



MINISTRY OF ENERGY

**Interim Report**  
**on progress in the promotion and use of energy from**  
**renewable sources in Poland in 2015-2016**

**(drawn up pursuant to Article 127(2) of the Act on Renewable Energy Sources)**

Warsaw, 2018

## Table of contents

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years (2015-2016) (Article 22(1)(a) of Directive 2009/28/EC) .....	6
2. Measures taken <u>in the preceding 2 years</u> and/or planned at national level to promote the growth of energy from renewable sources taking into account the indicative trajectory for achieving the national RES targets as outlined in your National Renewable Energy Action Plan (Article 22(1)(a) of Directive 2009/28/EC) .....	9
2.1 Information on 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) .....	11
2.2 Information on the measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in improving the framework or rules for bearing and sharing of costs related to grid connections and grid reinforcements (Article 22(1)(f) of Directive 2009/28/EC) .....	13
3. Information on 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).....	14
3.1. Information on how supported electricity is allocated to final customers for the purposes of Article 3(6) of Directive 2003/54/EC (Article 22(1)(b) of Directive 2009/28/EC).....	28
4. Information on how 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) .....	29
5. Information on the functioning of the system of guarantees of origin for electricity and heating and cooling from RES, and the measures taken to ensure reliability and protection against fraud of the system (Article 22(1)(d) of Directive 2009/28/EC) .....	29
6. Information on the developments <u>in the preceding 2 years</u> in the availability and use of biomass resources for energy purposes (Article 22(1)(g) of Directive 2009/28/EC) .....	30
7. Information on any changes in commodity prices and land use <u>within your Member State in the preceding 2 years</u> 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).....	35
8. Information on 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).....	36
9. Information on the estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality within your country <u>in the preceding 2 years</u> and 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). .....	37
10. Information on estimated net greenhouse gas emission savings due to the use of energy from renewable sources (Article 22(1)(k) of Directive 2009/28/EC).....	38

11. Information on the excess/deficit production of energy from renewable sources compared to the indicative trajectory which 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) .....	39
11.1. Details of statistical transfers, joint projects and joint support scheme decision rules ...	39
12. Information on how the share for biodegradable waste in waste used for producing energy has been estimated, and what steps have been taken to improve and verify such estimates (Article 22(1)(n) of Directive 2009/28/EC) .....	39
13. Information on the amounts of biofuels and bioliquids in energy units (ktoe) corresponding to each category of feedstock group listed in part A of Annex VIII taken into account by that Member State for the purpose of complying with the targets set out in Article 3(1) and (2), and in the first subparagraph of Article 3(4).....	40

## Introduction

Article 22(1) of Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (OJ L 140, 5.6.2009, p. 16; 'Directive 2009/28/EC') requires all Member States to submit a report to the European Commission on progress in the promotion and use of energy from renewable sources by 31 December 2011, and every two years thereafter. The Minister for Energy provides the required reporting information to the European Commission under Article 127(2) of the Act of 20 February 2015 on renewable energy sources (Journal of Laws (*Dziennik Ustaw*) 2017, item 1148; 'RES Act'), which transposes the Member States' reporting requirements set out in Article 22(1) of Directive 2009/28/EC.

Member States' reports will be used by the Commission to monitor overall developments in renewable energy policy and Member States' compliance with the measures set out in Directive 2009/28/EC and the National Renewable Energy Action Plans. The data included in these reports will also serve to measure the impacts referred to in Article 23 of Directive 2009/28/EC.

In order to ensure that the reports prepared by the Member States are complete and comparable, the Commission has issued a compulsory template, which covers all the requirements laid down in Article 22 of Directive 2009/28/EC. To a large extent, this template draws on the template for the National Renewable Energy Action Plans<sup>1</sup>.

The data included in this report refer to the two-year period preceding the reporting year 2017, i.e. 2015-2016. Moreover, the report contains information on legislative measures taken before the completion of this report which have a direct impact on the development of renewable energy.

The data presented in the previous report and those presented below show that the renewable energy source contribution in Poland has been increasing and, as a result, there is currently no risk that the intermediate targets or the final objective of Directive 2009/28/EC will not be achieved. It is expected that the optimisation of the support scheme for generators of electricity from renewable energy sources (RES), proposed deregulatory measures and measures aimed at facilitating administrative procedures provided for in the RES Act will result in a further growth in installed RES capacity.

The forecasts for sectoral targets and the estimated demand for energy and fuels from renewable sources notified to the Commission in the National Renewable Energy Action Plan (NREAP) remain valid.

It should be stressed that Commission's decisions and legal solutions adopted at European Union (EU) level on, inter alia, sustainable development are of great relevance for the further development of RES in Poland. In order to stimulate the development of RES, it will be essential to ensure a level playing field and compliance with the requirements applicable in the EU under the Common Agricultural Policy and environmental policy for, inter alia, biomass from third countries.

Poland's energy efficiency policy has been defined in several documents, the most important of which are:

- *Polityka energetyczna Polski do 2030 roku [Poland's Energy Policy to 2030]*,
- *Strategia na rzecz Odpowiedzialnego Rozwoju do roku 2020 (z perspektywą do 2030 r.) [Responsible Development Strategy until 2020 (looking ahead to 2030)]*,
- *National Energy Efficiency Action Plans (2007, 2011, 2014 and 2017)*.

Data from the Central Statistical Office (GUS; ('Energy efficiency in 2005-2015', Warsaw 2017) show that Poland has made significant progress in increasing energy efficiency. The ODEX<sup>2</sup> index, which shows progress in energy intensity, decreased from 83.2 to 66.8 in 2005-2015 compared with the base year. The average improvement rate was 2.2 % per year. Further measures included in the fourth National Energy Efficiency Action Plan (2017) are to facilitate, by 2020, the achievement of the national energy efficiency target of reducing primary energy consumption by 13.6 Mtoe in 2010-2020. This will also mean an improvement in the energy efficiency of the national economy. According to the fourth National Energy Efficiency Action Plan (2017), primary energy savings of 5.37 Mtoe were achieved in 2015. This means that Poland should achieve the energy efficiency target for 2020 required by Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC.

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<sup>1</sup> Commission Decision of 30 June 2009 establishing a template for National Renewable Energy Action Plans under Directive 2009/28/EC of the European Parliament and of the Council; notified under document number C(2009) 5174; Text with EEA relevance; 2009/548/EC.

<sup>2</sup> The ODEX index is calculated by aggregating changes in unit energy consumption, observed at a particular time at specific levels of end-use consumption. The ODEX index does not show the current level of energy intensity but progress in relation to the base year. It is calculated for every year as the quotient of actual energy consumption in the year concerned and theoretical energy consumption, not taking into account the unit consumption effect (i.e. on the assumption that the energy intensity of the production of the products concerned remains unchanged). To reduce accidental fluctuations, ODEX is calculated as a 3-year moving average. A decrease in the value of the index means an increase in energy efficiency.

## 1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years (2015-2016) (Article 22(1)(a) of Directive 2009/28/EC)

Table 1 shows the actual shares and actual consumption of energy from renewable sources in the 2015-2016 reporting period. The RES share surplus for the cooperation mechanism has been calculated as the difference between the actual total RES share and the minimum RES share indicated in the trajectory calculated in accordance with Annex 1 of Directive 2009/28/EC. The table corresponds to Table 3 of the NREAP. The data in Table 1 show that the total share of energy from renewable resources decreased slightly in 2016 as a result of, inter alia, large-scale system electricity units (i.e. over 17 000 MW of installed electrical capacity) ceasing to use co-incineration technologies following the adoption of the Renewable Energy Sources Act in 2015 and a statutory limit on RES support for co-incineration technologies. The decrease in the share of energy from renewable sources is also the result of increased biofuel exports, which, in accordance with the survey methodology, were not counted towards the achievement of the target for the share of energy from RES in transport, which led to a statistical decrease in the share of energy from renewable sources in gross final energy consumption in Poland in 2016. Nevertheless, while acknowledging the decrease in the share of RES in gross final energy consumption, the Ministry of Energy would like to stress that the targets for the share of RES in 2020 are still valid and achievable in the light of the above documents.

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

	2015	2016
RES – H&C <sup>3</sup> (%)	14.54	14.72
RES – E <sup>4</sup> (%)	13.43	13.36
RES – T <sup>5</sup> (%)	5.62	3.92
Overall RES share <sup>6</sup> (%)	11.74	11.29
Of which from cooperation mechanism <sup>7</sup> (%)	0.00	0.00
Surplus for cooperation mechanism <sup>8</sup> (%)	1.22	0.59

Source: Central Statistical Office (GUS) and own calculations of the Ministry of Energy made on the basis of the GUS data and the trajectory for Poland defined in Directive 2009/28/EC

Table 1a shows values in ktoe<sup>9</sup> corresponding to renewable energy consumption in each sector and the gross consumption of energy from renewable sources. The table corresponds to Table 4a of the NREAP.

<sup>3</sup> Share of renewable energy in heating and cooling: gross final consumption of energy from renewable sources for heating and cooling (as defined in Articles 5(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.

<sup>4</sup> Share of renewable energy in electricity: 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.

<sup>5</sup> Share of renewable energy in transport: 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 in transport of 1) petrol; 2) diesel; 3) biofuels used in road and rail transport and 4) electricity in land transport (as reflected in row 3 of Table 1). The same methodology as in Table 3 of the NREAP applies.

<sup>6</sup> Share of renewable energy in gross final energy consumption. The same methodology as in Table 3 of the NREAP applies.

<sup>7</sup> As percentage point of overall RES share.

<sup>8</sup> As percentage point of overall RES share.

<sup>9</sup> ktoe (kilotonne of oil equivalent), 1 ktoe = 41 868 GJ.

Table 1a: Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)<sup>10</sup>

	2015	2016
(A) Gross final consumption of RES for heating and cooling	5 116.4	5 468.7
(B) Gross final consumption of electricity from RES	1 826.5	1 854.1
(C) Gross final consumption of energy from RES in transport	721.2	535.0
(D) Gross total RES consumption <sup>11</sup>	7 664.1	7 857.8
(E) Transfer of RES to other Member States	0.0	0.0
(F) Transfer of RES from other Member States and 3 <sup>rd</sup> countries	0.0	0.0
(G) RES consumption adjusted for target (D)-(E)+(F)	7 664.1	7 857.8

Source: GUS

Table 1b shows values in MW corresponding to the installed capacity of individual electricity technologies. The table also shows values in GWh corresponding to the consumption of electricity from renewable sources in the electricity sector. The table corresponds to Tables 10a and 10b of the NREAP. The table contains information on the technical infrastructure for RES.

**Table 1b: Total actual contribution (installed capacity, gross electricity generation) from each renewable energy technology in Poland to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity<sup>12</sup>**

	2015		2016	
	MW	GWh	MW	GWh
<b>Hydro<sup>13</sup>:</b>	2 370.0	2 353.4	2 385.0	2 347.6
non pumped	588.0	2 111.4	596.0	2 122.1
< 1 MW*	91.0	356.5	93.0	360.9
1 MW – 10 MW*	188.0	623.8	186.0	611.0
> 10 MW*	309.0	1 381.0	317.0	1 392.0
pumped	1 406.0	–	1 413.0	–
mixed <sup>14</sup>	376.0	249.9	376.0	241.8
<b>Geothermal</b>	0.0	0.0	0.0	0.0
<b>Solar:</b>	108.0	56.6	187.0	123.9
photovoltaic	108.0	56.6	187.0	123.9
concentrated solar power	0.0	0.0	0.0	0.0
<b>Tide, wave, ocean</b>	0.0	0.0	0.0	0.0
<b>Wind:</b>	4 886.0	9 687.5	5 747.0	12 040.9
onshore	4 886.0	9 687.5	5 747.0	12 040.9
offshore	0.0	0.0	0.0	0.0
<b>Biomass<sup>15</sup>:</b>	953.0	9 933.0	952.0	7 940.3
solid biomass**	737.0	9 026.6	727.0	6 912.7
biogas	216.0	906.4	225.0	1 027.6
bioliquids	0.0	0.0	0.0	0.0
<b>TOTAL</b>	8 317.0	22 030.6	9 271.0	22 452.7
of which in CHP	–	7 979.9	–	5 892.1

\* – due to standardisation calculations, it is currently not possible to provide more detailed data on hydropower.

\*\* – installed capacities for solid biomass apply only to units generating electricity with the exclusive use of biomass as fuel. This makes it possible to determine the installed capacity for each source. In Poland, in addition to electricity generation in units designated exclusively for biomass incineration, there are large system installations generating electricity by co-incinerating biomass with other fossil fuels, e.g. coal. In this case, in accordance with the Regulation of the Minister for the Economy of 18 October 2012 on specific obligations to obtain certificates of origin and present them for redemption, pay the substitution fee, purchase electricity and heat generated from renewable energy sources and the obligation to validate data on the amount of electricity generated from a renewable energy source (Journal of Laws 2012, item 1229; 2013, item 1362; and 2014, items 671 and 1912), energy from RES includes the amount of electricity or heat corresponding to the share of chemical energy from biomass or biogas in the chemical energy of the fuels used to generate the energy, calculated on the basis of the actual net calorific values of those fuels. As the composition of the mixture of biomass

<sup>10</sup> Facilitates comparison with Table 4a of the NREAP.

<sup>11</sup> 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.

<sup>12</sup> Facilitates comparison with Table 10a of the NREAP.

<sup>13</sup> Normalised in accordance with Directive 2009/28/EC and Eurostat methodology.

<sup>14</sup> In accordance with new Eurostat methodology.

<sup>15</sup> Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) of Directive 2009/28/EC last subparagraph.

and another fuel differs in individual installations and may vary in different time intervals, it is impossible to calculate and determine the rated installed capacity for such units.

Source: GUS.

Table 1c shows values in ktoe corresponding to renewable energy consumption in heating and cooling, broken down by technology. The table corresponds to Table 11 of the NREAP.

**Table 1c: Total actual contribution (final energy consumption<sup>16</sup>) from each renewable energy technology in Poland to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in heating and cooling (ktoe)<sup>17</sup>**

	2015	2016
Geothermal (excluding low temperature geothermal heat in heat pump applications)	21.7	22.2
Solar	45.0	52.3
Biomass <sup>18</sup> :	4 984.0	5 271.6
<i>solid biomass</i>	4 895.6	5 170.1
<i>biogas</i>	88.4	101.5
<i>bioliquids</i>	0.0	0.0
Renewable energy from heat pumps:	25.7	53.0
- of which aerothermal	3.9	2.1
- of which geothermal	17.4	9.7
- of which hydrothermal	4.4	3.2
<b>TOTAL</b>	5 076.5	5 399.0
<i>Of which DH<sup>19</sup></i>	0.0	0.0
<i>of which biomass in households<sup>20</sup></i>	2589.0	2661.6

Source: GUS

Table 1d shows values in ktoe corresponding to renewable energy consumption in transport, broken down by technology.

Data on the amount of biofuels produced from the feedstock listed in Annex IX to Directive 2009/28/EC were not compiled in 2015-2016. This was due to the fact that Directive 2015/1513 was to be implemented on 10 September 2017. That Directive was implemented into the Polish legal system by the Act of 24 November 2017 amending the Act on biofuel components and liquid biofuels and certain other acts. That act entered into force on 1 January 2018.

Therefore, data on the amount of biofuels produced from the feedstock listed in Annex IX to Directive 2009/28/EC used in Poland to achieve the binding targets will be available for the first time for 2018.

**Table 1d: Total actual contribution from each renewable energy technology in Poland to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in the transport sector (ktoe)<sup>21, 22</sup>**

	2015	2016
- Bioethanol	153.48	167.67

<sup>16</sup> Direct use and district heat as defined in Article 5(4) of Directive 2009/28/EC.

<sup>17</sup> Facilitates comparison with Table 11 of the NREAP.

<sup>18</sup> Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) last subparagraph of Directive 2009/28/EC.

<sup>19</sup> District heating and / or cooling from total renewable heating and cooling consumption (RES-DH).

<sup>20</sup> From the total renewable heating and cooling consumption.

<sup>21</sup> For biofuels take into account only those compliant with the sustainability criteria, cf. Article 5(1) last subparagraph.

<sup>22</sup> Facilitates comparison with Table 12 of the NREAP.



- Biodiesel (FAME)	499.95	289.75
- Hydrotreated Vegetable Oil (HVO)	-	-
- Biomethane	-	-
- Fischer-Tropsch diesel	-	-
- Bio-ETBE	-	-
- Bio MTBE	-	-
- Bio-DME	-	-
- Bio-TAEE	-	-
- Biobutanol	-	-
- Biomethanol	-	-
- Pure vegetable oil	-	-
Total sustainable biofuels	653.43	457.42
Of which		
sustainable biofuels produced from feedstock listed in Annex IX Part A	0.00	0.00
other ecologically sustainable biofuels eligible for the target set out in Article 3(4)(e)	0.00	0.00
sustainable biofuels produced from feedstock listed in Annex IX Part B	0.00	0.00
ecologically sustainable biofuels for which the contribution towards the renewable energy target is limited according to Article 3(4)(d)	653.43	457.42
Imported from third countries	-	-
Hydrogen from renewables	0.00	0.00
Renewable electricity	67.80	77.61
Of which		
consumed in road transport	0.48	0.59
consumed in rail transport	61.06	69.84
consumed in other transport sectors	6.26	7.18

Source: GUS

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

**Table 2: Overview of all policies and measures**

Name and reference of the measure	Type of measures	Expected result	Targeted group and/or activity	Existing or planned	Start and end dates of the measure
1. Facilitating the connection of micro-installations to the electricity grid.	regulatory	Increasing the number of RES micro-installations.	generators of energy in micro-installations with an installed capacity of up to 40 kW.	existing	since 2013
2. Providing certification schemes for installers of micro- and small-scale installations and accreditation of training providers.	regulatory	Implementing Directive 2009/28/EC. Improving the quality of installed micro- and small-scale installations and the quality of training provided.	entities operating in the field of installing micro- and small-scale systems and training providers.	existing	since 2013
3. Establishing procedures to implement joint projects and statistical transfers.	regulatory	Implementing Directive 2009/28/EC. Enabling electricity undertakings to participate in joint RES projects and make statistical transfers of energy from RES.	electricity undertakings	existing	since 2013

4. Introducing the possibility of obtaining guarantees of origin for energy from renewable sources.	regulatory	Implementing Directive 2009/28/EC. Providing confirmation of origin for electricity from RES to final customers.	electricity undertakings and energy consumers.	existing	since 2013
5. Putting forward recommendations for using the equipment utilising energy generated from renewable sources in the buildings used by public finance sector entities.	regulatory	Increased deployment of renewable energy.	public finance sector units.	existing	since 2013
6. Taking measures to facilitate the process of installation of heat pumps and photovoltaic devices.	regulatory	Increased deployment of renewable energy.	generators of energy from heat pumps and generators of energy from photovoltaic devices with an installed capacity of up to 40 kW.	existing	since 2013
7. Providing financial support schemes in order to implement the measures related to the production of biocomponents, biofuels or other renewable fuels and their use in transport.	regulatory/ financial	Increased use of biocomponents, liquid biofuels or other renewable fuels in the transport sector.	<ul style="list-style-type: none"> <li>– Producers of biofuel components,</li> <li>– Producers of liquid fuels and liquid biofuels,</li> <li>– Farmers producing liquid biofuels for their own use,</li> <li>– Providers of public transport services,</li> <li>– Research units and scientific consortia,</li> <li>– Entrepreneurs,</li> <li>– Chambers of commerce,</li> <li>– Public benefit organisations,</li> <li>– Employers' organisations,</li> <li>– Associations,</li> <li>– Agricultural advisory units,</li> <li>– Regional and local administrative units.</li> </ul>	existing	since 2013
8. Exempting generators producing electricity in micro- and small-scale installations as well as from agricultural biogas and exclusively from bioliquids from the obligation to obtain a licence in accordance with the Energy Law Act	regulatory/ financial	Increased deployment of renewable energy	generators producing energy in micro- and small-scale installations, from agricultural biogas and exclusively from bioliquids.	existing	since 2015
9. Imposing on obligated suppliers the obligation to purchase unused electricity produced by generators other than prosumers from RES in micro-installations	financial	Increased deployment of renewable energy.	generators of energy in micro-installations with an installed capacity of up to 40 kW.	existing	since 2015
10. Imposing a clearing obligation on prosumers for micro-installations with a total installed electricity capacity not exceeding 10 kW, in a ratio of 1 to 0.8 of energy fed into the grid to energy taken off. A ratio of 1 to 0.7 will be used for micro-installations with a total installed electricity capacity exceeding 10 kW. These arrangements will allow prosumers to use the electricity grid free of charge as a 'storage place for energy', while the other final customers will be protected against increases in electricity costs due to the development of prosumer installations.	regulatory	Increased deployment of renewable energy.	generators of energy in micro-installations with an installed capacity of up to 40 kW which are prosumers	existing	since 2016

Source: Study by the Ministry of Energy

## **2.1 Information on 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)**

The administrative procedures relating to the use of energy from renewable sources are sufficient and proportionate from the point of view of the development of the large-scale (industrial) energy sector, as evidenced by newly created installed capacities.

The RES Act was adopted on 20 February 2015 as the first legal instrument in the form of an act of Parliament dedicated exclusively to RES.

The RES Act facilitates the achievement of the objectives aimed at RES development arising from governmental documents adopted by the Cabinet (i.e. Poland's Energy Policy until 2030 and the NREAP) and further coordination of the government administrative bodies' activities in this area, thus ensuring that the measures taken are consistent and effective.

Another important effect of the RES Act is the implementation of an optimised support scheme for RES electricity producers, with a particular focus on distributed generation based on local resources.

Based on analyses, a decision was made to take measures aimed at the cost optimisation of the support scheme as a two-way process. Firstly, it was assumed that the mechanism of certificates of origin had to be modified in such a way that the cost of supporting existing electricity generators would be reduced without affecting their rights. For existing RES installations, the optimisation involves restricting aid for multi-fuel firing units and large-scale hydropower units (with an installed capacity exceeding 5 MW), linking the level of the substitution fee to market conditions and freezing its maximum amount as well as limiting the period of support (to 15 years). Those measures will make it possible to achieve the objective through a more fair distribution of support to existing RES installations (accounting for the actual cost of electricity generation in these installations).

In accordance with the RES Act, starting from 1 July 2016, when Chapter IV (governing the functioning of the RES support scheme) entered into force, undertakings may apply for support in the form of a price for generated energy guaranteed under a competitive, auction-based support scheme (for 15 years). The purpose of the auction-based support allocation system is to achieve the renewable energy development target while minimising the burden on energy consumers.

Electricity generated by the smallest RES electricity generators in RES installations with an installed electricity capacity of up to 500 kW will be covered by the purchase obligation imposed on 'obligated suppliers' (electricity suppliers designated by the President of the Energy Regulatory Office (URE) obligated to purchase electricity within the operating area of the electricity distribution system operator concerned). The remaining generators will offer the energy generated by themselves, without obligated suppliers being required to purchase, inter alia, through a power exchange.

In order to ensure proportionality in the development of large and small installations, auctions were subdivided into auctions for units with an installed capacity not exceeding 1 MW and units with an installed capacity exceeding 1 MW. The RES Act also provides for

support for the smallest electricity producers which intend to produce electricity for their own use. The regulatory system in the form of support for micro-installations is based on billing for generated energy and energy taken off the grid (prosumer installations).

Under the RES Act, the support scheme for prosumers was simplified and the mechanism for billing prosumers was harmonised. Suppliers bill prosumers in a ratio of 1 to 0.7 of energy fed into the grid to energy taken off. A ratio of 1 to 0.8 will be used for micro-installations with a total installed electricity capacity not exceeding 10 kW. These arrangements will allow prosumers to use the electricity grid as a 'storage place for energy', while the other final customers will be protected against increases in electricity costs due to the development of prosumer installations.

In addition, unnecessary barriers to the development of this segment of the electricity sector on a micro scale, i.e. disclosure obligations for micro-generators, were removed, which additionally fosters the development of prosumer installations in Poland.

Surplus electricity at the disposal of suppliers as a result of billing is allocated to cover the billing costs incurred and to cover distribution fees instead of prosumers. The amount of these fees depends on the amount of electricity taken off by prosumers (apart from fees for the supplied electricity, these fees include in particular network, variable, 24-hour, quality and RES fees). The fees are paid by suppliers to the operator of the electricity distribution system to whose grid prosumers' micro-installations are connected.

The list of prosumers is not exhaustive and, in a functional sense, concerns all legal bodies that meet the definition of 'prosumer', i.e. in particular, natural and legal persons and entities having legal personality (public and non-public higher education institutions, housing associations, foundations and associations, parishes and religious associations) but also entities without legal personality, i.e. housing communities and education institutions (in particular schools and other education institutions) which, under the applicable law, namely the Act of 7 September 1991 on the Educational System (Journal of Laws 2015, item 2156, as amended), are administrative units in a legal sense.

In addition, prosumers can benefit from forms of support targeted specifically at them, namely aid schemes offered by, inter alia, the National Fund for Environmental Protection and Water Management (Narodowy Fundusz Ochrony Środowiska i Gospodarki Wodnej, NFOŚiGW). Under the RES Act, funds can also be obtained under existing EU-funded aid schemes, such as Regional Operational Programmes (ROPs) and Rural Development Programmes (RDPs).

It should be noted that the number of prosumers billed in a ratio of 1 to 0.7 or 0.8 of energy fed into the grid to energy taken off, depending on the capacity of micro-installations, has been rapidly increasing starting from 1 July 2016. As at the end of the 4<sup>th</sup> quarter of 2017, the number of prosumers is over 28 000 and the installed electricity capacity is over 183 MW for such installations.

As regards biofuel components used to produce liquid fuels and liquid biofuels, the Act amending the Act on biofuel components and liquid biofuels and certain other acts (Journal of Laws, item 1986), adopted on 30 November 2016, amended, inter alia, the Act

of 25 August 2006 on biofuel components and liquid biofuels (Journal of Laws 2017, items 285, 624 and 2290).

The Act of 30 November 2016 amending the Energy Law Act and certain other acts partially implemented, inter alia, Directive (EU) 2015/1513 of the European Parliament and of the Council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources (OJ L 239, 15.9.2015, p. 1) – as regards the greenhouse gas emission saving from the use of biofuels (amendment to Article 17(2) of Directive 2009/28/EC).

Furthermore, the following NIT (National Indicative Target) levels (the minimum share of other renewable fuels and biofuel components contained in liquid fuels or liquid biofuels used in all types of transport in the total amount of liquid fuels and liquid biofuels used in a calendar year in road and rail transport, calculated according to the energy content) were set out for 2017-2020 in the Act of 30 November 2016 amending the Energy Law Act and certain other acts:

- 1) 7.1 % – for 2017;
- 2) 7.5 % for 2018;
- 3) 8.0 % for 2019;
- 4) 8.5 % for 2020.

It should be noted that the NIT forms part of the overall target for the share of energy from renewable sources in transport (10 %). Electricity used in transport will contribute to the achievement of the remaining part of the overall target (1.5 %).

To summarise, the existing administrative procedures ensure the safe development of the RES sector, taking into account any social, economic and environmental impacts, as well as the operational safety of the Polish Power System (Krajowy System Elektroenergetyczny, KSE). However, additional simplification and deregulatory measures proposed in the RES Act are aimed at promoting the development of RES in Poland in the area of distributed sources with low capacities (micro-and small-scale installations). The same applies to legal solutions set out in the Act on biofuel components and liquid biofuels, which make the achievement of the target share of renewable energy in transport conditional on compliance with sustainability criteria and facilitate a broader use of agricultural waste and residues in the production of energy from renewable sources.

## **2.2 Information on the measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in improving the framework or rules for bearing and sharing of costs related to grid connections and grid reinforcements (Article 22(1)(f) of Directive 2009/28/EC)**

Pursuant to Article 7(1) of the Energy Law Act of 10 April 1997 (Journal of Laws 2017, item 220, as amended), an energy undertaking engaged in the transmission or distribution of electricity is required to conclude a grid connection agreement with entities requesting connection to the grid, on terms of equal treatment and giving priority to RES installations, if it is technically and economically feasible to connect them to the grid and to supply this

energy and the applicants meet the requirements for being connected to the grid and for taking off energy.

Article 7(2a) of the above Act provides that, apart from general provisions, a grid connection agreement for a RES installation must also include provisions:

1) setting the time limit for feeding electricity generated in that installation into the grid for the first time, which must not be longer than 48 months, and 120 months for RES installations using offshore wind power to generate electricity, from the date of that agreement;

2) stipulating that failure to feed electricity generated by that installation into the grid for the first time within the time limit specified in the agreement may result in the termination of the grid connection agreement.

In addition, under Article 7(8)(3)(a) of the above Act, the fee for connecting a RES installation with an installed electricity capacity not exceeding 5 MW to the grid is equal to a half of the amount calculated on the basis of the actual expenditure.

### 3. Information on 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)

Information on new RES support schemes introduced by the RES Act is provided in point 2.a of this report.

Table 3: Support schemes for renewable energy

			Per unit support	Total (M€)**	Per unit support	Total (M€)**
			2015		2016	
A. Hydro (electricity in MWh) <sup>1)</sup>			1 829 408.53		779 373.57	
Instrument (provide data as relevant)	Obligation/quota (%) <sup>2)</sup>		100			
	Penalty/Buy out option/ Buy out price (€/MWh) <sup>3)</sup>		40.24	73.61	40.16	31.30
	Average certificate price (€) <sup>4)</sup>		36.37	66.53	25.02	19.50
	Tax exemption/refund (€) <sup>5)</sup>		4.73	8.65	4.73	3.69
	Investment subsidies (capital grants or loans) (€/MWh) <sup>6)</sup>		explanations below the table			
	Production incentives		not applicable			
		Feed-in tariff	not applicable			
		Feed-in premiums	not applicable			
		Tendering	not applicable			
B. Geothermal (electricity in MWh) <sup>1)</sup>			0.00		0.00	
	Obligation/quota (%) <sup>2)</sup>		100			
	Penalty/Buy out option/ Buy out price (€/MWh) <sup>3)</sup>		40.24	0.00	40.16	0.00
	Average certificate price (€) <sup>4)</sup>		36.37	0.00	25.02	0.00
	Tax exemption/refund (€) <sup>5)</sup>		4.73	0.00	4.73	0.00
	Investment subsidies (capital grants or loans) (€/MWh) <sup>6)</sup>		explanations below the table			
	Production incentives		not applicable			
		Feed-in tariff	not applicable			
		Feed-in premiums	not applicable			
		Tendering	not applicable			
C. Solar (electricity in MWh) <sup>1)</sup>			43 065.83		80 304.09	
	Obligation/quota (%) <sup>2)</sup>		100			

	Penalty/Buy out option/ Buy out price (€MWh) <sup>3)</sup>	40.24	1.73	40.16	3.22
	Average certificate price (€) <sup>4)</sup>	36.37	1.56	25.02	2.01
	Tax exemption/refund (€) <sup>5)</sup>	4.73	0.20	4.73	0.38
	Investment subsidies (capital grants or loans) (€MWh) <sup>6)</sup>	explanations below the table			
	Production incentives	not applicable			
	Feed-in tariff	not applicable			
	Feed-in premiums	not applicable			
	Tendering	not applicable			
D. tide, wave, ocean (electricity in MWh) <sup>1)</sup>		0.00		0.00	
	Obligation/quota (%) <sup>2)</sup>	100			
	Penalty/Buy out option/ Buy out price (€MWh) <sup>3)</sup>	40.24	0.00	40.16	0.00
	Average certificate price (€) <sup>4)</sup>	36.37	0.00	25.02	0.00
	Tax exemption/refund (€) <sup>5)</sup>	4.73	0.00	4.73	0.00
	Investment subsidies (capital grants or loans) (€MWh) <sup>6)</sup>	explanations below the table			
	Production incentives	not applicable			
	Feed-in tariff	not applicable			
	Feed-in premiums	not applicable			
	Tendering	not applicable			
E. wind (electricity in MWh) <sup>1)</sup>		10 687 321.14		12 453 726.05	
	Obligation/quota (%) <sup>2)</sup>	100			
	Penalty/Buy out option/ Buy out price (€MWh) <sup>3)</sup>	40.24	430.05	40.16	500.14
	Average certificate price (€) <sup>4)</sup>	36.37	388.69	25.02	311.59
	Tax exemption/refund (€) <sup>5)</sup>	4.73	50.55	4.73	58.91
	Investment subsidies (capital grants or loans) (€MWh) <sup>6)</sup>	explanations below the table			
	Production incentives	not applicable			
	Feed-in tariff	not applicable			
	Feed-in premiums	not applicable			
	Tendering	not applicable			
F. solid biomass (electricity in MWh) <sup>1)</sup>		8 975 140.45		5 756 727.31	
	Obligation/quota (%) <sup>2)</sup>	100			
	Penalty/Buy out option/ Buy out price (€MWh) <sup>3)</sup>	40.24	361.16	40.16	231.19
	Average certificate price (€) <sup>4)</sup>	36.37	326.42	25.02	144.03
	Tax exemption/refund (€) <sup>5)</sup>	4.73	42.45	4.73	27.23
	Investment subsidies (capital grants or loans) (€MWh) <sup>6)</sup>	explanations below the table			
	Production incentives	not applicable			
	Feed-in tariff	not applicable			
	Feed-in premiums	not applicable			
	Tendering	not applicable			
G. biomass – biogas (electricity in MWh) <sup>1)</sup>		875 773.03		1 000 321.14	
	Obligation/quota (%) <sup>2)</sup>	100			
	Penalty/Buy out option/ Buy out price (€MWh) <sup>3)</sup>	40.24	35.24	40.16	40.17
	Average certificate price (€) <sup>4)</sup>	36.37	31.85	75.18	75.20
	Tax exemption/refund (€) <sup>5)</sup>	4.73	4.14	4.73	4.73
	Investment subsidies (capital grants or loans) (€MWh) <sup>6)</sup>	explanations below the table			
	Production incentives	not applicable			
	Feed-in tariff	not applicable			
	Feed-in premiums	not applicable			
	Tendering	not applicable			
H. geothermal (heat in ktoe)		21.70		22.20	
I. solar (heat in ktoe)		45.00		52.30	
J. solid biomass (heat in ktoe)		4 895.60		5 170.10	
K. biomass – biogas (heat in ktoe)		88.40		101.50	
L. heat pumps (heat in ktoe)		25.70		53.00	
M. energy from waste (heat in ktoe)		-		-	
N. bioethanol (transport in ktoe)		153.50		167.67	
	Obligation/quota (%) <sup>2)</sup>	Explanations below the table			

	Penalty/Buy out option/ Buy out price (€/MWh) <sup>3)</sup>	
	Average certificate price (€) <sup>4)</sup>	
	Tax exemption/refund (€) <sup>5)</sup>	
	Investment subsidies (capital grants or loans) (€/MWh) <sup>6)</sup>	
	Production incentives	
	Feed-in tariff	
	Feed-in premiums	
	Tendering	
<b>O. biodiesel (transport in ktoe)</b>		609.16      275.63
	Obligation/quota (%) <sup>2)</sup>	Explanations below the table
	Penalty/Buy out option/ Buy out price (€/MWh) <sup>3)</sup>	
	Average certificate price (€) <sup>4)</sup>	
	Tax exemption/refund (€) <sup>5)</sup>	
	Investment subsidies (capital grants or loans) (€/MWh) <sup>6)</sup>	
	Production incentives	
	Feed-in tariff	
	Feed-in premiums	
	Tendering	
<b>P. electricity (transport in ktoe)</b>		67.80      77.61
	Obligation/quota (%) <sup>2)</sup>	not applicable
	Penalty/Buy out option/ Buy out price (€/MWh) <sup>3)</sup>	
	Average certificate price (€) <sup>4)</sup>	
	Tax exemption/refund (€) <sup>5)</sup>	
	Investment subsidies (capital grants or loans) (€/MWh) <sup>6)</sup>	
	Production incentives	
	Feed-in tariff	
	Feed-in premiums	
	Tendering	
<b>R. others (as biogas, vegetable oils etc.) – (transport in ktoe)</b>		128.40      4.30
	Obligation/quota (%) <sup>2)</sup>	not applicable
	Penalty/Buy out option/ Buy out price (€/MWh) <sup>3)</sup>	
	Average certificate price (€) <sup>4)</sup>	
	Tax exemption/refund (€) <sup>5)</sup>	
	Investment subsidies (capital grants or loans) (€/MWh) <sup>6)</sup>	
	Production incentives	
	Feed-in tariff	
	Feed-in premiums	
	Tendering	
Total annual estimated support in the electricity sector		<b>1 822.83      1 453.29</b>
Total annual estimated support in the heating sector		<b>5 076.40      5 399.10</b>
Total annual estimated support in the transport sector		<b>958.86      525.21</b>
* The quantity of energy supported by the per unit support gives an indication of the effectiveness of the support for each type of technology		
** The PLN to EUR exchange rate used to calculate the price was 4.2249, in accordance with the Prime Ministerial Regulation of 23 December 2013 on the average zloty to euro exchange rate forming the basis for converting the value of public contracts (Journal of Laws, item 1692)		

1) – data of the President of the URE was used, relating to the electricity generated in 2015 and 2016 for which a certificate of origin was issued.

2) – in Poland, 100 % of electricity or heat produced from renewable energy sources must be taken off.

3) – the price paid to RES installations for electricity generated and fed into the electricity grid, which was determined on the basis of the average electricity selling price on the competitive market (data provided by the President of the URE, No 8/2013 and No 15/2014).

4) – the average value of the 2015 and 2016 certificates of origin, determined on the basis of the Polish Power Exchange data.

5) – in Poland, all electricity produced from renewable sources is exempt from excise duty upon presentation of a document confirming that a certificate of origin for electricity has been redeemed, within the meaning of the energy law. The excise duty rate for electricity is 20 PLN/MWh.

6) – there is no predetermined level of direct support for each technology; specific projects may be eligible for support on an independent and unlimited basis, the majority of programmes require a call for proposals; additional explanations by the National Fund for Environmental Protection and Water Management can be found below the table.

Source: Study by the Ministry of Energy based on data from the NREAP, information provided by the URE, GUS data and national legislation

As the key institution providing financing in Poland, the National Fund for Environmental Protection and Water Management (NFOŚiGW) provides financial support



for the promotion and development of RES technologies and for the promotion of knowledge on RES.

This is achieved through:

- NFOŚiGW priority programmes, in which the fund's own resources are involved;
- programmes under the Green Investment Scheme (GIS), for which the NFOŚiGW is the national operator;
- programmes under the European Economic Area Financial Mechanism and the Norwegian Financial Mechanism, for which the NFOŚiGW is the operator;
- Sub-Measure 1.1.1. Supporting investments aimed at generating energy from renewable sources together with connecting these sources to the distribution/transmission grid under priority axis I of the Operational Programme Infrastructure and Environment (OPIE 2014-2020).

## **2015:**

1. Programmes aimed mainly at supporting investments in renewable energy sources:
  - a) 'Supporting distributed, renewable energy sources. Programme for projects involving renewable energy sources and high-efficiency cogeneration units' priority programme – loans amounting to PLN 80 506 000 were paid;
  - b) 'Support from distributed, renewable energy sources' priority programme, part 1) Bocian – Distributed, renewable energy sources – subsidies amounting to PLN 7 353 000 were paid; part 2) Prosumer – the line of financial support used for the purchase and installation of micro-installations of renewable energy sources – loans and subsidies amounting to PLN 22 927 000 and PLN 12 388 000 respectively were paid;
  - c) Green Investment Scheme, part 2) Agricultural biogas plants – loans and subsidies amounting to PLN 78 676 000 and PLN 48 502 000 respectively were paid; part 4) Construction, expansion and reconstruction of electricity grids to facilitate the connection of wind power generators (RES) – subsidies amounting to PLN 18 214 000 were paid;
2. Programmes in which one of the objectives was supporting investments in renewable energy sources:
  - a) 'Improving air quality' priority programme, part 2) Kawka – Eliminating near-ground emissions to promote energy efficiency and development of distributed renewable energy sources – subsidies amounting to PLN 49 344 000 were paid;
  - b) 'Saving energy and promoting renewable energy sources' Operational Programme PL04 – PLN 54 255 000 was paid under Programme PL04 EEA and PLN 79 334 000 was paid under Programme PL04 NFM.
  - c) Furthermore, the NFOŚiGW implemented the 'Using geothermal resources for energy purposes' priority programme, aimed at exploring the possible uses of thermal waters – subsidies amounting to PLN 7 352 000 were paid.

## **2016:**

1. Programmes aimed mainly at supporting investments in renewable energy sources:

- a) 'Improving air quality' priority programme, part 3) Bocian – Distributed, renewable energy sources – loans amounting to PLN 9 364 000 were paid;
  - b) 'Supporting distributed, renewable energy sources. Programme for projects involving renewable energy sources and high-efficiency cogeneration units' priority programme – loans amounting to PLN 10 381 000 were paid;
  - c) 'System – Supporting environmental protection and water management measures taken by external partners' priority programme, part 2) Prosumer – the line of financial support used for the purchase and installation of micro-installations of renewable energy sources – loans and subsidies amounting to PLN 49 516 000 and PLN 32 527 000 respectively were paid;
  - d) Green Investment Scheme, part 4) Construction, development and modernization of the power grids in order to connect the generating sources based on wind energy (RES) – subsidies amounting to PLN 3 600 000 were paid.
2. Programmes in which one of the objectives was supporting investments in renewable energy sources:
- a) 'System – Supporting environmental protection and water management measures taken by external partners', part 4) Kawka – Eliminating near-ground emissions to promote energy efficiency and development of distributed renewable energy sources – subsidies amounting to PLN 87 292 000 were paid.
  - b) 'Saving energy and promoting renewable energy sources' Operational Programme PL04 – PLN 83 048 000 was paid under Programme PL04 EEA and PLN 58 289 000 was paid under Programme PL04 NFM.

Furthermore, the NFOŚiGW implemented the 'Using geothermal resources for energy purposes' priority programme, aimed at exploring the possible uses of thermal waters – subsidies amounting to PLN 640 000 were paid.

As part of the activities aimed at supporting and promoting energy from renewable sources, the NFOŚiGW issued the following publications in the field of renewable energy sources in 2015 and 2016:

1. 'Energy Consultancy Project'. An information folder, issued in 2015, presenting the 'Nationwide consultancy support system for the public and residential sectors as well as undertakings in the field of energy efficiency and RES', i.e. a project implemented by the NFOŚiGW and Partners in 16 regions across Poland.
2. 'OPIE 2014-2020. Lower emissions – clean environment – better climate'. An information folder, issued in 2015 before the first competitions were announced, containing basic information on NFOŚiGW's role in implementing the 2014-2020 Operational Programme Infrastructure and Environment in the energy sector – priority axis I Low-emission economy and in the environment sector – priority axis II Environmental protection, including adaptation to climate change.
3. 'NFOŚiGW 2015. Let's invest in the environment together'. A general information folder, issued in 2015, outlining the NFOŚiGW profile, including presenting institutions providing financing for environmental protection in Poland as well

as the forms  
and areas of financing.

4. E-KUMULATOR – Eco-Accumulator for Industry. An information leaflet on the ‘Supporting a low-carbon and resource-efficient economy’ priority programme, part 1) E-KUMULATOR – Ecological Accumulator for Industry, which is aimed at reducing the adverse environmental impact of the industry.

Furthermore, the NFOŚiGW held a number of conferences, consultation meetings and workshops dedicated to the promotion and use of energy from renewable sources in 2015 and 2016. Those most relevant to the deployment of RES were:

**As part of the Energy-Effect-Environment Forum (Forum Energia – Efekt – Środowisko, EEŚ) project:**

- 69<sup>th</sup> meeting of the EEŚ Forum, ‘Thermal energy from biomass’, during which biomass classification and technologies for producing energy from this renewable source were discussed.

- 71<sup>st</sup> meeting of the EEŚ Forum, ‘Eco-transport’, during which issues relating to the development of alternative fuel applications in road transport and the development of inland waterway transport were presented and discussed.

- 74<sup>th</sup> meeting of the EEŚ Forum, ‘Effective support for energy efficiency and the development of renewable energy sources by the NFOŚiGW’. The implementation of RES technologies (including with financing by the NFOŚiGW) in the following projects was discussed at the meeting: a biomass-fired cogeneration plant, comprehensive thermal upgrading of buildings, and smart energy grids.

- 78<sup>th</sup> meeting of the EEŚ Forum, ‘Energy storage is the key to a modern energy sector’, during which one of the topics was the role of energy storage in the development of renewable energy sources.

**Other events held by the NFOŚiGW included:**

- Presentation of RES-related issues as part of the NFOŚiGW Open Days, World Earth Days and POL-ECO-SYSTEM Fairs;

- An international training conference in Gdańsk on renewable energy sources as part of the ‘Saving energy and promoting renewable energy sources’ Operational Programme PL04, Norwegian Financial Mechanism;

- Two seminars on ‘Resources and technical potential for the development of geothermal technologies in Poland’, during which the technical and financial aspects of support provided by the NFOŚiGW on a much greater scale for this renewable energy source were discussed;

- OPIE training courses on promoting energy efficiency and the use of RES in undertakings;

- Three conferences (Siedlce, Ostrołęka, Łomża) on ‘Energy efficiency and RES – the financing offered and consultancy support’ organised under sub-measure 1.3.3 OPIE ‘Nationwide consultancy support system for the public and residential sectors as well as

undertakings in the field of energy efficiency and RES', for which the NFOŚiGW is a beneficiary and the leading partner.

The RES-related offer of the NFOŚiGW and institutions cooperating with the fund was presented during the meetings. Energy consultants (national and regional) offer consultation and advice services in the field of RES and rational use of energy for projects from the region concerned.

The NFOŚiGW also implemented measures aimed at raising public awareness of renewable energy sources under the 'Environmental education' priority programme.

31 educational projects which addressed RES-related issues either directly or indirectly were implemented using the NFOŚiGW financing in 2015. PLN 4.6 million was spent in the form of subsidies for these projects. 13 such projects were implemented in 2016 and PLN 3.6 million was spent in the form of subsidies.

In 2015-2016, the Ministry of the Environment actively promoted the use of geothermal energy in Poland through the following activities:

- information and promotion activities aimed at gaining knowledge of the occurrence of thermal waters in Poland. As part of these activities, the national geological service initiates and performs tasks relating to, inter alia, deep and shallow geothermal energy. The national geological service's tasks performed in 2015-2016 are Young tectonic zones and geothermal conditions in the Sudetes in the light of geochronological, structural and thermometric studies (stage 1) and Maintaining a Databank of Groundwaters Classified as Minerals (therapeutic waters, thermal waters and brine). Tasks to be performed by the service after 2016 were also initiated;

- support activities, by providing funding for geothermal projects under the NFOŚiGW's Geology and mining priority programme, part 1) Gaining knowledge of Poland's geological structure and managing mineral deposits and groundwater. 30 applications for funding were submitted under this programme in 2016. Apart from the above programme, the NFOŚiGW is also implementing another programme aimed at supporting geothermal investments, namely Improving air quality, part 1) Using geothermal resources for energy purposes;

- support for establishing cooperation between Polish research centres and undertakings with foreign partners involved in implementing geothermal projects, financing for which is provided under the European Economic Area Financial Mechanism and the Norwegian Financial Mechanism. As at mid-2017, two projects are being implemented as part of measures initiated in 2016:

- Geothermal energy – the key to low-carbon heating, improved living conditions and sustainability– preliminary feasibility studies for selected areas in Poland.

- Geothermal4PL Supporting the sustainability and use of shallow geothermal energy in areas covered by the Housing Plus programme in Poland, which are targeted at using the potential of medium- and low-temperature geothermal energy in, inter alia, heating and housing, with the use of innovative technologies, expertise and geological data held.

As regards biofuel components and liquid biofuels, the mechanism currently used to ensure the achievement of the target referred to in Article 3(4) of Directive 2009/28/EC

is the obligation to use biofuel components in transport. This obligation is performed based on the National Index Target (NIT) set in the Act on biofuel components and liquid biofuels. The provisions of that Act envisage fines to be imposed by the President of the URE on economic operators who have failed to achieve the NIT.

In the new financial perspective, Poland will receive EUR 82.5 billion from the EU budget for its cohesion policy for 2014-2020, of which more than EUR 27.4 billion, i.e. approx. PLN 115.6 billion, will be allocated for the 2014-2020 Operational Programme Infrastructure and Environment (OPIE 2014-2020). Funding under that programme will be provided to energy sector projects, mainly in the area of RES, energy efficiency and energy security.

The axes of the OPIE 2014-2020 (energy sector) are as follows:

- I. Moving towards a low-carbon economy,
- VII. Improving energy security.

Summary 3. Priority axis I. Moving towards a low-carbon economy – overview

Priority axis I Moving towards a low-carbon economy	
Allocation for the axis:	EUR 1 828 430 978
Funding:	Cohesion Fund
Intermediate Body:	Ministry of Energy
Implementing Authority:	NFOŚiGW, Ministry of Energy, Provincial Fund for Environmental Protection and Water Management in Katowice

*Source: Ministry of Energy*

Under Priority Axis I, support will be provided for measures aimed at, inter alia, increasing the efficiency of primary energy use, improving the energy efficiency of the public and residential sectors (including reduction of emissions), reducing the energy intensity of undertakings and increasing the production of energy from renewable sources. Support will also be provided to develop a system of low and medium voltage smart energy networks.

Further, in the interest of improving the efficiency of primary energy processing, support will be provided to activities in the area of development of high-efficiency cogeneration.

Measures/sub-measures:

- 1.1 Supporting the production and distribution of energy derived from renewable sources.
- 1.2 Promoting energy efficiency and renewable energy use in enterprises.
- 1.3 Supporting energy efficiency in buildings.
- 1.4 Developing and implementing smart distribution systems that operate at low and medium voltage levels.
- 1.5 Efficient distribution of heat and cold.
- 1.6 Promoting the use of high-efficiency cogeneration of heat and power based on a useful heat demand.
- 1.7 Comprehensive elimination of near-ground emissions in Śląskie Province.

The total ERDF amount allocated for 2014-2020 under 16 ROPs for measures aimed at supporting the energy sector is EUR 4.98 billion. The major investments to be supported include: generating energy from renewable sources including grid connection, improvement of the energy efficiency of the SME sector, thorough and comprehensive energy-efficiency

upgrading of public buildings and multi-family residential buildings, support for projects resulting from low-carbon economy plans (inter alia, heating/cooling networks, clean urban transport), and constructing or reconstructing units producing electricity and heat in high-efficiency cogeneration. Detailed information on the types of projects eligible for support, potential beneficiaries and application timelines can be found on the websites of individual regional programmes.

Under Priority Axis II, support will be provided for project aimed at connecting RES to the grid, for which EUR 1 billion was allocated. The implementing authority for this priority axis is the Oil and Gas Institute (Instytut Nafty i Gazu).

Implementation of RES-related measures under the 2014-2020 Operational Programme Infrastructure and Environment (OPIE) (as at 31 December 2016)

Projects aimed at increasing the use of energy from renewable sources are implemented under priority axis I 'Moving towards a low-carbon economy' of the Operational Programme Infrastructure and Environment, for which the NFOŚiGW is the Implementing Authority for some measures and sub-measures under priority axis I 'Moving towards a low-carbon economy'.

Measure 1.1 'Supporting the production and distribution of energy derived from renewable sources' under axis I OPIE is divided into two sub-measures:

- 1.1.1 Supporting investments aimed at generating energy from renewable sources together with connecting these sources to the distribution/transmission grid, for which the NFOŚiGW is the Implementing Authority,
- 1.1.2 Supporting projects aimed at the construction and reconstruction of grids to facilitate the connection of units generating energy from RES, for which the Ministry of Energy is the Implementing Authority.

Under sub-measure 1.1.1, support is to be provided for investment projects aimed at: constructing or reconstructing generation units to increase the use of energy from renewable sources, together with connecting these sources to the distribution/transmission grid. A connection to the electricity grid or heating network owned by a project beneficiary (energy generator) may be an element of the project.

The types of projects in the area of renewable energy sources result from the National Renewable Energy Action Plan. Support will be provided for the construction or reconstruction of energy generation units using wind energy (above 5 MWe), biomass (above 5 MWth/MWe), biogas (above 1 MWe), water (above 5 MWe), solar power (above 2 MWe/MWth) and geothermal energy (above 2 MWth). Support for RES units using electricity generated from water will be possible in existing damming structures, where hydroelectric plants can be set up, while preserving the morphological continuity of the watercourse by ensuring that the structures are not adversely affected by the movement of aquatic fauna. The sub-measure will ensure compliance with the requirements of the EU energy and climate package and the Europe 2020 Strategy.

Under sub-measure 1.1.2, support will be provided for projects aimed at constructing or reconstructing electricity grids to increase the capacity of electricity infrastructure with

a view to creating new generation capacities from renewable energy sources for the electricity grid of the Transmission System Operator (TSO) or the electricity grids of Distribution System Operators (DSOs) with a voltage of 110 kV. The sub-measure will also remove a major barrier to the development of renewable energy, namely the lack of sufficiently developed grid infrastructure making it possible to take off energy from the areas where units generating electricity from RES are being built.

Support under the above measures will be available to undertakings generating energy from renewable sources (sub-measure 1.1.1) as well as the transmission system operator and distribution system operators (sub-measure 1.1.2).

EUR 300 million was allocated for the purposes of measure 1.1, and a half of this sum is scheduled for investments aimed at generating energy from renewable sources.

Support under sub-measure 1.1.1 is provided as a result of competitions. As the legal act under which the support was to be provided, i.e. the Regulation of the Minister for Energy of 23 November 2016 on granting state aid for investment projects aimed at constructing or reconstructing units generating energy from renewable sources under the 2014-2020 Operational Programme Infrastructure and Environment (Journal of Laws 2016, item 1941) was being prepared, the first competition under sub-measure 1.1.1 was announced in December 2016, while the selection process began in 2017. Therefore, no funding agreements under the measure in question were signed by the end of 2016.

Support under sub-measure 1.1.2 is provided under a non-competition procedure. Projects eligible for support must be included in the 'List of projects that are strategically important for energy infrastructure under the 2014-2020 Operational Programme Infrastructure and Environment, which constitutes the Project Pipeline for the energy sector under the 2014-2020 Operational Programme Infrastructure and Environment'. The first version of the document was drawn up in 2015. Five funding agreements under sub-measure 1.1.2 for the total amount of PLN 57.4 million were signed in 2016. Support is provided under the Regulation of the Minister for the Economy of 23 October 2015 on granting state aid for investment projects aimed at constructing or reconstructing energy infrastructure under the 2014-2020 Operational Programme Infrastructure and Environment (Journal of Laws 2015, item 1803, as amended) and Commission decisions issued following the notification of individual aid compatible with the internal market under Article 107(3)(c) TFEU.

The NFOŚiGW is also the beneficiary of sub-measure 1.3.3 'Nationwide consultancy support system for the public and residential sectors as well as undertakings in the field of energy efficiency and RES' (allocation of EUR 30 million). The project is EU-funded and its aim is to promote low-carbon economy in Poland through consultancy support in the field of energy efficiency and RES as well as training and consultancy activities and activities aimed at raising public awareness of energy efficiency and RES. It is the first project of this type to be implemented in Poland and a necessary step towards the development of low-carbon economy in the EU 2014-2020 financial perspective.

The funding agreement for the project was concluded between the NFOŚiGW and the Minister for Energy in March 2016, and the partnership agreement for the implementation of the project was concluded between the NFOŚiGW, 14 Provincial

Funds for Environmental Protection and Water Management and Lubelskie Province in April 2016.

A network of experienced consultants who provide consultancy services in the field of low-carbon economy, including energy efficiency, renewable energy sources (RES) and improving air quality across Poland, was created under the project.

1 416 low-carbon economy plans were positively verified and certificates were issued for them in 2016. 62 environmentally friendly modern investments, characterised by energy, economic and environmental efficiency, were covered by the consultancy support. 1 001 information/promotion activities, which covered over 13 000 people across Poland, were carried out.

As part of the project, the project partners are reimbursed for the costs of its implementation. PLN 4 934 000 was paid for this purpose in 2016.

#### Implementation of RES-related measures under the 2007-2013 Operational Programme Infrastructure and Environment (OPIE)

The following two priorities were dedicated to the energy sector under the OPIE 2007-2013: IX Environmentally friendly energy infrastructure and energy efficiency, and X Energy security, including diversification of energy sources. Under priority IX, support could be obtained for measures aimed at increasing the use of primary energy in the energy sector (i.e. improving the efficiency of energy generation and reducing transmission and distribution losses), reducing the energy intensity of the public sector and increasing the production of energy from renewable sources, including biofuels. Under priority X, funding could be provided for measures aimed at the development of transmission and distribution systems for electricity, natural gas and crude oil, the construction and expansion of underground storage facilities for natural gas, crude oil and liquid fuels, the construction of natural gas distribution systems in areas not connected to such a system, as well as the manufacturing of equipment for producing fuels and energy from renewable sources.

In order to increase the use of RES, measures aimed at increasing the production of electricity and heat from renewable energy sources through investments in the construction or upgrading of the following generation units were carried out:

- units generating electricity using biomass, biogas, and wind and water energy,
- units generating heat using geothermal or solar energy,
- units generating electricity and heat in combination with renewable energy sources,
- units generating biofuel components and biofuels.

Furthermore, with a view to supporting the increased use of RES, funding was to be provided by the Cohesion Fund for investments aimed at constructing and upgrading electricity grids fully dedicated to the connection of new units generating energy from RES.

The projects contributed to the creation of over 990 MW of additional installed capacity in the form of installations producing energy from RES, while the amount of energy generated from RES was 2 908.1 GWh/year. 64 installations producing energy from RES



were put in place only under measure 9.4 Generating energy from renewable sources: 48 wind farms, four biogas power plants, eight biogas CHP plants, two biomass power plants and two biomass CHP plants.

Implementation of RES-related measures under the 2007-2013 Regional Operational Programmes (ROPs) (as at 31 December 2016)

Each regional operational programme sets out priorities or measures aimed at supporting RES-related projects.

The main types of investments eligible for funding in this area are projects involving:

- constructing, expanding and upgrading installations producing and transmitting energy from renewable sources (wind, solar and geothermal energy, hydropower and energy from biomass), depending on natural conditions and capacities of the region concerned,
- increasing the capacity of units generating electricity and heat from renewable sources ('cogeneration' projects). Special preference is given to high energy efficiency projects which will substantially reduce environmental pollution and significantly contribute to the fulfilment of Polish accession obligations in terms of the increased share of energy from renewable sources,
- an important group of projects will also be investments in modern technologies (e.g. photovoltaic cells).

The implementation of these tasks as part of Regional Operational Programmes will significantly contribute to the improvement of the energy balance of each province, in addition to increasing their energy security.

The beneficiaries of these investments may include regional and local administrative units, their unions, agreements and associations, organisational bodies of regional and local administrative units having legal personality, NGOs, housing associations and communities, higher education institutions, research units, government administration, energy undertakings and municipal companies with at least 50 % share held by public entities.

EU funding for agreements concerning RES under 16 ROPs by 31 December 2016 totalled PLN 1 282 538 147.78. A detailed summary of information on project funding as part of RES-related interventions (39-42) is provided in Summary 1.

Summary 1. Summary of funding agreements in the 2007-2013 perspective for RES-related intervention categories (39-42) as at 31 December 2016 (PLN)

Operational Programme	RES-related intervention category	Total value	Funding	EU funding
OPIE	39 Renewable energy: wind	4 910 116 529	1 290 022 812	1 290 022 812
Lubuskie ROP	39 Renewable energy: wind	11 515 615	5 184 426	4 406 762
Łódzkie ROP	39 Renewable energy: wind	104 949 867	52 160 146	52 160 146
Mazowieckie ROP	39 Renewable energy: wind	86 346 089	29 756 487	25 293 014
Podlaskie ROP	39 Renewable energy: wind	35 139 405	13 985 229	11 887 445
Pomorskie ROP	39 Renewable energy: wind	71 254	32 829	32 829
Wielkopolskie ROP	39 Renewable energy: wind	71 008 902	29 861 760	29 861 760
Zachodniopomorskie ROP	39 Renewable energy: wind	180 584 062	38 981 111	34 786 803
Łódzkie ROP	39 Renewable energy: wind	104 949 866	52 160 146	52 160 146
<b>TOTAL FOR CATEGORY 39 Renewable energy: wind</b>		<b>5 454 944 541</b>	<b>1 486 764 301</b>	<b>1 474 737 709</b>

OPIE	40 Renewable energy: solar	0	0	0
Kujawsko-Pomorskie ROP	40 Renewable energy: solar	29 523 754	15 950 174	15 950 174
Lubelskie ROP	40 Renewable energy: solar	552 004 630	363 940 151	352 191 767
Lubuskie ROP	40 Renewable energy: solar	23 942 917	11 444 435	10 258 683
Łódzkie ROP	40 Renewable energy: solar	56 055 468	40 945 004	40 945 004
Małopolskie ROP	40 Renewable energy: solar	206 209 371	130 485 246	111 220 993
Mazowieckie ROP	40 Renewable energy: solar	81 532 006	55 587 302	55 587 302
Opolskie ROP	40 Renewable energy: solar	3 675 155	2 371 098	2 371 098
Podkarpackie ROP	40 Renewable energy: solar	72 314 099	45 907 624	43 267 230
Podlaskie ROP	40 Renewable energy: solar	156 399 465	94 995 887	91 005 057
Pomorskie ROP	40 Renewable energy: solar	42 683 919	30 281 782	30 281 782
Śląskie ROP	40 Renewable energy: solar	55 139 340	42 804 812	42 804 812
Świętokrzyskie ROP	40 Renewable energy: solar	3 000 000	1 500 000	1 500 000
Warmińsko-Mazurskie ROP	40 Renewable energy: solar	68 045 690	30 433 593	26 855 867
Wielkopolskie ROP	40 Renewable energy: solar	48 156 808	23 605 974	23 605 974
Zachodniopomorskie ROP	40 Renewable energy: solar	24 239 203	11 891 031	11 891 031
<b>TOTAL FOR CATEGORY 40 Renewable energy: solar</b>		<b>1 410 268 316</b>	<b>869 690 838</b>	<b>823 570 052</b>
OPIE	41 Renewable energy: biomass	1 092 540 147	285 304 464	285 304 464
Dolnośląskie ROP	41 Renewable energy: biomass	11 050 109	5 204 798	5 204 798
Lubelskie ROP	41 Renewable energy: biomass	11 989 327	8 406 772	8 406 772
Lubuskie ROP	41 Renewable energy: biomass	2 674 371	2 273 215	2 273 215
Łódzkie ROP	41 Renewable energy: biomass	14 812 846	5 657 350	5 657 350
Małopolskie ROP	41 Renewable energy: biomass	24 781 427	15 799 869	14 003 263
Podkarpackie ROP	41 Renewable energy: biomass	21 142 424	10 689 508	9 890 439
Podlaskie ROP	41 Renewable energy: biomass	103 356 991	47 281 728	43 242 726
Pomorskie ROP	41 Renewable energy: biomass	26 488 489	9 286 319	9 286 319
Warmińsko-Mazurskie ROP	41 Renewable energy: biomass	111 492 950	51 213 267	46 547 265
Wielkopolskie ROP	41 Renewable energy: biomass	4 453 721	2 607 358	2 607 358
Zachodniopomorskie ROP	41 Renewable energy: biomass	15 902 026	6 851 384	5 823 677
<b>TOTAL FOR CATEGORY 41 Renewable energy: biomass</b>		<b>1 560 504 139</b>	<b>489 490 408</b>	<b>477 162 022</b>
Dolnośląskie ROP	42 Renewable energy: hydroelectric, geothermal and other	33 044 056	12 897 436	12 897 436
Kujawsko-Pomorskie ROP	42 Renewable energy: hydroelectric, geothermal and other	5 191 568	2 734 186	2 389 630
Lubelskie ROP	42 Renewable energy: hydroelectric, geothermal and other	8 417 874	3 456 814	3 063 626
Lubuskie ROP	42 Renewable energy: hydroelectric, geothermal and other	2 674 180	1 339 500	1 138 575
Łódzkie ROP	42 Renewable energy: hydroelectric, geothermal and other	14 487 463	9 260 300	9 260 300
Małopolskie ROP	42 Renewable energy: hydroelectric, geothermal and other	37 993 219	18 101 925	15 027 003
Mazowieckie ROP	42 Renewable energy: hydroelectric, geothermal and other	1 684 288	676 777	575 260
Opolskie ROP	42 Renewable energy: hydroelectric, geothermal and other	29 526 487	19 120 568	18 698 747
Podkarpackie ROP	42 Renewable energy: hydroelectric, geothermal and other	34 713 929	9 954 165	9 873 825
Podlaskie ROP	42 Renewable energy: hydroelectric, geothermal and other	22 247 146	17 213 788	16 980 304
Pomorskie ROP	42 Renewable energy: hydroelectric, geothermal and other	2 052 599	1 481 976	1 481 976
Śląskie ROP	42 Renewable energy: hydroelectric, geothermal and other	5 181 200	2 042 276	1 915 496
Świętokrzyskie ROP	42 Renewable energy: hydroelectric, geothermal and other	5 777 797	2 324 109	2 213 066
Warmińsko-Mazurskie ROP	42 Renewable energy: hydroelectric, geothermal and other	26 925 473	15 563 748	14 746 865
Wielkopolskie ROP	42 Renewable energy: hydroelectric, geothermal and other	15 664 024	6 922 540	6 922 540

Zachodniopomorskie ROP	42 Renewable energy: hydroelectric, geothermal and other	5 949 898	3 912 284	3 912 284
Łódzkie ROP	42 Renewable energy: hydroelectric, geothermal and other	21 125 826	9 254 314	9 254 314
<b>TOTAL FOR CATEGORY 42 Renewable energy: hydroelectric, geothermal and other</b>		<b>270 027 022</b>	<b>135 819 566</b>	<b>129 914 108</b>
<b>RES Categories TOTAL: 39-42</b>		<b>8 695 744 019</b>	<b>2 981 765 113</b>	<b>2 905 383 890</b>

Source: Ministry of Investment and Economic Development (previously Ministry of Economic Development)

### Implementation of RES-related measures under the Swiss-Polish Cooperation Programme (as at 31 December 2016)

Nine projects aimed at supporting the use of renewable energy and improving energy efficiency were implemented under the Swiss-Polish Cooperation Programme. The projects were implemented in the following areas: Rebuilding, repairing, reconstructing and expanding basic infrastructure and improving the environment, objective 2 To increase energy efficiency and reduce emissions, in particular greenhouse gases and hazardous substances.

The total funding for the nine projects was CHF 104 498 985. The projects were implemented mainly in south-eastern Poland (Świętokrzyskie, Małopolskie and Podkarpackie Provinces). The beneficiaries were regional and local administrative units and their associations. The implementation model used for most of the projects was based on cooperation between several or more regional and local administrative units or public healthcare institutions. The projects were complex as they involved integrated measures as part of which several renewable energy solutions were merged in one project.

The projects covered mainly the installation of solar collectors on private and public buildings, but also photovoltaic installations, heat pumps, upgrading of LED lighting, and replacement and upgrading of heat sources. One high-efficiency biomass-fired CHP plant was also built as part of the programme. Educational activities aimed at raising public awareness of RES and expanding the knowledge of ecology were an essential element.

### Allocation of funds under 2014-2020 national and regional programmes in the new financial perspective.

In the Partnership Agreement adopted by the Commission on 23 May 2014, setting out the areas of intervention of EU policies in Poland in 2014-2020, including Cohesion Policy, 11 thematic objectives were adopted, including thematic objective 4: ‘Supporting the shift towards a low-carbon economy in all sectors’, which includes six priorities:

- 4.1 – supporting the production and distribution of energy derived from renewable sources,
- 4.2 – promoting energy efficiency and renewable energy use in enterprises,
- 4.3 – supporting energy efficiency, intelligent energy management and the use of renewable energy sources in public infrastructure, including public buildings and the residential sector,
- 4.4. – developing and implementing smart distribution systems that operate at low and medium voltage levels,
- 4.5 – promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures,

4.6 – promoting the use of high-efficiency cogeneration based on a useful heat demand, which are to contribute to a strong and harmonious increase in the deployment of RES across Poland. Details of allocations of EU funds across individual operational programmes are shown in Summary 2.

Summary 2. Allocation of funds under 2014-2020 national and regional programmes within RES investment priorities (4.1-4.3) (EUR)

Thematic objective		Investment priority			
4. Supporting the shift towards a low-carbon economy in all sectors		4.1. Supporting the production and distribution of energy derived from renewable sources	4.2. Promoting energy efficiency and renewable energy use in enterprises	4.3. Supporting energy efficiency, intelligent energy management and the use of renewable energy sources in public infrastructure, including public buildings and the residential sector	TOTAL
PROGRAMME	OPIE	300 000 000	150 322 921	516 543 650	966 866 571
	Dolnośląskie ROP	55 608 280	32 405 520	151 572 922	239 586 722
	Kujawsko-Pomorskie ROP	38 397 647	38 397 646	86 394 705	163 189 998
	Lubelskie ROP	150 866 891	45 787 659	123 415 400	320 069 950
	Lubuskie ROP	19 601 052	0	39 202 104	58 803 156
	Łódzkie ROP	45 828 417	0	134 139 817	179 968 234
	Małopolskie ROP	65 000 000	19 000 000	96 000 000	180 000 000
	Mazowieckie ROP	37 707 260	0	78 621 521	116 328 781
	Opolskie ROP	10 400 000	10 000 000	21 500 000	41 900 000
	Podkarpackie ROP	62 840 853	0	125 565 733	188 406 586
	Podlaskie ROP	60 000 000	15 530 000	75 000 000	150 530 000
	Pomorskie ROP	42 990 200	0	139 718 151	182 708 351
	Śląskie ROP	67 913 372	33 000 000	227 255 818	328 169 190
	Świętokrzyskie ROP	34 086 206	20 453 874	65 036 974	119 577 054
	Warmińsko-Mazurskie ROP	98 812 136	20 000 000	50 942 239	169 754 375
	Wielkopolskie ROP	40 200 000	0	91 000 000	131 200 000
	Zachodniopomorskie ROP	67 135 000	0	40 576 416	107 711 416
	<b>TOTAL</b>	<b>1 197 387 314</b>	<b>384 897 620</b>	<b>1 967 220 611</b>	<b>3 579 947 777</b>

Source: Ministry of Economic Development

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

In accordance with Article 5(6a) of the Energy Law Act, an electricity supplier must inform its customers of the structure of fuels or other energy carriers used in the generation of electricity sold by that supplier in the previous calendar year and of the place where information on the environmental impact of the generation of this energy is available, at least as regards carbon dioxide emissions and radioactive waste. Article 5(6b) provides that, for electricity purchased on a commodity exchange or imported from electricity systems of non-EU states, the information on the structure of fuels or other energy carriers used in the generation of the electricity may be prepared on the basis of aggregate data on the share

of individual types of electricity sources from which this energy was produced in the previous calendar year.

In Poland, the entire amount of electricity from renewable sources covered by the national support mechanism is included in the volume of energy supplied to final customers. The share of electricity from renewable energy sources in the volume of electricity supplied to final customers in 2015-2016 and the share of energy from RES in electricity production was 13.43 % and 13.36 % respectively (according to GUS data).

#### **4. Information on how 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 information on the structure of the support schemes for RES that give additional benefits, but may also have higher costs, including biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material provided in the interim report on progress in the promotion and use of energy from renewable sources in Poland in 2013-2014 remains valid.

As regards the use of biofuel components made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material, the relevant provisions are included in the Act on biofuel components and liquid biofuels. In accordance with Article 23(4a) and (4b) of the Act on biofuel components and liquid biofuels, the share of biofuel components made from wastes, residues, non-food cellulosic material and ligno-cellulosic material calculated according to the energy content must be considered double in the total amount of liquid fuels and liquid biofuels sold or otherwise disposed of in Poland by an entity implementing the NIT (any entity, including one established or residing outside Poland, engaged in the generation, import or intra-Community acquisition of liquid fuels or liquid biofuels, which sells or otherwise disposes of such fuels in Poland or uses them for its own needs there) or used by this entity for its own needs there.

The raw materials whose share calculated according to the net calorific value is considered double within the meaning of Article 23(4a) of the Act on biofuel components and liquid biofuels shall not include waste in the form of natural food raw materials which, through an unintentional or intentional action or as a result of inadequate manufacturing, storage, transport or processing conditions, has become unsuitable for consumption or no longer meet the requirements allowing them to be consumed, or cellulosic and ligno-cellulosic materials manufactures from high-quality wood.

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

As regards the functioning of the system of guarantees of origin for electricity and heating and cooling from RES, and the measures taken to ensure reliability and protection against fraud of the system, a system of guarantees of origin for electricity produced from renewable energy sources in RES installations established in Poland in 2013 was in place

in 2015-2016. This system has been functioning on the terms set out in Chapter 5 of the Act of 20 February 2015 on renewable energy sources since 2015.

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

Table 4 contains information on the supply of biomass for energy purposes in Poland. At this stage, more accurate information for 2015 and 2016 is unavailable due to the absence of detailed data on indirect supplies.

Furthermore, the reporting rules for the supply of energy crops used to produce biofuel components applicable in 2015-2016 do not make it possible to precisely determine the amount and type of raw materials, broken down into:

- raw materials imported from other EU Member States,
- raw materials imported from third countries.

Thus, Summaries 4 and 5 include additional information on the amount and type of raw materials used to produce individual types of biofuel components.

In accordance with the Act of 20 February 2015 on Renewable Energy Sources (Journal of Laws 2017, item 1147), energy undertakings engaged in the production of agricultural biogas or the production of electricity from agricultural biogas are required to submit to the President of the Agricultural Market Agency (Agencja Rynku Rolnego, ARR) (currently the Director-General of the National Support Centre for Agriculture (Krajowy Ośrodek Wsparcia Rolnictwa, KOWR)), within 45 days from the end of a quarter, quarterly reports containing information on:

- the amount and type of all feedstock used to produce agricultural biogas or to produce electricity from agricultural biogas,
- the total amount of agricultural biogas produced, specifying the amount of agricultural biogas fed into the gas distribution grid, used to generate electricity separately or through cogeneration, or otherwise used,
- the amount of electricity produced from agricultural biogas separately or through cogeneration,
- the amount of electricity sold, including the amount of electricity sold to an obligated supplier, which was produced from agricultural biogas and fed into the distribution grid.

The input materials for the production of agricultural biogas in Poland are mostly agricultural by-products and residues from the agri-food industry (80 % of all raw materials) which do not compete with the food market, in particular as regards the use of agricultural land. Relevant information on this topic has been included in Summary 6.

Table 4a shows the current domestic agricultural land use for the production of crops dedicated to energy production in ha. Information relating to the area of land used for short rotation coppice (birch, willow, poplar) is recorded by the Agency for Restructuring and Modernisation of Agriculture (Agencja Restrukturyzacji i Modernizacji Rolnictwa, ARiMR).

Table 4: Biomass supply for energy use

	Amount of domestic raw material (*)		Primary energy in domestic raw material (ktoe)		Amount of imported raw material from EU (*)		Primary energy in amount of imported raw material from EU (ktoe)		Amount of imported raw material from non EU (*)		Primary energy in amount of imported raw material from non EU (ktoe)	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
<b>Biomass supply for heating and electricity:</b>												
Direct supply of wood biomass from forests and other wooded land energy generation (fellings etc.)**	21 527 588	21 739 154	4 885	4 933	238 184	170 006	54	39	1 776 674	2 164 851	403	491
Indirect supply of wood biomass (residues and co-products from wood industry, etc.)**	-	-	-	-	-	-	-	-	-	-	-	-
Energy crops (grasses, etc.) and short rotation trees (please specify)	305 863	311 519	70	67	-	-	-	-	-	-	-	-
Agricultural by-products / processed residues and fishery by-products **	1 337 240	812 974	473	264	27 278	34 170	10	12	519 532	107 443	186	38
Biomass from waste (municipal, industrial, etc.) **	4 252 975	4 343 793	1 170	1 151	-	-	-	-	-	-	-	-
Others (organic fractions of municipal solid waste)	88 358	252 171	40	77	-	-	-	-	-	-	-	-
<b>Biomass supply for transport:</b>												
Common arable crops for biofuels (please specify main types)	<b>Data relating to the use of energy materials for transport purposes have been included in Summaries 4 and 5.</b>											
Energy crops (grasses, etc.) and short rotation trees for biofuels (please specify main types)	-	-	-	-	-	-	-	-	-	-	-	-
Others (please specify)	-	-	-	-	-	-	-	-	-	-	-	-

\* Amount of raw material if possible in m<sup>3</sup> 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

Source: GUS and KOWR

Summary 4. Major raw materials of agricultural origin and products resulting from their processing used to produce esters [tonnes]

Type of raw material	2015	2016
rapeseed oil	753 774.998	865 541.815
soybean oil	-	-
fatty acids	1 866.462	795.440
oilseed rape	7 162.300	-
animal fats	2 290.073	1 984.640
oil biomass	-	1 652.729
used frying oil	634.520	-
vegetable oil	-	-
palm olein	-	-
methyl esters not meeting the quality requirements for biofuel components	82.850	105.895
<b>TOTAL</b>	<b>765 811.203</b>	<b>870 080.519</b>

Source: National Support Centre for Agriculture (KOWR)

Summary 5. Major raw materials of agricultural origin and products resulting from their processing used to produce bioethanol (tonnes)

Type of raw material	2015	2016
maize	324 608.299	386 206.904
distillate of agricultural origin	44 706.820	34 850.632
residual fractions from alcohol rectification	4 880.492	7 547.002
molasses	-	16 342.275
potatoes	-	-
rye	-	-
sugar syrup	-	-
waste alcohol	-	-
rectified alcohol	30 079.537	22 800.325
spelt	-	-
bran	-	-
sugar	-	-
dehydrated alcohol	-	-
food waste	-	1 608.874
starch residue	-	110 347.992
<b>TOTAL</b>	<b>404 275.148</b>	<b>579 704.004</b>

Source: KOWR

Summary 6. Declared production capacities of producers of biofuel components (as at 31 December each year) (thousand tonnes)

Type of biofuel component	2015	2016
esters	1 146.67	1 137.75
bioethanol	617.79	667.90

Source: KOWR

Summary 7. Volume of biofuel component production in 2015-2016 (thousand tonnes)

Type of biofuel component	2015	2016
esters	758.90	867.40
bioethanol	166.92	194.50

Source: KOWR



Summary 8. Raw materials used to produce agricultural biogas (tonnes)

Type of raw material	2015	2016
slurry	598 962.529	774 997.113
fruit and vegetable residues	494 045.879	665 315.468
distillers' solubles	439 580.300	477 523.099
maize silage	415 321.857	439 145.422
beet pulp	189 015.618	222 157.445
agri-food industry sludge	61 063.710	132 805.809
wastes from the dairy products industry	47 817.242	89 144.969
manure	45 342.275	86 139.887
green forage	17 865.820	56 710.799
plant tissue waste	7 323.170	32 906.420
food processing waste	21 613.505	30 393.224
food after its expiry date	9 552.860	28 699.259
fruit and vegetables	17 485.083	25 917.391
poultry manure	14 741.540	25 643.064
ruminal content	8 133.141	23 145.838
fatty sludge	21 940.060	20 213.180
cereals, cereal waste	11 005.930	18 547.090
slaughterhouse waste	13 386.746	17 943.590
grass and cereal silage	10 855.440	17 170.700
straw	3 386.210	12 869.530
digestate	1 224.980	8 540.000
animal feed	3 185.047	6 142.732
fat	1 808.530	5 075.017
protein and fat waste	15 748.810	4 132.601
catering waste	2 478.797	2 851.251
liquid wheat residues	1 634.781	1 490.549
yeast sludge	1 235.950	1 368.680
washings	3 884.480	1 355.630
vegetable oil production waste	748.560	1 334.733
protein and fat sludge	2 903.310	1 282.400
glycerine	705.920	379.080
fusel oils	287.860	263.720
post-extraction pulp from the production of herbal pharmaceuticals	89.940	107.560
vegetable oils	24.000	46.939
sludge from the processing of plant products	100.000	0.000
<b>TOTAL</b>	<b>2 484 499.880</b>	<b>3 231 760.189</b>

Source: KOWR

The Report includes additional information on the installed capacity of agricultural biogas plants and the amount of agricultural biogas and electricity produced from that biogas.

Summary 9. Total installed electric capacity of agricultural biogas plants (MWe) (as at 31 December each year).

2015	2016
83.946	101.234

Source: KOWR

Summary 10. Production data for agricultural biogas plants.

Production	2015	2016
Amount of agricultural biogas produced (million m <sup>3</sup> )	206.236	250.159
Amount of electricity produced from agricultural biogas (GWh)	429.400	524.532

Source: KOWR

The use of agricultural raw materials to produce biofuel components used in liquid fuels and liquid biofuels, biogas and heat may result in the designation of a part of arable land for the production of biomass for energy purposes.

For crops such as oilseed rape and cereals, used in the production of biofuel components used in transport fuels, the resulting by-products can be used in the production of animal feed. In this way, the development of the liquid biofuel sector in Poland makes it possible to produce more valuable protein components in the form of rapeseed meal or dried distillers' grains with solubles (DDGS). It should also be noted that, for oilseed rape, approx. 60 % of the raw material obtained in the form of rapeseed meal is used to produce animal feed. Therefore, a large part of that area is actually used for animal production rather than exclusively for biofuel production.

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

Land use			Surface (ha)	
Item	Crop type	Crop	2015	2016
1. Land used for	common arable crops	wheat	1 637 412.25	1 650 507.93
		sugar beet	162 785.59	180 778.23
	oilseeds	oilseed rape	792 838.84	707 329.43
		sunflower	2 401.96	3 389.24
		white mustard	11 160.23	9 398.79
		black mustard	91.93	54.3
		flax	5 889.86	8 562.77
2. Land used for short rotation trees	coppices	birch	23.56	29.8
		black poplar	13.88	131.88
		willow	238.09	642.39
3. Land used for other energy crops	grasses	giant miscanthus	988.52	1 500.99
		millet	15 121.41	5 854.73
	sorghum	sorghum	2 295.76	2 643.88

Source: ARiMR.

At the same time, it should be stressed that the obligation to declare crops applies only to holdings subject to diversification, i.e. those where the area of arable land is 10 ha or more. These holdings constitute approx. 20 % of all holdings with 60 % of agricultural area.

In Poland, the main energy raw materials are oilseed rape and maize. These species, especially maize, are frequently cultivated as single crops for many years.

The sown area in Poland represented 10.8 million ha of the agricultural area in 2015 and 10.6 million ha in 2016. In 2015, the oilseed rape growing area was 947 100 ha, which constitutes just under 9 % of the total growing area. In 2016, the oilseed rape growing area in Poland decreased to 826 900 ha, which constituted approx. 7.8 % of the sown area. The maize growing area in Poland decreased from 670 300 ha in 2015 to 595 400 ha in 2016. It should be stressed that the growing area of maize used for energy purposes constitutes

approx. 10.7 % of the total growing area of this cereal, i.e. approx. 65 000 ha. For this reason, its impact on biodiversity is negligible.

Summary 11. Estimated area of agricultural raw material crops used to produce biofuel components (bioethanol and esters) (ha)

Type of raw material	2015	2016
maize	68 919	75 473
oilseed rape	663 911	807 408
wheat		
barley		
triticale		
rye		
potatoes		
<b>TOTAL</b>	<b>732 638</b>	<b>882 881</b>

Source: own estimates of the Ministry of Agriculture and Rural Development

Summary 12. Estimated area of agricultural raw material crops used in agricultural biogas plants (ha)

Type of raw material	2015	2016
maize silage	11 633	8 908
grass silage	593	734
green forage	971	2 509
cereals, cereal waste	2 951	4 637
<b>TOTAL</b>	<b>16 149</b>	<b>16 788</b>

Source: Own calculations of the Ministry of Agriculture and Rural Development based on KOWR and GUS data

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

Summary 13. Agricultural area by type (thousand ha)

Specificat ion	Surveyed area – Total agricultura l area	Agricultural area									
		total	in good agricultural condition								other
			total	sown land	fallow land	permanent crops		Kitche n garden s	Permane nt meadow s	Permanen t pastures	
						total	of which orchards				
thousand ha											
2015	18 682.8	14 545.3	14 398.2	10 753.0	134.1	391.0	349.9	27.4	2 658.1	434.7	147.1
2016	18 620.7	14 545.3	14 405.6	10 640.0	165.6	393.4	376.5	31.1	2 698.0	477.5	137.7

Source: own study by the Ministry of Energy based on GUS data

Summary 14. Area of forests, agricultural area in good agricultural condition and estimated area of land used for crops grown for energy purposes (thousand ha).

Specification	2015	2016
Forest land and wooded land	9 674	9 714
Agricultural area in good agricultural condition	14 398	14 406
Estimated area of land used for crops grown for energy purposes	768.8	921.8
Share of agricultural area used for energy purposes in the agricultural area in good agricultural condition	5.3 %	6.5 %

Source: own study by the Ministry of Energy based on data from the Ministry of Agriculture and Rural Development

An analysis of the area of agricultural land in good agricultural condition in 2016 shows that this area increased by 7 400 ha (1 %) to 14 405 600 ha compared with 2015. In 2016, the sown area in agricultural holdings was 10 640 900 ha, 113 000 ha (1.1 %) less than in 2015. The estimated area of land used for crops grown for energy purposes in 2016 was 921 800 ha, 153 000 ha (19.9 %) more than in 2015 (Summary 14).

Analyses of raw material prices in Poland show that there is a close link between the domestic market prices and the world market prices of agricultural raw materials. Due to the fact that only a small share of agricultural raw materials produced in Poland is used for energy purposes, these energy dedicated materials have had only little impact on market prices.

According to Summary 14, the structure of land use in agricultural holdings is relatively stable, although an increase in the area used for crops grown for energy purposes has been observed in recent years.

Summary 15. Average buying-in prices for more important agricultural products (PLN/t).

Commodities	2015	2016
wheat	668.3	620.2
rye	514.2	517.3
barley	610.4	582.1
maize	565.8	529.4
oilseed rape	1 505.1	1 616.2
potatoes	399.2	384.1

Source: own study by the Ministry of Energy based on GUS data

The data in Summaries 14 and 15 show that in the period covered by this report, the average price of agricultural products (apart from oilseed rape) decreased and so did the agricultural area, while the area of forests and wooded land increased.

## 8. Information on 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)

Data on the amount of biofuels produced from the feedstock listed in Annex IX to Directive 2009/28/EC were not compiled in 2015-2016. This was due to the fact that Directive 2015/1513 was to be implemented on 10 September 2017. That Directive was implemented into the Polish legal system by the Act of 24 November 2017 amending the Act on biofuel components and liquid biofuels and certain other acts. That act entered into force on 1 January 2018.

Therefore, data on the amount of biofuels produced from the feedstock listed in Annex IX to Directive 2009/28/EC used in Poland to achieve the targets for renewable energy in transport will be available for the first time for 2018.

Moreover, it should be noted that the double counting of biofuel components made from raw materials referred to in Article 21(2) of Directive 2009/28/EC did not apply in Poland until 2018.

Table 5: The development of biofuels (ktoe)

Feedstock as listed in Annex IX Part A of Directive 2009/28/EC	2015	2016
a) Algae if cultivated on land in ponds or photobioreactors	no data	no data
b) Biomass fraction of mixed municipal waste, but not separated household waste subject to recycling targets under point (a) of Article 11(2) of Directive 2008/98/EC	no data	no data
c) Bio-waste as defined in Article 3(4) of Directive 2008/98/EC from private households subject to separate collection as defined in Article 3(11) of that Directive	no data	no data
d) Biomass fraction of industrial waste not fit for use in the food or feed chain, including material from retail and wholesale and the agro-food and fish and aquaculture industry, and excluding feedstocks listed in part B of this Annex	no data	no data
e) Straw	no data	no data
f) Animal manure and sewage sludge	no data	no data

g) Palm oil mill effluent and empty palm fruit bunches	no data	no data
h) Tall oil pitch	no data	no data
i) Crude glycerine	no data	no data
j) Bagasse	no data	no data
k) Grape marc and wine lees	no data	no data
l) Nut shells	no data	no data
m) Husks	no data	no data
n) Cobs cleaned of kernels of corn	no data	no data
o) Biomass fraction of wastes and residues from forestry and forest-based industries, i.e. bark, branches, pre-commercial thinnings, leaves, needles, tree tops, saw dust, cutter shavings, black liquor, brown liquor, fibre sludge, lignin and tall oil	no data	no data
p) Other non-food cellulosic material as defined in point (s) of the second paragraph of Article 2	no data	no data
q) Other ligno-cellulosic material as defined in point (r) of the second paragraph of Article 2 except saw logs and veneer logs	no data	no data
<i>Feedstock as listed in Annex IX Part B of Directive 2009/28/EC</i>	<i>2015</i>	<i>2016</i>
a) Used cooking oil	no data	no data
b) Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council	no data	no data

**9. Information on the estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality within your country in the preceding 2 years and 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).**

The estimated impact of the production of biofuel components and bioliquids on water resources and on water and soil quality has been analysed, as required. The following three aspects were considered to estimate the impact of the production of biofuel components and bioliquids on water resources and on water and soil quality:

- the environmental impact of crops grown to produce biofuels,
- the environmental impact of biofuel production,
- the environmental impact of biofuel use.

The main crops from which biofuels are produced in Poland are: maize, wheat and oilseed rape. It may be assumed that the growing area of maize and wheat used to produce bioethanol in Poland is approx. 200 000 ha, while the growing area of oilseed rape used to produce biodiesel is approx. 900 000 ha (according to data from the National Support Centre for Agriculture). The crops grown to produce biofuels do not differ from those grown for food purposes. Therefore, maize, wheat and oilseed rape grown to produce biofuels have the same impact as those grown for food purposes if appropriate cultivation conditions are maintained. However, one should take into account the impact of the EU provisions currently in force, which recommend restricting biofuel production from agricultural raw materials as, according to some specialists, they could compete with crops grown for food purposes. Therefore, despite the increase in biofuel production observed in Poland in recent years, the level of this production is expected to remain at a similar level, as it did in Austria or Germany in the last decade. Moreover, Directive 2015/1513 supports biofuel production based on non-food raw materials, which may come mainly from ligno-cellulosic material obtained from forestry residues, energy crops, agricultural residues and organic municipal

waste. The raw materials may also be produced from algae cultivated under special conditions.

With these changes, the current area of crops intended for the production of biofuels made from food raw materials will be retained in the future, while at the same time the share of advanced biofuels produced from raw materials not used in the food industry will increase.

In Poland, biofuels are produced in relatively large production plants with high safety and environmental standards. The by-products, mainly glycerine (biodiesel production) or distillers' grains (bioethanol production), are used in other industries. Glycerine is used to produce biogas or as a raw material from which diverse products are made in the pharmaceutical

and cosmetics industry. Distillers' grains are used to produce biogas and as valuable feedstock in the production of animal feed.

Biofuels are used in vehicles equipped with combustion engines. Biofuel combustion reduces carbon monoxide, particle and hydrocarbon emissions compared with crude oil-based fuels. Nevertheless, nitrogen oxide emissions are higher for biofuels than for conventional fuels. Carbon dioxide emissions are independent of the type of fuel and are similar both fuel types. This is due to the energy balance of the thermodynamic system.

The analysis shows that the cultivation of crops intended for biofuel production does not have a greater impact on soil quality and water resources than the cultivation of these crops for food purposes. The cultivation of crops intended for biofuel production has been increasing in Poland in recent years, unlike in other Member States, e.g. Germany and Austria, where no significant increase in that cultivation has been observed. However, Directive 2015/1513 restricts the development of food crops intended for biofuel production, while at the same time creating conditions for biofuel production based on the conversion of algae, forestry and agricultural by-products, and organic municipal waste. The production of biofuel components in Poland does not adversely affect the environment as it is based on high security and environmental standards. The use of biofuels reduces the emission of pollutants into the environment, except for nitrogen oxides, whose share in exhaust gases increases.

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

In order to estimate the net greenhouse gas emission savings as a result of a construction of new RES installations (electricity, heating and cooling sectors), the same methodology was used as the one described in the interim report on progress in the promotion and use of energy from renewable sources in Poland in 2009-2010 and the data presented in Table 1a.

Table 6 contains data (in tonnes of CO<sub>2</sub>) corresponding to carbon dioxide emission savings from the increased deployment of renewable energy sources in Poland.

**Table 6:** Estimated GHG emission savings from the use of renewable energy (t CO<sub>2</sub>eq)

Environmental aspects	2015	2016
<i>Total estimated net GHG emission saving from using renewable energy</i>	<b>36 760 231</b>	<b>37 174 172</b>
– Estimated net GHG saving from the use of renewable electricity	15 144 173	15 372 907
– Estimated net GHG saving from the use of renewable energy in heating and cooling	18 639 995	19 923 750
– Estimated net GHG saving from the use of renewable energy in transport	2 976 064	1 877 515

Source: Ministry of the Environment, study by the Institute of Environmental Protection – National Research Institute (Instytut Ochrony Środowiska – Państwowy Instytut Badawczy, IOŚ-PIB), The National Centre for Emissions Management (Krajowy Ośrodek Bilansowania i Zarządzania Emisjami, KOBiZE)

## 11. Information on the excess/deficit production of energy from renewable sources compared to the indicative trajectory which 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)

Table 7: Actual and estimated excess and/or deficit (-) production of renewable energy compared to the indicative trajectory which could be transferred to/from other Member States and/or third countries in Poland (ktoe)

Actual/estimated excess or deficit production (Please distinguish per type of renewable energy and per origin/destination of import/export)	2009 *	2010 **	2011 **	2012 **	2013 **	2014 **	2015 ***	2016 ***	2017 ****	2018 ****	2019 *	2020 ****
heating and cooling	-	656	847.7	1 086	982.9	567	584.4	662.7	-	-	-	-
electricity	-	-19	-35.7	128.6	-4.1	75.9	117.5	-3.9	-	-		-
transport	-	-94	-83.7	-284.9	-448.6	-549.9	-527.9	-919.0	-	-		-
<b>TOTAL</b>	-	<b>543</b>	<b>729.3</b>	<b>928.7</b>	<b>530.2</b>	<b>93</b>	<b>174.0</b>	<b>-260.2</b>	<b>968</b>			<b>587</b>

\* – no reference period available

\*\* – data provided in the following documents: ‘Interim Report on progress in the promotion and use of energy from renewable sources in Poland in 2009-2010’, ‘Interim Report on progress in the promotion and use of energy from renewable sources in Poland in 2011-2012’ and ‘Interim Report on progress in the promotion and use of energy from renewable sources in Poland in 2013-2014’.

\*\*\* calculations based on the difference between the figures in Table 1a (‘2015’ and ‘2016’ columns) of this report and the figures in Table 4a (‘2015’ and ‘2016’ columns) of the National Renewable Energy Action Plan. Positive numbers indicate a surplus which can possibly be used for cooperation mechanism. Negative numbers indicate energy deficiency against the intended trajectory.

\*\*\*\* – calculations based on the difference between the figures in Table 4a of the NREAP (row G), averaged over two-year periods, and the figures in Table 3 of the NREAP (row: minimum RES trajectory [ktoe]); currently, there are no estimates broken down by renewable energy sector.

Source: Study by the Ministry of Energy based on data from GUS and the NREAP

### 11.1. Details of statistical transfers, joint projects and joint support scheme decision rules

The rules for statistical transfers are set out in Chapter 8 of the RES Act, which lays down the ‘International cooperation rules for renewable energy sources and joint investment projects’.

In accordance with the applicable Polish law, a statistical transfer may only be made under an international agreement or a civil-law agreement, subject to the prior consent of the Cabinet.

If an energy company wishes to implement a joint energy project in Poland or within the Polish exclusive economic zone, it must obtain, by means of a decision, the consent of the minister competent for energy.

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

Due to the entry into force of the Regulation of the Minister for the Environment of 8 June 2016 on the technical conditions for classifying a part of energy recovered from the thermal conversion of municipal waste (Journal of Laws, item 847), the reply to question

12 provided in the previous reporting period must be updated to include issues arising from the above Regulation. This is because that Regulation replaced the Regulation of the Minister for the Environment of 2 June 2010 on the detailed technical conditions for classifying a part of energy recovered from the thermal conversion of municipal waste (Journal of Laws No 117, item 788). The Regulation of the Minister for the Environment of 8 June 2016 has extended the option of classifying a part of energy recovered from the thermal conversion of municipal waste as energy from a renewable source to include other types of waste (not only mixed municipal waste). The share of energy from a renewable source in waste subject to thermal conversion (the 'RES share') is calculated on the basis of 'direct measurement': by examining the share of biodegradable fractions contained in waste or by taking into account a flat-rate value of the share of the chemical energy of biodegradable fractions in this waste, which has been established for some types of waste. The share of biodegradable fractions contained in waste is examined using the methods defined by harmonised standards for solid recovered fuel. The flat-rate value has been determined on the basis of an expert study commissioned for that purpose.

Both the frequency of such examinations and reference examination methods are specified in the above Regulation of the Minister for the Environment of 8 June 2016 on the technical conditions for classifying a part of energy recovered from the thermal conversion of municipal waste (Journal of Laws, item 847).

**13. Information on the amounts of biofuels and bioliquids in energy units (ktoe) corresponding to each category of feedstock group listed in part A of Annex VIII taken into account by that Member State for the purpose of complying with the targets set out in Article 3(1) and (2), and in the first subparagraph of Article 3(4).**

Data on the amounts of biofuels produced from the feedstock listed in Annex VIII to Directive 2009/28/EC and used to achieve the targets for the share of renewable energy in transport in Poland were not compiled in 2015-2016. This was due to the fact that Directive 2015/1513 was to be implemented on 10 September 2017. That Directive was implemented into the Polish legal system by the Act of 24 November 2017 amending the Act on biofuel components and liquid biofuels and certain other acts. That act entered into force on 1 January 2018.

Therefore, data on the amounts of biofuels produced from the feedstock listed in Annex VIII to Directive 2009/28/EC and used in Poland will be available for the first time for 2018.

Feedstock group	2015	2016
Cereals and other starch-rich crops	no data	no data
Sugars	no data	no data
Oil crops	no data	no data