



REPUBLIKA SLOVENIJA
MINISTRSTVO ZA INFRASTRUKTURO

REPUBLIC OF SLOVENIA
INFRASTRUCTURE MINISTRY

DIREKTORAT ZA ENERGIJO
Langusova ulica 4, 1535 Ljubljana

ENERGY DIRECTORATE

T: 01 478 80 00
F: 01 478 81 70
E: gp.mzi@gov.si
www.mzi.gov.si

REPORT OF THE REPUBLIC OF SLOVENIA ON PROGRESS IN THE PROMOTION AND USE OF ENERGY FROM RENEWABLE SOURCES IN ACCORDANCE WITH ARTICLE 22 OF DIRECTIVE 2009/28/EC

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 2009/28/EC).

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

	Year 2017	Year 2018
RES – H and C ² (%)	33.25%	31.61%
RES – E ³ (%)	32.43%	32.32%
RES – T ⁴ (%)	2.57%	5.50%
Total share of RES ⁵ (%)	21.06%	21.15%
<i>Of which from cooperation mechanism⁶ (%)</i>		
<i>Surplus for cooperation mechanism⁷ (%)</i>		

¹ Facilitates comparison with Table 3 and Table 4a in the 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 NREAPs 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 MREAPs applies.

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

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

⁶ In percentage points of overall RES share.

⁷ In percentage points of overall RES share.

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

	Year 2017	Year 2018
(A) Gross final consumption of RES for heating and cooling	627.6	588.2
(B) Gross final consumption of electricity from RES	426.7	428.2
(C) Gross final consumption of energy from RES in transport	30.7	78.4
(D) Gross total RES consumption ⁹	1,084.9	1,094.9
(E) Transfer of RES <u>to</u> other Member States	0.0	0.0
(F) Transfer of RES <u>from</u> other Member States and third countries	0.0	0.0
(G) RES consumption adjusted for target (D) – (E) + (F)	1,084.9	1,094.9

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 indicative interim trajectory for the shares of energy from renewable sources in electricity.¹⁰

	Year 2017		Year 2018	
	MW	GWh	MW	GWh
Hydro ¹¹ :	1,346.6	4,463.5	1,343.4	4,529.3
non pumped	1,166.6	4,463.5	1,163.4	4,529.3
<i>pumped</i>	180.0	272.6	180.0	188.7
<i>mixed</i> ¹²	0.0	0.0	0.0	0.0
Geothermal	0.0	0.0	0.0	0.0
Solar:	246.8	283.9	254.4	255.0
<i>photovoltaic</i>	246.8	283.9	254.4	255.0
<i>concentrated solar power</i>	0.0	0.0	0.0	0.0
Tide, wave, ocean	0.0	0.0	0.0	0.0
Wind:	5.0	6.3	5.2	6.0
<i>on-shore</i>				
<i>offshore</i>				
Biomass ¹³ :	61.8	284.9	60.4	265.0
<i>solid biomass</i>	33.0	154.8	32.0	146.1
<i>biogas</i>	27.4	130.1	27.0	118.8
<i>bioliquids</i>	1.4	0.0	1.4	0.0
TOTAL	1,660.2	5,038.5	1,630.4	5,055.3
<i>of which in CHP</i>		288.8		270.6

⁸ Facilitates comparison with Table 4a of the NREAPs.

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

¹⁰ Facilitates comparison with Table 10a of the NREAPs.

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

¹² In accordance with new Eurostat methodology.

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

Table 1c: 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 sources in heating and cooling (ktoe)¹⁵

	Year 2017	Year 2018
Geothermal (excluding low temperature geothermal heat in heat pumps)	48.3	48.9
Solar energy	10.9	10.9
Biomass ¹⁶ :	568.3	528.4
<i>solid biomass</i>	561.8	521.6
<i>biogas</i>	6.5	6.7
<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	627.6	588.2
<i>Of which DH¹⁷</i>		
<i>Of which biomass in households¹⁸</i>	457.2	419.5

¹⁴ Direct use and district heating referred to in Article 5(4) of Directive 2009/28/EC.

¹⁵ Facilitates comparison with Table 11 of the NREAPs.

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

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

¹⁸ From the 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 sources in the transport sector (ktoe) ^{19,20}

	Year 2017	Year 2018
Bioethanol/ bio-ETBE	3.5	6.7
<i>Of which biofuels²¹ Article 21(2)</i>	3.5	6.7
<i>Of which imported²²</i>	3.5	6.7
Biodiesel	21	66
<i>Of which biofuels²³ Article 21(2)</i>	21	66
<i>Of which imported²⁴</i>	21	66
Hydrogen from renewables		
Renewable electricity	6.45	6.43
<i>Of which road transport</i>	0.02	0.03
<i>Of which non-road transport</i>	6.43	6.4
Other (such as biogas, vegetable oils, etc.) – please specify		
<i>Of which biofuels²⁵ Article 21(2)</i>		
TOTAL	31	79

Slovenia has no oil refineries. All liquid fuels for both transport and heating are imported. Liquid fuels imported for transport often have a smaller share of biofuels mixed in.

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

²⁰ Facilitates comparison with Table 12 of the NREAPs.

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

²² Of the total amount of bioethanol/bio-ETBE

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

²⁴ Of the total amount of biodiesel.

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

2. Measures adopted in the previous two years and/or planned at national level to promote increased consumption of energy from renewable sources, taking into consideration 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
Promoting self-handling of electricity from RES	regulation; granting investment support	Increased production of electricity from RES installations.	Electricity producers in households and in small business consumers. Financial incentives for households.	Additional, not covered in NREAP.	The measure was adopted in 2016 and its implementation began in 2017. Financial resources are, for now, planned until 2020; No implementation end date specified.
Financial incentives for district heating using renewables	investment grants	In OP ECP the available resources for this measure were raised from EUR 16 million to 45.3 million, intended to ensure an additional 53 MW of installed power for the generation of heat, i.e. in the OP ECP a total 83 MW.	Companies, municipalities, cooperative societies, institutes, individuals	The measure is planned in NREAP.	The measure has been implemented since 2009. Financial resources are planned until 2020; the end of the measure's implementation is not defined.
Financial incentives for generation of electricity from renewables	investment grants	In OP ECP, construction of new smaller facilities for renewable electricity generation (wind	Companies, cooperative societies, individuals	Additional, not covered by NREAP.	The implementation of the measure started in 2017. Financial resources are planned until

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
		and solar energy, biomass and small HPP up to 10 MW) is promoted, intended to ensure a total 50 MW of installed power for the generation of electricity by 2023.			2020; No implementation end date specified.
Promotion of use of RES in the public sector	investment grants	Increase in the generation of heat from RES thanks to new Eco Fund calls for the implementation of EE measures and use of renewables in the public sector.	Public sector	Additional, not covered by NREAP.	Implementation of the measure started in 2017. No implementation end date specified.
Promoting the exploitation of RES in households	investment grants	Increase in the generation of heat from RES thanks to new Eco Fund calls for the implementation of EE measures and use of renewables in the private sector.	Industry, private service sector	Additional, not covered by NREAP.	Implementation of the measure started in 2018. No implementation end date is specified.
Decree on sustainability criteria for biofuels and life-cycle greenhouse gas emissions	regulations, tax policy	Reduction of greenhouse gas emissions in the life cycle of fuel per unit of energy from fuel used in	Transport/distributors of motor fuels	The measure builds on the existing NREAP measure.	2017-2020

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
from fuels in transport (Uradni list RS (UL RS; Official Gazette of the Republic of Slovenia) No 19/17)		transport, as follows: - in both 2018 and 2019 by at least 5%, - in 2020 by at least 6%.			
Decree on the deployment of infrastructure for alternative transport fuels	regulation	Specifies methods of providing charging infrastructure to supply transport with electricity.	Transport/distribution operators of electricity, manager of the Port of Koper.	Additional, not covered by NREAP.	2017-2025
Rules on financial incentives for energy efficiency, district heating and use of renewables	regulation, financial incentives	Rules for allocation of incentives for: installation of boilers and heat pumps with higher conversion efficiency and energy efficiency of the district systems with 80% heat generated from renewables or in combination with electricity and heat cogeneration systems.	Households and industry	The measure replaces the existing regulation.	Implementation of the measure began in 2016, replacing the Decree of 2009. No implementation end date specified.
Action plan for alternative fuels in transport	planning of national objectives and measures	Increasing the use of renewables and reducing final energy consumption in transport;	Transport	The measure builds on existing and planned NREAP measures: it sets more	2018-2020

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
		achieving environmental objectives in terms of greenhouse gas emissions and pollutants; reducing greenhouse gas emissions in transport by 9% in 2030 as compared to 2020.		ambitious objectives in the transport sector.	
<i>Financial incentives for infrastructure for alternative fuels and electromobility</i>	Financial incentives and co-financing for building infrastructure for alternative fuels	Setting up public infrastructure for alternative fuels and smart charging stations for accelerated introduction of electromobility, as follows 630 public and 3,150 private charging stations for electric vehicles.	Personal transport	Additional, not covered by NREAP.	The measure was adopted in 2016 and its implementation began in 2017. No implementation end date specified.
<i>Compulsory shares of RES in district heating systems</i>	regulation	Amendments to EZ-1 of 2019, lower the requirements for compulsory shares of RES and CHE by 2020: to provide - instead of at least 75% - at least 50% of combined heat from RES, CHE and/or waste heat.	Heat supply	Article 322 of EZ-1 amended (2019), modifying the existing NREAP measure.	Implementation of the measure started in 2014. No implementation end date specified.

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>Support scheme for renewable electricity generation</i>	regulation; financial incentives in the form of ensured purchase or operating support	EZ-1 was amended in 2019 to introduce minor changes in operation of the scheme; at the same time, European Commission consent for extending the operation of the support scheme by 6 years, i.e. to the end of 2025, was obtained	Electricity producers in all sectors	The 2019 amendments to EZ-1 modify the existing NREAP measure	The measure was adopted in 2014 and its implementation began in 2016. In its current form, the support scheme expires at the end of 2025.

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

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

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

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

Support scheme for electricity generation from renewable sources²⁶

The support scheme to promote the generation of electricity from RES and high-efficiency co-generation of heat and power (CHP) was introduced in 2009 and then reformed by the Energy Act (EZ-1) adopted in 2014.²⁷ In the reformed scheme, new entries are limited by financial quotas set by the Government in the annual energy balances for the current year. The best providers are selected on the basis of a public call, which is also the basis for determining the amount of support available in the form of the ensured purchase of electricity or operating support (financial support for ongoing operation). Production installations using renewable energy sources up to 10 MW rated electricity power may enter the scheme, with the exception of installations for the exploitation of wind energy up to 50 MW and high-efficiency co-generation installations up to 20 MW rated electrical power. Support can be obtained also for the electricity produced in already amortised production installations using wood biomass, if due to the market costs of wood biomass the electricity production costs in these installations exceed the electricity market price. The duration of the support is limited to 15 years for electricity from production installations using RES, and to 10 years for electricity for CHP units. The amendments to the Energy Act (EZ-1) in 2019 also entailed minor changes in the area of the support

²⁶ Summarised according to the draft *Poročilo o doseganju nacionalnih ciljev na področju OVE in SPTE za obdobje 2017–2018* (Report on achieving national objectives in the field of RES and CHP for the 2017–2018 period).

²⁷ UL RS Nos [17/14](#), [81/15](#), [43/19](#) and [60/19](#) – official consolidated text.

scheme: only installations with a rated electrical power less than 500 kW are now eligible for the guaranteed purchase of electricity, as opposed to less than 1 MW previously; the Energy Agency now publishes public calls in accordance with the annual plan for the implementation of the support scheme, whereas previously this was done by 1 October, and at the same time, for the implementation of projects selected under public procedures, the presentation of appropriate insurance may also be required which is redeemable if the deadlines to obtain the declarations laid down by EZ-1 are missed. The notification of the support scheme - which, since it constitutes state aid within the meaning of the first indent of Article 2 of the *Monitoring of State Aids Act*²⁸, has to be notified to the European Commission before its implementation - was due to expire on 31 December 2019; accordingly, in August 2019, Slovenia requested and obtained the consent of the European Commission for the extension of the support scheme by 6 years, i.e. until the end of the year 2025.

Since the new support scheme started to run in 2016, the Energy Agency has published 5 public calls for the registration of projects for the generation of electricity from renewable sources and high-efficiency co-generation of heat and electricity in the support scheme: in December 2016, September 2017, February and December 2018 and June 2019. Funds of EUR 10 million were made available for each public call, or EUR 50 million in total. Some 285 projects accounting for total rated electrical power 325.9 MW were selected. They included 71 solar power plants - total power of 23.6 MW, 62 wind power plants - total power of 215 MW, constituting almost two thirds of the total power of all approved projects, and 56 hydro power plants with a total power of 14.9 MW. Due to siting issues, it is questionable whether all the proposed wind power plants will actually be built. Based on these calls, only 20 production installations with a total rated power of 15.4 MW entered the scheme by the end of 2018, generating a total 40.2 GWh of electricity in 2018. Of these installations, 11 used RES with a total rated power of 1.1 MW, generating 3.4 GWh of electricity in 2018. For the time being, the impact of the new support scheme appears to be insufficient, since it has not been widely implemented.

The installations using RES included in the support scheme generated 649.5 GWh –or 69% of all the electricity in the support scheme – in 2017, and 618.1 GWh – or 66% of all electricity in the support scheme – the following year. To support electricity generation in installations using RES, EUR 114.4 million – or 80% of all paid funds – were paid in 2017 and EUR 106.3 million (Table 3) – or 79% of all paid funds – were paid in 2018. Whilst 3,490 installations using RES were included in the support scheme in 2017 representing a total installed electric power of 342 MW, a year later, 3,482 installations using RES with a total installed electric power of 331 MW were included. Of these installations, as much as 95% were solar power plants which contributed 43% in 2017 and 40% in 2018 to the total electricity generated in the RES installations in the support scheme.

Investment support for electricity generation from renewable sources

In the *Operational Programme for the Implementation of the EU Cohesion Policy 2014-2020*²⁹ (OP ECP), in the framework of priority axis 04, *Sustainable energy use and production and smart networks*, for the promotion of production and distribution of energy deriving from renewable sources, both support to investments in the exploitation of RES for generation of heat that are presented in more detail in the chapter '*Programme for promoting energy use of wood biomass*' and investment support for the construction of new smaller facilities for the generation of electricity from RES (wind and solar energy, biomass and small HPP up to 10 MW of power) are anticipated. Two calls have been published so far for the construction of these facilities: for EUR 4 million, available in 2017, for co-financing the construction of new smaller installations for the generation of electricity from wind and water energy

²⁸ UL RS No [37/04](#)

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

(from 50 kW to 10 MW; JR EE OVE 2017), with no interest³⁰; and a call for co-financing the purchase and setting up of installations for electricity generation by exploiting solar energy for the 2019-2022 period (SE OVE 2019), with EUR 10 million of non-refundable funds available, was published in 2019.

Promoting self-supply with electricity from RES

The Decree on the self-supply of electricity from renewable energy sources (UL RS No 97/15) adopted in 2015, which entered in force in 2016 and was amended in 2019, introduces the possibility of self-supply with electricity from RES for the entire or partial coverage of own consumption of electricity. Following the amendment of the Decree, the following three types of self-supply of electricity from renewable energy sources are specified: (1) individual self-supply, (2) self-supply of apartment buildings, and (3) self-supply of the community with regard to the supply of energy from renewable sources. The Decree on the self-supply of electricity from renewable energy sources enables the owner of the self-supply installation to have a favourable bill for electricity and network charges. The bill takes account of the amount of electricity (kWh) that constitutes the difference between the active electrical energy (kWh) received and delivered, as read at the same metering point at the end of the accounting period. The connecting power of the self-supply installation (in kW) may not exceed by 0.8 times the connecting power at the consumption metering point; however, the connecting power of a community self-handling installation may not exceed by 0.8 times the total connecting power at the consumption metering points included in an individual community self-supply.

The amended Decree no longer limits the total net power of installations for self-supply connected per calendar year.

In 2016, the document *Poslovna politika Eko sklada, slovenskega okoljskega javnega sklada v obdobju od 2016 do 2020* [Business Policy of Eco Fund of the Slovenian environmental public fund in the period 2016-2020], laying down plans for grants to citizens for electricity self-supply, was approved³¹.

Statistical data:

According to the data received from the distribution operator, a total 135 installations for self-supply were connected in 2016, 719 installations in 2017 and 1,302 in 2018. The total net power of the devices connected in 2016 was slightly under 1.1 MW, in 2017 it was 6.48 MW, or 4.93 times more, and in 2018 it was 13.12 MW or over 2 times higher than in 2017. In total, 2,156 devices were connected with a total net power exceeding 20 MW. A large majority of the installations connected are solar power plants. There are also 9 small hydro power plants, while in 2018 the first wind power plant was connected as well. The average connecting power of solar power plants amounted to 8.16 kW in 2016, 9.02 kW in 2017 and 10.08 kW in 2018. The average connecting power of hydro power plants amounted to 6.4 kW in 2016, 55 kW in 2017 and 10.5 kW in 2018.

Programme for promoting the use of renewables in households

Eco Fund, the Slovenian environmental public fund also allocated grants for investments in the use of renewables in single-family houses and two-dwelling buildings in the 2017-2018 period. In 2017, one public call was published (54SUB-OB17), with EUR 16 million of non-refundable funds available, an

³⁰ Details on implementation of this measure in 2018 are given in *Podnebno ogledalo (Climate Action Mirror) 2019, Part 10: Emisije TGP in sektor EU-ETS* (GHG emissions and EU-ETS sector), prepared in the framework of the LIFE ClimatePath 2050 project. https://www.podnebnapot2050.si/wp-content/uploads/2019/09/Podnebno_Ogledalo_2019_Zvezek10_EU-ETS_KONCNO-3.pdf.

³¹ Eco Fund began allocating the grants for self-supply in 2017.

amount which was increased to EUR 44.5 million in 2018, of which the Climate Change Fund (CCF) provided EUR 20 million. Funds for grants are collected by means of a contribution for energy use to increase energy efficiency, while from 2014 onwards funds of the CCF are included in calls as well. In the framework of the published call, grants in the field of exploitation of RES were allocated for the installation of a solar heating system, combustion plants using wood biomass (CPWB) and heat pumps, both for central heating. The same year, the Eco Fund published a public call for grants to citizens for the replacement of old combustion plants in joint boiler rooms in multi-apartment buildings (48SUB-SKOB17), namely for the replacement of old combustion plants with CPWB or heat pumps. Funds of EUR 3 million were made available as non-refundable grants. In 2017, a new public call was published for grants to replace old combustion plants using solid fuels with new CPWB in residential buildings within municipalities with the adoption of Ordinances on air quality plans (59SUB-SOCOB17) aimed at socially disadvantaged citizens. Non-refundable funds amounting to EUR 440,000 were allocated to implement measures, and the call was extended from building or apartment owners eligible for financial social assistance in cash, to also include a municipal residential unit's tenants eligible for financial social assistance and building or apartment owners entitled to income support. For multi-apartment buildings, a public call for new joint investments in greater energy efficiency dating from 2016 (41SUB-OBPO16) was still open in the 2017-2018 period, including only measures for efficient energy use.

In 2017, the Eco Fund paid out EUR 4.8 million for investments in the exploitation of RES in households, of which 70% was for the installation of heat pumps for central heating (Table 3). The investments contributed to the generation of 43 GWh of heat from RES per year, the majority, i.e. 79%, being contributed by the heat pumps. In 2018, for measures for the exploitation of RES the Eco Fund paid 1.2 times – EUR 10.5 million – more than the previous year. The increased payment amount was the result of an increase in the number of supported investments of just over one third and, above all, the increased limit on non-refundable grants for the installation of heat pumps and CPWB in call 54SUB-OB17, as evidenced by Table 3. The trend of heat pumps accounting for the dominant share continued in 2018 – heat pumps accounted for 69% of the non-refundable grants paid out and a 79% share of the heat generated from RES in receipt of support. Renewable heat generation in 2018 was estimated at 61.4 GWh per year, 43% higher than the previous year.

Since 2008, when the Eco Fund had the task of allocating the non-refundable funds for investments in EE and RES in households, the largest amounts of non-refundable funds for measures for the exploitation of RES were paid out in 2013, namely EUR 10.7 million, and then in 2018. In 2018, the generation of heat from RES was three times lower in comparison with 2013, which is above all a consequence of the change in the structure of the measures implemented for the exploitation of RES. The share of non-refundable funds intended for measures for the exploitation of RES has declined since 2013, when it amounted to 43% of all funds. In 2016 it reached its lowest level in the 2008-2018 period (at 23%), then rose to 28% in 2017 and to 43% in 2018.

Programme promoting the use of renewables in private enterprises and the public sector

In 2017, the Eco Fund published the first public call for co-financing the energy efficiency measures and the use of renewables in the public sector (52SUB-JS17) and, in 2018, it published the first public call for financial incentives for energy efficiency measures and the use of renewables in private enterprises (51FS-PO18). In both cases, EUR 4 million of non-refundable funds were initially available; the amount being raised in 2018 to EUR 7 million for the public sector and in 2019 to EUR 5 million for private enterprises. The measures for which beneficiaries could obtain grants also included combustion plants using wood biomass, heat pumps, solar collectors and, for private enterprises, electricity self-supply equipment. In the period 2017–2018, no investment for the use of renewables was carried out.

The Eco Fund additionally promotes the use of renewables in the public sector under calls for the construction of nearly zero-energy buildings of general public interest, where at least 50% of the energy supplied annually for operation of the building must be covered from RES. In this context, the public call from 2017 (56SUB-LSRS17) initially made EUR 25 million available for grants, an amount later raised to EUR 25 million. In the period 2017-2018, projects were carried out that received funds under the previous call (40SUB-LS16); in total, 11 investments were supported, which contributed 1.2 GWh in energy produced from RES. This measure is not indicated in Table 3 because it is not primarily aimed at the use of renewables.

In the OP ECP, the use of renewables is promoted with non-refundable funds for district heating using RES, which is presented in more detail in the chapter *Programme to promote energy use of wood biomass*, and as part of comprehensive renovation of buildings in the context of supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings, and in the housing sector. In this framework, pilot projects for the comprehensive renovation of buildings within the narrower public sector (OJS), state owned wider public sector (ŠJS) and municipal buildings (JOB) are being implemented – 6 calls were published in the 2017–2018 period (OJS 2017 and OJS 2018, ŠJS 2017 and ŠJS 2018, as well as JOB 2017 and JOB 2018) representing a total of EUR 87.6 million of available non-refundable funds. As many as 45 projects were carried out, and the production of energy from RES is estimated at 7.7 GWh³². As above, this measure is not indicated in Table 3 because it is not primarily aimed at the use of renewables.

Incentives to use renewables are also available in the OP ECP in the context of promoting entrepreneurship under priority axis 03 *Dynamic and competitive entrepreneurship for green economic growth*, specifically in terms of improving the energy and material performance of enterprises with the aim of increasing the added value of SMEs. There is no date regarding potential projects where the use of renewables would be supported.

Programme for promoting the energy use of wood biomass

In households the energy use of wood biomass is promoted by allocating non-refundable funds from the Eco Fund, as described in more detail in the chapter *Programme for promoting the use of renewables in households*. In 2017 the Eco fund paid out EUR 1.2 million for the installation of CPWB, and a year later 2.5 times more or EUR 3.1 million (Table 3), which is a consequence of both the increase in the number of investments by half as many and the raising of the limit on the amount of non-refundable funds for installation of CPWB in the call 54SUB-OB17. Thus, renewable heat generation increased from 8.4 to 12.4 GWh per year; it should be taken into consideration that the investments included many where the old CPWB were replaced with new ones. The largest amount of funds was allocated by Eco Fund to CPWB in 2013, this amount being as much as EUR 5.4 million.

Subsequently, although in the framework of the previous financial perspective grants were also allocated for the co-financing of individual heating systems using wood biomass in the economy, in the 2014–2020 period the non-refundable funds for CPWB for legal persons under the OP ECP are no longer available. However, in the period 2017–2018, non-refundable grants for the energy use of wood biomass in private enterprises and the public sector were available under Eco Fund calls, as described in more detail in the chapter *Programme for promoting the use of renewables in private enterprises and the public sector*. In the period under observation these funds were not used to support any combustion plants using wood biomass.

³² Data are not yet final.

In the framework of implementation of the OP ECP, the development of the district heating using renewables continues to be promoted as in the previous financial perspective. In 2017, the second public call was published for co-financing of district heating using renewable energy sources (DH RES 2017) for the 2017–2020 period. The funds could be obtained for the construction of renewable district heating systems with a boiler capacity of up to a maximum 10 MW or construction of micro renewable district heating systems with a boiler capacity of up to a maximum 1 MW, extension of networks in the case of existing renewable district heating systems and in the event that the economic performance of system is thereby improved, also for solar energy systems to deliver hot water. Initially, EUR 8 million were made available, but the amount was subsequently increased to EUR 11 million. Under the OP ECP, a total 11 projects were completed in the period 2017–2018– with slightly under EUR 3.5 million (Table 3) disbursed to support the generation of 16 GWh of heat from renewables. A further 7 projects will be carried out under this scheme. Initially, EUR 16 million were earmarked for district heating from renewables under the OP ECP, then, after the latest amendment of the OP ECP at the end of 2018³³, this amount was increased to EUR 45.3 million. In 2019, the third call was published (DH RES 2019), this time for the period 2019–2022.

Scheme for the mandatory achievement of final energy savings by subject entities

The functioning of the scheme for the mandatory achievement of final energy savings by subject entities is governed by the *Decree on energy saving requirements*³⁴ adopted in 2015. The subject entities with a duty to achieve savings are all suppliers of electricity, heat, gas, and liquid and solid fuels to end-consumers, regardless of their size. Measures to achieve their obligations must be financed by the subject entities from their own resources, however instead of achieving the energy savings they can fulfil their obligations by transferring funds to the Eco Fund.

In the area of renewable use, in the period 2017-2018, the subject entities could also carry out measures to replace hot water boilers using all types of fuels with new high-efficiency boilers using wood biomass, to replace electrical heating systems with central heating with new high-efficiency boilers using wood biomass, to install heat pumps for the heating of buildings and install solar collectors, but it was also possible to boost the use of renewables under a number of other measures, e.g. connection of a building to a district heating system if fuelled by wood biomass, installation of a system for co-generation of heat and power (CHP) using renewables, etc.

According to the data of the Energy Agency, which in accordance with the EZ-1 is responsible for monitoring subject entities' fulfilment of their obligations, the increase in the use of renewables due to the measures implemented by subject entities amounted to 3.5 GWh per year in 2017, two-thirds of this increase being achieved by connecting buildings to renewable district heating, the installation of CHP systems using renewables and the installation of heat pumps. In 2018, the increase in renewable energy production was estimated at 18.3 GWh per year, more than half of which was achieved by installing CHP systems using renewables. Due to the specificity of the collection of data, these results are deemed less reliable.

³³ https://www.eu-skladi.si/sl/dokumenti/kljucni-dokumenti/programme_2014si16maop001_4_1_sl.pdf.

³⁴ UL RS No [96/14](#).

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

RES support schemes		Per unit support		In total (M€)	
		2017	2018	2017	2018
Installation of flat panel solar collectors in households ^a					
Grant	Eco Fund calls for incentives to citizens for new investments in RES and EE in buildings	maximum 200.00, <u>average 147.3 €/m²(a1)</u>	maximum 200.00, <u>average 141.0 €/m²(a1)</u>	0.166	0.149
Installation of vacuum solar collectors in households ^a					
Grant	Eco Fund calls for incentives to citizens for new investments in RES and EE in buildings	maximum 200.00, <u>average 159.2 €/m²</u>	maximum 200.00, <u>average 143.6 €/m²</u>	0.030	0.023
Installation of heat pumps land/water or water/water for heating and preparation of hot water in households ^a					
Grant	Eco Fund calls for incentives to citizens for new investments in RES and EE in buildings	maximum 2,500.00, or 3,100.00 for areas covered by an Ordinance ^(a2) , <u>average 214.5 €/kW or 2,476,5 €/piece</u>	from maximum 2,500.00 to maximum 5.000,00 ^(a3) , <u>average 273.1 €/kW or 3,303.9 €/piece</u>	0.572	1.107
Installation of air/water heat pumps for the heating preparation of hot water in households ^a					
Grant	Eco Fund calls for incentives to citizens for new investments in RES and EE in buildings	maximum 1,000.00, or 1,250.00 for areas covered by an Ordinance ^(a2) , <u>average 104.8 €/kW or 1,023.9 €/piece</u>	from maximum 1,000.00 to maximum 3.200,00 ^(a3) , <u>average 162.5 €/kW or 1.677,5 €/piece</u>	2.836	6.181
Installation of air/water heat pumps for the preparation of hot water in households ^a					
Grant	Eco Fund calls for incentives to citizens for new investments in RES and EE in buildings	measure no longer included in calls, 1 more investment from previous calls was implemented	measure no longer included in calls, investments no longer implemented	0.000	0
Replacement of central heating boilers with boilers using biomass (wood chips, pellets, log wood) in households ^a					
Grant	Eco Fund calls for incentives to citizens for new investments in RES and EE in buildings	maximum 2,000.00, or 4,000.00 for areas covered by Ordinance ^(a2) , <u>average 67.9 €/kW or</u>	from maximum 2,000.00 to maximum 5,000.00 <u>average 94.6 €/kW or 2.851,3 €/piece ^(a4)</u>	1.239	3.068

		1,647.0 €/piece (a4)			
Installation of individual systems of heating using wood biomass for private legal entities					
Grant	No non-refundable funds were made available in 2017 for this purpose. In 2018, the Eco Fund published a call for new investments in the use of RES and EE in the economy.	<u>There were no funds for this purpose.</u>	Up to 20% of the value of the eligible investment costs, subject to limitations related to allocation of <i>de minimis</i> aid; <u>there were not yet any payments in 2018.</u>	0	0
Construction of district heating using wood biomass in the economy					
Grant	Calls DO OVE 2016 (renewable district heating) for the period 2016–2020 and DO OVE 2017 for the period 2017–2020 under the OP ECP.	From 35 to 55% of the value of eligible investment costs, additional increase for CHP units and investments in areas eligible for aid ⁽ⁿ⁾ , <u>Average 67.5%</u>	From 35 to 55% of the value of eligible investment costs, additional increase for CHP units, average 51.5%	1.698	1.769
Estimated total annual support in the electricity sector				114.375	106.350
Estimated total annual support in the heating sector				6.542	12.297
Estimated total annual support in the transport sector				2.712	4.597

Amount of support for renewable production installations that entered the support scheme in 2018:		
Hydro power plants ^(b)		EUR/MWh
Electricity purchase guaranteed	Hydro power plants up to 50 kW	105.47
	Hydro power plants up to 1 MW	92.61
	Hydro power plants above 1 MW	82.34
Wind power plants ^(c)		EUR/MWh
Electricity purchase guaranteed	Wind power plants	95.38
Solar power plants ^(d)		EUR/MWh
Electricity purchase guaranteed	Solar power plants on buildings up to 50 kW	98.15
	Solar power plants on buildings up to 1 MW	89.75
	Solar power plants on buildings above 1 MW	74.48
	Solar power plants on ground up to 50 kW	92.22
	Solar power plants on ground up to 1 MW	84.95
	Solar power plants on ground above 1 MW	68.48

Geothermal power plants ^(e)		EUR/kWh
Electricity purchase guaranteed	Geothermal plants	152.47
Power plants using wood biomass ^(f)		EUR/MWh
Electricity purchase guaranteed	Power plants using wood biomass up to 50 kW	/
	Power plants using wood biomass up to 1 MW	247.90
	Power plants using wood biomass above 1 MW	187.04
Biogas power plants ^(g)		EUR/MWh
Electricity purchase guaranteed	Biogas power plants using biomass from agriculture up to 50 kW	159.74
	Biogas power plants using biomass from agriculture up to 1 MW	155.41
	Biogas power plants using biomass from agriculture above 1 MW	140.37
	Biogas power plants using biomass from waste up to 50 kW	139.23
	Biogas power plants using biomass from waste up to 1 MW	139.23
	Biogas power plants using biomass from waste above 1 MW	129.15
	Biogas power plants using biomass from sewage sludge up to 50 kW	85.84
	Biogas power plants using biomass from sewage sludge up to 1 MW	74.42
	Biogas power plants using biomass from sewage sludge above 1 MW	66.09
	Biogas power plants using biomass and landfill gas to 50 kW	99.33
	Biogas power plants using biomass and landfill gas to 1 MW	67.47
	Biogas power plants using biomass and landfill gas above 1 MW	61.67
Hydro power plants ^(h)		EUR/kWh
Premium for electricity	Hydro power plants up to 50 kW	69.09
	Hydro power plants up to 1 MW	56.23
	Hydro power plants above 1 MW	44.27
Wind power plants ⁽ⁱ⁾		EUR/MWh
Premium for electricity	Wind power plants	61.54
Solar power plants ^(j)		EUR/MWh
Premium for electricity	Solar power plants on buildings up to 50 kW	60.93
	Solar power plants on buildings up to 1 MW	52.53
	Solar power plants on buildings above 1 MW	35.99
	Solar power plants on ground up to 50 kW	55.00
	Solar power plants on ground up to 1 MW	47.73
	Solar power plants on ground above 1 MW	29.99
Geothermal power plants ^(k)		EUR/MWh
Premium for electricity	Geothermal plants	113.55
Power plants using wood biomass ^(l)		EUR/MWh

Premium for electricity	Power plants using wood biomass up to 50 kW	/
	Power plants using wood biomass up to 1 MW	209.41
	Power plants using wood biomass above 1 MW	148.12
Biogas power plants ^(m)		EUR/MWh
Premium for electricity	Biogas power plants using biomass from agriculture up to 50 kW	122.52
	Biogas power plants using biomass from agriculture up to 1 MW	116.92
	Biogas power plants using biomass from agriculture above 1 MW	101.45
	Biogas power plants using biomass from waste up to 50 kW	102.01
	Biogas power plants using biomass from waste up to 1 MW	10.74
	Biogas power plants using biomass from waste above 1 MW	90.23
	Biogas power plants using biomass from sewage sludge up to 50 kW	46.92
	Biogas power plants using biomass from sewage sludge up to 1 MW	35.5
	Biogas power plants using biomass from sewage sludge above 1 MW	27.17
	Biogas power plants using biomass and landfill gas to 50 kW	60.41
	Biogas power plants using biomass and landfill gas to 1 MW	28.55
	Biogas power plants using biomass and landfill gas above 1 MW	22.75

- a – The table shows the grants paid out for the listed Eco Fund programmes for households in the period 2017-2018.
- (a1) – Hot air solar collectors are counted as flat panel solar collectors.
- (a2) – Higher grants were earmarked for investments implemented in areas where an Air Quality Plan Ordinance had been adopted (the area of the municipalities of Celje, Hrastnik, Kranj, Ljubljana, Maribor, Murska Sobota, Novo mesto, Trbovlje and Zagorje).
- (a3) – The amount of the grant is limited by the greatest possible share of the recognised investment costs that can be achieved by the grant and the highest absolute value of the grant. Given these two criteria, investments are divided into three categories. New installations in the case of the first installation of a heating system in a residential building or if a new combustion plant is not replacing an old one are eligible for the lowest level of grant, this applying throughout Slovenia; the second category covers new plants in cases where they replace old plants in areas not covered by an Air Quality Plan Ordinance^(a1) and the third category covers plants where they replace old combustion plants within the territories of municipalities which have adopted an Air Quality Plan Ordinance^(a1).
- (a4) – The average also takes account of investments supported under public calls offering grants for the replacement of old solid-fuel combustion plants with new wood-biomass combustion plants in residential apartment buildings for socially disadvantaged citizens (36SUB-SOCOB1 and 59SUB-SOCOB17), where the grant amount was between EUR 2,000 and 8,000, depending on the type of plant. Three investments were supported under these calls in 2017 and 12 the following

year. The average of the funds paid under the two calls in the period 2017–2018 was 325.6 €kW or 5.270,4 €piece.

(b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m): Amount of support for installations that obtained support in 2018.

(n) – The areas eligible for aid are areas (a) and areas (c) from the Decree on the regional aid map for 2014–2020 (UL RS No [103/13](#)).

Demonstration and sample projects and energy counselling, information and training programmes

In the context of supporting energy efficiency, smart energy management and renewable energy use, the OP ECP provides for the execution of demonstration projects constituting the comprehensive energy renovation of different types of public-sector or apartment buildings. Under this heading, three projects were approved in 2016: the CŠOD Dom Bohinj pilot project as a pilot project involving energy renovation in a nearly-zero energy building, the pilot project of the judicial and public administration facility in Šmarje pri Jelšah as a pilot project involving energy renovation of a building with multiple operators and the pilot project of the energy renovation of the courts buildings in Celje, Murska Sobota in Slovenj Gradec as a pilot project involving multiple related buildings with a common operator. In 2016, the invitation to submit proposals to execute pilot project involving the energy renovation of cultural heritage buildings was published. No data is available on the potential execution of demonstration projects related to the use of renewables under other European or regional programmes (e.g. MED, LIFE, etc.). In the context of promoting investments by companies in research and innovation and of establishing connections and synergies between companies, research and development centres and the higher education sector, the OP ECP also provides for demonstration projects in the area of developing and testing innovations in practice.

In terms of supporting energy efficiency, smart energy management and renewable energy use, the OP ECP also makes provision for the following as complementary measures: the training of operators and support for awareness raising and education on energy efficiency, which were not yet implemented in the period 2015–2016. Other training courses and information and awareness raising projects were carried out in this period (e.g. the Sustainable Energy Portal, the Energy Portal, projects supported by Climate Change Fund resources, activities within international projects, etc.). More detailed information on the execution of these projects is not available since in this area there is no systematic monitoring of the effects and planning of activities. Energy counselling services in the framework of the ENSVET network of energy counselling offices is presented in more detail in a separate chapter.

Regulations relating to the use of energy in buildings

The Rules on the efficient use of energy in buildings (PURES-2)³⁵ specifying technical requirements in the area of energy efficiency (EE) for new and reconstructed buildings have been in force since 2010. In order for a building to achieve the required level of energy efficiency, then, in line with the Rules, apart from compliance with the requirements for threshold value of energy efficiency, at least 25% of the total final energy for the operation of systems in the building must be ensured from the use of renewables. Specifically, the Rules also allow for energy efficiency to be achieved by ensuring an appropriate share of the final energy for heating and cooling of buildings and preparation of hot water from individual types of RES (solar energy, gas biomass, solid biomass, etc.) or in the event of installation of a high efficiency CHP or an energy supply from wood biomass district heating. In the corresponding technical guideline TSG-1-004:2010 Energy efficiency³⁶, the exploitation of RES is

³⁵ UL RS No [52/10](#).

³⁶ http://www.arhiv.mop.gov.si/fileadmin/mop.gov.si/pageuploads/zakonodaja/prostor/graditev/TSG-01-004_2010.pdf.

specifically defined in preparation of the sanitary hot water that should be, as a rule, provided with solar collectors or alternative system by using RES.

On the basis of Article 331 of the Energy Act (EZ-1)³⁷, the Action Plan for nearly zero-energy buildings for the period up to 2020 (AN sNES) was adopted in April 2015. It defines ‘nearly zero-energy building’ as a building with very high level of energy efficiency or requiring a very small quantity of energy to function, where the energy required is produced to a large degree from renewable energy sources at the actual location or nearby. The minimum share of RES that is defined by the renewable energy ratio (RER)³⁸ for nearly zero-energy buildings is 50% regardless of the type of building. Importantly, in the area of regulations on the energy efficiency of buildings AN sNES provides for PURES-2 to be revised and supplemented with the minimum technical requirements for a nearly zero-energy building or the new definition of a nearly-zero energy building. PURES-2 and TSG-1-004 are expected to be amended in 2020. The amendments will include the technical definition of nearly zero-energy buildings (sNES) based on analysis of cost-optimal levels of minimum requirements for energy efficiency of buildings and the harmonisation of the methodology and calculation of energy characteristics of buildings with the European classification of buildings and EPB standards. The minimum requirements for nearly zero-energy buildings are expected to be defined at the level of (1) heat needed to heat a building (2) the non-renewable part of primary energy and (3) the share of renewable energy sources in the total energy supplied for the operation of building.

One of the objectives of the Energy Act (EZ-1) (Article 5) is greater production and use of RES which, with the aim of ensuring the State has a reliable, sustainable and competitive energy supply, is also promoted by energy policy (Article 20). Long-term objectives in terms of renewables will be defined in Slovenia’s Energy Concept (ECS, Article 23) and the National Energy and Climate Plan – the national energy programme, while its implementation is based on different action plans, which include the action plan for renewables³⁹, and operational programmes. In the area of buildings, the mandatory use of RES, CHP and waste heat in district heating systems is particularly important. In accordance with EZ-1, mandatory shares of RES for public sector entities (Article 324) will be specified, while in the construction of a new building and extensive renovation of a building or individual part thereof, a feasibility study of alternative energy supply systems, including decentralised renewable systems, must be drawn up.

Financial instruments for energy contracting

The use of renewables is also promoted in the framework of promoting energy contracting for energy renovation of buildings. On the basis of Article 348 of the EZ-1, the *Long-Term Strategy for mobilising investments in the energy renovation of buildings (DSEPS)*⁴⁰ was adopted in October 2015, the interim objective of which is to provide 60% of the energy in buildings from RES by 2020 and at least two thirds by 2030⁴¹. Concerning buildings, the vision up to the year 2050 is for nearly zero-carbon energy use to be achieved by significant improvement of energy efficiency and the increased use of renewables.

³⁷ UL RS Nos [17/14](#) and [81/15](#).

³⁸ RER is a share of renewable energy resources in relation to the total supplied energy according to the REHVA definition.

³⁹ AN-RES for the 2020-2020 period was adopted in 2010 (http://www.energetika-portal.si/fileadmin/dokumenti/publikacije/an_ove/an_ove_2010-2020_final.pdf), its revision is under preparation.

⁴⁰ http://www.energetika-portal.si/fileadmin/dokumenti/publikacije/dseps/dseps_final_okt2015.pdf Renovation of this Strategy was prepared in 2017. New LSERB will be prepared in 2020.

⁴¹ Share of the use of RES in the final consumption of energy products without electricity and district heat.

The DSEPS and the OP ECP provide for the accelerated start-up of the mechanism of energy contracting, which attracted private capital in the renovation of buildings of the public sector. The planning office for the energy renovation of buildings, set up in implementation of the OP ECP, in 2016 began operatively carrying out the project *Energy renovation of State- or municipality-owned buildings*, which, among other things, promotes the establishment of energy contracting in the public sector.

With the support of funds under the OP ECP, four **pilot projects** involving the **energy renovation of buildings according to the model of energy contracting** were approved, two projects were completed by the end of 2018, while two are still being carried out (see the chapter *Demonstration and sample projects and energy counselling, informing and training programmes*).

From 2016 onwards the Ministry of Infrastructure has issued calls for proposals for **grants from the Cohesion fund** for the comprehensive energy renovation of municipality-owned buildings, State-owned buildings in the wider and narrower public sectors. Own participation funds can be ensured by the beneficiaries themselves or in combination with a private partner – contractors in the case of energy contracting (see the chapter *Programme promoting the use of renewables in private enterprises and the public sector*).

In 2019, as a financial intermediary, SID Bank published a call for **loans for the comprehensive energy renovation of buildings**. EUR 37.5 million of non-refundable funds are available to municipalities and energy contracting operators. The OP ECP contributed EUR 25 million for the implementation of the instrument and SID Bank contributed an additional EUR 12.5 million.

On the initiative of municipalities, in several municipalities (Ljubljana municipality, 23 municipalities in Primorska, consortia of Novo Mesto Municipality; and Kranj and Celje Municipalities) international **technical assistance ELENA** projects have been carried out, supported by European Investment Bank (EIB) or European Bank for Reconstruction and Development (EBRD) funds. In the framework of the technical offices, the projects for the energy renovation of buildings were also prepared, and then implemented according to the model of energy contracting.

Financing through green bonds is a financial instrument for financing energy contracting that is being increasingly used. In 2017, the company GEN-I Sonce issued a green bond in the amount of EUR 14 million for financing micro solar power plants for self-supply of electricity for end-consumers. SID Bank and NKBM Bank cooperated in the issuing of the bond in a role of promoter and investor. In 2018, SID Bank independently issued a green bond in the amount of EUR 75 million. The funds obtained will also be earmarked by SID Bank for the financing of energy contracting projects and investments.

In 2017, SID bank established the **Slovene Equity Growth Investment Programme (SEGIP)** in amount of EUR 100 million. The objective of SEGIP is to support Slovenian small, medium-sized and mid-cap companies with capital. In 2019, with a contribution of EUR 6 million, SID Bank recapitalised the company Resalta, whose main activity is energy contracting services.

In 2018, the Eco Fund published a programme to finance investments in efficient use and renewable energy sources (see chapter *Programme promoting the use of renewables in private enterprises and the public sector*) as **de minimis aid**, entailing **a combination of non-refundable funds and a subsidised rate of interest**. The programme also enables financing energy contracting.

Mandatory shares of renewables in district heating systems and the promotion of renewables in local energy concepts

The mandatory minimum share for the use of renewables, co-generation and waste heat or a combination thereof in district heating systems is set in Article 322 of EZ-1. Heat distributors must ensure that, on an annual basis, heat from at least one of the following sources is provided: (i) at least 50% of heat generated from renewable energy sources, (ii) at least 50% of waste heat and (iii) at least 75% from high efficiency co-generation of heat and power. The requirements in terms of energy efficiency of these systems in point (iv) were lowered by the 2019 amendments to EZ-1: instead of at least 75% as a combination of heat from RES, CHP and/or waste heat, now at least 50% of heat has to be provided from a combination of a minimum of two of the above three sources. Distributors must meet this obligation by 31 December 2020.

On the basis of the local energy concepts (LEC), the use of renewables is planned within the area of the local community (Article 29 of EZ-1). The LEC defines objectives and measures to achieve these objectives, which must be in line with action plans in the areas of energy efficiency and renewables and with the umbrella State energy policy⁴². The LEC constitutes an important basis for development planning at local community level, since it represents the mandatory expert basis for the preparation of local community spatial plans. Local community authorities and providers of energy activities in the area covered by the LEC are obliged to bring their development documents and operation into line with the objectives and measures set out in the LEC. The LEC is a mandatory document that the local community must draw up (it can be drawn up in cooperation with other communities) at least every ten years. All municipalities have already adopted a LEC and, once the Resolution on the Energy Concept of Slovenia is adopted, municipalities will have to adopt new LECs within one year. LECs are drawn up in line with the *Rules on the methodology and mandatory content of the local energy concept (UL RS No 56/16)* revised in 2016.

A local community may, on the basis of the guidance of the LEC and taking the environmental criteria and technical characteristics of buildings into consideration, specify the priority use of energy products for heating. The LEC also includes special objectives and measures in the area of energy use in buildings owned by local communities and housing funds; whereby local communities must also take account of the guidelines of the *Long-Term Strategy for Mobilising Investments in the Energy Renovation of Buildings (Dolgoročne strategije za spodbujanje naložb energetske prenove stavb (DSEPS))*.

Decree on green public procurement

The Decree on green public procurement⁴³ entered into force on 13 March 2012. Among other things it specifies a mandatory minimum 40% share of electricity from renewable sources or high efficiency co-generation of heat and power in cases of green public procurement concerning electricity. A new Decree on green public procurement⁴⁴ was adopted in 2017 and entered into force on 1 January 2018. In the new Decree, a higher 50% mandatory minimum share of RES and CHP is specified. The revised Decree did not introduce other changes in the field of renewable energy sources, but enhanced the promotion of energy efficiency, which will have a positive impact on the share of RES.

⁴² In 2018 a draft Resolution on the Energy Concept of Slovenia was prepared, but the Resolution proper has not yet been adopted.

⁴³ Decree on green public procurement: UL RS Nos [102/11](#), [18/12](#), [NPB1](#), [24/12](#), [NPB2](#), [64/12](#), [NPB3](#), [2/13](#), [NPB4](#), [89/14](#), [NPB5](#) and [91/15](#) – ZJN-3.

⁴⁴ UL RS No 51/2017.

Statistical data:

In 2017, 43 electricity supply contracts with a total value of EUR 32,559,727 (excluding VAT) were awarded which took environmental aspects into consideration, namely the share of electricity generated from renewable energy sources or high-efficiency co-generation of heat and power. In 2018, the number was slightly lower, with 39 green public procurement procedures for electricity, the value amounted to EUR 28,718,442 EUR (excluding VAT)⁴⁵. In relation to the value of all public procurement procedures for electricity supply, the share of green public procurement procedures came to 94.70% in 2017 and 74.29% in 2018. In 2017, the highest maximum value of green public pronouncement procedures was achieved in the period monitored from 2012 onwards. That year, in relation to the value of all public procurement, the largest share of green public procurement was for electricity supply.

Energy counselling for citizens (EnSvet)

The network of energy advice offices ENSVET, active since 1993, continued its work in the period 2017-2018. In 2018, the ENSVET network had 55 offices employing 58 trained independent energy counsellors who help citizens, with free advice and interviews, in selecting, planning and carrying out investments in energy efficiency measures and the use of renewables in residential buildings. The counselling improves the energy awareness of citizens, increases energy savings and reduces greenhouse gas emissions, and thus contributes to the realisation of certain programmes and energy policy objectives. The ENSVET programme, defined in more detail in Articles 352 and 353 of EZ-1, coordinates and manages the Eco Fund.

In 2017, under the auspices of the ENSVET network, 8,838⁴⁶ activities were carried out (advice with a written report, e-advice, articles, radio and TV shows, lectures, schools presentations, etc.), including 7,346 written advice notes. A year later, 9,546⁴⁷ activities were carried out, including 7,870 written advice notes, which is only 2% less than the 8,000 advices planned in the annual work programme for 2018 and the most in the entire existence of the ENSVET network.

In 2017, counsellors carried out site visits and evaluated the quality of the execution of 56 projects supported with non-refundable funds from the Eco Fund, the energy counselling day was introduced - carried out in selected Merkur shopping centres in April 2017, and an energy counselling week - carried out between 14 and 22 October 2017 at ten locations in selected shopping centres in Slovenia. In 2018, counsellors visited and evaluated the quality of the execution of 148 projects supported with non-refundable funds from the Eco Fund in 2017, implementation of the new comprehensive image was completed, the energy counselling week took place again in October 2018 at ten locations in selected shopping centres throughout Slovenia, and the counsellors were also active in promoting the ENSVET network and awareness raising via the media, organised lectures for citizens and appearances in schools.

The execution of activities came to 86% of the budgetary plan in 2017 and 87% in 2018. Funds for running ENSVET are collected via a contribution on energy use to increase energy efficiency. Thanks to free counselling by the ENSVET network energy counsellors energy savings of up to 13.7 GWh were achieved and CO₂ emissions were reduced by 3,6 kt in 2017, with energy savings of 18.2 GWh achieved and CO₂ emissions reduced by 4.7 kt in 2018.

⁴⁵ Data source: MPA.

⁴⁶ *Climate Mirror 2018, Volume 3: Pregled izvajanja ukrepov* (Overview of the implementation of measures), prepared under the LIFE project Climate path 2050.

⁴⁷ *Climate Mirror 2019, Volume 3: Stavbe* (Buildings), prepared under the LIFE project Climate path 2050.

Under the aid scheme for energy efficiency in households for vulnerable groups of inhabitants, the ENSVET network energy counsellors also take part in the Zero project (reducing energy poverty). In this context, in 2017, the Eco Fund received 144 applications from eligible citizens for a visit and a ZERO packet and, a year later, as many as 243 applications or 69% more than the previous year. By the end of 2018, 282 visits were carried out to the premises of eligible citizens. Under Eco fund calls offering subsidies for the energy renovation of older apartment buildings, socially disadvantaged citizens were also eligible for incentives covering 100% of the recognised investment costs and up to 100% of the recognised costs of replacing old solid-fuel combustion plants. In the period 2017-2018, in the framework of major investments in older apartment buildings, 20 incentives for the socially disadvantaged were disbursed, while a further 28 investments in favour of the socially disadvantaged were supported for the replacement of the old solid-fuel combustion plants.

7. Please provide information on any changes in commodity prices and land use in Slovenia in the preceding two years associated with increased use of biomass and other forms of energy from renewable sources. Provide, where available, references to relevant documentation on impacts in your country, if such documentation is available (Article 22(1)(h) of Directive 2009/28/EC).

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

Every year or when required, 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 co-generation⁴⁸ and on the basis of the second paragraph of Article 554 of EZ-1, the Energy Agency draws up forecasts of the situation of the production installations using renewable sources and high-efficiency co-generation installations in the electricity market. The forecasts also include the reference prices which are used to calculate the amount of the operational support and reference costs for the generation of renewable electricity and high-efficiency co-generation of heat and power. Among other things, the Agency prepares reference market prices for wood biomass, doing so on the basis of the last available statistical data for a 12-month period, and reference prices for substrate of maize silage on the basis of the last available monthly statistical data. The reference price of wood biomass amounted to 53.10 EUR/t in 2017 and 4.5% more – or 55.51 EUR/t – in 2018, while the price for substrate of maize silage amounted to 23.34 EUR/t in 2017 and did not change in 2018⁴⁹.

The price of wood fuels for specific high-quality classes of fuels is monitored by the Slovenian Forestry Institute, which collects data twice a year using a reference sample of providers of wood fuels, wood chips, briquettes and pellets. The Institute publishes the price analyses⁵⁰ and these show that in the 2017–2018 period prices of all wood fuels have significantly risen (from 10% for wood pellets to 22% for wood briquettes).

⁴⁸ UL RS No 46/19.

⁴⁹ Borzen, Support Centre, Amount of Support, history.

⁵⁰ <http://www.s4q.si/cene-lesnih-goriv>.

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

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

Environmental aspects	2017	2018
<i>Total estimated net GHG emission savings from using renewable energy</i> ⁵¹	5,547,875	6,411,977
– Estimated net GHG savings from the use of renewable electricity	4,087,867	4,907,973
– Estimated net GHG savings from the use of renewable energy in heating and cooling	1,385,898	1,280,988
– Estimated net GHG savings from the use of renewable energy in transport	74,110	223,016

Greenhouse gas emission savings from the use of RES increased in 2018 compared to the previous year. The reason lies in the increased production of electricity in hydro power plants in particular due to more favourable hydrological conditions. In the heating and cooling sector, GHG savings were reduced as a result of reduced use of wood biomass on account of the warmer winter as well as due to the measures for efficient energy use of and the replacement of the boilers with heat pumps. GHG savings were also increased in transport as a consequence of a higher rate of use of biofuels.

The following methodology was used to estimate the emission savings:

- **Electricity:** It was taken as read that renewable electricity generation of electricity replaced the generation of electricity from fossil fuels (coal, lignite, natural gas and oil products). The average emission factor was calculated by multiplying the sum of electricity generation from an individual fuel by the emission factor and divided it by the total use of fossil fuels for generation of electricity (power plants – according to their main activity – and self-producers were taken into consideration).
- **Heating and cooling:** For the direct use of renewable energy sources in the sectors of final energy consumption, the average emission factors were calculated for each sector separately (industry, household, other use) taking the use of fossil fuels and accompanying emissions factors into consideration. These factors were then considered for the use of RES by individual sectors. The emission factor 87 t/CO₂eq/TJ was used for district heat generated from RES.
- **Transport:** In transport, the GHG emission saving was calculated by using the emission factors for gasoline in the case of bioethanol and for diesel in the case of biodiesel.

⁵¹ The contribution of gas, electricity and hydrogen from renewable energy sources must be indicated according to the final use (electricity, heating and cooling, and transport) and can only be considered once in the total estimated net savings of greenhouse gases.