



Law regulations and subsidy system of RES in Poland

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Prospects on RES development until 2020

- In March 2007, the European Council made a decision that by 2020 the European Commission:
 - shall reduce by 20% emission of greenhouse gases when compared to the level of emissions in 1990,
 - shall increase by 20% the share of renewable energy in the final energy consumption,
 - shall improve by 20% energy efficiency (reduction in consumption of primary energy),
 - shall reach in 2020 the 10% share of biofuels in the total consumption of transport fuels.
- In establishing the 3x20 goals, the European Council adopted the guidelines with regard to their implementation:
 - with regard to contributions of the Member States in reduction in greenhouse gases, the diversified, fair and transparent approach is required, considering national conditions,
 - the goals should be achieved with a view to fair sharing of efforts and benefits among the Member States, with consideration given to diversification of conditions,
 - in view of the importance of energy-consuming industries, measures should improve both their competitiveness and environmental impact.

Directive 2009/28/EC

- The increase in the share of renewable energy in the total energy consumption from 15% in 2010 to 20% in 2020, including for Poland:
 - from 7,5% in 2010 to 15% in 2020 in case of electricity
 - from 5,75% in 2010 to 10% in 2020 in case of biofuels
- Determination of sustainability criteria with respect to biofuels and bioliquids
 - reduction in greenhouse gases emissions in the entire process of production of biofuels should be at least:
 - biofuels and bioliquids intended for the implementation of specified goals may not come from:
 - raw materials originating from areas with the high biodiversity value
 - areas rich in carbon (boggy areas, continuously afforested)
 - areas which in January 2008 were peatbogs
 - agricultural raw materials cultivated in the territory of the EU and used for production of biofuels must be obtained in accordance with environmental requirements and standards and rules of good agricultural conditions.

Polish legislation

- Act of 10.04.1997 Energy law
- Act of 27.04.2001 on waste (currently being amended)
- Act of 10.07.2007 on fertilizers and fertilization (currently being amended)
- Act of 25.08.2006 on biocomponents and liquid biofuels (currently being amended)
- Polish energy policy until 2030
- Directions of development of agricultural biogas plants for the years 2010-2020

Priorities of the Polish energy policy until 2030

- Development of the use of renewable energy sources and biofuels
- Improvement in energy efficiency through the increase in production of electricity under high-efficiency cogeneration
- Reduction in the environmental impact of the energy industry
- Improvement in the energy safety

RES

- renewable energy source – the source using, in the process of processing, wind energy , solar energy, geothermal energy, energy of waves, currents, tides and river drop as well as energy obtained from biomass, landfill biogas, and biogas arising from the processes of sewage drainage or treatment or decomposition of stored plant and animal remains.

Regulation of the Minister of Economy of 14 August 2008 on renewable energy sources

- Obliges generating units to increase the annual use of agricultural biomass in the total amount of biomass delivered for the combustion process.
- The weight content of agricultural biomass depends on the type and size of the installation.
 - for generating units with power of more than 5 MW, this content should be from 25% in 2010 to 100% - in 2017.
 - in case of hybrid units and units combusting biomass only, with power of more than 20 MW, this content has been specified at the level from 20 % in 2010 to 60% in 2017.
- Upon request of the Minister of Agriculture and Rural Development, since 23 February 2010, the definition of biomass was extended by low quality cereal grains.

Biomass

- biomass – biodegradable solid or liquid substances of plant or animal origin, obtained from products, waste and residues of agricultural and forestry production and industrial processing of their products as well as parts of other waste that are biodegradable and cereal grains which do not meet the quality requirements for intervention purchase of cereals referred to in art. 4 of the Commission Regulation (EC) no. 687/2008 of 18 July 2008 establishing procedures for the taking-over of cereals by intervention agencies or paying agencies and laying down methods of analysis for determining the quality of cereals.

Policy of the Ministry of Agriculture and Rural Development with regard to bioenergy

- Bearing in mind the basic goal of agriculture, i.e. satisfying the food needs, the Minister of Agriculture and Rural Development attaches particular importance to the use for energy purposes, in the first instance, of:
 - Agricultural by-products;
 - By-products or residues from the agri-food industry;
 - Liquid and solid animal faeces;
 - Energy crops;

- Implementation of international obligations, specified in adopted goals resulting from the climate and energy package, based on locally available raw materials.



Policy of the Ministry of Agriculture and Rural Development with regard to bioenergy

In supporting the national and EU goals with regard to production of food and bioenergy, the Minister of Agriculture and Rural Development regards as suitable to support:

- construction of agricultural biogas plants;
- production of biocomponents and biofuels (including those of 2nd generation);
- development of cultivation of energy crops in set-aside and marginal land

Biogas

- biogas - gas obtained from biomass, in particular from the installation of processing animal or plant waste, sewage treatment plants and waste landfills;

Agricultural biogas

- agricultural biogas - gaseous fuel obtained from agricultural raw materials, agricultural by-products, liquid or solid animal faeces, by-products or residues from the agri-food industry or forest biomass in the methane fermentation process;

Possibilities of support for development of RES

- Obligation to purchase electricity from RES
- Certificates of origin for electricity produced from RES
- Certificates of origin for electricity produced in cogeneration
- Certificates for biogas purified to the quality of natural gas and introduced into the distribution network
- Financial support as part of: national and regional operational programmes, agricultural programmes (RDP 2007-2013), National and Regional Funds for Environmental Protection and Water Management
- Loans from commercial banks on preferential conditions

Conclusions

- Poland has a sufficient potential to meet the EU requirements with regard to the share of energy from renewable sources
- For energy purposes, it is required to use, in the first instance, locally available:
 - agricultural by-products, including those requiring disposal such as, for example, animal faeces,
 - residues of the agri-food processing industry,
- As a result of steps taken by the Government, we should expect development of the energy industry based on biomass, including agricultural biomass (co-combustion, biogas)
- The necessity to increase the share of energy from RES in the national energy balance requires development of support for these installations both at the level of investment and operation
- Dispersion of renewable energy sources shall have a positive impact on meeting the obligations and shall contribute to the increase in the Polish energy independence



Thank you for your attention

Theoretical possibilities of Polish farmers with regard to provision, on their own, of substrate for biogas plants with specific power

Installed generation capacity [kW]	Production of biogas [m ³]	Silage constitutes 100% of substrate		Silage constitutes 70% of substrate, liquid manure constitutes remaining 30%						
		Demand for silage		Demand for silage		Demand for liquid manure		The number of agricultural holdings in Poland possessing livestock and arable land acreage theoretically providing substrate on their own		
		tons	ha	tons	ha	tons	SD	Cattle	Swine	Arable land
1000	3 650 000	21 000	440	14 700	308.0	40 556	1 763	Data are being analysed		
300	1 095 000	6 300	132	4 410	92	12 167	529	221	2 286	8 109
200	730 000	4 200	88	2 940	62	8 111	353	547	8 566	
100	365 000	2 100	44	1 470	30.8	4 056	176	1 623	20 952	15 955
50	182 500	1 050	22	735	15.4	2 028	88	10 424	43 204	37 372
30	110 606	636	13.3	445	9.3	1 229	53			
20	73 000	420	8.8	294	6.2	811	35	62 436	111 536	65 351
10	36 500	210	4.4	147	3.1	406	18	78 067	122 444	142 948
5	18 250	105	2.2	74	1.5	203	9			

Source: MARD pursuant to data from CSU, MARD, operating data (L.Ciurzyński - Poznań 2009-10-09) and IBMER data

Production of electricity in MWh depending on installed generation capacity

Installed generation capacity	Production of energy in MWh (assuming work at the level of 95% of nominal time) within the specified time frame				Annual value of produced energy in PLN (considering the certificate of origin)
	Day	Week	Month	Year	
1 MW	22.80	159.60	684.00	8 322.00	2 842 795.20
0.5 MW	11.40	79.80	342.00	4 161.00	1 421 397.60
0.3 MW	6.84	47.88	205.20	2 496.60	852 838.56
200 kW	4.56	31.92	136.80	1 664.40	568 559.04
100 kW	2.28	15.96	68.40	832.20	284 279.52
50 kW	1.14	7.98	34.20	416.10	142 139.76
30 kW	0.68	4.79	20.52	249.66	85 283.86
20 kW	0.46	3.19	13.68	166.44	56 855.90
10 kW	0.23	1.60	6.84	83.22	28 427.95
5 kW	0.11	0.80	3.42	41.61	14 213.98

source: MARD (average selling price of energy with consideration given to the certificate of origin, determined at the level of the average price of energy for households and agricultural holdings in 2007 by the Energy Market Agency S.A.).