

Pursuant to Article 20, Paragraph 2 of the Energy Law (“Official Gazette of Montenegro”, No. 28/10), the Government of Montenegro, at its session held on the 29<sup>th</sup> of September 2011, has passed the following

## **D E C R E E**

### **ON THE TARIFF SYSTEM FOR DETERMINING THE INCENTIVE PRICES FOR ELECTRICITY PRODUCED FROM RENEWABLE ENERGY SOURCES AND HIGH EFFICIENCY COGENERATION**

#### **Scope**

##### Article 1

This Decree shall regulate the tariff system for incentive prices for electricity produced in power plants using renewable energy sources and power plants for high efficiency cogeneration.

#### **Meaning of Terms**

##### Article 2

The terms used herein shall have the following meaning:

- 1) *installed capacity* means a sum of active capacities of all generators within a plant;
- 2) *incentive prices* means the purchase price that is paid to a privileged producer of electricity in plants using renewable energy sources or power plants for high efficiency cogeneration in accordance with a contract to purchase electricity;
- 3) *produced electricity* means electricity produced in power plants using renewable energy sources or power plants for high efficiency cogeneration, measured on the point of delivery to the electric power network;
- 4) *system of power plants* means all power plants using renewable energy sources with individual measurement points at the exit of every plant, which has one or more common points of connection to the electric power network.

#### **Incentive prices**

##### Article 3

A producer shall be entitled to incentive prices for electricity produced if:

- the power plant using renewable power sources contributes to the fulfillment of the national goal to use renewable power sources in compliance with the renewable power source usage and development program, or
- the power plant for high efficiency cogeneration has the capacities that are in compliance with the program for usage and development of high efficiency cogeneration and

- if the producer has obtained, for the given power plant, the status of privileged producer in accordance with the regulation governing the manner in which such status is obtained and the rights of a privileged producer exercised.

### **Incentive prices for electricity produced in plants using renewable energy sources**

#### **Article 4**

The incentive prices, expressed in c€/kWh, for electricity produced in plants using renewable energy sources, and calculated on the basis of the tariff system of incentive prices for electricity produced in plants using renewable energy sources and in plants for high efficiency cogeneration (hereinafter: the tariff system), which constitutes an integral part of this Decree, shall be as follows:

<b>Wind farms</b>	9.61
<b>Power plants using biomass</b>	
from forestry and agriculture	13.71
from wood-processing industry	12.31
<b>Power plants using solar energy</b>	
on buildings and engineering constructions	15.00
<b>Power plants using solid waste</b>	9.00
<b>Power plants using waste gas</b>	8.00
<b>Power plants using biogas</b>	15.00

### **Tariff items for determining incentive prices for electricity produced in small hydropower plants**

#### **Article 5**

The incentive prices for electricity produced in small hydropower plants shall be calculated by tariff items, expressed in c€/kWh, in accordance with the formulas from the tariff system, and shall be as follows:

TS1	for produced electricity of up to 3.0 GWh	10.44
TS2	for produced electricity from 3.0 up to 15.0 GWh	7.44
TS3	for produced electricity of over 15.0 GWh	5.04

The tariff items referred to in Paragraph 1 of this Article have been defined in accordance with the tariff system.

The incentive prices for electricity produced in a small hydropower plant that has been built on the existing infrastructure (pipeline and/or dam) shall be calculated at the rate of 80% of tariff items from Paragraph 1 of this Article.

### **Incentive prices for electricity produced in plants for high efficiency cogeneration**

#### Article 6

The incentive prices, expressed in c€/kWh, for electricity produced in plants for high efficiency cogeneration by installed capacity shall be as follows:

Installed capacity of up to 1 MWe	10.00
Installed capacity from 1 MWe up to 5 MWe	To be calculated using the following formula: $10.00 / 0.55 \times (P-1)$
Installed capacity from 5 MWe up to 10 MWe	8.00

The letter P in the formula referred to in Paragraph 1 of this Article stands for the installed capacity of a power plant expressed in MWe.

The incentive prices from Paragraph 1 of this Article have been determined on the basis of the tariff system.

### **Incentive prices for electricity produced in a reconstructed plant**

#### Article 7

The incentive prices for electricity produced in a reconstructed plant that is using renewable energy sources or a reconstructed plant for high efficiency cogeneration shall be obtained for the amount of electricity produced per year exceeding the average volume of annual electricity production reported during the five years that preceded the reconstruction of the plant.

The incentive prices from Paragraph 1 of this Article shall be 7,0 c€/kWh.

The incentive prices from Paragraph 1 of this Article for reconstructed plants the annual production of which being two times bigger than the annual production of the plant reported after its initial construction shall be calculated in accordance with Articles 4, 5 and 6 of this Decree.

### **Contract to purchase electricity and indexation of incentive prices**

#### Article 8

The mutual rights and liabilities of a producer who fulfills the conditions set for the entitlement to the incentive prices referred to in Article 3 of this Decree and a market operator shall be regulated by way of a contract to purchase electricity.

The incentive prices for electricity produced in a plant using renewable energy sources and a plant for high efficiency cogeneration during the period of time covered by such a contract shall be revised annually in accordance with the inflation indexes reported during the previous year.

The revision of the incentive prices referred to in Paragraph 2 of this Article for the current year shall be done on the basis of the following formula:

$$C_{tg} = C_{pg} \times (1 + i_{pg})$$

Wherein:

*C<sub>tg</sub>* - stands for incentive prices for the current calendar year [c€/kWh];

*C<sub>pg</sub>* - stands for incentive prices for the previous calendar year [c€/kWh] and

*i<sub>pg</sub>* – stands for inflation rate reported during the previous year by the public agency in charge of statistics and expressed in percentages [%].

### **Payment of incentive prices and submission of data**

#### Article 9

The incentive prices for electricity produced shall be paid monthly by the market operator to the privileged producer on the basis of a concluded contract to purchase electricity.

Prior to the payment referred to in Paragraph 1 of this Article, the privileged producer shall submit to the market operator guarantees of origin for the total electricity production for which the incentive prices have been obtained.

The operator of the transmission, i.e. distribution system shall submit to the market operator data on electricity produced in a plant for which the energy undertaking has been entitled to incentive prices by no later than the 15<sup>th</sup> day of the current month for the previous month.

### **Payment of incentive prices for electricity produced in a system of plants**

#### Article 10

The incentive prices for electricity produced in a system of plants shall be paid proportionally to the respective volumes of electricity measured at the point of exit of individual plants in the system.

### **Cessation of application**

#### Article 11

After entry into force of this Decree, the Instruction on the methodology of calculation of purchase price of electricity produced in small hydropower plants (“Official Gazette of Montenegro“, No. 46/07) and the Rulebook on the methodology applied to the calculation of purchase price of electricity produced in wind farms (“Official Gazette of Montenegro“, No. 27/10) shall cease to apply.

**Final provision**

Article 12

This Decree shall enter into force on the eighth (8<sup>th</sup>) day after its publication in the “Official Gazette of Montenegro”.

Ref. no.: 03-9688

In Podgorica, 29<sup>th</sup> of September 2011

G o v e r n m e n t o f M o n t e n e g r o

Prime Minister  
Dr Igor Lukšić

## ANNEX 1

### The tariff system of incentive prices for the electricity produced at plants using renewable sources of energy and plans for high efficiency cogeneration

The incentive prices for the electricity produced at the plants using renewable sources of energy and plants for high efficiency cogeneration ( $C$ , [c€/kWh]) is calculated on grounds of tariff positions regarding realistic return of investment costs ( $TS_{INV}$ , [c€/kWh]), work and maintenance ( $TS_{RO}$ , [c€/kWh]) and fuels ( $TS_{GOR}$ , [c€/kWh]) as per following formula:

$$C = TS_{INV} + TS_{RO} + TS_{GOR}$$

The tariff position for realistic return of investment costs is determined according to type and classification of the plant using renewable energy sources or plants for high efficiency cogeneration with application of the following formula:

$$TS_{INV} = \frac{I}{t_{EKV}} \times \left( \frac{i}{1 - \frac{1}{(1+i)^T}} \right)$$

wherein:

$I$  - the specific investment costs (includes costs for preparation of the technical documentation, acquisition of necessary documents, costs related to construction of objects and equipment used at plants, infrastructure, etc.) [c€/kW];

$t_{EKV}$  - annual work time at maximum power [h/year];

$i$  - discount rate [%] and

$T$  - period of contract duration on purchase of electricity [year].

The constant values at calculation of tariff item are discount rate,  $i = 8\%$  and duration period of the contract on purchase of electricity,  $T = 12$  years, while other values are subject to changes depending type and classification of the plant.

The tariff item for work and maintenance represents assessment into costs of work and maintenance of the plant depending on type and classification of that plant and is calculated according to the following formula:

$$TS_{RO} = \frac{C_{RO}}{t_{EKV}}$$

wherein:

$C_{RO}$  - specific annual costs of work and maintenance [c€/kWyear];

The tariff item for fuel represents costs for purchase of fuel necessary for work of the plant depending of plant type.

The input value depending on type and classification of the plant using renewable energy sources or the high-efficiency cogeneration plant necessary for calculation of the tariff items for realistic return of investment costs and tariff items for work and maintenance of the plant are shown in Table 1.

**Table 1: Input values for calculation of the tariff item for realistic return of investment and tariff item for work and maintenance of the plant**

Type off the plant	$l$ [c€/kW]	$t_{EKV}$ [h/year]	$C_{RO}$ [c€/kWyear]
<b>Plants using renewable energy sources</b>			
<b>Wind farms</b>	140,000	2,300	3,500
<b>Power plants using biomass</b>			
from forestry and agriculture	350,000	5,000	13,500
from wood-processing industry	350,000	5,000	13,500
<b>Power plants using solar energy</b>			
on buildings and building constructions	140,000	1,300	980
<b>Power plants using solid waste</b>	265,000	6,000	18,815
<b>Power plants using gas from waste</b>	185,000	6,000	17,482
<b>Power plants using biogas</b>	420,000	5,700	29,400
<b>Mini-hydro power plants - Group 1</b>	220,000	3,300	5,260
<b>Mini-hydro power plants - Group 2</b>	185,000	3,300	3,450
<b>Mini-hydro power plants - Group 3</b>	140,000	3,150	2,850
<b>High efficiency cogeneration plants</b>			
Installed capacity below 1MW	250,000	6,000	17,000
Installed capacity from 5 to 10 MW	190,000	6,000	12,920

The values of the tariff items used for calculation of incentive process set forth in Article 4 paragraph 1 of this Decree, which depend in type and classification of the plant using renewable energy source, are given in the following table.

Table 2: Tariff items for calculation of the incentive price set forth in Article 4 of this Decree

Type off the plant	TS <sub>INV</sub> [c€/kWh]	TS <sub>RO</sub> [c€/kWh]	TS <sub>GOR</sub> [c€/kWh]
<b>Wind farms</b>	8.08	1.52	0.00
<b>Power plants using biomass</b>			
from forestry and agriculture	9.29	2.70	1.72
from wood-processing industry	9.29	2.70	1.72
<b>Power plants using solar energy</b>			
on buildings and building constructions	14.25	0.75	0.00
<b>Power plants using solid waste</b>	5.83	3.14	0.00
<b>Power plants using gas from waste</b>	4.64	3.36	0.00
<b>Power plants using biogas</b>	9.78	5.16	0.06

The tariff items for mini hydropower plants (hereinafter referred to as: MHP) defined under Article 5 of this Decree are calculated through two-phase procedure. As per the costs of the MHP construction, the size, that is installed capacity and annual production, the MHP are divided in three groups shown in the table below.

Table 3: Framework groups of MHP

Group	Annual production of electricity (GWh/year)
1	Upto 3.0
2	3.0 ÷ 15.0
3	Over 15

The tariff items for calculation of the incentive price per group are given the following table.

Table 4: Tariff items for calculation of the average incentive price per framework group

Group	TS <sub>INV</sub> [c€/kWh]	TS <sub>RO</sub> [c€/kWh]	TS <sub>GOR</sub> [c€/kWh]
1	8.85	1.59	0.00
2	7.44	1.04	0.00
3	5.90	0.90	0.00

The average incentive prices calculated on grounds of tariff items set forth in Table 4 are used for calculation of the final tariff items per groups defined under Article 5 of this Decree in accordance with the formula:

$$TS_n = \frac{E_{sr,n} \times C_{PCn} - \sum_{n=2}^n (E_{max,n-1} - E_{max,n-2}) \times TS_{n-1}}{E_{sr,n} - E_{max,n-1}}$$

wherein:

- $TS_n$  - final tariff item for the group n under Article 5 of this Decree [c€/kWh];  
 $C_{PCn}$  - average incentive price of the electricity produced with the use of MHP for the group n calculated according to the tariff items under Table 4 [c€/kWh];  
 $E_{sr,n}$  - medium quantity of the electricity produced with the use of MHP for the group n during the year [kWh/year] ( $E_{sr,3} = 25,5 \text{ GWh}$ ) and  
 $E_{max,n-1}$  - maximum quantity of the electricity produced with the use of MHP for the group n during the year [kWh/year] ( $E_{sr,3} = 25,5 \text{ GWh}$ )

The incentive prices for MHP expressed in c€/kWh are calculated according to tariff items defined under Article 5 paragraph 1 of this Decree, with the application of the following formula depending on the annual production of electricity ( $E$ ):

1. MHP with the annual generation of electricity below 3,0 GWh:

$$C = TS_1$$

2. MHP with the annual generation of electricity between 3,0 and 15 GWh:

$$C = \frac{3,0 \times 10^6 \times TS_1 + (E - 3,0) \times 10^6 \times TS_2}{E \times 10^6}$$

3. MHP with the annual generation of electricity exceeding 15 GWh

$$C = \frac{3,0 \times 10^6 \times TS_1 + (15,0 - 3,0) \times 10^6 \times TS_2 + (E - 15,0) \times 10^6 \times TS_3}{E \times 10^6}$$

The incentive prices for electricity produced at the plants for high efficiency cogeneration defined under Article 6 of this Decree are calculated according to tariff items set forth in Table 5 for the Group below MWe of installed capacity and Group of between 5 to 10 MWe of the installed capacity, while the formula listed in Article 6 paragraph 1 of this Decree is applied on medium Group of between 1 to 5 MWe of generating capacity.

**Table 5: Tariff items for high efficiency cogeneration plants**

High efficiency cogeneration	$TS_{INV}$ [c€/kWh]	$TS_{RO}$ [c€/kWh]	$TS_{GOR}$ [c€/kWh]
Installed capacity below 1 MWe	5.53	2.83	1.67
Installed capacity between 5 to 10 MWe	4.20	2.15	1.67