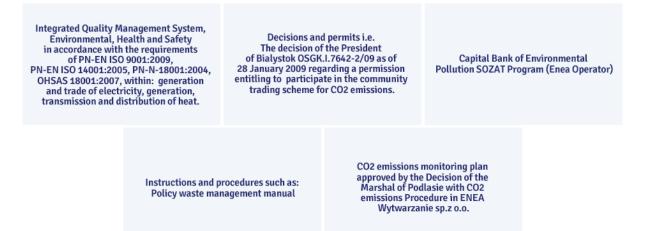
### **Environment**

Generation and distribution of energy is associated with the interference and influence on the environment. Therefore, we conduct programs and initiatives related to monitoring and managing our impact on the environment, in our daily business activities. We follow many rules and regulations and undertake voluntary initiatives. Result: no fines were imposed on us for non-compliance with laws and regulations relating to environmental protection in 2014.



Our environmental activities are focused on five areas



### **Good practice: Protection of white stork**

White storks likes to build nests directly on electric poles. To protect storks and at the same time prevent possible incidents, Enea Operator takes such actions like:

- elevation of nests on special platforms,
- on some MV and LV lines insulated cables are used,
- use of insulated connectors,
- use of insulated covers on the terminals of transformers (MV side and LV),
- use of insulated bridges on MV and LV pillars.

105 nests were elevated on the platforms in 2014.

We report our business operations

Marshal's Office of Provinces:	Provincial Environment Protection	Provincial Environment Protection
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	-Mazowieckie in Warszawa, -Podlaskie in Białystok	Inspectorate in Białystok,	Inspectorate in Gdańsk,
Provincial Environment Protection Inspectorate in Zielona Góra, Provincial Environment Protection Inspectorate in Wrocław, Inspectorate in Wrocław	<ul> <li>Wielkopolskie in Poznań,</li> <li>Zachodniopomorskie in Szczecin,</li> <li>Lubuskie in Zielona Góra,</li> <li>Dolnośląskie in Wrocław,</li> <li>Pomorskie in Gdańsk.</li> <li>Provincial Environment Protection</li> </ul>	Inspectorate in Bydgoszcz, Provincial Environment Protection Inspectorate in Poznań, Provincial Environment Protection Inspectorate in Szczecin, Provincial Environment Protection Inspectorate in Zielona Góra, Provincial Environment Protection	Energy Market Agency Statistical Office Industrial Chemistry Research Institute BOWOiK The National Fund for Environmental Protection and Water Management Ministry of Environment Energy Regulatory Office

# Energy

Table 15. Total electricity consumption (MWh)

### **Good practice: Energy saving solution**

We're modernizing unit no. 7 in Świerże Górne where Enea Wytwarzanie is located. During the ongoing modernization we've decided to exchange the exhaust fan on the boiler No. 7. Before the modernization fan control was held by choking the exhaust at the inlet to the fan and the use of two rotational speeds of the drive motor. Installation of new exhaust fan saves energy consumed by the engine, which contributes to the reduction of own needs of block no. 7.

## **Emissions**

Table 16. Emission rate of carbon dioxide in the companies from the generation segment [Mg]

Company	CO2 emissions [Mg]	Emission rate
Enea Wytwarzanie	11 247 672	839 kg/MWh Świerże Górne location 93.12 kg/GJ Białystok location
MPEC Białystok	89.747	0.103 Mg/GJ
PEC Oborniki	14400.77	-
MEC Piła	71.430	94.97 kg/GJ

Table 17. Emission of sulfur and nitrogen oxides in the companies from the generation segment [Mg]

	2014			
Company	SOx	NOx		
Enea Wytwarzanie	35.203	18.284		
MPEC Białystok	132	198		
PEC Oborniki	41	27		
MEC Piła	120	51		

#### **Good practice: Investments to reduce emissions**

A system of heat recovery from boiler exhaust was built in Enea Wytwarzanie in Białystok. Installation allows to cool the hot combustion gases from the boiler below the dew point temperature and lead to condensation of steam contained in the exhaust. The heat released in the condensation of water is used for utility purposes, to heat return mains water. In this way, a certain amount of heat is produced without the contribution of additional fuel, which contributes to a reduction of coal consumption in coal-fired boilers, and therefore to reduction of CO2 emissions.

### Water and raw materials

Main raw materials that are used in our daily activities include: biomass, coal, fuel oil and light fuel oil. Apart from the two last raw materials that are bought in Poland, the remaining ones are acquired both in the Polish and foreign markets. The largest purchases are made by Enea Wytwarzanie which has the largest generation units.

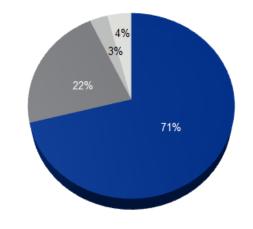
Table 18. Use of raw materials by Enea Wytwarzanie in 2014 [thousand tons]

Fuel type	2013	2014
Hard coal	5096	5540
Biomass	714	759
Fuel oil (heavy)	6	8
Gas ['000 m3]	2127	1926
Total	7945	8233

	201	3	2014		
Fuel type	Volume ['000 t]	Costs <sup>1)</sup> [PLN mln]	Volume ['000 t]	Costs <sup>1)</sup> [PLN mln]	
Bituminous coal	5 098	1 257	5 540	1 286	
Biomass	714	228	759	248	
Fuel oil (heavy)	6	12	8	14	
Gas ['000 m³]	2 127	4	1 926	3	
TOTAL	7 945	1 501	8 233	1 551	

1) Including transport

The share of coal suppliers in the total volumes delivered in 2014 - ENEA Wytwarzanie Segment of System Power Plants



■LW Bogdanka ■KHW ■JSW ■Petrokol

Table 19. Total water withdrawal in the companies of ENEA Capital Group

		Main sources of	Water withdrawal
	Total water withdrawal	water intake used	by source [m3]
Company	[m3]	by the company in 2014	
Enea SA*	2.699	wells	1.371
		water supply system	1.328
		groundwater intake	1110705
		water from drainage	4 445 471
Enea Wytwarzanie	1821423604	surface water from Wisła river - returanable water withdrawal for cooling purposes and non-returnable water withdrawal for technological purposes	1 815 813 712
		water supply system intake	53 716
MEC Piła	17000	municipal water supply system	17000
PEC Oborniki	2.350	Oborniki Kowanówko water intake	2.350
MPEC Białystok	84.012	water from deep wells	80.158
		water supply system	3.854
Enea Operator	60.012	wells	3.007
		water supply system	57.005
Enea Trading**	no data	no data	no data
Enea Centrum***	no data	no data	no data
Enea Serwis	3.289	municipal water supply system	3.289

Enea Logistyka	1.194	water supply system	1.194
Enea Oświetlenie	860	municipal water supply system	Poznań - 498 Szczecin - 362
Enea Pomiary	493	municipal water supply system	493
Hotel Edison	2.095	sewage of Tarnowo Podgórne District	2.095
Szpital Uzdrowiskowy ENERGETYK	23792	municipal water supply system	23792
Energo-Tour	4587	municipal water supply system	4587

\* The above value applies to water consumption for own use (at Enea SA own premises). It is not possible to determine water consumption at locations hired by Enea SA (flat fee or a percentage of total costs).

\*\* ENEA Trading doesn't own office spaces which are rented from ENEA SA, ENEA Wytwarzanie and Enea Serwis. Operating costs are included in the rent.

\*\*\*ENEA Centrum doesn't keep records of waste generation, since it doesn't own offices, which it uses. ENEA Centrum leases offices from other companies of the Capital Group and from Rentall company.

### **Good practice: pollution prevention**

Square for slag storage was hardened in Przedsiębiorstwo Energetyki Cieplnej in Oborniki to prevent the penetration of substances into the soil. In turn, thirteen leaking transformer stations 110 / MV in Enea Operator was modernized in order to prevent possible soil pollution with oil derivatives. Other leaking stations are to be modernized and are included in the investment plans for the coming years.

Table 20. Waste by type of waste [Mg]

	2014				
Company	Hazardous waste	Other than hazardous waste			
Enea SA*	0.045	105.6 m3			

Enea Wytwarzanie	155.21 Mg	944 399.04 Mg
MEC Piła	1.6	6532
PEC Oborniki	1007.796	no data
MPEC Białystok	3.133	12042.5
Enea Operator	594.823	4839.098
Enea Trading**	no data	no data
Enea Centrum***	no data	no data
Enea Serwis	Produced - 578.227 Collected - 1.925 Recycled - 278.569	Produced - 683.843 Collected - 37.373
Enea Logistyka****	5.638	13.41
Enea Oświetlenie	2.552	103.918 (excluding municipal waste)
Enea Pomiary	0.004	91.289
Hotel Edison****	0	no data
Szpital Uzdrowiskowy ENERGETYK	0.041	Waste code 20 03 01 – 520 m3 Code 02 02 03 i 16 03 80 – 3.05 Mg
Energo-Tour	0.2081	External contracts for export

\* Waste is collected by volume rather than by weight; values relate to waste in Enea SA own premises. It is not possible to determine amount of waste at locations hired by Enea SA (flat fee or a percentage of total costs).

\*\* ENEA Trading doesn't own office spaces which are rented from ENEA SA, ENEA Wytwarzanie and Enea Serwis. Operating costs are included in the rent.

\*\*\* ENEA Centrum doesn't keep records of waste generation, since it doesn't own offices, which it uses. ENEA Centrum leases offices from other companies of the Capital Group and from Rentall

#### company.

\*\*\*\* The above values include waste collected by Enea Logistyka from other units and result from provisions of the Waste Electrical and Electronic Equipment Act. The above figures do not include municipal waste. Hazardous wastes are handed over to ABBA Ekomed company, while non-hazardous waste are subject to recycling.

\*\*\*\* In connection with the new law called "junk", the company doesn't receive invoices, and only pays a fixed fee to municipality by the declaration, which shows the capacity and the amount of owned containers. Hence the lack of data regarding the specific amount of waste collected.

### RES

Electricity is obtained from the following renewable energy sources (RES):

- biomass firing and co-firing
- hydropower plants
- wind farms
- biogas power plants

We invest in renewable energy sources (RES) every year. Total expenditure amounted to 1 307 000 PLN in 2014. Majority (i.e. 1 265 000 thousand) was spent on modernizing hydroelectric power plants and development of new energy sources.

#### The most important initiatives in the RES area

- Starting negotiations to purchase wind farm projects and accomplish own initiatives. The most advanced works involve the construction of a wind farm in the municipality of Lubiszyn of a planned capacity of approx. 15 MWe
- Launching a Gorzesław biogas plant (1698 MWe)
- Development of a photovoltaic project of a 1 MWe capacity. A decision to change connection terms was obtained and a building permit was designed in 2014.

#### See our RES results in 2014

- Total installed RES capacity: 120.146 MWe
- Amount of energy generated from RES in Enea Wytwarzanie: 1 101 851.185 MWh
- Amount of energy generated from cogeneration in Enea Wytwarzanie: 486 663.265 MWh

Table 21. Generation, by ENEA Wytwarzanie RES segment, of electricity (net) from renewable energy sources [GWh]

Biomass co-firing	475.195
Biomass firing	346.029
Water power plants	115.5
Wind farms	154.663
Biogas plants	10.464
TOTAL:	0

ltem	2013	2014	Change	Q4 2013	Q4 2014	Change
Production from renewable energy sources [GWh], including:	964	1 033	7.2%	297	258	-13.1%
Co-combustion of biomass	418	476	13.9%	128	105	-18.0%
Combustion of biomass	253	294	16.2%	84	86	2.4%
ENEA Wytwarzanie - RES segment (hydroelectric plants)	145	113	-22.1%	33	27	-18.2%
ENEA Wytwarzanie - RES segment (wind farms)	138	141	2.2%	49	37	-24.5%
ENEA Wytwarzanie - RES segment (biogas plants)	10	9	-10.0%	3	3	

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Table 22. Amount of biomass used by ENEA Wytwarzanie SA [Mg]

Company	Unit	2011	2012	2013	2014
Enea Wytwarzanie	Mg	219 302.8	294 658.65	243.010	747.375