

Explanation:

We attach Progress Report for Slovenia under Directive 2009/28/EC on the promotion of RES for the 2015–2016 period.

Under Directive 2009/28/EC on the promotion of RES, the Member States must report on their progress in the implementation of the provisions of the Directive every two years. The last report was sent for the 2013–2014 period (attached for information). The Report was prepared in cooperation with the Statistical Office of the Republic of Slovenia and the Jožef Stefan Institute.

The novelties presented in this Report are primarily statistical facts concerning the achievement of goals and the revision of the measures carried out by Slovenia in order to promote RES.

A novelty concerning this Report is also the reporting method, as the European Commission prepared a portal (ERMAT) where reports are entered by point.

The Report must be submitted by 31 December 2017.

For any further information, I am available at internal No 7456.

Yours sincerely,
Andreja Belavić Benedik
Energy Directorate, 22 December 2017

On 4 January 2018 a meeting was held at the Jožef Stefan Institute with the Statistical Office of the Republic of Slovenia regarding the method of calculating the RES shares.

The Statistical Office of the Republic of Slovenia stated that the Report (attached hereto) for the 2015–2016 period took into account everything that can be taken into account, i.e. all of the data available. In the next report, we will be able to also take into account electricity used in transport and improvements in electricity on buildings.

The basic condition is that energy consumption should not increase over the years.

I ask for your signature, as we are already late.

Yours sincerely, (signature)

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Progress reports for Slovenia under Directive 2009/28/EC

2017

Ljubljana, 22 December 2017

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding two years (n-1; n-2, e.g. 2013 and 2014) (Article 22(1)(a) of Directive

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

	2015	2016
RES – H and C ² (%)	33.93 %	34.01 %
RES – E ³ (%)	32.73 %	32.06 %
RES – P ⁴ (%)	2.24 %	1.60 %
Overall RES share ⁵ (%)	21.89 %	21.29 %
<i>Of which from cooperation mechanism⁶ (%)</i>		
<i>Surplus for cooperation mechanism⁷ (%)</i>		

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

	2015	2016
(A) Gross final consumption of RES for heating and cooling	623.3	647.7
(B) Gross final consumption of electricity from RES	411.3	409.9
(C) Gross final consumption of electricity from RES in transport	33.4	23.0
(D) Gross total RES consumption ⁹	1 068.0	1 080.7
(E) Transfer of RES to other Member States	0.0	0.0
(F) Transfer of RES from other Member States and third countries	0.0	0.0
(G) RES consumption adjusted for target (D)-(E)+(F)	1 068.0	1 080.7

¹ Facilitates comparison with Table 3 and Table 4a of the National Renewable Energy Action Plans (NREAPs).

² Share of renewable energy in heating and cooling (H and C): gross final consumption of energy from renewable sources for heating and cooling (as defined in Articles 5(1)(b) 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 the NREAP applies.

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

⁴ Share of renewable energy in transport (T): final energy from renewable sources consumed in transport (cf. Article 5(1)(c) and 5(5) of Directive 2009/28/EC) divided by the consumption of 1) petrol; 2) diesel in transport; 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 the NREAP applies.

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

⁶ In percentage points of overall RES share.

⁷ In percentage points of overall RES share.

⁸ Facilitates comparison with Table 4a of the NREAP.

⁹ According to Article 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 Slovenia to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity¹⁰

	2015		2016	
	MW	GWh	MW	GWh
Hydro: ¹¹	1 295.0	4 289.6	1 293.0	4 271.3
non-pumped	1 115.0	4 300.4	1 113.0	4 280.9
<1 MW	119.0	208.3	118.0	208.5
1 MW–10 MW	38.0	174.8	37.0	171.9
>10 MW	958.0	3 917.2	958.0	3 900.5
pumped	180.0		180.0	
mixed ¹²	0.0	0.0	0.0	0.0
Geothermal	0.0	0.0	0.0	0.0
Solar:	238.0	274.2	233.0	267.5
photovoltaic	238.0	274.2	233.0	267.5
concentrated solar power	0.0	0.0	0.0	0.0
Tide, wave, ocean	0.0	0.0	0.0	0.0
Wind:	5.0	6.0	5.0	6.5
onshore				
offshore				
Biomass: ¹³	63.0	263.6	60.0	278.7
solid biomass	30.0	131.3	30.0	136.6
biogas	32.0	132.3	29.0	142.1
bioliquids	1.0	0.0	1.0	0.0
TOTAL	1 601.0	4 833.4	1 591.0	4 823.9
of which through the cogeneration of heat and power		264.5		279.5

¹⁰ Facilitates comparison with Table 10a of the National Renewable Energy Action Plans.

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

¹² In accordance with the new Eurostat methodology.

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

Table 1.c: Total actual contribution (final energy consumption¹⁴) from each renewable energy technology in Slovenia 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

	2015	2016
Geothermal (excluding low temperature geothermal heat in heat pump applications)	38.5	43.9
Solar	10.9	10.9
Biomass: ¹⁶	574.0	592.9
<i>solid biomass</i>	564.8	584.6
<i>biogas</i>	9.1	8.2
<i>bioliquids</i>	0.0	0.0
Renewable energy from heat pumps: - of which aerothermal - of which geothermal - of which hydrothermal	0.0	0.0
TOTAL	623.3	647.7
<i>Of which DH¹⁷</i>		
<i>Of which biomass in households¹⁸</i>	463.3	483.4

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 National Renewable Energy Action Plans.

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

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

¹⁸ In total renewable heating and cooling consumption.

Table 1d: Total actual contribution from each renewable energy technology in Slovenia 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}

	2015	2016
Bioethanol/bio-ETBE	5.9	3.8
<i>Of which biofuels²¹ Article 21(2)</i>	5.9	3.8
<i>Of which imported²²</i>	5.9	3.8
Biodiesel	23.2	14.4
<i>Of which biofuels²³ Article 21(2)</i>	23.2	14.4
<i>Of which imported²⁴</i>	23.2	14.4
Hydrogen from renewable sources		
Renewable electricity	4.3	4.8
<i>Of which road transport</i>		
<i>Of which non-road transport</i>	4.3	4.8
Others (e.g. biogas, vegetable oils, etc.) – specify		
<i>Of which biofuels²⁵ Article 21(2)</i>		
TOTAL	33.4	23.0

Slovenia has no oil refineries. It imports all liquid fuels, both for transport and heating. The liquid fuels for transport that Slovenia imports frequently contain a small proportion of biofuel.

2. Measures taken in the preceding two years and/or planned at national level to promote increased use 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/ES)

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
<i>Promotion of self-supply of electricity from RES</i>	Regulation; non-repayable investment financial support	Increase in the generation of electricity from RES by constructing new units in the scope of up to 20 MW of installed power	Households and small business consumers Financial incentives for households	The measure is supplementary with regard to the NREAP	The measure was adopted at the end of 2015, with implementation beginning in 2016. The funding only in 2017 and

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

²⁰ Facilitates comparison with Table 12 of the NREAP.

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.

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
		Annually			for now only planned until 2020; otherwise, the end date of the measure is not defined.
Support to electricity generated from renewable energy sources	Regulation; financial incentives in the form of guaranteed purchase or operating support within the support scheme	In 2020, 1 913 GWh more electricity generated from RES than in 2005	Electricity producers in all sectors	By revising the existing support scheme, the measure changes the existing measure from the NREAP	The measure was adopted in 2014 and implementation began in 2016. In the existing form, the support scheme will expire in 2019.
Project office for energy renovation of public buildings	Organisational measure	Promotion of use of RES in the scope of energy renovation of public buildings. Together with other measures (financial support, demonstration projects etc.), the measure will contribute to increased generation of heat and cooling energy from RES in the public sector buildings by 15 ktoe by 2020.	Public sector	The measure is planned in the NREAP.	As of 2015. The funding of the office is ensured until 2023; otherwise, the end date of the measure is not defined.
Decree on renewable energy sources in transport (Official Gazette of the RS No 64/16)	Regulation	The obligatory minimum share of renewable energy sources is defined for an individual year: - 2017 ... 6.2 % - 2018 ... 7.4 % - 2019 ... 8.4 % - 2020 ... 10 %	Transport/distributors of engine fuels	The measure supplements the existing measure from the NREAP, modifies it and ensures implementation until 2020	2017–2020
Long-term Strategy for Mobilising Investments in the Energy Renovation of Buildings	Planning of national goals and measures	With the strategy, Slovenia sets itself the goal to achieve major improvements in energy efficiency	Buildings in all sectors, primarily in households and in public and private service	The measure upgrades the exiting and planned measures under the NREAP: it updates the measures and	2015–2030

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
<i>(DSEPS)</i>		of the building stock, including an increase in the use of RES in buildings	sectors	ensures their implementation	
<i>Action Plan for Nearly-Zero Energy Buildings (AN sNES)</i>	Planning of national goals and measures	The Action Plan promotes energy renovation of the existing building to transform them into nearly-zero energy buildings and construction of new nearly-zero energy buildings.	Buildings in all sectors, primarily in households and in public and private service sectors	The measure upgrades the existing and planned measures under the NREAP: it sets more ambitious goals in the area of building renovation	2015–2020
<i>Decree on energy management in the public sector (Official Gazette of the RS No 52/2016)</i>	Regulation	Establishment of the system of monitoring and planning energy use, including the use of RES in the public sector	Public sector	The measure was planned in the NREAP.	The legal obligation was adopted in 2012. The measure has been implemented since 2016. The end of the measure is not defined.
<i>Strategy for alternative fuels</i>	Planning of national goals and measures	Increased use of RES and reduced use of final energy in transport; achievement of the environmental goals in the area of greenhouse gas and pollutant emissions; reduction of greenhouse gas emissions in transport by 9 % in 2030 compared to 2020	Transport	The measure upgrades the existing and planned measures under the NREAP: it sets more ambitious goals in the area of transport	The measure was adopted in 2017. The strategy proposes groups of measures for each alternative fuel, on the basis of which a detailed action plan for the 2018–2020 period will be prepared.
<i>Financial incentives for infrastructure for alternative fuels and electro-mobility</i>	Financial incentives for and co-financing of the construction of infrastructure for alternative fuels	Setting up of the public infrastructure for alternative fuels and smart charging points for accelerated introduction of electro-mobility for 630	Passenger transport	The measure is supplementary with regard to the NREAP	The measure was adopted in 2016 and implementation began in 2017. The end date of the measure is not defined.

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
		public and 3 150 private charging points for electric vehicles			
<i>Financial incentives for low emission vehicles</i>	Subsidised purchase of electric battery vehicles for individuals and legal entities for vehicles where CO ₂ emissions in the combined driving mode amount to a maximum of 50 g/km according to the data of the manufacturer	Increased use of RES and reduced use of final energy in transport	Transport	The measure is supplementary with regard to the NREAP	The measure has been in force since 2011; in 2015 the measure was changed considerably – the funds for the implementation of the measure were increased substantially.

* 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, energy 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).

Article 379 of the Energy Act (EZ-1) sets out the exceptions applying to natural persons who produce electricity in generating units of up to 50 kW. Under this Article, the activity of producing electricity at a generating unit using renewable energy sources or through high-efficiency cogeneration with a nominal power of up to 50 kW may also be performed by a natural person who has been entered in the Register of Natural Persons Performing the Activity of Electricity Production at the Agency of the Republic of Slovenia for Public Legal Records and Related Services and who, because of this, is not required to open a company.

In accordance with the new Decree on the energy infrastructure (Official Gazette of the RS, No 22/16), the installation of a unit for generating electricity from RES in a facility for one's own use is deemed to be maintenance work. It is only necessary to obtain a new consent of the distribution operator because of the change in the type of take-off.

Since 15 January 2016, households and small business consumers have had the possibility to invest in their own unit for the self-supply of electricity from RES (sun, water, wind), with the so-called net-metering of the generated/used electricity being introduced.

The Energy Act (EZ-1) of 2014 abolished the obligation to obtain an energy permit for all energy facilities (including wood biomass boilers and RES district heating systems), with the exception of power plants with a power exceeding 1 MW.

The obligation to obtain a licence to perform an energy-related activity was also removed.

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 costs related to grid connections and grid reinforcements (Article 22(1)(f) of Directive 2009/28/EC).

The measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in relation to the bearing and sharing of costs related to grid connections and grid reinforcements are laid down in Articles 269 to 371 of the EZ-1:

The electricity system operator may not refuse consent to connect to the grid of an investor in an electric power generation unit using renewable energy sources or high-efficiency cogeneration if the sole reason for refusal is that the electricity system operator would incur disproportionately high costs arising from the connection. The costs of all analyses for the issuing of consent to connection to the grid shall be borne by the electricity system operator.

The cost of the construction of a line connecting the generating unit to the system operator's grid shall be borne by the investor in the unit for the production of electricity from renewable energy sources and/or high-efficiency cogeneration.

The investor in the unit for the production of electricity from renewable energy sources and/or high-efficiency cogeneration shall not bear the costs of potential upgrades of the current transmission or distribution grid required for the unit to be connected. If the investor, in agreement with the systems operator, undertakes to bear the costs of the upgrade and expansion of the grid, the electricity system operator shall immediately launch the activities necessary to upgrade and expand the grid. The method for the reimbursement of the capital invested shall be laid down in a contract, which shall be entered into after the system operator's investment plan has been adopted and the regulatory agency has issued a decision on the regulatory framework for the investment plan.

Every two years, the electricity system operator shall submit to the ministry responsible for energy a report on connections to the grid of units for the production of electricity from renewable energy sources and/or cogeneration.

The electricity system operator shall make provision for the transmission and distribution of electricity generated from renewable energy sources and high-efficiency cogeneration.

As part of its grid balancing activities based on transparent and non-discriminatory rules, the electricity system operator shall favour units producing electricity from renewable energy sources and high-efficiency cogeneration if this is conducive to the safe operation of the power grid.

The electricity system operator must provide investors in units generating electricity from renewable energy sources and/or high-efficiency cogeneration that wish to connect to the grid with all the information they require, including:

- a comprehensive and detailed estimate of grid connection costs;
- a reasonable and precise timetable for receiving and processing grid connection requests;
- a reasonable indicative timetable for any proposed grid connection.

Under the network codes, for connecting each unit producing electricity from renewable energy sources and high-efficiency cogeneration, the nominal power capacity of which does not exceed 10 MW, the electricity system operator must lay down the method of designating connection points and, in accordance with its obligation to ensure grid reliability, set out requirements for the technical equipment employed in the units on the basis of which approval for the grid connection will be issued.

For power generation units over 10 MW, the requirements for the technical equipment to ensure grid reliability are laid down in a national spatial plan for each generating unit.

Under the network codes, the electricity system operator must lay down standard rules for determining the cost of the technical side related to connecting the unit producing electricity from renewable energy sources or high-efficiency cogeneration to the grid. These rules must be objective, transparent and non-discriminatory and must, for generation units not exceeding 10 MW, be based on basic principles equivalent to those that apply to connecting electricity consumers. For units of up to 1 MW, standardised grid connection cost factors must be laid down in the network codes.

At the request of the investor in the unit producing electricity from renewable sources or high-efficiency cogeneration with nominal power capacity of more than 10 MW and for which a valid national spatial plan has been obtained, the electricity system operator to whose grid the unit is to be connected must, within 60 days of receipt of a request, draw up a comprehensive and detailed evaluation of grid connection costs and a time schedule for the grid connection.

The grid connection cost estimate referred to in the preceding paragraph must be drawn up in accordance with the system operator's standard rules for calculating the costs of the technical side of grid connection, which shall be objective, transparent and non-discriminatory.

If the investor does not agree with the cost estimate and the time schedule, they may prepare their own connection proposal. If the electricity system operator does not accept the investor's proposal, the decision on the cost estimate and the time schedule shall be left to the Energy Agency.

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).

Support to electricity production from renewable sources:

The EZ-1 has stipulated that the Slovenian support scheme for electricity produced from renewable sources and through high-efficiency cogeneration is to be overhauled. New provisions have been added regarding additional sources of funding for the support and introduction of a new procedure for enabling generating units to join the support scheme based on a competitive procedure within the context of Energy Agency tenders. Notification of the amendments to the Energy Act and the planned new decree regulating the procedure of implementing a selection process and setting the level of support for generating units using renewable energy sources and high-efficiency cogeneration has been given to the Commission.

The EZ-1 provides that the Slovenian government shall, every year – when the annual energy balance is being adopted –, adopt a plan for the implementation of the support scheme for the coming year, and determine the sources for the provision of extra funds for support.

The Energy Agency is obliged to carry out the procedure in accordance with the provisions of Articles 373 and 374 of the EZ-1.

A person applying to join the support scheme with a project should, in the tender, indicate which generating unit they intend to build, and the form and level of support for which they are applying:

- guaranteed purchase of electricity only for units with a power of up to 500 kW, where the investor's tender must contain the price of electricity, which may not exceed the reference price to be set for each technology in the Decree on support for electricity

- financial aid for current operations (hereinafter 'operating support'), where the investor's tender should contain the price of electricity, which may not be higher than the reference price to be set for each technology in the Decree on support for electricity generated from renewable energy sources, on the basis of which the premium set depends on the price that can be obtained on the electricity market for comparable electricity.

The duration of support shall be defined in the decision allocating support, and is 15 years for new RES generating units and 10 years for new CHP generating units.

Support in the form of guaranteed purchase shall be paid out for the net generated electricity for which the support centre receives guarantees of origin. Premiums shall be paid out for electricity that producers sell on the market themselves.

Promotion of self-supply of electricity from RES

The Decree on the self-supply of electricity from renewable energy sources (Official Gazette of the RS, No 97/15), adopted at the end of 2015 and going into force on 15 January 2016, introduces the possibility of self-supply of electricity from RES (sun, water, wind) for the whole or partial coverage of one's own electricity take-off. The Decree on self-supply of electricity from renewable energy sources enables the owner of a unit for the self-supply of electricity a favourable billing of electricity and the contributions related to it. The annual bill takes into account the amount of electricity (kWh) representing the difference between the received and transmitted active energy (kWh) read at the same metering point at the end of the billing period. The measure applies to units with a maximum connected load of 11 kVA.

Currently, the Decree limits the total nominal capacity of self-supply units connected in the calendar year to 7 MVA for household consumers and 3 MVA for small business consumers. A proposal to amend the Decree raising the total annual load to 20 MW is under preparation.

The year 2016 saw the adoption of the document Business Policy of the Eco Fund, Slovenia's public environmental fund, in the 2016–2020 period, planning non-repayable financial incentives to individuals for units for self-supply of electricity²⁶.

Statistics:

In 2016, 135 self-supply units were connected to the network, with their total load amounting to 1.1 MW. The bulk of these were solar power plants with 97 % of the total load, while the rest were hydroelectric plants. The average connected load of solar power plants was 8.16 kW, while that of hydroelectric plants was 6.40 kW.

The total load of the self-supply units includes 93.2 % of units connected to the electricity grid for the first time and 6.8 % of existing units connected as self-supply units in 2016.

Programme for promoting the use of RES in households

The Eco Fund, Slovenia's public environmental fund, continued to allocate non-repayable financial incentives for investments in the use of RES in single- and two-dwelling buildings in the 2015–2016 period. Two public tenders²⁷ were published in 2015 and one in 2016, with incentives in the area of RES use being allocated for the installation of a solar heating system, a wood biomass combustion installation (WBCI) and a heat pump, both for central heating, and for the connection of a building to district heating using RES.

²⁶ The Eco Fund began to allocate self-supply incentives in 2017.

²⁷ Public tenders 29SUB-OB15, 33SUB-OB15 and 37SUB-OB16.

Funds for non-repayable incentives are collected from the fee charged for energy aimed at increasing energy efficiency; since 2014, the funds of the Climate Change Fund have also been included in the tenders. In 2015, the Eco Fund also published a public tender for non-repayable financial incentives for the replacement of old solid fuel combustion installations with new WBCIs in residential buildings, intended for socially-disadvantaged individuals²⁸, while the public tenders for multi-dwelling buildings only included measures for energy efficiency in the 2015–2016 period.

In 2015 the Eco Fund disbursed EUR 4.5 million for investments in the use of RES in households, with 50 % of this sum going to the installation of heat pumps for central heating (Table 3). The investments contributed to the production of 61 GWh of heat from RES per year, with the bulk, almost 63 % coming from WBCIs. In 2016 the Eco Fund disbursed 10 % or EUR 5 million more for measures for the use of RES than the year previous. Again, the majority, 60 % of all grants, was allocated to the installation of heat pumps for central heating. The production of heat from RES was estimated to stand at 40.3 GWh per year – down more than one-third on the year previous. Heat pumps also contributed the most, 62 %, of the heat produced from RES. In the 2013–2016 period, the amount of grants allocated to RES measures decreased by a half, and growth in the production of heat from RES fell by more than three-quarters. The relation between the amounts of grants allocated to the measures related to renewable energy sources and efficient use of energy: in 2013, 43 % of the total funds were allocated to RES measures, while in 2016 the share dropped to only 23 %.

Programme for promoting the use of wood biomass for energy

The use of wood biomass for energy is promoted in households through the allocation of Eco Fund grants, as detailed in the preceding point. In 2015 the Eco Fund disbursed EUR 1.4 million for the installation of WBCIs, and 17 % or EUR 1.6 million more the following year (Table 3). The heat produced from RES dropped from 38.3 to 14.3 GWh annually. The Eco Fund allocated the most funds to WBCIs in 2013, namely as much as EUR 5.4 million.

2015 saw the last wood biomass use projects for which private legal entities received grants from the Cohesion Fund as part of the Sixth Development Priority (Sustainable energy) within the Operational Programme for Environmental and Transport Infrastructure Development (OP ROPI) 2007–2013. As part of the tender for the co-financing of individual wood biomass heating systems for the 2011–2014 period (KNLB 3), the last 9 of the total 125 projects were supported in 2015 with EUR 0.6 million (Table 3), and the production of heat from RES was estimated at 13.7 GWh annually. Grants were allocated for the installation of wood biomass boiler installations with a power of at least 150 kW and no more than 10 MW, and for the construction of a micro district heating system (or the upgrading of an existing system); solar systems for the preparation of domestic hot water in the summer months may also form part of the operation if this thereby improves the cost-effectiveness of heat generation. In the Operational Programme for the Implementation of European Cohesion Policy 2014–2020²⁹ (OP EKP), grants are no longer envisaged for legal entities for WBCI.

²⁸ Public tender 36SUB-SOCOB15.

²⁹ http://www.enerKetika-portal.si/fileadmin/dokumenti/novice/op_2014-2020/op_2014-2020_cistopis_web.pdf

Companies were also eligible for grants from the Cohesion Fund as part of the tender for the co-financing of wood biomass district heating for the 2011–2015 period (DOLB 3); funds could be obtained for the construction of wood biomass district heating (WBDH) systems with a boiler capacity of no more than 20 MW, the expansion of WBDH networks or district heating systems using geothermal energy, with or without the upgrading of additional wood biomass boilers, and the construction of a WBDH micro system. In 2015, six projects were supported with EUR 1.4 million (Table 3), and the production of heat from RES was estimated at 9.8 GWh annually.

Within OP EKP, support for the use of RES is planned within Priority Axis 4 Sustainable consumption and generation of electricity, and smart grids, where – to promote the production and distribution of energy from renewable sources – support is envisaged for investments in RES consumption for heat generation (WBDH, solar collectors, etc.), along with investment support for the construction of new smaller facilities generating electricity from RES (small hydroelectric plants, wind energy, solar energy, etc.). In 2016, a public tender for co-financing district heating using renewable energy sources (DH RES) for the 2016–2020 period was published. Funds may be obtained for the construction of a DH RES system with a boiler capacity of no more than 10 MW, or construction of DH RES micro systems with a boiler capacity of no more than 1 MW, expansion of existing DH RES, and solar systems for the preparation of domestic hot water if this thereby improves the cost-effectiveness of the system.

Moreover, as part of efforts to promote energy efficiency, smart energy management and the use of renewable sources in public infrastructure, including public buildings and the housing sector, the installation of RES appliances is also envisaged in OP EKP as part of the complete energy renovation of buildings. In addition, incentives for RES consumption are also planned as part of the promotion of enterprise within Priority Axis 3 Dynamic and competitive businesses for green economic growth to improve the energy and materials efficiency of companies in order to increase the added value of SMEs.

Scheme of obligatory achievement of final energy savings for liable entities

The large liable entities scheme, which was regulated by the *Decree on energy savings at final customers*³⁰ through 2014 was replaced in 2015 by the new obligatory scheme to achieve final energy savings for liable entities laid down in the *Decree on energy savings requirements*³¹. With the new Decree, all suppliers of electricity, heat, gas and liquid and solid fuels to final customers became entities liable for achieving savings, regardless of their size, and the amount of energy savings to be achieved by the liable entities has been changed, and to some extent also the set of energy services and measures that may be implemented by the liable entities and the method of financing the measures. The measures are now no longer financed by grants collected from the fee for energy use aimed at increasing energy efficiency and the liable entities must finance the measures for meeting their obligations from other sources; therefore, the measures are no longer included among RES support programmes in Table 3. Instead of achieving energy savings, the liable entities may also meet their obligations by transferring funds to the Eco Fund.

As regards RES use, in the 2015–2016 period the liable persons were able to implement the measures such as replacing hot-water boilers using all types of fuels with new high-efficiency wood biomass boilers, replacing the electric heating system with central heating with new high-efficiency wood biomass boilers, the installation of heat pumps for heating buildings and installation of solar panels, and it was also possible to increase the use of RES in the scope of some other measures, such as connecting the building to a district heating system in the case of WBDH, installation of a combined heat and power (CHP) system using RES etc.

³⁰ Official Gazette of the RS, Nos 114/09.

³¹ Official Gazette of the RS, No 96/14.

While for 2015 there is not sufficient data for assessing the increase in the production of energy from RES, the estimate for 2016 is 3 GWh annually, with the installation of CHP system accounting for more than one-half and installation of new high-efficiency WBCIs for a further 37 %.

Table 3: Support schemes for renewable energy sources in the 2015–2016 period

RES support schemes		Per-unit support		Total (EUR million)	
		2015	2016	2015	2016
Installation of solar panels in households^a					
Non-repayable incentives	Eco Fund tenders for incentives to individuals for new investments in RES use and the energy	Maximum 200.00, average EUR 150.92/m ²	Maximum 200.00, average EUR 160.23/m ²	0.290	0.327
Installation of vacuum solar panels in households^a					
Non-repayable incentive	Eco Fund tenders for incentives to individuals for new investments in RES use and the energy	Maximum 200.00, average EUR 180.19/m ²	Maximum 200.00, average EUR 184.64/m ²	0.080	0.053
Installation of ground/water or water/water heat pumps (HP) for heating and the preparation of domestic hot water in households^a					
Non-repayable incentive	Eco Fund tenders for incentives to individuals for new investments in RES use and the energy performance of buildings	Maximum 2 500.00 or 3 100.00 for areas for which an ordinance has been	Maximum 2 500.00 or 3 100.00 for areas for which an ordinance has been	0.549	0.599
Installation of air/water HP for heating and the preparation of domestic hot water in households^a					
Non-repayable incentive	Eco Fund tenders for incentives to individuals for new investments in RES use and the energy performance of buildings	Maximum 1 000.00 or 1 250.00 for areas for which an ordinance has been adopted ^{a1} ,	Maximum 1 000.00 or 1 250.00 for areas for which an ordinance has been adopted ^{a1} ,	2 135	2 420
Installation of air/water HP for the preparation of domestic hot water in households^{a, a2}					
Non-repayable incentive	Eco Fund tenders for incentives to individuals for new investments in RES use and the energy performance of buildings	The measure is no longer included in the tenders; investments from previous tenders were implemented, average EUR	The measure is no longer included in the tenders; investments from previous tenders were implemented, average EUR	0.115	0.001
Replacement of central heating boilers with biomass boilers (woodchips, pellets, logs) in households^a					
Non-repayable incentive	Eco Fund tenders for incentives to individuals for new investments in RES use and the energy performance of buildings	Maximum 2 000.00, average EUR 1 596.84/pc	Maximum 2 000.00 or 4 000.00 for areas for which an ordinance has been adopted ^{a1} ,	1.372	1.602
Installation of individual wood biomass heating systems at private legal entitiesⁿ					
Non-repayable incentive	KNLB 3 tender (wood biomass combustion installations) for	Between 30 and 40 % of the value of the eligible costs of the investment		0.652	0

		Average 29.51 %	-		
Construction of wood biomass district heating in the commercial sector ⁿ					
Non-repayable incentive	DOLB 3 tender for 2011-2015 as part of OP ROPI	Between 30 and 50 % of the value of the eligible costs of the investment		1.383	0
		Average 28.79 %	-		
Total annual estimated support in the electricity sector				147.095	146.191
Total annual estimated support in the heating sector				6.574	5.003
Total annual estimated support in the transport sector				2.8	3.3

Reference costs of electricity (RCE) in RES and CHP generating units (GU):

RES GU [EUR/MWh]	Up to 50 kW	Up to 1 MW	Up to 10 MW
1. Hydroelectric power plants	112.02	$RCE_{HE} = 83,279 * P_{el}^{-0.098}$	
2. Wind power plants	122.54	102.51	88.45 (valid up to 50 MW)
3.1. Solar power plants (SPP) - on buildings	121.86	$GU_{SPP} > 11 kW_{el} : RCE_{SES} = 80,025 * P_{el}^{-0.096}$	
3.2. Solar power plants - independent structures		72.41	
4. Geothermal power plants		154.25	
5.1. Wood biomass power plants*	178.94 (VPRC = 74.52)	180.73 (VPRC = 67.59)	158.25 (VPRC = 88.74)
5.4. Old wood biomass power plants*		54.73 (VPRC = 54.73)	
6.1. Biogas power plants - biomass	197.86 (VPRC = 32.35)	111.05 (VPRC = 14.18)	91.30 (VPRC = 9.67)
6.2. Biogas power plants - waste		105.07	80.43
8. Sewage sludge biogas power plants	70.99	61.35	54.21
7. Landfill gas power plants	69.93	53.80	49.20
9. Power plants using biodegradable waste	0,00	62.59	60.09

CHP GU [EUR/MWh]	CHP GU	Up to 5 kW	More than 5 kW
FPRC _{CHP}	Up to 4 000 hours	119.41	$FPRC_{<4,000} = 46.765 * P_{el}^{-0.176}$
	More than 4 000 hours	76.04	$FPRC_{>4,000} = 31.101 * P_{el}^{-0.168}$
VPRC _{CHP}		53.23	$VPRC_{>4,000} = 38.934 * P_{el}^{-0.060}$
RCE _{CHP}	Up to 4 000 hours	172.64	FPRC + VPRC
	More than 4 000 hours	129.27	

* To determine the price offered for RES generating units using biomass and CHP generating units, the variable part of the reference costs (VPRC) specified in the table (according to the technology, size and operating system of the generating unit) is used in the calculation of the cost of electricity produced in the generating unit from Chapter 3 of the methodology.

Notes to the table above**:

- RCE for **hydro power plants** with a nominal power capacity of 50 kW_{el} or more are determined by using the regression equation specified in the table;
- RCE for **solar power plants on buildings** with a nominal power capacity of 11 kW_{el} or more are determined by using the regression equation specified in the table;
- The fixed part of the reference costs (FPRC_{CHP}) and the variable part of the reference costs (VPRC_{CHP}) for **CHP generating units** of more than 5 kW_{el} are determined by using the regression equations specified in the table.

** P_{el} - nominal power capacity of the generating unit in MW, rounded off to 3 decimal

Demonstration and pilot projects, and energy consulting, information and training programmes

As part of efforts to promote energy efficiency, smart energy management and the use of renewable sources, the implementation of demonstration projects of comprehensive energy renovation of different types of public sector buildings, as well as multi-dwelling buildings is also envisaged in OP EKP. In 2016, four projects were selected within this framework: the CŠOD Dom Bohinj pilot project as a pilot project involving energy renovation to obtain a nearly-zero energy building; the pilot project involving the building of the judicial and state administration in Šmarje pri Jelšah as a pilot project of energy renovation of a building with several managers; the pilot project of energy renovation of buildings of the courts of Celje, Murska Sobota and Slovenj Gradec as a pilot project involving several similar buildings with a common manager; and the pilot project of energy renovation of buildings belonging to cultural heritage (a group of five cultural heritage buildings with different protection arrangements depending on the type of cultural heritage). There is no data on the possible implementation of demonstration RES use-related projects within other European and regional programmes (e.g. MED, LIFE etc.). As part of promoting corporate investment in research and innovation, and the establishment of connections and synergies between companies, research and development centres and the higher education sector, OP EKP also envisages demonstration projects related to innovation development and testing in practice.

As complementary measures to the promotion of energy efficiency, smart energy management and use of energy from renewable sources, OP EKP also envisages training providers and support for awareness-raising and education related to energy efficiency, but they were not yet carried out in the 2015–2016 period. However, other training activities and information and awareness-raising projects took place in the same period (e.g. the Sustainable Energy Portal, the Energy Portal, projects supported by the funds of the Climate Change Fund, activities in the scope of international projects etc.). More detailed information on the implementation of these projects is not available, as there is no systematic monitoring of effects and planning of activities in this area. Advisory services related to energy within the ENSVET energy advice network is presented in more detail in a special chapter.

Regulations on the use of energy in buildings

The Rules on efficient use of energy in buildings (PURES-2), which entered into force on 1 July 2010, lay down the technical requirements relating to the energy performance of new and reconstructed buildings. For a building to achieve the required energy performance, in accordance with the Rules, at least 25 % of the total final energy for the operation of the systems within the building must be provided from RES consumption sources; this is in addition to compliance with the requirements relating to the energy performance limit value. The Rules also permit the required energy performance to be achieved solely by means of ensuring an adequate share of final energy for the heating and cooling of the building and the preparation of domestic hot water from individual types of RES (solar energy, gaseous biomass, solid biomass, etc.), or in the case of the construction of high-efficiency CHP or the supply of energy from wood biomass district heating. In the accompanying technical guideline TSG-1-004:2010 Efficient use of energy³³, the consumption of RES is separately defined for the preparation of domestic hot water, which should, as a rule, be provided via solar collectors or an alternative system that uses RES.

³² Official Gazette of the RS, No 52/10.

³³ http://www.arhiv.mop.eov.si/fileadmin/mop.gov.si/pageuploads/zakonodaja/prostor/eraditev/TSG-01-004_2010.pdf

On the basis of Article 331 of the Energy Act (EZ-1)³⁴, the Action Plan for Nearly-Zero Energy Buildings up to 2020 (AN sNES)³⁵ was adopted in April 2015. This defines a nearly zero-energy building as a building with very high energy performance or requiring very little energy in order to function, where the energy required is produced to a large degree from renewable energy sources on-site or nearby. The minimum share of RES, defined using the RER³⁶ coefficient, is 50 % for nearly zero-energy buildings, regardless of the type of building. It is important to note that the AN sNES envisages, in relation to the regulations on the energy performance of buildings, the revision of PURES-2 and supplements containing the minimum technical requirements for nearly zero-energy buildings or the definition of a nearly zero-energy building. PURES-2 and TSG-1-004 can be expected to be revised by the beginning of 2019, when the requirement concerning obligatory compliance with the minimal requirements for nearly zero-energy construction for the public sector. The revision will include the technical definition of a nearly zero-energy building based on the analysis of cost-optimal levels of minimum requirements for the energy performance of buildings, and harmonisation of the methodology and calculation of the energy characteristics of buildings with the European classification of buildings and the applicable EPB standards.

The new Energy Act (EZ-1) was adopted in the beginning of 2014. Importantly, one of the objectives of the act (Article 5) is also the increased production and use of RES, which is also promoted by the energy policy (Article 20) with the aim of securing a reliable, sustainable and competitive energy supply for the country. The long-term objectives related to RES will also be defined within Slovenia's Energy Concept (EKS, Article 23), which outlines the national energy programme. Its implementation is based on various action plans, including the RES action plan³⁷ and operational programmes. The mandatory use of RES, CHP and surplus energy in district heating systems (Article 322) is particularly important in relation to buildings. Under the EZ-1, the mandatory shares of RES for public sector entities will also be specifically determined (Article 324), while a feasibility study of alternative energy supply systems, including decentralised systems using RES, will have to be drawn up when a new building is being constructed or a building or an individual part thereof is undergoing major renovation.

Financial instruments for RES energy services

The promotion of RES takes place in the scope of promoting energy performance contracting for the energy renovation of buildings. One of the intermediate targets of the Long-Term Strategy for Mobilising Investments in the Energy Renovation of Buildings (DSEPS)³⁸, adopted in October 2015 pursuant to Article 348 of the EZ-1, is the provision of at least 60 % of energy in buildings from RES by 2020 and at least two-thirds of energy in buildings from RES by 2030³⁹. The vision to 2050 is for almost carbon-neutral energy use in the building sector, to be achieved by making considerable improvements in energy performance and increasing the use of RES.

There are plans in the DSEPS and OP EKP to bring forward the start-up of the energy performance contracting mechanism, which also attracts private capital to the renovation of

³⁴ Official Gazette of the RS, Nos 17/14 and 81/15.

³⁵ http://www.enereetika-portal.si/fileadmin/dokumenti/publikacije/an_snes/ansnes_final_apr_2015.pdf

³⁶ RER (renewable energy ratio) is the share of renewable energy sources of total energy input (REHVA

³⁷ AN-OVE 2010-2020 was adopted in 2010 (http://www.energetika-portal.si/fileadmin/dokumenti/publikacije/an_ove/an_ove_2010-2020_final.pdf). It is currently being revised.

³⁸ http://www.energetika-portal.si/fileadmin/dokumenti/publikacije/dseps/dseps_final_okt2015.pdf A revision of this strategy is being prepared in 2017.

³⁹ Share of use of RES in end-use energy, excluding electricity and district heating.

The project office for energy renovation of buildings was established in 2015, and in 2016, in the scope of the implementation of OP EKP, it began to operatively implement the project Energy renovation of state- and municipality-owned buildings which, among other things, promotes the introduction of energy performance contracting in the public sector. In 2016 four pilot projects of energy renovation of buildings according to the model of energy performance contracting were approved with the support of the OP EKP funds (see the measure of demonstration and pilot projects).

Up until the end of 2017, public tenders and invitations in the amount of EUR 57.7 million of the total of EUR 115.2 million available EU grants were published for the energy renovation of public buildings. As many as 47 projects have already been selected for financing and will receive EUR 22.5 million of EU funds; a decision on support/selection was already issued for 35 projects. In the scope of these 47 projects, around 200 buildings are in different stages of renovation. New invitations and tenders for buildings owned by the state and local communities will be published in early 2018. Around EUR 30 million in EU funds will be made available.

A further EUR 25 million in repayable EU funds will be allocated to the energy renovation of public buildings in the scope of the project Financial instruments 2014–2020. The fund for these funds has been selected; in 2018, it will place the first financial instruments on the market via financial intermediaries.

The beneficiaries may ensure the funds for their own participation themselves or in combination with a private partner in the case of energy performance contracting.

At the initiative of municipalities, several municipalities (Municipality of Ljubljana, 23 Primorska municipalities, a consortium of the Municipality of Novo mesto, the Municipality of Kranj and the Municipality of Celje) also implemented ELENA international technical assistance projects supported by the funds of the European Investment Bank (EIB) or the

Mandatory shares of RES in district heating systems and promoting RES within local energy concepts

The shares of heat produced from RES that must be achieved by all district heating systems are laid down in Article 322 of the EZ-1. Distributors of heat must ensure that heat is provided from at least one of the following sources at an annual level: (i) at least 50 % of heat to be produced from renewable energy sources, (ii) at least 50 % from surplus heat, (iii) at least 75 % of heat from the high-efficiency cogeneration of heat and power or (iv) at least 75 % from a combination of heat sources referred to in the first three indents. Distributors have until 31 December 2020 to comply with this obligation.

The use of RES in a local community area (Article 29 of the EZ-1) is planned on the basis of local energy concepts (LECs). An LEC defines the targets and measures for achieving these targets, which must comply with the energy efficiency and RES action plans and the state's framework energy policy⁴⁰. The Rules on the methodology and mandatory content of the local energy concept (Official Gazette of the RS, No 56/2016) were revised in 2016. An LEC is an important basis for development planning at the local community level, as it constitutes a compulsory expert basis for preparing local community spatial plans. Local community authorities and providers of energy-sector activities in the area covered by an LEC shall be obliged to harmonise their development documents and activities with objectives and measures envisaged in the LEC.

⁴⁰ The umbrella strategic document Slovenia's Energy Concept is under preparation.

An LEC is a mandatory document that must be compiled by a local community (it may do so in cooperation with other communities) at least every ten years. There is a prescribed methodology for compiling an LEC. Practically all local communities have adopted a local energy concept.⁴¹

A local community may, on the basis of the guidelines set out in the LEC and with due consideration given to environmental criteria and the technical characteristics of buildings, issue an ordinance prescribing those heating fuels to be given priority. An LEC also includes special targets and measures relating to energy use in buildings owned by local communities and housing funds, where local communities must also follow the guidelines contained in the Long-Term Strategy for Mobilising Investments in the Energy Renovation of Buildings.

Decree on the promotion of the use of biofuels and other renewable fuels for the propulsion of motor vehicles (Official Gazette of the RS, Nos 03/07, 92/10, 74/11) and Decree on renewable energy sources in transport (Official Gazette of the RS, No 64/16)

The Renewable Energy Action Plan (NREAP) lays down the energy share of renewable energy sources in transport (biofuels and other renewable energy sources) to be achieved by the Republic of Slovenia: 4.2 % in 2015 and 5.4 % in 2016.

The Decree on the promotion of the use of biofuels and other renewable fuels for the propulsion of motor vehicles prescribed the share of RES in transport until 2015; for 2015, it laid down the considerably higher share of 7.5 %. But since the exemption from payment of excise duty on the bio-share contained in the fossil fuel was abolished in 2014 due to the economic crisis, the share of RES in transport has been falling every year since 2014.

On the basis of Article 380 of the EZ-1 that obliges distributors of gas and liquid fuels selling transport fuels to achieve the share of RES prescribed in the NREAP, the new Decree on renewable energy sources in transport began to be prepared for adoption to prescribe the shares of RES in transport from 2016 to 2020. Due to objections, the Decree was only adopted at the end of 2016 and came into effect in the second half of 2017. Because of this situation, Slovenia had no binding document prescribing an obligatory share of RES in transport for 2016.

Decree on green public procurement

The Decree on green public procurement⁴² started to be implemented on 13 March 2012. Among other things, the Decree determines a 40 % obligatory minimum share of electricity be produced from renewable sources or from the high-efficiency cogeneration of heat and power in green public procurement for electricity. In 2017 a new Decree on green public procurement⁴³ was adopted and will enter into force on 1 January 2018. The new Decree prescribes a higher, 50 % obligatory minimum share of RES and CHP. It does not introduce other changes in the area of renewable energy sources; however, the promotion of efficient use of energy is enhanced, which will have a positive impact on the share of RES.

Statistics:

In 2015, 52 public contracts were awarded for the supply of electricity with a total value of EUR 23 471 957 (excluding VAT), where the environmental aspects (the share of electricity produced from renewable sources or through the high-efficiency cogeneration of heat and power) were taken into account.

⁴¹ The majority of local communities had an LEC in 2014, covering 99.99 % of the Slovenian population.

⁴² Decree on green public procurement (Official Gazette of the RS, Nos 102/11, 18/12, NPB1, 24/12, NPB2, 64/12, NPB3, 2/13, NPB4, 89/14, NPB5 and 91/15 -ZJN-3).

⁴³ Official Gazette of the RS, No 51/2017.

In 2016 the number of contracts awarded remained unchanged, namely 52 green public contracts for the supply of electricity, with the value of such rising to EUR 38 587 520 (excluding VAT)⁴⁴. In terms of their value, green public contracts accounted for 50 % of all public electricity supply contracts in 2015 and 84 % in 2016, which was the largest share in the observed period since 2011.

Improving administrative procedures for installing facilities for decentralised electricity generation

The adoption of the new Decree on energy infrastructure in March 2016 partially simplified the administrative procedure for units generating energy from RES if they are installed in or on a building. Still, the administrative procedure is too long for the connection of hydro and wind power plants, as the procedures related to their siting are very complex. Moreover, Slovenia faces very strong opposition by NGOs and local populations (primarily opposing wind power plants).

It will also be necessary to simplify the procedure involved in obtaining a permit to connect small self-supply units to the network, as such units burden the network minimally, especially when the relevant building is already connected to the network.

Citizens' Energy Advice (EnSvet)

The network of energy advice offices (ENSVET), which has been active since 1993, continued to operate in the 2015–2016 period. In 2016, 70 qualified independent energy advisors operated in 49 offices of the ENSVET network across Slovenia, offering free advice to and having discussions with people to help them select, plan and implement investment measures aimed at efficient energy use and use of renewable sources in residential buildings. Such advisory services improve people's energy awareness, increases energy savings and reduces greenhouse gas emissions. As a result such services contribute to the implementation of certain programmes and goals of the energy policy.

It also participates in aid schemes that promote the efficient use of energy in households provided to vulnerable inhabitant groups. In the Eco Fund tenders for subsidies for energy renovation of multi-dwelling buildings, the socially disadvantaged are eligible for incentives amounting to 100 % of investment costs. In the autumn of 2016, the Eco Fund also established the AERO project (reduction of energy poverty – assistance to energy-poor citizens) within the ENSVET network.

In 2015, 5 230⁴⁵ activities were carried out within the network that included free energy advice (advice with a written report, e-advice, articles in the media, radio and TV coverage, lectures, schools, other); 7 530⁴⁶ activities were carried out the following year. In 2015, the realisation of activities comprised 65 % of the budget plan, but only 22 % of the available funds or EUR 219 907 were disbursed. In the following year, with the increase in activities, the disbursement of funds grew to 58.4 % or EUR 317 828. The largest portion consists of advice with a written report, which accounts for 87 % of all activities carried out, together with e-advice and basic discussions. Like non-repayable incentives, the funds for the operation of ENSVET are also collected through the fee for energy use aimed at increasing energy efficiency.

⁴⁴ Source of data: Ministry of Public Administration.

⁴⁵ Annual report on the activity and performance of the Eco Fund in 2015.

⁴⁶ Annual report on the activity and performance of the Eco Fund in 2016.

⁴⁷ Source: Ministry of Infrastructure, 'Poslovanje družb elektrogospodarstva in

In 2016 the effects of ENSVET's energy advice were assessed and the results of the survey were used as a starting point for updating the method by which effects of the ENSVET programme are evaluated in the Rules on the methods for determining energy savings⁴⁸. The free advice offered by energy advisors within the ENSVET network led to energy savings of 13.7 GWh and a reduction of CO₂ emissions by 3 580 t in 2016. The impact in 2016, expressed as the reduction of CO₂ emissions thus totals 26 425 t annually, and the impact expressed as energy savings amounts to 134.1 GWh annually.

The Ministry of Infrastructure's ENSVET programme is intended to provide energy advice to people on the efficient use of energy and use of renewable energy sources, as laid down in more detail in Articles 352 and 353 of the EZ-1. In accordance with the Energy Act, in the second half of 2015 the coordination and expert management of energy advisors and the network of offices within ENSVET was taken over by the Eco Fund, which is thus an independent coordinator of the network.

3.1. Please provide 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).

Beneficiaries of support are obliged to submit guarantees of origin to the support centre for electricity produced from renewable sources and supported by support funds paid by all final electricity customers in the form of guaranteed purchase (feed-in tariff). Beneficiaries receiving support in the form of a feed-in premium obtain guarantees of origin for their electricity, which they can submit to customers upon the latter's request. The guarantees of origin received by the support centre are granted to all final electricity customers in Slovenia in proportion to the contribution they pay to the total support funds used. For electricity from generating units using RES that is not eligible for support because of their age, the buyers of electricity may request guarantees of origin from producers and take them into account as suppliers when presenting to final customers, in their accounts and promotional material, the contribution made by renewable energy to the total amount of electricity supplied.

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).

The overhauled support scheme for electricity produced from renewable energy sources will be designed so that certain sustainability criteria will be taken into account if electricity is to be eligible for support, and in certain cases, a more sustainable approach to the use of renewable sources will mean eligibility for additional bonuses:

- Generating units that exploit the energy potential of watercourses may receive support only if they ensure the ecologically acceptable flow of the watercourse.
- Electricity produced from wood biomass must be produced alongside the simultaneous use of at least part of the heat so that 60 % total efficiency is achieved. If the wood biomass used has an FCS or PEFC certificate, the electricity produced is eligible for a 10 % bonus.
- Biogas generating units are not eligible for support if they use substrate that contains more than 40 % of main field crops by volume.

⁴⁸ Official Gazette of the RS, No 67/15.

There were no producers of biofuels from waste, residues, non-food cellulosic material or ligno-cellulosic material in Slovenia in 2015 and 2016.

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 fraudulent abuse of the system (Article 22(1)(d) of Directive 2009/28/EC).

Operation of the system of guarantees of origin for electricity is regulated by Article 365 of the EZ-1. A guarantee of origin of electricity is a document by which electricity producers and suppliers prove that electricity was produced through high-efficiency cogeneration or from renewable energy sources.

Guarantees of origin of electricity are issued by the Energy Agency of the Republic of Slovenia (hereinafter the Energy Agency or the Agency) at the request of the producer and in electronic form. An electricity producer is entitled to a guarantee of origin if they have a valid declaration and can show that in the period to which the guarantee relates the generating unit operated in such a way as to meet the conditions and prescribed requirements. The government has regulated the method of issuing guarantees of origin in greater detail in the Decree on issuing declarations for generation units and guarantees of electricity origin⁴⁹.

Article 368 of the Energy Act provides that the Energy Agency shall maintain a register of guarantees of origin, with the register administered by the electricity market organiser. Guarantees of origin issued are entered in the producer's account within the register of guarantees of origin. Guarantees of origin may be transferred to a new holder's account or exported abroad.

Guarantees of origin are issued in units of 1 MWh. No more than one guarantee of origin may be issued for each unit of electricity produced. A guarantee of origin may be used (redeemed) within 12 months of its issue.

Through the general Act on the use of the register of guarantees of origin of electricity and the method of reporting data on electricity generation⁵⁰, the Energy Agency has laid down in detail the method and rules for maintaining the register of guarantees of origin, the conditions for opening an account with the register, the management and closure of accounts in the register, and the method of and form for reporting data on electricity generation.

A guarantee of origin issued by competent issuers in other European Union Member States in the manner and under the conditions set out in Directive 2009/27/EC have the same evidential power in Slovenia as a guarantee of origin issued by the Energy Agency. Refusal to recognise a guarantee of origin as proof must be based on objective, transparent and non-discriminatory criteria. An entity that refuses to recognise a guarantee of origin issued by a competent issuer in another European Union Member State is obliged to recognise the guarantee of origin if the European Commission so requests.

With plants included in the system of guaranteed purchase prices, guarantees of origin are transferred to the Support Centre as they are issued. The Support Centre cancels the transferred guarantees of origin, which prove the origin of the electricity, in the name of the suppliers in relation to their supply to final customers in the Republic of Slovenia. If the producer of electricity from RES or CHP is eligible to support in the form of financial aid for current operations, they hold the guarantees of origin themselves so that it is easier for them to sell electricity on the market.

⁴⁹ Official Gazette of the RS, Nos 8/09 and 45/12, and EZ-117/14.

⁵⁰ Official Gazette of the RS, No 33/09, and EZ-117/14.

Safeguards against fraud are implemented at three levels within the guarantees of origin system. Legislation has established mechanisms for overseeing the adequacy of an energy source, the quantities of electricity produced for which a guarantee of origin has been issued, and the management of guarantees of origin (supervision of transfers and the redemption of guarantees of origin), as follows:

- (1) A valid declaration issued for a generating unit is a precondition for receipt of a guarantee of origin. The Agency oversees the holders of declarations and checks to ensure that the conditions and requirements from the declarations issued are met. Where the Agency finds that a generating unit is not operating in accordance with the conditions set out in the declaration, it withdraws the unit's declaration by decision. Electricity generated in a unit whose declaration has been withdrawn may not receive a guarantee of origin.
- (2) The number of guarantees of origin issued is in line with information provided by system operators, which are obliged to report to the Agency all information relating to the electricity generated by units for which it has issued guarantees of origin.
- (3) When selling electricity for which a guarantee of origin has been issued, an energy supplier must redeem the guarantee of origin in the name of the buyer (owner) of the redeemed guarantee. Details of the owner of the redeemed guarantee must be entered in the register of guarantees of origin.

6. Please describe the developments in the preceding two 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 the amount of imported raw material from the EU (ktoe)		Amount of imported raw material from non-EU countries (*)		Primary energy in the amount of imported raw material from non-EU countries (ktoe)	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
Biomass supply for heating and electricity:												
Direct supply of wood biomass from forests and other wooded land for energy generation (fellings etc.)** a	1 242 229 m3	1 271 712 m3			62 302 m3	62 655 m3			89 324 m3	121 716 m3		
Indirect supply of wood biomass (residues and co-products from the wood industry)												

Energy plants (grasses, etc.) and short-rotation												
Agricultural by-products/processed residues and fishery by-products**												
Biomass from waste (municipal, industrial etc.) ** b	199 893 tonnes	164 604 tonnes										
Other (please specify)												
Biomass supply for transport:												
Common arable crops for biofuels (please specify main types)												
Energy plants (grasses, etc.) and short-rotation trees for biofuels (please specify main types)												
Other (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.

a – Source of data: Joint forest sector questionnaire (JFSQ) for 2015; the value includes the quantity of forest wood produced for heating.

b – The value includes quantities of biomass from waste processed in 2015 and 2016 using the R1 process (used principally as fuel or otherwise for obtaining energy – Annex 2 to the Decree on Waste (Official Gazette of the RS, Nos 73/2015, 69/2015)). The value up to and 2015 also includes the amounts of imported waste using the R1 process, but does not include amounts of exported waste using the R1 process. Owing to the upgrade of the administrative source, the data for 2016 excludes the amounts of imported waste using the R1 process and includes the amounts of exported waste using the R1 process. The biodegradable waste referred to in Annex 1 to the Decree on the treatment of biodegradable waste and the use of compost or digestate (Official Gazette of the RS, Nos 99/13 and 56/15) is deemed to be biomass from waste. The reason is that Directive 2009/28/EC lays down that biomass also includes biodegradable waste.

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

Land use	Surface area (in ha) ¹	
	2015	2016
1. Land used for common arable crops (wheat, sugar beet etc.) and oilseeds (rapeseed , sunflower etc.) (Please specify main types)	1 629	3 156
2. Land used for short rotation trees (willows, poplars) (Please specify main types)		
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum (Please specify main types)		

¹ The data for oilseed rape.

(http://pxweb.stat.si/pxweb/Dialog/varval.asp?ma=15024025&ti=&path=../Database/Okolke/15_kmetijstvo_ribistvo/04_rastlinska_pridelava/01_15024_pridelki_povrsina/&lang=2)

7. Please provide information on any changes in commodity prices and land use within Slovenia in the preceding two 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).

When assessing commodity price impacts, it is suggested that at least the following commodities be considered: common food and feed crops, wood for producing energy, pellets.

In accordance with the Decree on the rules for drafting forecasts of the position on the electricity market of units generating electricity from renewable energy sources and high-efficiency cogeneration⁵¹ and pursuant to Article 554(2) of the EZ-1, the Energy Agency compiles a forecast every year, or as required, of the situation of generating units using renewable energy sources and high-efficiency cogeneration on the electricity market. The forecast also sets the reference prices used to calculate the level of operating support and the reference costs for generating electricity from renewable energy sources and through the high-efficiency cogeneration of heat and power. The Agency also compiles the reference market prices for wood biomass on the basis of the most recent available statistical data for a 12-month period, and the reference market prices for corn silage substrate on the basis of the most recent available monthly statistical data. The reference price for wood biomass was EUR 57.15/t in 2015 and was 7.5 % lower in 2014, amounting to EUR 58.22/t, and the price for corn silage substrate was EUR 31.33/t in 2015, rising to EUR 28/t in 2016.⁵²

The prices for wood fuels for the precisely determined fuel quality classes are monitored by the Forestry Institute of Slovenia, which collects data twice yearly using a reference sample of wood fuel providers for logs, wood chips, briquettes and pellets. The Institute has published price analyses⁵³ that show that prices for wood fuels did not change substantially in the

⁵¹ Official Gazette of the RS, Nos 83/2009 and 94/2011.

⁵² Borzen, Support Centre, Level of support, History.

⁵³ <http://www.s4a.si/cene-lesnih-goriv>

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

Biofuels from Article 21(2)⁵⁴	2015	2016
Production – fuel type X (Please specify)		
Consumption – fuel type X (Please specify)		
Total production of biofuels from Article 21(2)		
Total consumption of biofuels from Article 21(2)		
Share (in %) of fuels from Article 21(2) in total RES-T		

There were no producers of biofuels from waste, residues, non-food cellulosic material or ligno-cellulosic material in Slovenia in 2015 and 2016; there is no data on the use of these biofuels.

Waste and residues are not defined within the directive; decision-making on this therefore lies within the competence of the Member State. The Environmental Protection Act gives a general definition of waste. The Decree on the sustainability criteria for biofuels and on greenhouse gas emissions within the lifecycle of transport fuels⁵⁵ does not include a definition of the criterion referred to in Article 21(2) of the Directive; it does, however, introduce reporting by individual biofuel type.

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 two 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).

There were no producers of biofuels and bioliquids in Slovenia in 2015 and 2016.

10. Please estimate the net reduction in greenhouse gas emissions through the use of energy from renewable sources (Article 22(1)(k) of Directive 2009/28/EC).

Environmental aspects	2015	2016
<i>Total estimated net reduction in GHG emissions through the use of renewable energy sources⁵⁶</i>	5 902 986	6 219 097
- Estimated net reduction in GHG emissions through the use of electricity from renewable sources	4 215 993	4 523 590
- Estimated net reduction in GHG emissions through the use of energy from renewable sources in heating and cooling	1 596 989	1 639 150
- Estimated net reduction in GHG emissions through the use of renewable sources in transport	90 005	56 357

⁵⁴ Biofuels made from waste, residues, non-food cellulosic material and ligno-cellulosic material.

⁵⁵ Official Gazette of the RS, No 38/2012.

⁵⁶ The contribution of gas, electricity and hydrogen as a portion of renewable energy sources should be reported depending on the final use/application (electricity, heating and cooling or transport) and only be counted once towards the total estimated net GHG savings.

There was a further reduction in GHG emissions resulting from the use of RES in 2016 compared to the previous year. Favourable hydrological conditions led to higher outputs at hydroelectric power plants and thus lower GHG emissions. The heating and cooling sector also saw lower GHG emissions, mainly due to the increased use of wood biomass. Lower reductions in GHG emissions in transport were the result of a lower share of biofuels in all fuels.

The following methodology was used to assess reductions in emissions:

- Electricity: It was assumed that the production of electricity from RES replaces the production of electricity from fossil fuels (coal, lignite, natural gas and petroleum products). The average emission factor was calculated by multiplying the sum of electricity produced using an individual fuel by the emission factor and dividing it by the total consumption of fossil fuels for electricity production (taking into account power plants by main activity and auto producers).
- Heating and cooling: For direct use of renewable energy sources in those sectors using the final energy output, average emission factors were calculated separately for each sector (industry, households, other use), taking into account the use of fossil fuels and their respective emission factors. These factors were then taken into account in the RES consumption by sector. For district heat generated from RES, the emission factor of 87 t/CO₂ekv/TJ was used.
- Transport: In transport, GHG emissions savings were calculated using the emission factors for petrol in the case of bioethanol, and diesel in the case of biodiesel.

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

Based on the third paragraph of Article 4 of Directive 2009/28/EC on the promotion of the use of energy from renewable sources, six months before the deadline for the submission of the National Renewable Energy Action Plan, the Government of the Republic of Slovenia sent to the Commission the announcement that by 2020 it would not have an excess production of energy from renewable sources that could be transferred to other Member States in accordance with Articles 6 to 11 of the Directive, and that it did not see the potential for joint projects until 2020 to provide energy from renewable sources that could not be provided by domestic production until 2020. Since then, the Government has not adopted any new

Table 7: Actual and estimated excess and/or deficit (-) production of renewable energy compared to the indicative trajectory that could be transferred to/from other Member States and/or third countries in [Member State] (ktoe)^{57, 58}

	(2009)	(2010)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Actual/estimated excess or deficit production (Please distinguish per type of renewable energy and per origin/destination of import/export)	0	0	0	0	0	0	0	0	0	0	0	0

2016 was the first time the total share of RES was below the planned level (by 0.7 %).

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

Statistical transfers were not performed.

12. Please provide information on how the share of 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).

In Slovenia, the amount of electricity and heat produced from waste is low. Currently, the share of production from biodegradable waste is not yet taken into account in the total production of electricity and heat from RES.

The share of biodegradable waste in all waste used for energy generation is estimated for the purpose of reporting to UNFCCC, and in the future the same methodology will also be used to monitor the use of waste in the production of energy from RES.

⁵⁷ Please use actual figures to report the excess production for the two years preceding submission of the report, and estimates for the following years up to 2020. In each report the Member State may correct the data of the previous reports.

⁵⁸ When completing the table, for deficit production please mark a shortage of production expressed as negative numbers (e.g. -x ktoe).