REPUBLIC OF SERBIA
Ministry of Mining and Energy

Progress Report on Implementation of the National Renewable Energy Action Plan of the Republic of Serbia

Belgrade, December 2014

LIST OF ABBREVIATIONS

GFEC	– Gross final energy consumption
GHG	– Greenhouse gases
EE	– Energy efficiency
EU	– European Union
EnC	– Energy Community
EC	– European Community
IPA	– Instrument for Pre-Accession Assistance of the European Union
ktoe	– Kilotonne of oil equivalent
Mtoe	– Million tonnes of oil equivalent
SHPP	– Small hydropower plants
NREAP	– National Renewable Energy Action Plan
RES	– Renewable energy sources
PPA	– Model power purchase agreement
TEEnC	– Treaty establishing the Energy Community

INTRODUCTION

Through adoption of the Law ratifying the Treaty establishing the Energy Community between the European Community and the Republic of Albania, Republic of Bulgaria, Bosnia and Herzegovina, Republic of Croatia, Former Yugoslav Republic of Macedonia, Republic of Montenegro, Romania, Republic of Serbia and United Nations Interim Administration Mission in Kosovo in line with United Nations Security Council resolution 1244 ("Official Gazette of the Republic of Serbia", Number 62/06), the Republic of Serbia became an Energy Community member in 2006.

Pursuant to the provision set forth in Article 20 of the Treaty establishing the Energy Community (hereinafter referred to as: TEEnC), the Republic of Serbia has undertaken to implement European directives in the field of renewable energy sources (hereinafter referred to as: RES) – Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources and Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport. As of 2009, the aforementioned Directives were gradually superseded and eventually repealed in January 2012 with the new Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC CELEX No. 32009L0028.

In line with the Directive 2009/28/EC and Energy Community Ministerial Council Decision of 18 October 2012 (D/2012/04/MC-EnC) a very demanding and binding goal of achieving a 27% share of renewable energy sources in gross final energy consumption in 2020, was set for the Republic of Serbia. The same Decision required preparation of the National Renewable Energy Action Plan of the Republic of Serbia in line with the approved template for preparation of this document (Decision 2009/548/EC) and its submission to the Energy Community Secretariat. The National Renewable Energy Action Plan was adopted by the Republic of Serbia in June 2013 ("Official Gazette of the Republic of Serbia", Number 53/13).

Pursuant to Article 52 of the Energy Law ("Official Gazette of the Republic of Serbia", No. 57/11, 80/11 – correction, 93/12 and 124/12), the Ministry in charge of activities in the energy sector shall monitor the National Action Plan implementation and submit an annual report on its implementation to the Government (hereinafter referred to as: Report). Moreover, in line with Article 15 of the Energy Community Ministerial Council Decision (D/2012/04/MC-EnC), TEEnC signatories shall provide the EnC Secretariat with a report on progress made in the promotion and utilization of energy from renewable sources every other year. The first report shall be submitted until 31 December 2014 and shall contain data for 2012 and 2013.

The report of the Republic of Serbia was made in line with the recommended template of the European Commission (which is adapted by the EnC Secretariat for TEEnC signatories), definitions and calculation rules set forth in the Directive 2009/28/EC and Regulation (EC) No. 1099/2008 of the European Parliament and of the Council.

Data shown in the Report was determined based on the amended 2014 Energy Balance of the Republic of Serbia, which was adopted by the Government on 14 November 2014 ("Official Gazette of the Republic of Serbia", 127/14). The floods that struck the Republic of Serbia in May 2014 have affected the stability of the power system operation, which led to revisions of the 2014 Energy Balance of the Republic of Serbia and its amendment. The 2014 Energy Balance shows the realized production and consumption for 2012, estimated data for 2013 and forecasts for 2014. The balancing of energy from renewable energy sources includes production and consumption of electricity from small and large watercourses, wind and solar energy, as well as the production and consumption of heat energy from geothermal energy and solid biomass (firewood, pellet and briquette). Geothermal energy utilization is tracked by the Statistical Office of the Republic of Serbia as part of its statistical research, and the figures on such utilization do not include geothermal energy utilization through the use of heat pumps. Geothermal energy is used solely for heating purposes.

The solid biomass production and consumption includes firewood, pellet and briquette production and consumption for energy purposes to meet the heating needs. The registered 2013 biodiesel imports amounted to 8371 t. This biofuel amount was included in the oil and petroleum products balance. Article 5, Paragraph 3 of the Directive 2009/28/EC stipulates that motor biofuels and other liquid biofuels that do not meet the sustainability criteria set forth in Article 17, Paragraphs 2, 3, 4, 5 and 6 of the Directive, shall not be taken into account while calculating the share of renewable energy sources. Having in mind that the by-laws defining sustainability criteria and their verification have still not been adopted, the aforementioned biofuel amount could not be shown for the purposes of meeting the RES goal in the transport sector.

In addition to the 2014 Energy Balance, the Register of Privileged Electricity Producers (http://www.mre.gov.rs/doc/registar28.11.html), maintained by the Ministry of Mining and Energy pursuant to Article 61 of the Energy Law, was also used as a data source for the Report preparation.

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years (2012 and 2013)
(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 sources

	2012	**2013**
RES-H&C (%)	23.32	21.86
RES-E (%)	38.36	37.81
RES-T (%)*	0	0
Overall RES share (%)	**20.27**	**19.10**
Of which from cooperation mechanism (%)	0	0
Surplus for cooperation mechanism (%)	0	0

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

	2012	**2013**
(A) Gross final consumption of RES for heating and cooling	1031	1034
(B) Gross final consumption of electricity from RES	880	880
(C) Gross final consumption of energy from RES in transport *	0	0
(D) Gross total RES consumption	1911	1914
(E) Transfer of RES to other Contracting Parties or Member States	0	0
(F) Transfer of RES from other Contracting Parties and 3rd countries	0	0
(G) RES consumption adjusted for target (D)-(E)+(F)	1911	1914

**It is not possible to show biofuel quantities found on the market as RES contribution to the transport sector, since there is no proof that sustainability criteria have been met. Such data may be shown in the reports only after all required by-laws in the biofuel field have been adopted.*

Calculation method for individual values given in Table 1 and Table 1a

Gross final energy consumption (GFEC) was calculated in line with Article 2 of the Directive 2009/28/EC as an overall final energy consumed for energy purposes in the industry, transport, households, public and commercial activities, agriculture, forestry and fisheries, including own consumption of electricity and heat energy in the sector of electricity and heat energy production, and losses in the transmission and distribution of electricity and heat energy.

Share of renewable energy sources in heating and cooling was calculated as the result of dividing the gross final consumption of energy from renewable sources in the heating and cooling sector (as defined in Article 5, Paragraph 1, Item b) and Article 5, Paragraph 4 of the Directive 2009/28/EC) by the gross final consumption of energy for heating and cooling.

The gross final consumption of energy from renewable sources for heating and cooling is calculated as the quantity of energy produced from renewable sources used in district heating and cooling systems, plus the quantity of energy from renewable sources used in industry,

households, public and commercial activities, agriculture, forestry and fisheries, for heating, cooling and processing purposes (Article 5, Item 4 of the Directive 2009/28/EC).

The share of renewable energy sources in electricity is calculated as the GFEC from renewable energy sources (as defined in Article 5, Paragraphs 1 and 3 of the Directive 2009/28/EC) divided by the gross final consumption of electricity.

Gross final consumption of electricity from renewable energy sources is calculated as the quantity of electricity produced from renewable energy sources, excluding the electricity production in pumped storage units (reversible power plants) (Article 5, Item 3 of the Directive 2009/28/EC).

The share of renewable energy sources in transport is calculated as the final energy from renewable sources consumed in transport (please see Article 5, Paragraph 1, Item (c) and Article 5, Paragraph 5 of the Directive 2009/28/EC) divided by the consumption in transport of: 1) oil; 2) diesel; 3) biofuel used in road and rail transport and 4) electricity used in land transport.

The GFEC from renewable sources is calculated as the sum of: gross final consumption of electricity from renewable energy sources, gross final consumption of energy from renewable sources for heating and cooling and gross final consumption of energy from renewable sources in transport.

Results achieved in terms of RES utilization increase and analysis of the shown data

From 2009, when the legal framework with incentive measures ("feed-in" tariffs) was established for the first time in the Republic of Serbia, until December 2014, the following new plants with the installed capacity of 45 MW were constructed for production of electricity from RES:

1) 45 small hydropower plants with the total installed capacity of around 33.5MW;
2) 72 solar power plants with the capacity of 6.7MW;
3) 1 wind power plant with the capacity of 0.5MW, while 5 wind power plants with the total capacity of 45MW have gained the temporary privileged producer status,
4) 5 biogas power plants with the total capacity of around 4.1MW.

Data source: Register of Privileged Electricity Producers (http://www.mre.gov.rs/doc/registar28.11.html).

The detailed overview of the newly built plants is given in the table below.

Overview of the planned (in line with NREAP) and constructed power plants in the RES field

Power plant type	Planned in line with NREAP [MW]	Current state, December 2014					
		Energy permits* [number and MW]		Temporary privileged producer status [number and MW]		Privileged producer status (constructed) [number and MW]	
HPP larger than 10 MW	250	2	106**	-	-	0	0
HPP up to 10 MW	188	23	74	-	-	45	33.5
Biomass	100	1	6.5	-	-	0	0
Biogas	30	1	3.5	-	-	5	4.8
Wind	500	6	52	5	45	1	0.5
Solar	10	2	12	40	3.3	72	6.7
Geothermal	1	0	0	-	-	0	0
Waste	3	0	0	-	-	0	0
Landfill gas	10	0	0	-	-	0	0

"-" data is not available

** Energy permits for facilities up to 10MW issued in January 2011 and later.*

*** Reconstruction of existing power plants*

Note: Energy facilities are constructed in line with the law regulating the requirements for and

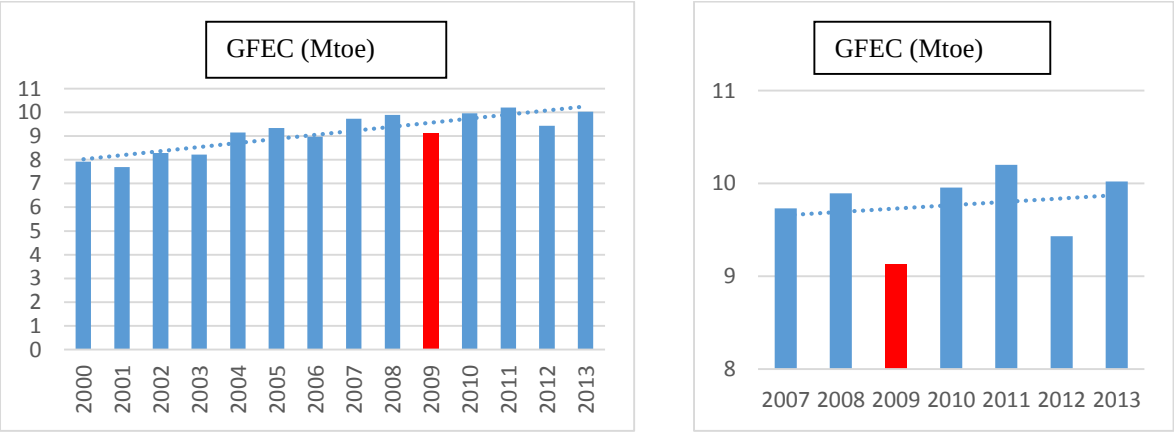
manner of spatial planning, construction land development and use and facility construction, in line with technical and other regulations, upon previously obtaining energy permit which is issued in line with the Energy Law. The energy permit is issued with the validity period of three years that may be extended for one additional year.

Moreover, during the stated period the existing hydropower plants with the capacity over 30 MW were reconstructed, those being HPP Bajina Bašta and HPP Đerdap 1. In this way, their installed capacity was increased – by 56 MW in HPP Bajina Bašta, and by 50 MW in HPP Đerdap 1. Performed reconstructions have additionally increased the total installed capacity of the hydropower plants, which led to an actual increase in the RES utilization by additional 106 MW in the Republic of Serbia.

However, by looking at data from Table 1, on page 5, one may conclude that instead of making the planned increase in the RES share, Serbia has year after year recorded a drop in the RES share. In addition, it may be concluded that RES shares in GFEC for both 2012 (20.27%) and 2013 (19.10%) have not reached the baseline share of 21.2% from 2009. However, as it may be assumed from previously shown achieved results, this is not due to the actual decrease in the RES utilization in Serbia, which has actually increased, but rather due to the fact that the gross final consumption of energy in Serbia is drastically changing owing to other macro energy disturbances, which directly affects the percentage RES share in the gross final consumption of energy. The energy consumption is considerably influenced by the operation of the steel plant in Smederevo, that is, by the import and consumption of coke and electricity used in the steel production process. When this steel plant is in operation, the gross final consumption of energy in Serbia increases by a few per cent, which directly affects the RES percentage decrease. For example, the gross final energy consumption was 9.150 Mtoe in 2009, 9.431 Mtoe in 2012, while for 2013 it is estimated at 10.021 Mtoe. For the other years, in the period from 2000 to 2013, the gross final energy consumption in Serbia, expressed in Mtoe, is shown in the table and diagram below.

The gross final energy consumption in Serbia, in the period from 2000 to 2013 (Mtoe)

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
7.9	7.7	8.3	8.2	9.1	9.3	9.0	9.7	9.9	9.1	10.0	10.2	9.4	10.0



The gross final energy consumption in Serbia, in the period from 2000 to 2013, and from 2007 to 2013 (Mtoe)

At the same time, it is important to stress the fact that the year 2009, which was chosen by the Energy Community as the base year for which the RES share in the gross final energy consumption was calculated for all Energy Community members, was not representative for

Serbia in terms of the energy statistics. The total final consumption of energy in that year, based on which the baseline value was calculated for the final binding target, was low due to the gas crisis that hit Serbia in that year. The 2009 gas crisis led to a reduction in natural gas imports by nearly 30% compared to 2008. Gas shortages led to higher biomass consumption in households, and therefore, the Study on the Biomass Consumption, which was done within the Energy Community for the needs of establishing the initial RES share in the baseline year 2009, showed a biomass consumption that was higher than regular. Based on two key figures, GFEC which was lower in 2009, and biomass consumption which was unrealistically high, a high share of RES utilization was also calculated in 2009 (21.2%), which, at a later date, also affected the highly demanding binding target for 2020. Such non-representative initial data led to lower RES shares in previous two years compared to the baseline year.

Based upon all of the foregoing, it may be concluded that Serbia has recorded a slight but permanent growth in terms of RES utilization, while data regarding the share decrease, which is shown in Table 1, is primarily the result of annual oscillations, the non-representative year that was chosen for determining the initial values of the RES share in the energy balance, as well as macro energy disturbances that affect the gross final energy consumption in Serbia.

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

	2012		**2013**	
	MW	**GWh**	**MW**	**GWh**
Hydro*:	2865.8	10227	2869.6	10208
non pumped	2251.8	9279	2255.6	9983
<1MW	14.8	-	18.6	-
1MW–10 MW	29	-	29	-
>10MW	2208	-	2208	-
pumped	614	635	614	869
mixed	-	-	-	-
Geothermal	-	-	-	-
Solar:	0.270	0.081	2.450	0.347
photovoltaic	0.270	0.081	2.450	0.347
concentrated solar power	0	0	0	0
Tide, wave, ocean	-	-	-	-
Wind:	0.500	0.207	0.500	0.659
onshore	0.500	0.207	0.500	0.659
offshore	-	-	-	-
Biomass:	4.326	6.335	4.826	21.880
solid biomass	-	-	-	-
biogas	4.326	6.335	4.826	21.880
bioliquids	-		-	
TOTAL:	2888.096	10233.889	2890.776	10230.576
of which in CHP	-	-	-	-

"-" data is not available

** The production from hydropower plants is normalised in accordance with the rule set forth in Annex II to Directive 2009/28/EC*

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

	2012 (ktoe)	**2013 (ktoe)**
Geothermal (excluding low temperature geothermal heat in heat pump applications)	6	6
Solar	-	-
Biomass	1025	1028
solid biomass	1025	1028
biogas	-	-
bioliquids	-	-
Renewable energy from heat pumps: - of which aerothermal - of which geothermal - of which hydrothermal	-	-
TOTAL	1031	1034
Of which DH	2	2
Of which biomass in households	944	947

"-" data is not available

NOTE: The solid biomass production and consumption includes firewood, pellet and briquette production and consumption for energy purposes (to meet the heating needs). As part of the activities of the Energy Community in the field of renewable energy sources, and for the purpose of defining the targets, a biomass consumption study was conducted for all TEEnC signatories. This study has established the biomass production and consumption for 2009 and 2010. While preparing the new energy development strategy of the Republic of Serbia, based on these data, the Energy Balance forecasts have been made until 2030. These forecasts were used as the source for data on solid biomass production and consumption for 2012 and 2013.

Table 1d*:* Total actual contribution from each renewable energy technology to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in the transport sector (ktoe)

	2012	**2013**
Bioethanol/ bio-ETBE [ktoe]	-	-
Of which Biofuels (Article 21.2)	-	-
Of which imported [%]	-	-
Biodiesel [ktoe]	-	-
Of which Biofuels (Article 21.2)	-	-
Of which imported [%]	-	-
Hydrogen from renewables [ktoe]	-	-
Renewable electricity [ktoe]	-	-
Of which road transport [ktoe]	-	-
Of which non-road transport [ktoe]	-	-
Others (as biogas, vegetable oils, etc.) – please specify [ktoe]	-	-
Of which Biofuels (Article 21.2)	-	-
TOTAL [ktoe]	-	-

"-" data is not available

NOTE: Reliable data in the transport sector is not available. Studies on consumption, the results of which will be used as basis for the future energy balance, are foreseen as part of the implementation of the project "Norwegian Assistance to Serbia". The project results are expected to enable data availability in this field for the purposes of future reporting.

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 the 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 of the measure	Type of measure	Expected result	Targeted group and or activity	Existing or planned	Start and end dates of the measure
1. Measure "Promotion of Electricity Production through Incentive Purchase Prices" Energy Law ("Official Gazette of the Republic of Serbia", No. 57/11, 80/11 – correction, 93/12 and 124/12)	financial regulatory	increase in the production of electricity from RES	energy entities	existing	2009
Measure implementation mechanisms					
1.1 Regulation on Incentive Measures for Privileged Electricity Producers ("Official Gazette of the Republic of Serbia", No. 8/13)					2013–31 December 2015
1.2 Regulation on Conditions and Procedure for Acquiring the Status of the Privileged Electricity Producer ("Official Gazette of the Republic of Serbia", No. 8/13 and 70/14)					2013–31 December 2015
1.3. Regulation on the Method of Calculation and Allocation of Funds Collected for the Purpose of Incentive Remunerations for Privileged Electricity Producers ("Official Gazette of the Republic of Serbia", No. 8/13)					2013–31 December 2015
1.4. Regulation on the Amount of Special Incentive Remunerations in 2013 ("Official Gazette of the Republic of Serbia", No. 8/13)					2013, 2014, 2015
1.5 Rulebook on Determining Standard Model Power Purchase Agreements and Preliminary Power Purchase Agreements ("Official Gazette of the Republic of Serbia", No. 62/13, 10/14)					2013
2. Measure "Guarantee of Origin of Electricity Produced from Renewable Energy Sources" Energy Law ("Official Gazette of the Republic of Serbia", No. 57/11, 80/11 – correction, 93/12 and 124/12)	financial regulatory	increase in the production of electricity from RES	energy entities	existing	2014
Measure implementation mechanisms					

2.1 Rulebook on Guarantees of Origin of Electricity Produced from Renewable Energy Sources ("Official Gazette of the Republic of Serbia", No. 24/14)					
3. Measure "Promotion of Biofuel Production and Consumption" Energy Law ("Official Gazette of the Republic of Serbia", No. 57/11, 80/11 – correction, 93/12 and 124/12)	regulatory financial	increase in biofuel production and consumption	energy entities	planned	2015
Measure implementation mechanisms					
3.1 Rulebook on Technical and Other Requirements for Liquid Fuels of Biological Origin					
3.2 Regulation on Sustainability Criteria for Biofuels					
3.3 Regulation on the Mandatory Marketing of a Certain Percentage of Biofuels					
3.4 Regulation on Incentive Measures for Biofuel Production					
4. Measure "Improvement of the Ministry of Mining and Energy Website" URL: http://www.mre.gov.rs/energetska-efikasnost-obnovljivi-izvori.php	soft informative	to increase information availability; to clarify administrative procedures in the RES field; to increase transparency in the Ministry's work;	energy entities, natural persons	existing	2014

THE PROJECTS OF THE MINISTRY OF MINING AND ENERGY THAT CONTRIBUTE TO HIGHER RES UTILIZATION, GFEC REDUCTION AND PROMOTION OF ENERGY STATISTICS IN THE RES FIELD

Projects financed through IPA 2012 EU Instrument for Pre-Accession Assistance

Preparation of the Second Energy Efficiency Action Plan and Development of Energy Indicators

The implementation of the IPA 2012 project entitled "Preparation of the Second Energy Efficiency Action Plan and Development of Energy Indicators" was commenced in January 2014. The project lasts for 18 months and includes the following two components:

Component A, referring to the study on final consumption of energy by consumption sectors (industry, transport, public and commercial activities, households and agriculture) and development of energy indicators, and

Component B, referring to the preparation of the second Energy Efficiency Action Plan.

Updating of the Register of Small Hydropower Plants

This program envisages a Service Agreement for the project Updating of the Register of Small Hydropower Plants, with the value of 1.5 million euros. The project will start in 2015 and its completion is planned for 2017 when the updated SHPP Register is expected to be completed. Its development will facilitate the implementation of projects relating to SHPP construction through streamlined search for potential locations and systematized presentation of main parameters.

Cooperation between the Republic of Serbia and the Federal Republic of Germany in the energy sector

This cooperation primarily involves the financial form of cooperation between the Federal Republic of Germany and the Republic of Serbia that is being implemented through appropriate projects in the fields of energy efficiency, renewable energy sources and district heating. The main partners of the Republic of Serbia are the Federal Ministry for Economic Cooperation and Development of the Federal Republic of Germany (in German: Bundesministerium für Wirtschaftliche Zusammenarbeit - BMZ), the German Development Bank (in German: Kreditanstalt für Wiederaufbau - KfW) and the German Agency for International Cooperation (in German: Deutsche Gesellschaft für Internationale Zusammenarbeit - GIZ), as part of the German Climate and Technology Initiative (in German: Deutsche Klima-und Technologieinitiative - DKTI).

Project: "Promotion of Renewable Energy Sources Utilization – Biomass Market Development"

The aim of the project is the biomass utilization in heating plants in the Republic of Serbia for the production of heat energy or combined heat and power production. The Project budget amounts to around €110 million. In early December 2012, the Ministry of Mining and Energy and KfW signed the Agreement on Donation for Consultancy Services worth €300,000; such services will include the preparation of the pre-feasibility study for selected heating plants. The feasibility studies were completed in April 2014 and in line with their results local self-government units in the south-western part of Serbia were invited to take part in the implementation of projects related to utilization of forest biomass for production of heat energy in local heating plants.

The Wind Atlas of the Balkans

The Ministry of Mining and Energy was presented with the Wind Atlas of the Balkans that was financed by KfW. The Atlas is based on available geographic data, years-long meteorological measurements, local data on wind energy parameters, as well as on other significant information required for assessing the potential of this renewable energy source as precisely as possible. The Atlas is a complex software structure which features different possibilities of wind quality analysis for energy purposes. Its use can considerably shorten the time needed for selection of favourable locations for wind park construction and facilitate the assessment of wind potential of certain areas in our country.

Cooperation with Norway in the field of local energy planning

As part of the implementation of the project "Norwegian Assistance to Serbia" in the field of local energy planning, the programmed database for data collection by the municipalities was also defined in line with the terms of reference. In addition, the municipalities for which local energy development plans will be prepared were selected. The results of the project are as follows: *Instructions for preparation of local development plans in the energy field*, which were delivered to mayors – municipality presidents in late 2013,

software for the purposes of data collection by municipalities, and four local development plans in the energy field.

Cooperation with the United Nations Development Programme – UNDP

Project: "Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia"

The Ministry of Mining and Energy and the United Nations Development Programme (UNDP), together with the Ministry of Agriculture and Environmental Protection, are implementing the project: *"Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia"*. The project funds are provided by the Global Environment Facility ($2.85 million) and the UNDP ($0.31 million). The overall objective of the project is the sustainable energy utilization through diversification of energy sources and development of the biomass market for consumption for energy purposes in Serbia. The project funds shall be used to provide grants to investors for construction of plants (~1MWel) for combined heat and power (CHP) production from biomass. The total amount of funds available for grants for this purpose is $1.6 million. The grants will be provided based on a public call for tender for interested investors, which will be announced by the Ministry of Mining and Energy together with the UNDP in 2015.

2.a 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)*

In 2013, the existing by-laws were updated and new by-laws were enacted to make the environment for investments in the RES field even more attractive.

Through adoption of the Rulebooks defining the standard model power purchase agreements and preliminary power purchase agreements (PPA), a very high level of guaranteed rights was created for investors in the renewable energy sources field, thereby reducing the investment risk to a minimum. The most important rights guaranteed for investors under the applicable PPA models are as follows:

1) The rights which are guaranteed for investors under the Model Preliminary Power Purchase Agreement for purchase of power from the power plants with the installed capacity of up to 5 MW and over 5 MW:

(1) the right of the investor to choose between the set of incentive measures and model purchase agreements that are valid on the day when the temporary status was acquired, and the set of incentive measures and model power purchase agreements that are valid on the day when the privileged producer status was acquired;

(2) the guarantee of the electricity purchase price valid at the moment of acquiring the temporary privileged electricity producer status, or the guarantee of the electricity subsidized price valid prior to power plant construction;

(3) the right of the investor to conclude a power purchase agreement if it acquires the privileged electricity producer status within the legally required time period;

(4) the right of the investor to terminate the agreement at any time without facing any financial consequences.

2) The rights which are guaranteed for investors under the Model Power Purchase Agreement for purchase of power from the power plants with the installed capacity of up to 5 MW and the Model Power Purchase Agreement for purchase of power from the power plants with the installed capacity of over 5 MW:

(1) the investor has the right to bear no balancing costs during the period covered by incentive measures;

(2) the investor is given the guarantee that it will belong to the balance group of the public supplier;

(3) the guaranteed purchase price in euro cents is established;
(4) the payment guarantee by means of a bill of exchange or the bank guarantee payable upon the first demand (the amount of the bank guarantee shall cover the value of a three-month production of the respective power plant) are provided for;
(5) in case of force majeure (in addition to natural and political risks, the force majeure shall also include the failure of the system operator to take over the electricity) the term of the agreement shall be extended by the period of force majeure;
(6) the right to the purchase price may be transferred to another person;
(7) the right to pledge purchase prices;
(8) the possibility of having the foreign arbitration stipulated in the agreement is provided for;
(9) the investor has the right to terminate the agreement at any time without facing any financial consequences.

3) The rights which are guaranteed for investors under the Model Power Purchase Agreement for purchase of power from the power plants with the installed capacity of over 50 MW:
(1) aforementioned rights which are set forth under Model Agreements for power plants with the installed capacity of up to 5 MW and over 5 MW;
(2) the amount of the bank guarantee was raised to the value of the annual electricity production of the respective power plant;
(3) mathematical formulas, which will be used as basis for adjusting the electricity purchase price to account for inflation effects, were included in the agreement;
(4) the investor was given the opportunity to choose domestic or foreign arbitration in case of disputes.

New legal regulations in the RES field in 2014

The Law Amending the Planning and Construction Law

The umbrella law for construction of energy facilities using RES is the Planning and Construction Law, the amendment of which was adopted on 29th December 2014 ("Official Gazette of the Republic of Serbia", No.145/14)

The Law Amendment will bring a number of specific responsibilities for administrative authorities, among which the most important for future investors in the renewable energy sources field are the following:

1) the procedure of obtaining required documents for construction is conducted as a single procedure, at one place, from issuance of location requirements to issuance of the operating permit;
2) as part of the procedure, the investor shall submit only the evidence that the competent authority cannot obtain ex officio;
3) the operating permit shall be issued within 5 days and delivered to the investor and the competent building inspector;
4) increased level of responsibility for all participants in the procedure;
5) establishment of the register of investors, which contains data on natural persons and legal entities as the investors and will be available both at the municipality seat and online in electronic format;
6) requirement to publish all planning documents in electronic format and their online availability;
7) establishment of a local information system between local self-government units and the relevant ministry, which will make all permits and plans available in electronic format, together with the requirement to make this system available online.

The new and amended provisions of the amended Planning and Construction Law are expected to considerably facilitate procedures for obtaining required permits and consents for energy facility construction.

The new Energy Law

The Energy Law regulates acquiring of rights to engage in electricity and/or heat energy production.

The new Energy Law was adopted on 29th December 2014 ("Official Gazette of the Republic of Serbia", No.145/14), and it provides for the following benefits for investors who are planning to use RES:

1) all producers who are using renewable energy sources may acquire a temporary status and thereby increase the bankability of their projects;
2) in addition to the temporary status and the privileged electricity producer status, the renewable source producer status is also being introduced, which creates a precondition for all electricity producers, who are using renewable sources, to obtain guarantees of origin;
3) instead of the former 3 agreements, one model agreement on the purchase of electricity under a suspensive condition has been introduced. The investor who is planning to use renewable energy sources for the electricity production will have, prior to construction commencement, all requirements and incentive measures specified in the trial operation phase, and after the acquiring of the privileged producer status;
4) the privileged producer status, the temporary privileged producer status, and the renewable source producer status may also be acquired by a natural person who produces electricity from renewable sources only for one power plant with the installed capacity of up to 30 kW;
5) at the request of the electricity producer, the distribution system operator must issue an authorization allowing the producer to construct the connection to the system at its own expense on behalf of the system operator. In such a case, the producer shall have the costs of connecting to the system reduced in line with the methodology for determining costs of connecting to the transmission and distribution system;
6) the investors who are constructing power plants from RES with the installed capacity of up to 100 kW are no longer obliged to obtain the financial security instrument while acquiring the temporary status.

2.b 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(1) f) of Directive 2009/28/EC)*

Connection to the electric power grid, or transmission and distribution system, is regulated by the Energy Law.

Article 70 of the Energy Law and the Regulation on Incentive Measures for Privileged Electricity Producers guarantee the purchase of the total amount of energy produced in plants using renewable energy sources, which meets the requirement set forth in Article 16 of Directive 2009/28/EC regarding the guaranteed or priority access to the grid-system of electricity produced from renewable energy sources.

The requirement of a minimum curtailment related to the takeover of energy from renewable energy sources is set forth in Article 162 of the Energy Law, which stipulates that the privileged electricity producers shall have priority access in the takeover of electricity by the transmission or distribution system, except for instances where the system safety is jeopardized.

The requirement of the transparent, objective and non-discriminatory showing of costs related to access to the grid is set forth in Article 176 of the Energy Law. Consent to the operating rules of the distribution and transmission system is given by the Energy Agency.

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

Table 3: Support schemes for renewable energy

RES support schemes, year n (e.g. 2014)			**Per unit support**	**Total (M€)***
Hydropower plants				
Guaranteed purchase of electricity from privileged producers – Feed-in tariff	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (€/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (€/unit)			
	Production incentives			
		Feed-in tariff	7.38-12.40c€/kWh	0.909
		Feed-in premiums		
		Tendering		
Solar power plants				
Guaranteed purchase of electricity from privileged producers – Feed-in tariff	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (€/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (€/unit)			
	Production incentives			
		Feed-in tariff	16.5-23 c€/kWh	0.450
		Feed-in premiums		
		Tendering		
Wind power plants				
Guaranteed purchase of electricity from privileged producers – Feed-in tariff	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (€/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (€/unit)			
	Production incentives		9.5 c€/kWh	0.004
		Feed-in tariff		
		Feed-in premiums		
		Tendering		
Biogas power plants				
Guaranteed purchase of electricity from privileged producers – Feed-in tariff	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (€/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (€/unit)		12.31-16.0 c€/kWh	0.176
	Production incentives			
		Feed-in tariff		

		Feed-in premiums		
		Tendering		
Biomass power plants				
Guaranteed purchase of electricity from privileged producers – Feed-in tariff	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (€/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (€/unit)			
	Production incentives			
		Feed-in tariff	8.22-13.26 c€/kWh	0
		Feed-in premiums		
		Tendering		
Landfill gas power plants and sewage gas power plants				
Guaranteed purchase of electricity from privileged producers – Feed-in tariff	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (€/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (€/unit)			
	Production incentives			
		Feed-in tariff	6.91 c€/kWh	0
		Feed-in premiums		
		Tendering		
Geothermal power plants				
Guaranteed purchase of electricity from privileged producers – Feed-in tariff	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (€/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (€/unit)			
	Production incentives			
		Feed-in tariff	6.92-9.67 c€/kWh	0
		Feed-in premiums		
		Tendering		
Waste fired power plants				
Guaranteed purchase of electricity from privileged producers – Feed-in tariff	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (€/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (€/unit)			
	Production incentives			
		Feed-in tariff	8.57 c€/kWh	0
		Feed-in premiums		
		Tendering		
Total annual estimated support in the electricity sector				1.136
Total annual estimated support in the heating sector				
Total annual estimated support in the transport sector				

**Data source: Notification of the public supplier Pivredno društvo EPS Snabdevanje [Company Electric Power Industry of Serbia – Supply] regarding the total money amount invoiced to consumers serviced by the public supplier, excluding the transmission and distribution costs, for the period from October 2013 to September 2014, pursuant to Article 6 of the Regulation on the Method of Calculation and Allocation of Incentive Remunerations for Privileged Electricity Producers.*

3.1. 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)*

Together with the delivered invoice for the supplied electricity or in another appropriate manner, the supplier and the public supplier of electricity are obliged to provide the customer with information on the share of each energy source in the total amount of electricity sold by such supplier in the previous year, as well as on the measures and manner, or effects of activities taken to increase the energy efficiency and protect the environment for production facilities from which the electricity was supplied (Article 196 of the Energy Law).

4. 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)*

Currently there are no support schemes that would include additional benefits.

5. 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)*

The Energy Law stipulates that the guarantee of origin is a document with the sole purpose to prove to the final customer that the given share or quantity of energy was produced from renewable energy sources, as well as from the combined heat and power production with the high degree of primary energy utilization. Articles 82, 83, 84, 85, 86 and 87 of the Energy Law have established the legal basis for enactment of the rulebook on the contents of the guarantee of origin, the procedure regarding the issuance, transfer and termination of validity of the guarantee of origin, manner of the register maintenance, as well as on the manner of submitting data on generated electricity. In January 2014, the Rulebook on Guarantee of Origin of Electricity Produced from Renewable Energy Sources ("Official Gazette of the Republic of Serbia", No. 24/14) was enacted.

This Rulebook specifies the contents of the guarantee of origin of electricity produced from renewable energy sources, the procedure of issuance of guarantees, transfer and termination of validity of guarantees, manner of maintaining the register of issued guarantees of origin, as well as the manner of submitting data on generated electricity measured at the point of delivery to the transmission, or to the distribution system. The application of the system of guarantees of origin will start once the Transmission System Operator has provided technical conditions for maintenance of the register of guarantees of origin.

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

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)	
	2012	**2013**	**2012**	**2013**	**2012**	**2013**	**2012**	**2013**	**2012**	**2013**	**2012**	**2013**
Biomass supply for heating and electricity:												
Direct supply of wood biomass from forests and other wooded land energy generation (fellings etc.) *	-	-	-	-	-	-	-	-	-	-	-	-
Indirect supply of wood biomass (residues and co-products from wood industry etc.)	-	-	-	-	-	-	-	-	-	-	-	-
Energy crops (grasses, etc.) and short rotation trees	-	-	-	-	-	-	-	-	-	-	-	-
Agricultural by-products / processed residues and fishery by-products	-	-	-	-	-	-	-	-	-	-	-	-
Biomass from waste (municipal, industrial etc.)	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-
Biomass supply for transport:												
Common arable crops for biofuels	-	-	-	-	-	-	-	-	-	-	-	-
Energy crops (grasses,etc.) and short rotation trees for biofuels	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-

"-" data is not available

** Amount of raw material in m^3 for biomass from forestry and in tonnes for biomass from agriculture and fishery and biomass from waste*

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

Land use	Surface (ha)	Surface (ha)
	2012	2013
1. Land used for common arable crops (wheat, sugar beet etc.) and oil seeds (rapeseed, sunflower etc.)	-	-
2. Land used for short rotation trees (willows, poplars)	-	-
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum	-	-

"-" data is not available

NOTE: The use of energy crops and short rotation trees is still in the experimental phase in the Republic of Serbia, and the required data is not currently available. The Agreement for the implementation of the project "Development of the Market of Biomass Used for Energy Purposes" is currently being prepared. The project was approved by the BMZ and planned to be implemented via cooperation between Serbia and Germany, through joint participation by KfW and GIZ, as part of the DKTI. Based on the onsite primary survey, one of the results of this project will provide statistical data required for completion of Tables 4 and 4a in future reports.

7. Information on any changes in commodity prices and land use in the preceding 2 years associated with increased use of biomass and other forms of energy from renewable sources (*Article 22 (1) h) of Directive 2009/28/EC)*

Currently, there is no data available. As part of the IPA 2 program the required data should be the result of a detailed study on financial aspects of the NREAP implementation and application of Directive 2009/28/EC.

8. 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)*

There is currently no statistically processed data. There are known examples of individual production for own needs (mainly from waste oils), with negligibly small quantities.

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

Article 21(2) biofuels	2012	2013
Production – Fuel type	-	-
Consumption – Fuel type	-	-
Total production Art.21.2.biofuels	-	-
Total consumption Art.21.2. biofuels	-	-
% share of 21.2. fuels from total RES-T	-	-

"-" data is not available

***9.* Information on the estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality in the preceding 2 years** *(Article 22 (1) j) of Directive 2009/28/EC)*

There is currently no information on estimated impacts of the production of biofuels. The NREAP provides for a possibility of biofuel imports by the Republic of Serbia in case its own production capacities are not sufficient.

10. Estimated 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	2012	2013
Total estimated net GHG emission saving from using renewable energy	**8,088,986**	**8,101,684**
Estimated net GHG saving from the use of renewable electricity	3,724,912	4,376,772
Estimated net GHG saving from the use of renewable energy in heating and cooling	4,364,073	3,724,912
Estimated net GHG saving from the use of renewable energy in transport	-	-

"-" data is not available

11. The excess/deficit production of energy from renewable sources compared to the indicative trajectory which could be transferred to/exported to 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)*

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 (ktoe)

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Actual/estimated excess or deficit production	0	0	-	-	-	-	-	-	-

"-" data is not available

11.1. Statistical transfers, joint projects and joint support scheme decision rules

The National Action Plan was adopted on 4 June 2013 and delivered to the EnC Secretariat together with the updated Document on Planned Cooperation Mechanisms (*Forecast document*) which, among other things, shows the estimated potential for joint projects with the EU member countries.

In October 2011, an agreement regarding the implementation of joint projects in the RES field was signed between the Ministry of Infrastructure and Energy of the Republic of Serbia (on behalf of the Government of the Republic of Serbia) and the Ministry of Economic Development of the Italian Republic (on behalf of the Government of the Italian Republic). The Agreement on Cooperation between the Government of the Republic of Serbia and the the Government of the Italian Republic in the field of energy underwent the ratification process at the National Assembly of the Republic of Serbia in December 2012. The President of the Council of Ministers of the Italian Republic is expected to sign the Decree in the forthcoming period, which will fully complete the ratification process of both parties. In this way the

preconditions required for the commencement of implementation of the Agreement and projects provided for in its Annex will be met. Construction of small hydropower plants in Serbia and "green" energy exports to Italy are envisaged by the Agreement.

12. The manner of estimating the share for biodegradable waste in waste used for producing energy, and steps taken to improve and verify such estimates *(Article 22(1)(n) of Directive 2009/28/EC)*

Based on data on the total quantity of municipal waste generated annually and the share of biodegradable fractions in such waste, the value of the biodegradable quantity of the municipal solid waste was estimated for the purpose of drafting the energy development strategy. Precise estimate regarding the use of this waste for energy purposes could not be made due to dispersion of such waste and difficulties in terms of collecting and separating appropriate fractions. One of the results of the project "Development of the Market of Biomass Used for Energy Purposes", which is currently being prepared, should provide data required for better estimates of these data.

CONCLUSION:

1) Serbia has recorded a slight but permanent growth in terms of RES utilization;

2) Data regarding the share decrease, which is shown in Table 1, is primarily the result of annual oscillations, the non-representative year that was chosen for determining the initial values of the RES share, and macro energy disturbances that affect the gross final energy consumption in Serbia;

3) A very attractive legal framework has led to an increase in the number of projects in the RES field, but the pace at which projects are implemented is not as planned;

4) Unrealistically demanding obligation assumed in relation to biofuel use introduction, alongside short time frames for establishing legal regulations, systems for control and verification of biofuel origin and quality, as well as the lack of industrial capacities for production of the second generation biofuels, have led to a deviation from the planned schedule regarding the use of this RES type in Serbia. Therefore, it seems likely that the schedule in terms of biofuel use will be met at a somewhat slower pace than planned under the Action Plan over the coming years as well;

5) Additional efforts should be made to meet the targets within the required time frame;

6) Catastrophic floods that hit Serbia and its power supply system will bring additional challenges to Directive 2009/28/EC implementation and plans in the field of renewable energy sources.