for the granting of a decision under conditions referred to in Article 9 of this Ordinance.

(2) The decision for a plant referred to in paragraph 1 of this Article shall be granted for a period of validity of 12 years decreased by as many years as the plant is continuously in operation and minimally for a period of five years.

(3) The form for the application for the granting of a decision is given in Annex 2 of this Ordinance and forms a constituent part thereof.

Article 17

This Ordinance shall enter into force on 1 July 2007 and shall be published in the Official Gazette.

Class: 011-01/07-01/106

Reg. No: 526-04-03-02/2-07-4

Zagreb, 15 June 2007

The Minister of the Economy,
Labour and Entrepreneurship
Branko Vukelić, m. p.

ANNEX 1

APPLICATION FOR THE GRANTING OF A PRELIMINARY DECISION
ON ACQUIRING THE STATUS OF ELIGIBLE PRODUCER OF ELECTRICITY
FROM RENEWABLE ENERGY AND COGENERATION PLANTS

REPUBLIC OF CROATIA
CROATIAN ENERGY REGULATORY AGENCY

Application
for the granting of a preliminary decision on acquiring
the status of eligible producer of electricity from
renewable energy and cogeneration plants

1. Name of the project for which the application is submitted:

2. The application is submitted for the plant:

Plant code pursuant to the Ordinance on the use of renewable energy sources and cogeneration

3. Location of the project:

county: _____

municipality or city: _____

cadastre municipality: _____

cadastral parcel: _____

4. Is the project located in an area under special state care?

Yes No

5. Planned electricity or heat capacity of the plant, expressed in MW

_____ MW

6. Planned annual production of electricity expressed in GWh, or heat production expressed in MJ

_____ GWh

_____ MJ

7. Registry number according to the OIEKPP Registry

8. Name and seat of the applicant:

Name _____

Phone: _____

Fax: _____

Address _____

e-mail: _____

web: _____

9. Responsible person:

Name _____
Position _____
Address _____

Phone: _____
Fax: _____
e-mail: _____

Pursuant to the Ordinance on acquiring the status of eligible electricity producer, I hereby submit the application for the granting of a preliminary decision on acquiring the status of eligible electricity producer referred to in item 2 of this Application.

Statement by the applicant:

I hereby declare that all information listed in this Application and submitted documents are true and accurate and I accept liability for any untrue information.

Place and Date:

Signature of the responsible person:

Stamp:

Appendixes (please tick the box):

- the energy approval for plant construction issued by the Ministry.
- the building permit, where the obligation of obtaining a building permit is prescribed.
- a technical description of the designed plant with the description of the technological process and the conditions of use of the plant.

The Croatian Energy Regulatory Agency received the application:

Place and Date:

Signature of the responsible person:

Stamp:

PROVISIONAL TRANSLATION

ANNEX 2

APPLICATION FOR THE GRANTING OF A DECISION
ON ACQUIRING THE STATUS OF ELIGIBLE PRODUCER
OF ELECTRICITY FROM RENEWABLE ENERGY AND COGENERATION
PLANTS

REPUBLIC OF CROATIA
CROATIAN ENERGY REGULATORY AGENCY

Application
for the granting of a decision on acquiring
the status of eligible producer of electricity from
renewable energy and cogeneration plants

1. Name of the plant for which the application is submitted:

2. The application is submitted for the plant: _____
Plant code pursuant to the Ordinance on the use of renewable energy sources and cogeneration

3. Location of the plant:

county: _____
municipality or city: _____
cadastre municipality: _____
cadastral parcel: _____

4. Is the plant located in an area under special state care?
Yes No

5. Installed electricity or heat capacity of the plant, expressed in MW
_____ MW

6. Planned annual production of electricity expressed in GWh, or heat production expressed in MJ
_____ GWh
_____ MJ

7. Registry number according to the OIEKPP Registry

8. Name and seat of the applicant:

Name _____	Phone: _____
Address _____	Fax: _____
_____	e-mail: _____
_____	web: _____

9. Responsible person:

Name _____
Position _____
Address _____

Phone: _____
Fax: _____
e-mail: _____

Pursuant to the Ordinance on acquiring the status of eligible electricity producer, I hereby submit the application for the granting of a decision on acquiring the status of eligible electricity producer referred to in item 2 of this Application.

Statement by the applicant:

I hereby declare that all information listed in this Application and submitted documents are true and accurate and accept liability for any untrue information.

Place and Date:

Signature of the responsible person:

Stamp:

Appendixes (please tick the box):

- the permit to carry out the energy activity of electricity production, where the obligation of obtaining a permit is prescribed.
- the legally valid use permit, where the obligation of obtaining a use permit is prescribed.
- the network use contract.
- a technical description of the constructed plant with the description of the technological process and the conditions of use of the plant.
- a report on installed metering devices with a scheme of the metering points and the method of implementing measurement as well as a certificate on accuracy of metering devices.
- monthly and annual electricity production plans under average meteorological conditions, expected monthly variations in electricity production.
- properties of the production process in cogeneration plants with monthly and annual electricity and useful heat production plans and the expected monthly variations in production for plants referred to in Article 5, Group 3 and Group 4 of the Ordinance on the use of renewable energy sources and cogeneration.

The Croatian Energy Regulatory Agency received the application:

Place and Date:

Signature of the responsible person:

Stamp:

ANNEX 3

ELECTRICAL EFFICIENCY OF A REFERENCE POWER PLANT $\eta_{ref,e}$

The electrical efficiency of a reference power plant $\eta_{ref,e}$ shall be defined according to the formula:

$$\eta_{ref,e} = (\eta_{R,e} + k_T) \cdot k_G$$

Where:

$\eta_{R,e}$ – non-correction electrical efficiency value of a reference power plant,

k_T – correction electrical efficiency value, identified on the basis of variations in average climatic conditions of the location from the standard climatic conditions,

k_G – correction factor for avoided network losses.

Where a cogeneration plant uses only one type of fuel, the non-correction electrical efficiency

value of a reference power plant $\zeta_{R,e}$ shall be determined according to Table 1 depending on the year of construction and type of fuel used. Values given in Table 1 are identified with regard to the lower calorific value of the fuel source and the standard ISO environmental status (ambient temperature 15 °C, ambient pressure 1.013 bar, relative humidity 60 %). In the case of using more than one type of fuel, the non-correction electrical efficiency value of a reference power plant $\zeta_{R,e}$ shall be determined according to the formula:

$$\eta_{R,e} = \frac{\sum_{i=1}^n H_{d,i} \cdot B_i \cdot \eta_{R,e,i}}{\sum_{i=1}^n H_{d,i} \cdot B_i}$$

Where:

n – number of types of fuel used,

$H_{d,i}$ – lower calorific values of each of n fuels,

B_i – overall annual amount of each of n fuels,

$\eta_{R,e,i}$ – non-correction electrical efficiency values of a reference power plant, according to Table 1 for particular type of fuel and the year of construction of a cogeneration plant.

Correction of electrical efficiency k_T , expressed in % and determined according to the difference between the annual average temperature of the location and the temperature defined by the standard ISO environmental status (15 °C), according to the formula:

$$k_T = 0,1 \cdot (15 - \vartheta_L)$$

ϑ_L is the annual average temperature of the location expressed in °C. L shall be determined according to the official data of the Meteorological and Hydrological Service of the Republic of Croatia for the meteorological station closest to the location of a cogeneration plant.

Year of construction:	1996 and before	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006 – 2011
Type of fuel											
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, solid	20.0	21.0	21.6	22.1	22.6	23.1	23.5	24.0	24.4	24.7	25.0

Non-renewable (municipal and industrial) waste, solid	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
Oil (gas oil + residual fuel oil), LPG	39.7	40.5	41.2	41.8	42.3	42.7	43.1	43.5	43.8	44.0	44.2
Biofuels, liquid	39.7	40.5	41.2	41.8	42.3	42.7	43.1	43.5	43.8	44.0	44.2
Biodegradable waste, liquid	20.0	21.0	21.6	22.1	22.6	23.1	23.5	24.0	24.4	24.7	25.0
Non-renewable waste, liquid	20.0	21.0	21.6	22.1	22.6	23.1	23.5	24.0	24.4	24.7	25.0
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	39.7	40.5	41.2	41.8	42.3	42.7	43.1	43.5	43.8	44.0	44.2
Biogas	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	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0

Table 1. ELECTRICAL EFFICIENCY OF A REFERENCE POWER PLANT $\eta_{R,e}$ %
Correction factor for avoided network losses (losses from the transmission and distribution of electricity) k_G depends on the voltage level of the connection of a cogeneration plant, and on the amounts of annually produced, consumed and exported electricity. The correction factor value k_G is defined according to the formula:

$$k_G = \frac{E_L}{E_u} \cdot k_L + \frac{E_I}{E_u} \cdot k_I$$

Where:

E_u – total annual electricity produced in a cogeneration plant, measured at the outlet of main generators and expressed in MWh,

E_I – total annual electricity exported, measured at the connection point of a cogeneration plant with the network, expressed in MWh,

E_L – electricity consumed on-site, if not measured it shall be defined according to the formula $E_L = E_u - E_I$ and expressed in MWh,

k_L – correction factor for electricity consumption on-site, according to Table 2,

k_I – correction factor for exporting electricity to the network, according to Table 2.

Voltage level of the	k_I electricity	k_L electricity consumed
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connection	exported to the grid	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	0.86

Table 2. CORRECTION FACTORS k_I and k_L FOR AVOIDED NETWORK LOSSES

ANNEX 4

HEAT EFFICIENCY OF A REFERENCE BOILER ROOM $\eta_{ref,t}$

The heat efficiency of a reference boiler room depends on the type of fuel used and the method of use of waste heat (for production of steam/hot water or directly in the process). The heat efficiency values of a reference boiler room given in Table 3 are identified with regard to the lower calorific value of the fuel source and the standard ISO environmental status (ambient temperature 15 °C, ambient pressure 1.013 bar, relative humidity 60 %).

Type of fuel	Steam/hot water*	Direct use of exhaust gases**
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, solid	80	72
Non-renewable (municipal and industrial) waste, solid	80	72
Oil shale	86	78
Oil (gas oil + residual fuel oil), LPG	89	81
Biofuels, liquid	89	81
Biodegradable waste, liquid	80	72
Non-renewable waste, liquid	80	72

Natural gas	90	82
Refinery gas/hydrogen	89	81
Biogas	70	62
Coke oven gas, blast furnace gas, other waste gases, recovered waste heat	80	72

* efficiency reference values of separate production of steam/water should be decreased by 5% if the calculation of useful heat includes the heat from a return condensate (pursuant to Article 2, points 9 and 10 of this Ordinance)

**values are applicable if the temperature of exhaust gases is 250 °C or higher

Table 3. HEAT EFFICIENCY OF A REFERENCE BOILER ROOM

In the case of using more than one type of fuel, the heat efficiency of a reference boiler room $\eta_{ref,t}$ shall be defined according to the formula:

$$\eta_{ref,t} = \frac{\sum_{i=1}^n H_{d,i} B_i \eta_{ref,t,i}}{\sum_{i=1}^n H_{d,i} B_i}$$

Where:

n – number of types of fuel,

$H_{d,i}$ – lower calorific values of each of n fuels,

B_i – overall annual amount of each of n fuels,

$\eta_{ref,e,i}$ – heat efficiency of a reference boiler room according to Table 3 for particular type of fuel.