

Pursuant to Article 28, paragraph (3) of the Law on renewable energy sources and efficient co-generation (Official Gazette of Republic of Srpska, number 39/13), Article 28, paragraph 1 of the Energy law (Official Gazette of Republic of Srpska, No. 49/09), Article 36 paragraph (2) of the Electricity Law (Official Gazette of Republic of Srpska, No.08/08, 34/09, 92/09 and 1/11), Article 18 paragraph 1 of the Statute of Regulatory Commission for Energy of Republic of Srpska – Clean text (Official Gazette of Republic of Srpska No. 6/10) and Article 33 paragraph 1 item c) of the Procedural Rules of Regulatory Commission for Energy of Republic of Srpska (“Official Gazette of Republic of Srpska” No. 59/10) Regulatory Commission for Energy of Republic of Srpska on its 73rd regular session held on 20 November 2013 made

## DECISION

### **On the level of guaranteed redemption prices and premiums for electricity generated from renewable energy sources or in efficient cogeneration facilities**

#### I

Guaranteed feed in prices and premiums for electricity generated in facilities that use renewable energy sources or in efficient co-generation facilities, which the right for getting incentive is got are determined by this Decision in accordance with the Rule book on incentives for generation of electricity from renewable energy sources and in efficient cogeneration.

#### II

Guaranteed feed in prices and premium for electricity generated in facilities that use renewable energy sources or in efficient cogeneration facilities which get the right for incentive are:

<b>Type of power plant in accordance with the sources of energy</b>	<b>Sale in obligatory redemption based on guaranteed redemption prices</b>			<b>Sales on the market and consumption for own needs</b>	
	<b>Redemption Price</b> KM/kWh	<b>Reference Price</b> KM/kWh	<b>Premium (in guaranteed price)</b> KM/kWh	<b>Reference Price</b> KM/kWh	<b>Premium</b> KM/kWh
<b>Hydro Power Plants</b>					
• Up to and including 1MW	<b>0,1541</b>	0,0541	0,1000	0,0793	<b>0,0748</b>
• Over 1MW up to including 5MW	<b>0,1327</b>	0,0541	0,0786	0,0793	<b>0,0534</b>
• Over 5 MW up to including 10MW	<b>0,1245</b>	0,0541	0,0704	0,0793	<b>0,0452</b>

<b>Wind Power Plants</b> (guaranteed redemption price up to and including 10MW, premium without limits)	<b>0,1652</b>	0,0541	0,1111	0,0793	<b>0,0859</b>
<b>Power Plants on Solid Biomass of capacity</b>					
• Up to and including 1 MW	<b>0,2413</b>	0,0541	0,1872	0,0793	<b>0,1620</b>
• Over 1MW up to incld.5MW	<b>0,2261</b>	0,0541	0,1720	0,0793	<b>0,1468</b>
• Power Plants on agricultural biogas up to including 1 MW	<b>0,2402</b>	0,0541	0,1861	0,0793	<b>0,1609</b>
• Geothermal facilities up to 10 MW	<b>0,2146</b>	0,0541	0,1605	0,0793	<b>0,1353</b>
<b>Conventional sources of energy in efficient cogeneration facilities</b> (guaranteed purchase price up to and including 10 MW, and premium for sale on the market and consumption for own needs up to and including 30MW)					
• New cogeneration facilities on <b>gas</b> up to 1 MW inclusive	<b>0,2117</b>	0,0541	0,1576	0,0793	<b>0,1324</b>
• Old cogeneration facilities on <b>gas</b> from 1 MW to 10 MW inclusive	<b>0,1864</b>	0,0541	0,1323	0,0793	<b>0,1071</b>
• New cogeneration facilities on lignite up to 1 MW inclusive	<b>0,1197</b>	0,0541	0,0656	0,0793	<b>0,0404</b>
• Old cogeneration facilities on lignite from 1 MW to 10 MW inclusive	<b>0,0882</b>	0,0541	0,0341	0,0793	0,0089

<b>Solar facilities with the photovoltaic cells</b>	Sale in the obliged redemption at the guaranteed feed in prices			Sale at the market and consumption for one's own needs	
	<b>Guaranteed feed in price</b> BAM/kWh	Reference price BAM/kWh	Premium (in the guaranteed feed in price) BAM/kWh	Reference price BAM/kWh	<b>Premium</b> BAM/kWh
Guaranteed feed in prices and premium till 30 April 2014					
▪ Facilities up to 50 kW	<b>0,3638</b>	0,0541	0,3097	0,0793	0,2845
▪ Facilities of more than 50 kW up to 250 kW inclusive	<b>0,3168</b>	0,0541	0,2627	0,0793	0,2375
▪ Facilities of more than 250 kW up to 1 MW	<b>0,2543</b>	0,0541	0,2002	0,0793	0,1750
▪ on the land up to 250 kW inclusive	<b>0,2944</b>	0,0541	0,2403	0,0793	0,2151
▪ on the land of more than 250 kW up to 1 MW inclusive	<b>0,2355</b>	0,0541	0,1814	0,0793	0,1562
Guaranteed feed in prices and premium as of 1 May 2014					
▪ on the structures of up to 50 kW inclusive	<b>0,3398</b>	0,0541	0,2857	0,0793	0,2605
▪ on the structures of more than 50 kW up to 250 kW inclusive	<b>0,2947</b>	0,0541	0,2406	0,0793	0,2154
▪ on the structures of more than 250 kW up to 1 MW inclusive	<b>0,2358</b>	0,0541	0,1817	0,0793	0,1565
▪ on the land of up to 250 kW inclusive	<b>0,2735</b>	0,0541	0,2194	0,0793	0,1942

▪ on the land of more than 250 kW up to 1 MW inclusive	<b>0,2181</b>	0,0541	0,1640	0,0793	0,1388
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2) Prices and premiums from paragraph (1) of this item do not include value added tax (VAT).

### III

Guaranteed feed in prices determined in this decision are applied at the time of buyout of electricity from generators that get the right to obligatory buyout of electricity at guaranteed feed in prices.

### IV

Premiums determined in this Decision are applied with payment of the premium for generators that get the right to the premium for sale of electricity at the market of Republic of Srpska or for consumption for the own needs.

### V

Guaranteed feed in prices and premium referred to in point II, sub-point 1) of this Decision are reconsidered and harmonized in a way and with deadlines proscribed in provisions of the Rules on incentives for generation of electricity from renewable energy sources and in efficient cogeneration facilities.

### VI

Commencement of application of this Decision terminates the validity of Decision of the guaranteed feed in prices and premiums for electricity generated from renewable energy sources or in efficient co-generation (Official Gazette of Republic of Srpska, number 72/13).

### VII

This Decision enters into force on the eighth day from the day it is published in the Official Gazette of Republic of Srpska and will be applied as of 1 January 2014.

### Rationale

Regulatory Commission for Energy of Republic of Srpska (hereinafter: Regulatory Commission) in its 65th regular session held on 3rd July 2013, made Decision on the amount of the guaranteed feed in prices and premiums for electricity generated from renewable energy sources or in efficient co-generation (hereinafter: Decision)

and on the basis of competences referred to in provisions of the Energy law, Electricity law and Law on renewable energy sources and efficient co-generation which prescribe that Regulatory Commission is in charge of prescribing the system of incentives for generation of electricity from RES and in efficient co-generation. Provision of Article 28, paragraph 1 of the Energy law prescribes that the mentioned system of incentives is made by Regulatory Commission with the consent of the RS Government and pursuant to provision of Article 26 paragraph 3 the amount of the guaranteed feed in price and premium is determined by the Regulatory Commission with the consent of the Republic of Srpska Government. Pursuant to these competences, Regulatory Commission, on 25th October 2011, determined for the first time Decision on the amount of the guaranteed feed in prices and premiums for electricity generated from RES or in efficient co-generation, which has been applicable, after the RS Government consent made to it, in 2012. Having in mind that the Rule on stimulating generation of electricity from RES and in efficient co-generation (Official Gazette of RS, number 128/11 and 53/12) (hereinafter: The Rule on incentives) in Article 47 prescribed that Regulatory Commission checks the progress in development of technologies for generation of electricity from RES or in efficient co-generation, for the purposes of harmonizing guaranteed feed in prices with the modified technological circumstances, taking into account the available potential and planned share of different energy sources and efficient co-generation facilities for generation of electricity, and in Article 48 that Regulatory Commission follows the movement of the wholesale prices of natural gas in RS and at least once a year re-examines and if needed corrects the guaranteed feed in prices, in December 2012 the Regulatory Commission, upon the conducted procedure of public considering, adopted new Decision which the Republic of Srpska Government gave its consent to and which has been applicable since 1 January 2013.

Following and analyzing the progress in development of technologies, and first of all, technologies for generation of electricity in solar facilities with the photovoltaic cells, which have, according to the available information for photovoltaic module, the "learning rate" amounts to at minimum 22%<sup>1</sup> it was found out that it was necessary to make new harmonization of the guaranteed feed in prices for this technology, and accordingly it was decided to make this Decision. It was also made division of solar facilities depending on the installed capacity and depending on the place of the facility installing (on the structure or on the land) pursuant to the law on renewable energy sources and efficient co-generation.

Incentives are determined for the purposes of realization of the power policy of the RS Government, defined by the Decree on generation and consumption of electricity from RES and co-generation (hereinafter: Decree), regarding realization of the indicative goals for generation for electricity from RES and in efficient co-generation.

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<sup>1</sup> Source: IRENA, Renewable energy technologies, cost analysis series: Solar Photovoltaic, 2012

The energy law defined that the electric power policy is conducted by the RS Government, and such a policy, inter alia, provides for possibilities of using different primary energy sources, use of RES for generation of energy and concern for the efficient use of energy.

Methodology of calculation of the guaranteed feed-in prices based on which the prices are determined in this Decision was prescribed by Rule book on incentives, and relies on RS legislation and analysis of domestic conditions and specific issues (GDP, number of inhabitants, price of electricity from conventional sources, interest rates, technological development, power potential, etc) and generally accepted international standards and positive experiences of other countries, European Parliament Directives within the scope of energy and environment.

While determining the methodology for calculation of the feed-in redemption prices, Regulatory Commission was making efforts to apply the principle of streamlining of the procedure related to calculation of incentives, to have it understandable, based on the accepted parameters and feasible in practice.

The level of the guaranteed feed-in prices determined by this Decision, is based on the type of RES and amounts of electricity which are stimulated and which are determined by the Decree and on the base of data on investments and costs for the facilities which generate electricity from RES or in efficient co-generation, and which are available from some energy sources both in the Strategy of the energy development of RS (hereinafter: Strategy) and in available studies on RES of other countries which have already advanced in development of the incentive system. The methodology of calculation of guaranteed feed-in prices which is prescribed by the Rule on incentives is generally based on the methodology recommended in the "Final Report Green X"<sup>2</sup> and is essentially the same in all countries which base the incentives of electricity generation from RES on the feed-in tariff. While defining the incoming parameters, the priority is first of all given to data which are available in the Strategy as well as in the "Study of development of the energy sector in BiH". Having in mind that the Strategy does not contain data on all parameters which are relevant for some RES, the experiences and available data from the neighboring countries were used. When it is about the electricity which is generated in solar facilities, the forecast data for 2012, published by IRENA (International Renewable Energy Agency) in June 2012 in the Study: "Renewable energy technologies, cost analysis series: Solar Photovoltaics" were used.

The methodology of calculation of the guaranteed feed-in prices and premiums is based on the calculation of the total annual costs of the typical generation facilities which use RES applying the annuity method of the investment valuation, whereby this calculation was based on the previously defined technical and economic parameters.

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<sup>2</sup> "Deriving Optimal Promotion Strategies for Increases the Share of RES-E in a Dynamic European Electricity Market" - Green X Project

The economic parameters which the calculation of the guaranteed feed in prices is based on, are as follows: the capital price (%), the period of return of investment (years), investment costs (BAM/kWel), costs of operation and maintenance (BAM/kWel), costs of fuel (BAM/kWhel) and revenue from the heat.

Technical parameters which the calculation of the guaranteed feed-in prices is based on are the installed capacity (MWel) and annual hours of operation (h/year) of the typical generation facility.

The guaranteed feed in prices referred to in this Decision, are based on two economic assumptions which are the same for all generation facilities regardless of the energy sources and they are as follows:

- the capital price, as weighted average rate of return on the own and borrowed means of 8.9%,
- period of the investment return (years) of 15 years;

The price of capital and period of return of the invested means determine the amount of the annuity factor (12.3%) which brings the total investment to the annual amount of annuity complying with the return on the own and borrowed capital.

The weighted rate of return was determined with the rate of return on own means in the amount of 13,5%. The rate of return on the borrowed means is determined in the amount of 7.7% on the basis of recommendation of the consultant and on the basis of inspection in the report made by the Central Bank of BiH on movement of interest rates on the long-term loans.

The structure of the own and borrowed means was determined in the ratio of 20%: 80%, which in final calculation resulted in the weighted capital price of 8.9%.

The repayment period of the invested means was determined for the period of 15 years as determined by the Rule on incentives to be the period of the obliged redemption at the guaranteed feed-in price. While determining this parameter, Regulatory Commission took into account the fact the guaranteed feed in prices should attract new investments in order to enable final realization of generation of the planned amounts of electricity from RES and efficient co-generation, taking into account the level of development and first of all the social acceptance of the incentive system in RS.

**Apart from common economic assumptions, technical and economic parameters have been defined in advance, being typical for each technology depending on the type of the energy sources, taking into account encouragement of investment in the most cost-effective new facilities, namely the facilities which use the most efficient available technology and at the most**

**favorable locations in order to achieve a reasonable relation between the benefits from stimulating RES and efficient co-generation and costs for the society as a whole.**

Total costs per the unit of generation were determined on the basis of the projected optimum hours of peak load for each technology. This parameter was defined on the basis of recommendations referred to in the Strategy as well as on the basis of data which Regulatory Commission has on disposal for generation who have been entitled to incentives in 2012 and on the basis of the analysis of data referred to in the Study done by the neighboring countries.

The investment costs for some energy sources were determined on the basis of data referred to in the Strategy and available studies, and based on reviewing and benchmarking of the amount of this parameter in the guaranteed price published by the neighboring countries taking into account the specific issues of operating in RS.

Costs of operation and maintenance are related to maintenance and operation, insurance, rent, fees and costs of salaries. The amount of these items (apart from the salary) was determined as the percentage of investment, whereby mostly used data were the ones found in available studies and in the document entitled "Green X Project" complying with the specific issues of operating in RS. When it is about solar facilities with the photovoltaic cells, the costs of operation and maintenance in this Decision have remained the same in the absolute amount as it was stated in the Decision which became effective on 1 January 2013.

Technical and economic parameters for some types of generation facilities which the determined feed-in prices referred to in Decision are based on, are in the next table.

Generation facility depending on the energy source	Capacity MW	Hours of operation h/year	Specific investment €/kW <sub>el</sub>	Costs of operation and maintenance €/kW <sub>el</sub>
<b>Hydro power plants</b>				
• Up to 1 MW inclusive	0,50	4.000	2.000	69,12
• More than 1MW up to 5 MW inclusive	2	4.000	1.700	62,25
• More than 5 MW up to 10 MW inclusive	9	4.000	1.600	57,78
<b>Wind farms</b>	2	2.200	1.350	19,77
<b>Solar plants with photovoltaic cells as of 1 August 2013</b>				
On the structures up to 50 kW inclusive	0,05	1.370	1.745	40,17
On the structures of more than 50 kW up to 250 kW	0,2	1.370	1.596	25,54
On the structures of more than 250 MW up to 1 MW inclusive	0,9	1.370	1.325	15,10

On the land up to 250 kW inclusive	0,2	1.370	1.475	24,71
On the land of more than 250 kW up to 1 MW inclusive	0,9	1.370	1.224	14,38
<b>Solar facilities with the photovoltaic cells as of 1 January 2014</b>				
On the structures of 50 kW inclusive	0,05	1.370	1.608	40,17
On the structures of more than 50 kW to 250 to 1 MW	0,2	1.370	1.470	25,54
On the structures of up to 250 kW to 1 MW inclusive	0,9	1.370	1.220	15,10
On the land of up to 250 kW inclusive	0,2	1.370	1.356	24,71
On the land of more than 250 kW up to 1 MW	0,9	1.370	1.125	14,38
<b>The plants using solid biomass the capacity:</b>				
• up to 1 MW inclusive	1	6.000	3.600	161,79
• more than 1MW up to 10 MW inclusive	9	6.000	3.400	139,95
<b>The plants using agricultural biogas up to 1MW inclusive</b>	0,50	6.500	4.000	163,79
<b>Conventional energy sources in efficient co-generation facility</b>				
• New co-generation facilities for gas	10	4.380	700	29,78
• Old co-generation facilities for gas	10	4.380	420	29,78
• New co-generation facilities for lignite	10	4.380	2.200	73,07
• Old co-generation facilities for lignite	10	4.380	1.320	73,07

Cost of fuel ( $C_{fuel}$ ) as a variable cost is typical with generation facilities which use biomass and with generation facilities which generate electricity in efficient co-generation. The guaranteed feed-in prices in Decision were based on the price of biomass of 2Eur/GJ for generation of electricity in the facilities which use solid biomass as fuel (agriculture, industrial and forestry remains). Guaranteed feed in prices for electricity generated in efficient co-generation facilities were based on the procurement price of gas of 86.83 BAM/MWh, for the facilities which use gas as fuel namely the price of procurement of lignite of 29.3 BAM/kWh for co-generation facilities which use lignite as fuel.

The revenue from the heat energy in efficient co-generation facilities was calculated at the price of 68 BAM/MWhth.

The system of incentive prices in the obliged redemption at guaranteed feed in prices determined by this Decision is based on the higher incentive prices of the redemption of generated energy from RES compared to the redemption prices for other generators of energy (e.g. big HPP and TPP). The difference between the guaranteed feed in price and previously defined referent price determines the amount of the premium. The reference price with the guaranteed redemption is a generation price of electricity, namely the wholesale price which is used for



determination of the price of electricity for the purposes of the end users' supply. In this transitional period of the market opening and having in mind that the gross consumption of electricity in RS is covered by one's own generation, the reference price is determined in the amount of the average generation price which is a calculative element for calculation of the supplying price for tariff customers in RS, determined by Regulatory Commission and amounts to 0.0541 BAM/kWh.

The market reference price which is used for calculation of premium for generators who have been entitled to premium for electricity sold to customers or used for one's own need, was calculated on the basis of available data on realized wholesale prices of electricity in RS for the first 10 months of 2012 and determined in the amount of 0.0851 BAM/kWh.

Prices determined by this Decision shall be applicable while concluding the contract with generators who get the right to incentives as of 1 August 2013, so in that sense Decision on the amount of the guaranteed feed in prices and premium for electricity generated from renewable energy sources or in efficient co-generation (Official Gazette of Republic of Srpska, number 1/13) is no more valid.

The guaranteed feed in price for generators who got the right to incentive for the obliged redemption at the guaranteed feed in price and concluded the contract on the obliged redemption with the Incentive System Operator in the period of application of Decision on the amount of the guaranteed feed in prices and premium for electricity generated from RES or in efficient co-generation (Official Gazette of Republic of Srpska, number 128/11 and 1/13) has not been changed.

Based on the above stated, it was made Decision on the amount of the guaranteed feed in prices and premium for electricity generated from renewable energy sources or in efficient co-generation.

RS Government gives its consent to this Decision.

Having obtained the consent of the RS Government, Decision shall be published in Official Gazette of RS.

No: 01-278-13/13/R-65-110

Date: 3 July 2013

Trebinje

President  
Milenko Cokorilo