

BOSNIA AND HERZEGOVINA

Fourth Progress Reports under

Renewable Energy Directive 2009/28/EC as adapted by the

Ministerial Council Decision 2012/04/MC-EnC

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years (n-1; n-2 e.g. 2019 and 2018) (Article 22 (1) a of Directive 2009/28/EC).

Table 1: The sectoral (electricity, heating and cooling, and transport) and overall shares of energy from renewable sources¹

	2019 Year n-1	2018 Year n-2
RES-H&C ² (%)	56,27 (55)	52,68 (52,1)
RES-E ³ (%)	45,48 (52)	41,5 (48,6)
RES-T ⁴ (%)	0,4	0,44
Overall RES share ⁵ (%)	37,6 (39)	36 (37,9)
Of which from cooperation mechanism ⁶ (%)		
Surplus for cooperation mechanism ⁷ (%)		

Data: EUROSTAT (Energy balances and SHARES tool for BiH, 2018 and 2019)

Note: BHAS energy balances for 2018 and 2019 are still not published. There are always slight differences in data presented in official BHS balance and those given in Eurostat (for example primary solid biofuels export, primary energy consumption in total, final energy consumption etc). According to the energy balances from the LEAP model that is in line with available BHAS energy statistic, and used for the NECP BiH preparation, there is a difference between data for sectoral and overall shares of energy from RES in comparison with SHARES tool. Those differences are shown in brackets.

Table 1a: Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)⁸

	2019 Year n-1	2018 Year n-2
(A) Gross final consumption of RES for heating and cooling	1.205	1.152
(B) Gross final consumption of electricity from RES	528	514
(C) Gross final consumption of energy from RES in transport	2	2,1
(D) Gross total RES consumption ⁹	1.735	1.668
(E) Transfer of RES to other Contracting Parties or Member States	0.0	0.0
(F) Transfer of RES from other Contracting Parties and 3rd countries	0.0	0.0
(G) RES consumption adjusted for target (D)-(E)+(F)	1735	1668

Note: Data from EUROSTAT (Energy balances and SHARES tool for BiH, 2018 and 2019)

¹ Facilitates comparison with Table 3 and Table 4a of the NREAPs.

² Share of renewable energy in heating and cooling: gross final consumption of energy from renewable sources for heating and cooling (as defined in Articles 5(1b) and 5(4) of Directive 2009/28/EC divided by gross final consumption of energy for heating and cooling. The same methodology as in Table 3 of NREAPs applies.

³ Share of renewable energy in electricity: gross final consumption of electricity from renewable sources for electricity (as defined in Articles 5(1a) and 5(3) of Directive 2009/28/EC divided by total gross final consumption of electricity. The same methodology as in Table 3 of NREAPs applies.

⁴ Share of renewable energy in transport: final energy from renewable sources consumed in transport (cf. Article 5(1c) and 5(5) of Directive 2009/28/EC divided by the consumption in transport of 1) petrol; 2) diesel; 3) biofuels used in road and rail transport and 4) electricity in land transport (as reflected in row 3 of Table 1). The same methodology as in Table 3 of NREAPs applies.

⁵ Share of renewable energy in gross final energy consumption. The same methodology as in Table 3 of NREAPs applies.

⁶ In percentage point of overall RES share.

⁷ In percentage point of overall RES share.

⁸ Facilitates comparison with Table 4a of the NREAPs

⁹ According to Art.5(1) of Directive 2009/28/EC gas, electricity and hydrogen from renewable energy sources shall only be considered once. No double counting is allowed.

Table 1.b: Total actual contribution (installed capacity, gross electricity generation) from each renewable energy technology in Bosnia and Herzegovina to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity¹⁰

	2019 Year n-1		2018 Year n-2	
	MW	GWh	MW	GWh
Hydro ¹¹ :	2240,28	6317,53	2228,12	6629,08
non pumped				
<1MW	34,17	104,69	32,00	102,41
1MW–10 MW	122,21	356,15	112,22	266,87
>10MW	1643,90	4912,07	1643,90	5822,30
pumped	440,00	944,62	440,00	437,50
mixed ¹²	0	0	0,00	0,00
Geothermal	0	0	0,00	0,00
Solar:	25,351	28,01	18,775	21,46
photovoltaic	25,351	28,01	18,775	21,46
concentrated solar power	0	0	0	0
Tide, wave, ocean	0	0	0	0
Wind:	87	199,64	50,9	103,54
onshore	87	199,64	50,9	103,54
offshore	0	0	0	0
Biomass ¹³ :	2,07	8,61	1,25	8,22
solid biomass	1,07	2,05	0,25	1,25
biogas	1	6,56	1	6,97
bioliquids	0	0	0	0
TOTAL	937,031	2380,78	883,635	3058,45
of which in CHP	1,07	2,05	0,25	1,25

Data: Regulatory Commission for Energy in FBiH and Ministry of Energy and Mining in the RS

Table 1c: Total actual contribution (final energy consumption¹⁴) from each renewable energy technology in Bosnia and Herzegovina to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in heating and cooling (ktoe)¹⁵

	2019 Year n-1	2018 Year n-2
Geothermal (excluding low temperature geothermal heat in heat pump applications)	0	0
Solar	0	0
Biomass ¹⁶ :	1,205	1,152
solid biomass	1,179.14	1,107
biogas	25.86	45
bioliquids	0	0
Renewable energy from heat pumps: - of which aerothermal - of which geothermal - of which hydrothermal	0	0

¹⁰ Facilitates comparison with Table 10a of the NREAPs.

¹¹ Normalised in accordance with Directive 2009/28/EC and Eurostat methodology.

¹² In accordance with new Eurostat methodology.

¹³ Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) of Directive 2009/28/EC last subparagraph.

¹⁴ Direct use and district heat as defined in Article 5.4 of Directive 2009/28/EC.

¹⁵ Facilitates comparison with Table 11 of the NREAPs.

¹⁶ Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) last subparagraph of Directive 2009/28/EC.

TOTAL	1,205	1,152
<i>Of which DH¹⁷</i>	63,75	33,58
<i>Of which biomass in households¹⁸</i>	1119	1085,5

Data: EUORSTAT (*Energy balances and SHARES tool for BiH, 2018 and 2019*), LEAP software model for BiH, BHAS energy balances for 2018 and 2019 are still not published

Table 1d: Total actual contribution from each renewable energy technology in Bosnia and Herzegovina to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in the transport sector (ktoe)^{19, 20}

	2019 <i>Year n-1</i>	2018 <i>Year n-2</i>
Bioethanol/ bio-ETBE		
<i>Of which Biofuels²¹ Article 21.2</i>		
<i>Of which imported²²</i>		
Biodiesel		
<i>Of which Biofuels²³ Article 21.2</i>		
<i>Of which imported²⁴</i>		
Hydrogen from renewables		
Renewable electricity	4,21	2,28*
<i>Of which road transport</i>		
<i>Of which non-road transport</i>	4,21	2,28*
Others (as biogas, vegetable oils, etc.) – please specify	0,331	0
<i>Of which Biofuels²⁵ Article 21.2</i>		
TOTAL	4,54	2,28

Note: Based on the data from the Agency for Statistics of BiH and LEAP software model for BiH

* Only electricity part from RES, no biofuels

The RES Electricity in railway transport is calculated pursuant to Article 3, Item 4.a) of the RES Directive 2009/28/EC:

„(a) by calculating a denominator (i.e. the total amount of energy consumed in transport for the purposes of the first subparagraph) only gasoline, diesel, biofuels used in road and rail transport and electricity are taken into account;

(b) by calculating the numerator (i.e. the amount of energy from renewable sources used in transport for the purposes of the first subparagraph) all types of energy from renewable sources used in all modes of transport shall be taken into account;

(c) by calculating the contribution of electricity produced from renewable sources and used in all types of electrical means of transport for the purposes of items (a) and (b), Member States may decide to use either an average share of electricity from renewable sources in the Community or share of electricity from renewable sources energy in its country measured two years before the year in question. Furthermore, in calculating the consumption of electricity from renewable sources in all types of road power electric vehicles, it is considered that consumption is two and a half times higher than the energy content of electricity generated from renewable energy sources."

¹⁷ District heating and / or cooling from total renewable heating and cooling consumption (RES- DH).

¹⁸ From the total renewable heating and cooling consumption.

¹⁹ For biofuels take into account only those compliant with the sustainability criteria, cf. Article 5(1) last subparagraph.

²⁰ Facilitates comparison with Table 12 of the NREAPs.

²¹ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

²² From the whole amount of bioethanol / bio-ETBE.

²³ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

²⁴ From the whole amount of biodiesel.

²⁵ Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

2. Measures taken in the preceding 2 years and/or planned at national level to promote the growth of energy from renewable sources taking into account the indicative trajectory for achieving the national RES targets as outlined in your National Renewable Energy Action Plan. (Article 22(1)a) of Directive 2009/28/EC))

Table 2: Overview of all policies and measures

Name and Reference No. of the Measure	Type of Measure*	Expected Result**	Targeted Group and Activity***	Existing or Planned****	Start and End Dates of the Measure
1.1 Strategic Policy of Energy Sector Operations in BiH Framework Energy Strategy of Bosnia and Herzegovina until 2035	Regulatory	Determinants of development of BiH energy sector including renewable energy, are defined based on entity strategies	All subjects in energy sector	Existing, Framework Energy Strategy of BiH until 2035 adopted in August 2018 ("Official Gazette BiH" No. 70/18)	2018
1.2 Development and improvement of Renewable Energy Action Plan of Bosnia and Herzegovina in accordance with the entity action plans	Regulatory	Bosnia and Herzegovina implements and regularly updates program provisions defined by the Action Plan	All subjects in energy sector	Adopted, monitoring and reporting ongoing (incl. discussion of measures with entities)	Adopted in 2016, established until 2020 (will be replaced by NECP that is under preparation)
1.3 Development, management and reporting on Projects of Energy Community Interest (PECI)	Financial	Efficient participation of Bosnia and Herzegovina in development and interoperability of priority corridors and areas of trans-European energy infrastructure (according to EU Regulation 347/2013)	All subjects in energy sector Carriers of development projects for RES plants	Planned	2016
1.4 Harmonization of incentive programs with other countries	Financial	BiH will have active exchange of renewable energy incentives using statistical	Carriers of development projects for RES plants	Planned	2016

		transfers (Article 6 of Directive 2009/28 / EC) and joint projects (Article 9 of Directive 2009/28 / EC)			
1.5 Progress report concerning promotion and use of renewable energy sources	Planned	BiH regularly reports (every two years) to the Secretariat of the Energy Community issues defined in Article 22 of Directive 2009/28 / EC	All subjects in energy sector	Planned	2017
1.6 Promotional programmes for sustainable use of energy in local communities	Promotional	Bosnia and Herzegovina provides visible support to local communities in promoting sustainable use of energy (promotional activities, promotion of SEAP, pilot projects, etc.)	Local communities	In preparation within Reform of Support Schemes	2016
1.7 Establishing mechanism for monitoring production, export/import, and consumption of biofuel	Regulatory /Statistical	Bosnia and Herzegovina established an efficient mechanism of monitoring the biofuel market and has quality statistical data in possession	Customs, Indirect Taxation Authority, consumers	Planned	2017
1.8 Programme of promoting use of biofuel on the level of BiH - including reconsidering provisions of the Law on Excise and the Law on Customs Tariffs with regards to the use of biofuel	Financial	Bosnia and Herzegovina established an incentive system for the use of biofuel introducing import and tax reliefs.	Suppliers and final users	Planned	2017 and further
1.9 Decision on quality of	Regulatory	Quality increase	Entity administration, distributors	Planned (in preparation)	2018

liquid petrol fuels in BiH					
New1.10: Reform of Support Schemes for RES electricity generation	Regulatory	Introduction of new market-based support schemes - increased capacity of RES electricity generation	RE investors, suppliers, RES Operators, Regulatory Commission in both entities	Planned (already in preparation)	2020-2030
New 1.11: Improvement of Administrative Procedures for licensing and permitting of RES in line with Art. 15 of the Directive	Regulatory	Administrative Procedures for licensing and permitting of RES in line with Art. 15 of the Directive	RE investors, suppliers, involved authorities of all different levels	Ongoing	2017-2020

In addition to these measures, there are entity measures defined in entity action plans.

* Indicate if the measure is (predominantly) regulatory, financial or soft (i.e. information campaign).

**Is the expected result behavioural change, installed capacity (MW; t/year), energy generated (ktoe)?

***Who are the targeted persons: investors, end users, public administration, planners, architects, installers, etc? or what is the targeted activity / sector: biofuel production, energetic use of animal manure, etc)?

**** Does this measure replace or complement measures contained in Table 5 of the NREAP?

2.a Please describe the progress made in evaluating and improving administrative procedures to remove regulatory and non-regulatory barriers to the development of renewable energy. (Article 22(1)e) of Directive 2009/28/EC).

Electricity

In 2018 the Guidelines for Investors in the Electricity Sector in Bosnia and Herzegovina was developed. These Guidelines are intended for potential investors who wish to invest in the development of electric power facilities in Bosnia and Herzegovina (BiH). They provide information about the procedure, required permits, competent authorities, as well as other useful information.

The Guidelines explain the permitting procedure at the level of Bosnia and Herzegovina (BiH), consisting of the required steps and the documentation to be enclosed with applications for individual permits. The main purpose of the Guidelines is to make the process easier for the new (and existing) investors in the complex administrative permitting system due to which, for the construction of electricity facility in BiH 20 licenses in 100 steps within a period of two and in practice even more than five years is required.

In addition to information on all permits, administrative procedures and competent institutions the Guidelines contains other necessary information such as documentation that is attached to applications and legal deadlines for issuing licences.

In order to improve administrative procedures and to remove regulatory and non-regulatory barriers to the development of renewable energies, a detailed analysis of the existing legal framework was conducted, and case studies were prepared as well as a capacity assessment

of institutional and individual actors which are issuing permits for energy projects in the FBiH and RS. All results and recommendations were summarized in the compilation reports: (i) Analysis of Legal Framework and Recommendations for the Removal of Obstacles to Investments in the Energy Sector in the FBiH and (ii) Analysis of Legal Framework and Recommendations for the Removal of Obstacles to Investments in the Energy Sector in the RS.

These documents were presented to the key-stakeholders of the involved institutions and adopted in 2018 by FBiH and RS Governments for official use to improve the administrative procedures for RE in both entities. They contain over 100 recommendations to improve the legal framework in order to make licensing & permitting procedure for RE more efficient, transparent and harmonized with the EU Directive.

In both entities, the implementation of the above mentioned recommendations to improve the administrative procedures has started and has led to first results.

As a next step, through USAID EPA Project a technical assistance is planned in order to develop customized permitting guide for investors. This guide would outline a roadmap of potentially required permits, typical timeframes and issuing authorities technical assistance of the investment framework. In addition the development of an electronic guide for investors is planned.

Planned activities within TA GIZ project "Decarbonization of the Energy Sector in Bosnia and Herzegovina" (duration of the project: June 2020-May 2023) shall contribute to demonstration of innovative processes which are promoting decarbonization of the energy sector and to the transparent and cost-efficient implementation of the RE support schemes in BiH.

Heating&Cooling

The production of heat from the RES is neither incentivized nor specifically regulated on the state or entity level, only on the level of municipalities.

Transport

The existing legislation in both entities cover some of the measures for biofuels required under Directive 2003/30/EC and Directive 2009/28/EC (RED) such as details related to fuel quality, monitoring, and relevant definitions.

However, several new measures introduced by the RED have to be transposed into the legislation and adopted in both entities. In particular, measures covering the mandatory sustainability criteria imposed on biofuels must be included in order to meet the requirements of the Directive. In addition, it is necessary to set and maintain an integrated support mechanism for increasing the share of biofuels in transport. The setting up of that mechanism is currently in a planning phase.

Setting up a comprehensive legislative and regulatory framework for biofuels will be essential in order to establish the conditions for their introduction and subsequent contribution towards the biofuels targets established under the RED.

2.b Please describe the measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in improving the framework or rules for bearing and sharing of costs related to grid connections and grid reinforcements. (Article 22(1f) of Directive 2009/28/EC)).

Connection to the grid is regulated by the Rulebook on Connection adopted by the State Electricity Regulatory Commission (SERC) ("Official Gazette of BiH", No. 95/08). RES electricity producers who are connected to the grid pay 50% of the fixed part of the connection costs.

The Law on Renewable Energy Sources and Efficient Cogeneration in RS defines that distribution companies, at their expense, shall analyse the possibilities and conditions for connection of producers of energy from RES and Efficient Cogeneration.

The Rulebook on conditions for connection of power plants to the grid adopted by Elektroprivreda Republike Srpske in 2014 regulates the conditions of connection and advantages in accessing the grid for producers of electricity from renewable energy sources as well as the distribution of connection costs for the joint connection of several producers.

The Law on Usage of Renewable Energy Sources and Effective Cogeneration ("Official Gazette of the Federation of Bosnia and Herzegovina", No. 70/13 and 5/14) stipulates that power generators using renewable energy sources have priority in deciding on their requests for connection to the electricity network over plants that do not use renewable energy sources.

The Law on Electricity in the Federation of Bosnia and Herzegovina ("Official Gazette of the Federation of Bosnia and Herzegovina", No. 66/13 and 94/15) stipulates that the distribution system operator is required, while dispatching of distributed generation, to give priority to the generation plants using renewable energy sources or waste, or cogeneration plants.

The Rulebook on the Methodology for Calculating Connection Charges and Defining Terms and Conditions for Connection to the Distribution Network ("Official Gazette of FBiH" No. 89/14) stipulates that the the RES electricity producer shall cover 50% of the calculated average value of the connection costs and that the process of connection of the facility is carried out in accordance with the applicable regulations and standards.

3. Please describe the support schemes and other measures currently in place that are applied to promote energy from renewable sources and report on any developments in the measures used with respect to those set out in your National Renewable Energy Action Plan. (Article 22(1)b) of Directive 2009/28/EC).

One of the main challenges of the current RES support system is the difficulty to allocate technology quotas based on expected potential and to set the right level of incentive (feed-in tariff) to stimulate the investment. To avoid excessive subsidies for some technologies on the one hand and to adjust the incentive system according to the needs and feasible potential of other technologies on the other hand, a comprehensive reform of the support scheme system for RES based electricity is required to introduce cost-efficient support mechanisms.

In that aspect, under the guidance of the Ministry of Foreign Trade and Economic Relations of BiH, the Ministry of Energy and Mining of the RS and the Federal Ministry of Energy, Mining and Industry, in the period from November 2017 until November 2019, manifold activities were conducted to prepare for the envisaged reform of the Renewable Energy Support Schemes in Bosnia and Herzegovina.

Starting in November 2017, a Working Group consisting of representatives of BiH institutions with legal competences in the energy sector and supported by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) had been engaged in developing a concept for a reform for RE support schemes in BiH. The proposed reform aims at both reducing renewable energy support cost and facilitating development of renewable energy projects in a fully liberalized electricity sector environment. In the first phase of the project from November 2017 to August 2018, the Working Group analyzed different design options for support schemes and -based on the analysis- developed a comprehensive concept for a reform of RES based electricity support in BiH, as well as recommendations for a transition path of the schemes from the current vertically integrated to a future liberalized ESI in BiH. In the second phase of the project, from September 2018 to November 2019, the Working Group elaborated the regulatory, administrative and economic details of the reform concept. The output of the second phase include detailed Guidelines on the implementation of the new RE schemes, a document highlighting institutional responsibilities and processes, an economic impact analysis, a macroeconomic tool designed for the planning of RE expansion in the electricity

sector, microeconomic tools designed to estimate the appropriate support levels for the RE technologies under review in the project and a comprehensive set of draft legal documents (including both primary and secondary legislation) incorporating the reform concept.

At the end of 2019 and beginning of 2020, the complete work package has been officially submitted to all institutions represented in the Working Group, as well as to the Energy Community Secretariat for comments.

The proposed reform aims at both reducing renewable energy support cost and facilitating development of renewable energy projects in a fully liberalized electricity sector environment.

The working group made distinctive proposals for the renewable energy support scheme reform for large-scale and for small-scale installations. Large-scale installations shall become subject to Feed-in Premium (FIP) based support, while small-scale installations will continue to benefit from administratively set Feed-in-Tariffs (FIT). The threshold separating large from small scale shall be set technology specific but is yet to be defined.

The amount of FIP for large scale installations shall be set through the introduction of auctions for wind, solar and hydro power and administratively through a defined calculation methodology for biomass and biogas.

The FIP shall be paid to large-scale RE producers on top of the revenue from the electricity sales on the open market. For the transition period preceding the establishment of the Intra-Day Market and Day-Ahead Electricity Market in BiH, the reform foresees the introduction of a new, flexible reference price based on the Methodology defined by the Regulatory Commissions. The reference price should reflect seasonal and daily demand for electricity supply mirroring simulated wholesale electricity market price.

Small-scale installation up to the defined threshold shall be continued to be subject to administratively set, technology-specific FIT. The FIT shall be complemented by quotas (i.e. annual capacity limits) to steer their expansion, with a first-come-first-serve policy as a basic approach to the allocation of support. Technology quotas shall contain minimum shares to be filled by and give priority to local community-energy initiatives.

To allow citizens to actively participate and benefit from the energy transition, a stable and sustainable mechanism for self-consumers (Prosumers) shall be established in both entities. For prosumers, a net billing mechanism shall be introduced as an alternative option of RE support, i.e. the supplier should “net” electricity supply by remunerating excess energy fed into the grid.

Currently, in both entities Working groups have been formed and they are working on the development of final drafts of entity RES laws. It is planned to have the reform and the respective legislation adopted until the end of 2021.

Support schemes currently in place:

Since 2012, in Bosnia and Herzegovina, generation of electricity from renewable sources is currently promoted through feed in tariffs (FIT) set by responsible authorities on the entity level in RS and FBiH.

RS

In the RS, additionally to the FIT support, the framework for RES in the RS foresees the optional support of electricity from renewable sources through (feed in) premiums (FIP) together with the remuneration through a reference price. This option has however not been applied yet as the provided incentives in both entities were based on FIT similar guaranteed prices.

The possibility of boosting the production of energy from renewable sources in the heating and cooling sector and the use of biofuels in transport will be analysed in the future.

Administrative and other affairs of the incentives system are performed by the Operator of the incentive system in accordance with the Rules for the Implementation of the Incentive System. Until the establishment of the Operator of the Incentive system, administrative and financial affairs of the incentives system are performed by Elektroprivreda Republike Srpske.

The Law on Renewable Energy Sources and Efficient Cogeneration stipulates that producers of electricity from renewable energy sources and in efficient cogeneration are eligible for the following types of incentives:

- a) advantages in connecting to the grid,
- b) priority in grid access,
- c) the right to compulsory energy purchase,
- d) the right to guaranteed purchase price (feed-in tariff), and
- e) the right to a premium for consumption for own needs and sale on the RS market.

In 2018, activities on revision of Action Plan for Usage of Renewable Energy Sources in RS started and in October 2018 a RS Government adopted a Revised Action Plan for Usage of Renewable Energy Sources in RS (Official Gazette of the Republic of Srpska, No. 96/18).

In relation to the previous AP, the following dynamic quotas were changed:

- for SPPs quotas increased - from 8 MW to 12,20 MW,
- For biomass quotas decreased - from 14,83 to 12,96 MW.

In March 2019 the draft to amend the Law on RES in Republic of Srpska was adopted by the RS Government and was referred to the consideration of the RS National Assembly. In April 2019 the RS National Assembly adopted a Law on the Amendments to the Law on Renewable Energy Sources and Efficient Cogeneration (Official Gazette of the Republic of Srpska, No. 26/19). Within that Law amendment, wind power plants were excluded from the system of incentives.

FBiH

FBiH Government adopted Action Plan for Usage of Renewable Energy Sources in the Federation of BiH (Official Gazette of FBiH, 48/14 and 70/14) stating the binding target of the FBiH on the energy share from renewable energy sources in the total final consumption of electricity, heating and / or cooling and energy for transport, taking into account the effects of regulatory measures related to the improvement of energy efficiency and energy savings for end customers, as well as other measures aimed at meeting the set goals and the defined amount of energy (dynamic quotas), which will be encouraged through the feed-in tariff until 2020, by which the following primary sources are stimulated: hydropower, solar energy, wind energy, biogas and solid biomass.

In line with the above mentioned acts, there is a system for boosting electricity generation from RES and it is currently the only system for promoting renewable energy in the FBiH.

The system, among other things, defines the following:

- The system is financed through collection of incentive fee paid by all end-users of electricity. Once a year, the FBiH Government determines the fee by decision;
- Another form of promoting the electricity generation from RES is the purchase of generated electricity from eligible producers at the reference price. The reference price is determined by FERK (Regulatory Commission for Energy in the FBiH), and it is 20% higher than the average market price of electricity in the FBiH over the past 12 months;
- Purchase at the reference price of electricity produced from renewable energy sources is carried out during the trial operation of plants using RES, as well as eligible

producers, if their production is included in the mandatory quotas prescribed by FBiH Action Plan for Usage of Renewable Energy Sources;

- Issuance of the guarantee of origin is a part of the system of promoting the generation of electricity.

There are no regulations for promotion of renewable energy in the sectors of cogeneration, heating and cooling systems, and transport services, so they are not implemented.

In 2018, activities on revision of Action Plan for Usage of Renewable Energy Sources in the Federation of BiH started and in November 2018 a FBiH Government adopted Revised Action Plan for Usage of Renewable Energy Sources in the Federation of BiH (Official Gazette of FBiH, 94/18), where in relation to the previous AP, the following dynamic quotas are changed:

- for SPPs quotas increased - from 11 MW to 23 MW,
- For biogas new dynamic quota was introduced in amount of 1.2 MW

In February 2021, the FBiH Government has determined the Proposal of the Law on Amendments to the Law on the Use of Renewable Energy Sources and Efficient Cogeneration. The amendment stipulates that the binding FBiH targets on the share of energy from renewable sources in total final electricity consumption for 2020, expressed in the Action Plan for the Use of Renewable Energy Sources in FBiH (APOEF), will be applied until the adoption of a new planning document for renewable energy sources in BiH.

The Federal Government has also passed a Decision on setting binding targets for the use of renewable energy sources in the FBiH.

Table 3: Support schemes for renewable energy

Support plans for RES year 2020		Per unit		Total (M€)**
Hydro Energy				
Instrument (indicate relevant data)	Obligation/quota (%)			
	Penalty/purchase option/purchase price (€/unit)			
	Average certified price			
	Tax exemption/refund			
	Investment subsidies (donated capital or loans) (€/unit)			
	Production incentives			
		Feed-in tariff	RS (0,06 – 0,071) €/kWh	FBiH (0.06 – 0.086) €/kWh
	Feed-in premium	RS (0.0045 -0,0189) €/kWh	FBiH -	RS: 0.00
	Tenders		N/A	
Wind energy				
Instrument (indicate relevant data)	Obligation/quota (%)			
	Penalty/purchase option/purchase price (€/unit)			
	Average certified price			
	Tax exemption/refund			
	Investment subsidies (donated capital or loans) (€/unit)			
	Production incentives			
	Feed-in tariff	RS -	FBiH	

				(0.061 – 0.116 €/kWh)	
	Feed-in premium	RS	-	FBiH	-
	Tenders			N/A	
Biomass and Biogas (different tariffs)					
Instrument (indicate relevant data)	Obligation/quota (%)				
	Penalty/purchase option/purchase price (€/unit)				
	Average certified price				
	Tax exemption/refund				
	Investment subsidies (donated capital or loans) (€/unit)				
	Production incentives				
	Feed-in tariff	RS 0,11-0,123 €/kWh	FBiH (0.107 - 0.27€/kWh)		RS: 0,816
	Feed-in premium	RS (0,06-0,07) €/kWh	FBiH -		RS:0,008
Tenders			N/A		
Solar energy					
Instrument (indicate relevant data)	Obligation/quota (%)				
	Penalty/purchase option/purchase price (€/unit)				
	Average certified price				
	Tax exemption/refund				
	Investment subsidies (donated capital or loans) (€/unit)				
	Production incentives				
	Feed-in tariff	RS (0,077-0,11€/kWh)	FBiH (0.091 – 0.149 €/kWh)		RS:0,714
	Feed-in premium	RS (0,024-0,06) €/kWh	FBiH -		RS:0,088
Tenders					
Estimated total support in the electric power sector on an annual level					RS:11,143
Estimated total support in the heating sector on an annual level					0
Estimated total support in the transportation sector on an annual level					0

* Quantity of electric power for which support has been provided per unit of provided support, indicated efficiency of support for individual types of technology.

Data from Ministry of Energy and Mining of the RS, Regulatory Commission for Energy in FBiH and Regulatory Commission for Energy of the RS

3.1. Please provide the information on how supported electricity is allocated to final customers for purposes of Article 3 (6) of Directive 2003/54/EC. (Article 22(1)b) of Directive 2009/28/EC).

Elektroprivreda Republike Srpske (in the role of the Operator of the incentive system) offtake electricity from producers who generate electricity from renewable sources, indebted distribution companies that distribute the energy to end customers as electricity suppliers in accordance with applicable regulations. The incentives are provided from the levy collected by all end users in order to support generation of electricity from renewable sources. The Operator of the incentives system uses collected funds to pay the producers for the invoiced generation (consumed) of electricity from renewable sources.

During 2016 in FBiH a Rulebook on Obligatory Share and Load of Electricity Produced from RES that was adopted by FERC and published in Official Gazette of the FBiH ("Official Gazette of FBiH no 50/14 and 82/15) was applied. Since January 1st 2017 a new Rulebook on Obligatory Share and Load of Electricity Produced from RES ("Official Gazette of FBiH no. 99/16) has been applied.

The generated electricity that Operator for Renewable Energy Sources and Efficient Cogeneration in FBiH is buying from producers who generate electricity from renewable sources, by the reference and guaranteed prices, with the application of this Rulebook has been allocated to all suppliers who supply end customers in the Federation and to eligible customers who import electricity for their own use in accordance with the respective percentage shares of their sold electricity on the electricity market.

4. Please provide information on how, where applicable, the support schemes have been structured to take into account RES applications that give additional benefits, but may also have higher costs, including biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material?) (Article 22 (1)c of Directive 2009/28/EC).

With the help of international organizations, primarily the GIZ in the the previous period, activities to introduce advanced incentive systems such as "feed-in-premium" or "auction", or systems that are more market-oriented mechanisms, have been launched. At the end of 2019, the Final Report on the Reform of the Incentive System was prepared together with the accompanying drafts of legal documents (draft versions of the entity laws on renewable energy sources as well as accompanying bylaws for both entities). New Law on Renewable Energy Sources is planned to be prepared in Republika Srpska in the coming period, which will be adopted by the end of 2021. In the meantime, until the adoption of the NECP BiH, in Republika Srpska it is possible to extend the validity of the RES Action Plan. In Federation of Bosnia and Herzegovina it is planned to amend the Law on RES (by the end of 2021) to revise the existing RES Action Plan.

As part of the project "Decarbonization of the Energy Sector in Bosnia and Herzegovina" implemented by GIZ in cooperation with MoFTER and relevant international institutions, sub-project 3 "Demonstration of Innovative Processes for the Promotion of Renewable Energy in BiH" envisages implementation of innovative processes that support the decarbonisation of the energy sector and the transparent and cost-effective implementation of incentive schemes for RES in BiH. Sub-project 3 implies the continuation of the reforms of the existing system of incentives for renewable energy, which aims to reduce costs and facilitate the development of RES projects in the future liberalized environment of the electricity sector; that is, the identification of the main elements of the reform that will be part of the measures for achieving the goals defined by the NECP.

The sub-project supports the implementation of activities in the area of two sub-processes:

1. Encouraging the concept of community energy based on RES and
2. Support to the implementation of the first RES auction.

In both entities, FIT and related capacity quotas are defined and established that foresee the provision of incentives for solid biomass co-generation and for biogas (see chapter 3 and table 3).

Related to solid biomass co-generation, the FIT in both entities are set in that way, that they are feasible only i) with a constant utilization of the generated heat and ii) with low-cost biomass feedstock such as bark, saw-dusk and other biomass residues. The wood-processing industry, as one of the most important industrial sectors in BiH fulfils both feasibility criteria by having a constant 24/ process heat demand and on-site generation of biomass residues. The current biomass co-generation on by-products of the wood-processing industry in BiH is around 26 MWe²⁶. Several projects are currently under development, however, awareness-raising and other promotion measures despite the FIT and available technology quotas are required to exploit the full potential.

With regard to biogas, the largest available potential for BiH is coming from animal waste from farms, with a total unused potential of around 23 MWe²⁷ from cattle, pig and poultry manure. The recent introduction of the quota for biogas in the FBiH (see chapter 3) and the respective adaptation of the related FIT foresees to target that potential.

5. Please provide information on the functioning of the system of guarantees of origin for electricity and heating and cooling from RES, and the measures taken to ensure reliability and protection against fraud of the system. (Article 22(1)d of Directive 2009/28/EC)).

In the past period, MoFTER initiated activities to establish a system of guarantees of origin in Bosnia and Herzegovina. On this issue, MoFTER organized a series of meetings with the competent institutions of the energy sector in BiH, and prepared several letters and information on the topic. MoFTER together with competent entity institutions followed activities on this issue that were also initiated by the Secretariat of the Energy Community - all relevant BiH institutions participated in workshop organized on this topic in November 2020. Also, institutions analyzed the prepared document "Options for the Implementation of the System of Guarantees of Origin in the Energy Community". Following regional meeting on this topic organized by the Secretariat in April 2021, MoFTER gathered the opinions of all entity institutions regarding participation in the regional scheme for guarantees of origin. All relevant BiH institutions confirmed the interest, and MoFTER informed the Secretariat that Bosnia and Herzegovina accepts the offered assistance of the Secretariat, as the coordinator of the whole process.

In the RS, the Rulebook on Issuing Guarantees of Origin of Electricity (Official Gazette of RS, no.1/14) regulates the use of guarantees of origin of RES-E. So far, there have been no requests for guarantees of origin. Large HPPs that are not in the incentive system are entitled to guarantees of origin but have not yet requested them. Guarantees of origin of heat from renewable sources have not yet been regulated.

In the FBiH, the Rulebook on the Application for Issuing the Guarantee of Origin entered into force on January 5, 2016. This Rulebook defines the issuance, transfer and cancellation of guarantees of origin for electricity from the RES. This Rulebook provides that privileged producers are not entitled to apply for the issue of guarantees of origin. The same rulebook also envisaged the adoption of an internal act regulating the automatic transfer of guarantees of origin for electricity produced in plants of privileged producers, since privileged producers can not apply for the issue of guarantees of origin. Therefore, on December 19, Operator for Renewable energy sources and efficient cogeneration in FBiH has adopted the Rulebook for

²⁶ Calculation based on results from: Atlas on Biomass Potentials BiH (<http://atlasbm.bhas.gov.ba>), BiH 2019

²⁷ Calculation based on results from: Atlas on Biomass Potentials BiH (<http://atlasbm.bhas.gov.ba>), BiH 2019

automatic transfer and cancellation of guarantees of origin for electricity produced at installations of privileged producers, which will be applied from 01.01.2019. In this way, the guarantees of the origin of energy from the plant of the privileged producers will be automatically issued based on the data from the Operator's database on RES production, and transferred to suppliers and eligible customers who are obliged to purchase electricity from the RES. These guarantees of origin will be distributed to suppliers in proportion to the electricity they have sold on the market.

6. Please describe the developments in the preceding 2 years in the availability and use of biomass resources for energy purposes. (Article 22(1g) of Directive 2009/28/EC).

Biomass present a significant renewable energy source in BiH. Biomass consumption contributes with 50-75% to achieving the set renewable energy goal for BiH of 40% RES of total final energy consumption.

As part of the project "Employment and secure energy supply by using biomass in BiH", UNDP BiH conducted a research of the quality of wood biomass in the first half of 2017 and the first half of 2019. The results of the research showed that Bosnia and Herzegovina is one of the leading countries in Europe in terms of the growth rate of the pellet market. The result is the use of higher quality wood assortments for the production of pellets, even logs. In parallel with the growth of production and demand for pellets, especially in the period 2016-2018, the wood chip market formed in BiH, driven by the rapid growth in demand for wood chips in district heating.

The main recommendations of the research for improving the quality of wood biomass on the BiH market are related to the improving the legislative framework for pellet quality by prescribing the possibility of pellet inspection, education of pellet distributors and representatives of consumer associations on requirements for pellet quality, education of wood chip manufacturers and representatives of district heating and other wood chip users, establishment of a laboratory for testing the basic characteristics of wood chips, promotion of domestic standards related to the quality of wood biomass among all interested parties, encouraging the establishment of biomass logistics centers and educational, technical and financial assistance through the introduction of new business models in the biomass sector.

According to the RS Report, biomass in Republika Srpska is a significant renewable source of energy although it has never been exactly evaluated in the RS. Various sources have different data, and energy statistics have not yet been sufficiently established. The use of biomass in households, except for firewood, was not promoted to a significant extent. Total cutting of firewood (public and private forests) is about 890000 m³. It is estimated that unrecorded wood cutting is at least about 60%, which leads to the amount of about 420 ktoe in primary energy for total biomass consumption for heating&cooling. In the last couple of years significant pellet consumption has been observed in the domestic heating sector. Efforts to undertake larger use of forest and agricultural residues for heating in rural settlements through projects have not yielded into significant results. The main reasons are:

- insufficient regulatory framework in the forestry sector,
- insufficient forest openness,
- lack of regulation in the heating sector,
- undeveloped infrastructure,
- low awareness of citizens about using this significant potential.

Additionally to the utilization of biomass in households, in the RS a new efficient biomass-fired cogeneration (CHP) plant "Nova Toplana" Prijedor (with installed capacity of 0.250 MWe and 20 MWt), "Cogeneration plant on biomass", Kneževo municipality (installed capacity 0.820 MWe and 5 MWt) and one biogas power plant "Buffalo Energy GOLD-MG", Novo Selo, municipality of Šamac, (installed capacity 0.999 MWe) were built and connected to the grid. Two new CHP biomass plants "Nova Topola" in the municipality of Gradiska (installed capacity 0.992 MWe and 4.8 MWt), is currently under construction.

Table 4: Biomass supply for energy use

	Amount of domestic raw material (*)		Primary energy in domestic raw material (ktoe)		Amount of imported raw material from EU (*)		Primary energy in amount of imported raw material from EU (ktoe)		Amount of imported raw material from non EU(*)		Primary energy in amount of imported raw material from non EU (ktoe)	
	2019 Year n-1	2018 Year n-2	2019 Year n-1	2018 Year n-2	2019 Year n-1	2018 Year n-2	2019 Year n-1	2018 Year n-2	2019 Year n-1	2018 Year n-2	2019 Year n-1	2018 Year n-2
Biomass supply for heating and electricity:												
Direct supply of wood biomass from forests and other wooded land energy generation (fellings etc.)**	2.675.000 m ³ firewood	2372.000 m ³ firewood	1263	1119	-							
Indirect supply of wood biomass (residues and co-products from wood industry etc.)**	-	-	33	17	-							
Energy crops (grasses, etc.) and short rotation trees (please specify)	Not registered	Not registered										
Agricultural by-products / processed residues and fishery by-products **	Not registered	Not registered										
Biomass from waste (municipal, industrial etc.) **	Not registered as such	Not registered as such										
Others (please specify) Unregistered biomass consumption (firewood, biomass from abandoned land, residues, not further determined) here only as min. value												
Biomass supply for transport:												
Common arable crops for biofuels												

(please specify main types)													
Energy crops (grasses, etc.) and short rotation trees for biofuels (please specify main types)													
Others (please specify)													

* Amount of raw material if possible in **m3 for biomass from forestry** and in **tonnes for biomass from agriculture and fishery and biomass from waste**

** The definition of this biomass category should be understood in line with table 7 of part 4.6.1 of Commission Decision C (2009) 5174 final establishing a template for National Renewable Energy Action Plans under Directive 2009/28/EC

Data: LEAP and BHAS (<http://atlasbm.bhas.gov.ba/>)

Table 4a. Current domestic agricultural land use for production of crops dedicated to energy production (ha)*

Land use	Surface (ha)	
	2019 Year n-1	2018 Year n-2
1. Land used for common arable crops (wheat, sugar beet etc.) and total industrial crops (rapeseed, sunflower etc.) (Please specify main types)	Common arable crops (wheat, other cereals, maize/corn): 311.237 ha Total industrial crops (rapeseed, sunflower etc.): 15.24 ha	Common arable crops (wheat, other cereals, maize/corn): 317.782 ha Total industrial crops (rapeseed, sunflower etc.): 15.457 ha
2. Land used for short rotation trees (willows, poplars). (Please specify main types)	Currently not separately assessed, existing plantation in public forests, but not yet quantified	Currently not separately assessed, existing plantation in public forests, but not yet quantified.
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum. (Please specify main types)	Currently not separately assessed. However, the only documentable usage of other energy crops, that are not biofuels for transport or short rotation plantations, would be the corn and grass silage being used in the two operating biogas plants (primarily operating on animal waste, 1x 999 kWel+ 1 x 36 kWel) in the RS since 2016. The land use for the consumed	Currently not separately assessed. However, the only documentable usage of other energy crops, that are not biofuels for transport or short rotation plantations, would be the corn and grass silage being used in the two operating biogas plants (primarily operating on animal waste, 1x 999 kWel+ 1 x 36 kWel) in the RS since 2016. The land use for the consumed corn and grass silage is estimated with less than 50 ha.

	corn and gras silage is estimated with less than 50 ha.	
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*Data from BHAS

7. Please provide information on any changes in commodity prices and land use within your Contracting Party in the preceding 2 years associated with increased use of biomass and other forms of energy from renewable sources? Please provide where available references to relevant documentation on these impacts in your country. (Article 22(1) h) of Directive 2009/28/EC).

No information.

8. Please describe the development and share of biofuels made from wastes, residues, non-food cellulosic material, and lingo cellulosic material. (Article 22(1) i) of Directive 2009/28/EC).

Table 5: Production and consumption of Art.21(2) biofuels (Ktoe)

Article 21(2) biofuels ²⁸	2019 Year n-1	2018 Year n-2
Production – Fuel type X (Please specify)	0	0
Consumption – Fuel type X (Please specify)	0	0
Total production Art.21.2.biofuels	0	0
Total consumption Art.21.2. biofuels	0	0
% share of 21.2. fuels from total RES-T	0	0

9. Please provide information on the estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality within your country in the preceding 2 years. Please provide information on how these impacts were assessed, with references to relevant documentation on these impacts within your country. (Article 22 (1) j) of Directive 2009/28/EC).

10. Please estimate the net greenhouse gas emission savings due to the use of energy from renewable sources (Article 22 (1) k) of Directive 2009/28/EC).

Table 6: Estimated GHG emission savings from the use of renewable energy (t CO2eq)

Environmental aspects	2019 Year n-1	2018 Year n-2
Total estimated net GHG emission saving from using renewable energy²⁹	4.998.888 ³⁰	4.999.919 ³¹
- Estimated net GHG saving from the use of renewable electricity	4.807.799	4.814.820
- Estimated net GHG saving from the use of renewable energy in heating and cooling	198108	185099

²⁸ Biofuels made from wastes, residues, non-food cellulosic material, and lignocellulosic material.

²⁹ The contribution of gas, electricity and hydrogen from renewable energy sources should be reported depending on the final use (electricity, heating and cooling or transport) and only be counted once towards the total estimated net GHG savings.

³⁰ Proportion was created compared to the RS report on emission reduction based on total RES production that is

³¹ Calculation made based on RES-based emission reductions of the RS proportionally based on 1735 and 1668 GWh from table 1.a

Data from LEAP. For the calculation of estimated GHG emissions, the following emission factors were used:

- Electricity - 0.8 t / MWh,
- Firewood - 0 t / MWh
- Coal - 0.34 t / MWh
- Gas - 0.2 t / MWh.

11. Please report on (for the preceding 2 years) and estimate (for the following years up to 2020) the excess/deficit production of energy from renewable sources compared to the indicative trajectory which could be transferred to/imported from other Contracting Parties, Member States and/or third countries, as well as estimated potential for joint projects until 2020. (Article 22 (1) l, m) of Directive 2009/28/EC).

It should be noted that the BHAS, still not published the total statistical energy balance for Bosnia and Herzegovina for the years 2018 and 2019. BHAS produced and published energy statistic for electricity and heat, for natural gas, oil petroleum products and coal for both 2018 and 2019. In addition Eurostat has published BiH energy balances for 2018 and 2019 that are, together with the Eurostat Shares tool used in preparation of this report.

However, it needs to be stressed out that there are slight differences between data from the EURStata energy balances for Bosnia and Herzegovina for 2018 a-2019 and Eusrtata Shares tools data, as well as differences between those data and data from the LEAP model that is in line with the published BHAS data for this period (2018-2019 data for the electricity and heat, for natural gas, oil petroleum products and coal).

These are slight differences in data for primary solid biofuels export, primary energy consumption in total, final energy consumption etc, and those differences are shown in Table in a brackets. It is needed that BHAS publish the energy statistic for period 2018-2019 so that we have a final data regarding achievement of the BiH RES target.

Analyzing the movement of energy share from the RES with respect to gross final consumption in the Republic of Srpska in recent years, it is evident that this indicator moves below the minimum path in relation to the RS Action Plan.

The delay in the realization of the planned targets of the RS Action Plan is caused by the slow implementation of planned major hydro power plants for which concession has been already granted (HPP Dabar, HPP Buk Bijela, HPP Mrsovo, HPP Ulog, HPP Bistrica, etc.), as well as insufficient regulation in the heating and cooling sector, and in the use of biofuels in transport.

A significant contribution is expected from the construction of wind farms, which are also not realized according to the planned dynamics (WP Hrgud, WP Trusina, for which the contract was terminated, and for WPP Grebak, the contract was concluded in April 2019).

From the technologies that are supported, the largest contribution was made by production from small hydro and solar power plants, while the contribution from biomass was significantly lower.

Table 7: Actual and estimated excess and/or deficit (-) production of renewable energy compared to the indicative trajectory which could be transferred to/from other Contracting Parties, Member States and/or third countries in Bosnia and Herzegovina (ktoe)^{32, 33}

	2018 Year n-2	2019 Year n-1	2020
Actual/estimated excess or deficit production (Please distinguish per type of renewable energy and per origin/destination of import/export)	-46,3 ktoe (+17,4 ktoe H&C, -39,6 ktoe electricity and -24,1 ktoe biofuels)	-123 ktoe (+27 ktoe H&C, -120 ktoe electricity and -30 ktoe biofuels)	-178 ktoe (+18,8 ktoe H&C, -156,9 ktoe electricity and -40,3 ktoe biofuels)

*Data from the Republic of Srpska only

11.1. Please provide details of statistical transfers, joint projects and joint support scheme decision rules.

So far no statistical transfers, joint projects or joint support scheme decision rules have been used.

12. Please provide information on how the share for biodegradable waste in waste used for producing energy has been estimated, and what steps have been taken to improve and verify such estimates. (Article 22(1)(n) of Directive 2009/28/EC).

No information.

³² Please use actual figures to report on the excess production in the two years preceding submission of the report, and estimates for the following years up 2020. In each report Contracting Party may correct the data of the previous reports.

³³ When filling in the table, for deficit production please mark the shortage of production using negative numbers (e.g. -x ktoe).