Environment

The processes of energy production and distribution are related to the effects on the environment. The effectiveness of both the monitoring of the impact on the environment and the implemented solutions minimizing our impact on natural resources translates onto ecosystems, but also onto the future of our business. The expectations of regulators, customers and the social environment towards our industry continue to grow.

Therefore, we include in our activities a variety of programs and initiatives related to the management and minimization of environmental impact. We are guided by a number of regulations, we undertake a number of voluntary commitments.

Environmental protection in the management system

In 2015, environmental issues are among the priorities of Corporate Strategy of the Enea Group for the years 2014-2020. The objectives of the strategy include:

- Environmental investments which allow a continuation of the work of generation assets after 2015;
- The development of renewable energy sources (RES);
- The development of co-generation sources and heat networks.

Strategic objectives translate into comprehensive management systems and investment projects. They affect also the daily activities of each of our employees. This is emphasized by guidelines contained in the “Code of Ethics of ENEA Capital Group”.

Key principles in the Enea Capital Group

Care for the environment. We try to take all possible measures to ensure the environmental protection no matter where and how we work.

- **We care about the environment, regardless of the location and type of work.**
- **In our daily work we adhere diligently to internal regulations of the Enea Group as well as laws on environmental protection.**
- **We engage in the activities and participate in educational campaigns on environmental protection.**

The high quality of processes related to environmental protection is guaranteed by the implemented **Policy of Integrated Quality Management, Environmental and Safety System.** It is consistent with the requirements of PN-EN ISO 9001:2009, PN-EN ISO 14001:2005, PN-N-18001:2004, OHSAS 18001:2007, within
generation and trade of electricity, generation and distribution of heat. It sets out, among others, objectives and responsibilities of environmental protection in the Kozienice Power Station, CHP Bialystok and other entities producing energy within Enea Wytwarzanie.

Click to view a list of instructions and procedures that guide the Enea Wytwarzanie in the monitoring of environmental impact.

1) Instructions of Monitoring the Environment in Enea Wytwarzanie sp. z o.o. - Location Świerze Gorne.
2) Instructions of Data Management in the field of Environmental Protection in Enea Wytwarzanie sp. z o.o. - Location Białystok.
3) Procedure of Monitoring the Environment in Enea Wytwarzanie sp. z o.o. - Location Koronowo.
4) The plan of monitoring CO_2 emissions approved by the decision of the Marshal of the Podlasie Province and Procedure of Monitoring CO_2 emissions in Enea Wytwarzanie sp. z o.o. - location Bialystok.
5) The plan of monitoring CO_2 emissions approved by the decision of the Marshal of the Mazowieckie Province and Procedure of Monitoring CO_2 emissions in Enea Wytwarzanie sp. z o.o. - location Świerze Gorne.
   a) Monitoring of CO_2 emissions from the combustion of coal and biomass,

   b) Monitoring of CO_2 emissions from the combustion of coal (mass-balance approach)

   c) Monitoring of CO_2 emissions from the combustion of fuel oil,

   c) Monitoring of CO_2 emissions from the process of flue gas desulphurisation,

   e) The procedure for supervision of the implementation of the monitoring plan

   f) The procedure for risk management in monitoring CO_2 emissions,

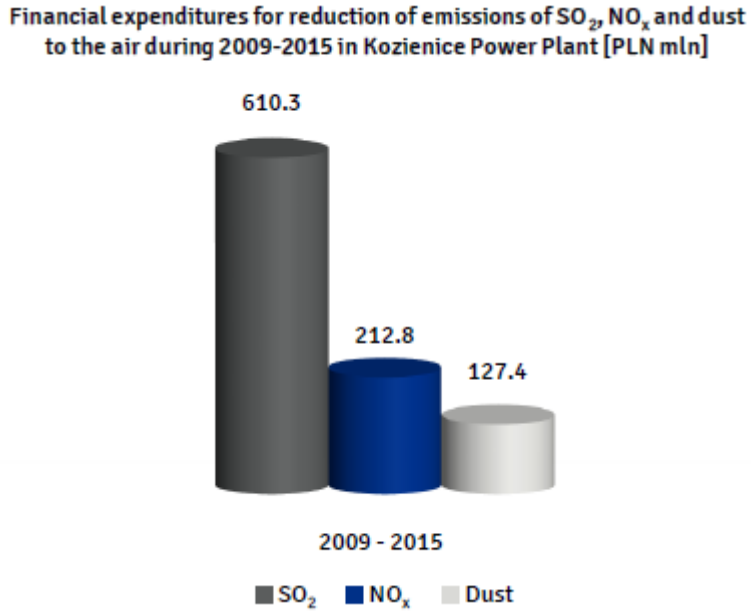
   g) The procedure for estimating the uncertainty of data regarding the monitoring of CO_2 emissions.

6) Instructions of the Principles of Waste Management in Enea Wytwarzanie sp. z o.o. - Location Świerze Gorne.
7) Instructions on the handling of waste in the CHP Białystok.
8) Instructions of waste management in Enea Wytwarzanie sp. z o.o. - Location Koronowo.

Key investments

In 2015, we conducted investments important for the environment. These include, inter alia:

- Launch of the flue gas desulphurization installations (FGD IV) in Kozienice - from 1 January 2016 all exhaust fumes have been desulphurised
- Construction of installations of catalytic reduction of NO_x (SCR) for boilers K7 and K8 in CHP Białystok
- Installation of heat recovery from the exhaust gases of the biomass boiler in CHP Bialystok
- The construction of gas co-generation unit in MEC Pila



Our biggest investment - the construction of power unit No. 11 in Kozienice Power Station - it uses the most modern installations related to the protection of the environment during energy production.

Watch the film of Discovery Channel on Kozienice Power Station and check if the energy from coal can be environmentally friendly:
Link to the film: https://www.youtube.com/watch?v=NStMdla4gQU.

Our most important investments initiated or continued in 2016:

Segment of System Power Plants	New	• Modernisation of units No. 4 and 5
	Continuation	• Construction of power unit No. 11 • IOS IV Flue Gas Desulphurisation Plant - within flue gas channels • Installation of flue gases denitrification - SCR for units No. 4-8 and 1-2 • Installation of flue gases denitrification - SCR for units No. 9-10 • Construction of industrial waste and rainwater treatment • Modernisation of cooling water intake - stabilising checkdam on the Vistula River • Modernisation of the slag and ash depot - modernisation of field 5
Segment of Heat		• Construction of flue gas desulphurisation plant on K7 and K8 boilers
Segment of RES		• Continuation of the construction of 14.1 MW Baczyna wind farm and the project of max. 10 MW extension of Bardy wind farm (project titled Bardy II) • Acquisition of 100% of shares in the special purpose vehicle - Eco - Power sp. z o.o. (36 MW Skoczykłody wind farm) is planned until the end of Q1 2016 • Searching for new investment and acquisition projects within the realisation of the strategy of increasing the capacity installed in wind farms

No fines were imposed on us for non-compliance with laws and regulations relating to environmental protection in 2015.

Energy

Table 12. Total electricity consumption in 2015 (MWh)

Company	MWh
Enea SA	1 029.061
Enea Wytwarzanie	1 117 501
MEC Piła	3940.8
PEC Oborniki	599.16
MPEC Białystok	6 209

Enea Operator	company's own needs – 38 821 MWh. company's network losses – 1 382 544 MWh
Enea Centrum**	no data
Enea Trading *	no data
Enea Serwis	1618.12
Enea Logistyka	524.79
Enea Oświetlenie	201
Enea Pomiary	282.2
Szpital Uzdrowiskowy ENERGETYK	453.042
PEC Zachód	35.7

* 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 energy consumption, since it doesn't own offices, which it uses. ENEA Centrum nleases offices from other companies of the Capital Group and from Rentall company.

Good practice: Energy saving solution

- In connection with the modernization of units 1 and 2 of Kozienice Power Station, we exchanged exhaust fans on the boiler No. 1 and 2. We used a more economical way to regulate their performance. Installation of new exhaust fans along with the replacement of the drive and the new variable speed of fan drive motor save a significant amount of power consumed by the motor.
- In Białystok CHPm we have reduced energy consumption through the modernization of the heating infrastructure. We replaced sections of the channel network on the network of pre-insulated technology and modernization of the district heating pump, which contributes to the reduction of energy losses during heat transfer.

Emissions

Compliance with EU guidelines

According to the EU Directive 2010/75/EU on industrial emissions (IED), from 1 January 2016, more stringent emission standards have been introduced. We had been preparing for this for many years by investing in the modernization of installations to reduce emissions of oxides of sulphur, nitrogen and dust. Now, we face the next phase of works aimed at minimizing emissions to air.

Kozienice Power Plant acceded to Interim National Plan within the SO_2 and dust emissions which shall be valid until 30 June 2020.
Link to information about the Interim National Plan on the website of the Ministry: https://www.mos.gov.pl/srodowisko/ochrona-powietrza/przejsciowy-plan-krajowy/

The emission of gases and dust

In 2015 in Kozienice Power Station:
For the reduction of sulphur oxides: we launched the fourth installation of flue gas desulphurisation
For the reduction of nitrogen oxides: we installed a catalytic denitrification station (SCR) of exhaust in 4 blocks of 200 MW (with achievable concentrations below 100 mg / Nm3). Denitrification systems are designed to provide approx. 80% reduction of nitrogen oxides in exhaust gases.
For the reduction of dust emissions: we provided the possibility of a two-stage extraction thanks to high-performance electrofilters and flue gas desulphurization installations.

For the period 2016-2018 in Kozienice Power Station, we plan to build the same installation in the remaining three blocks of 200 MW and two blocks with a capacity of 500MW.

On the other hand, CHP Bialystok has been gradually upgrading its transmission networks and heat distribution in order to improve the efficiency of heat supply in line with the assumptions contained in the “Plan for the development of district heating in Bialystok for the years 2013-2018”. The upgrades affect both the level of energy consumption and the reduction of greenhouse gas emissions.

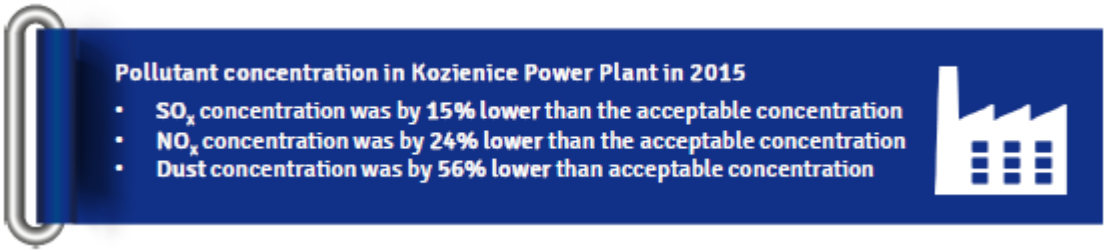


Table 13. Emission rate of carbon dioxide in the companies from the generation segment [Mg] and the rate of carbon dioxide emission by 2015

Name of the company	Emissions of CO_2[Mg]	Rate of emissions
Enea Wytwarzanie	11,719,892.61	857 kg/MWh
CHP Białystok	33,196.00	197 kg/MWh or 55 kg/GJ
PEC Oborniki	12,940.25	109.06 kg/GJ
MEC Piła	74,699.60	91.47 kg/GJ

Table 14. Emission of sulphur and nitrogen oxides in the companies from the generation segment [Mg] in 2015

Name of the company	Sulphur oxides [Mg]	Nitrogen oxides [Mg]
Enea Wytwarzanie	32,188	16,989
CHP Białystok	10	71
PEC Oborniki	45.46	23.94
MEC Piła	116.7647498	48.086101

Table 15. CO_2 emission allowances in the generating units [tons of CO_2] in 2014 and 2015*

	As at 31 December 2014	As at 31 December 2015
The amount of free allowances for CO_2 emissions	5,921,554	3,413,076
The amount of allowances for CO_2 emissions purchased on the secondary market	5,326,118	8,306,817
Total allowances for emissions of CO_2	11,247,672	11,719,893
Coverage of emissions by allocation of free allowances	52.6 %	29.1 %

*Accounting

Important investments

BIAŁYSTOK:27.7 million PLN was spent on the installation, which recovers heat from exhaust gases from the combustion of biomass in CHP Bialystok. This is the first installation on such a large scale in Poland. Our commitment to the environment was appreciated the Swedish Ambassador for Ecology Jan Olsson. During the scientific and technical symposium in Bialystok devoted to the latest environmental investment of Enea, he drew attention to the great importance of Polish - Swedish cooperation in this innovative project.

The technology used for heat recovery from the exhaust gases can increase heat production from biomass boiler without additional fuel consumption. Thanks to the investment in a modern heat recovery system, Enea Wytwarzanie significantly reduced emissions into the atmosphere and increased its productivity. The estimated reduction of carbon dioxide emissions amounts to approx. 20,000 tonnes per year.

PIŁA: The co-generation power plant built in MEC Pila is one of the most modern plants of this kind in the country. It can produce approx. 10 MWh of heat and approx. 10 MWh of electricity. It is powered by natural gas.

Its launch reduced the need for energy from conventional sources contributing to the reduction of the amount of burned carbon, emissions of dust, sulphur oxides and CO_2 to the atmosphere.

Water and raw materials

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

Table 16. The main raw materials used by Enea Wytwarzanie in 2014 and 2015

Fuel supplies

Fuel type	2014 [2]		2015		Change	
	Volume ['000 tonnes]	Costs [3] [PLN mln]	Volume ['000 tonnes]	Costs [3] [PLN mln]	Volume	Costs [3]
Bituminous coal	5 540	1 286	5 870	1 321	6.0%	2.7%
Biomass	759	248	634	172	-16.5%	-30.6%
Fuel oil (heavy)[4]	8	14	8	9	0.0%	-35.7%
Gas ['000 m³] [5]	1 926	3	13 845	20	618.8%	566.7%
TOTAL		1 551		1 552		0.1%

1) Including to Enea SA
2) Includes production from MPEC from the take-over by Enea CG - MPEC taken over on 16 September 2014
3) Including transport
4) Light-up fuel in Kozienice Power Plant
5) Used for the production of electricity and heat energy in MEC Piła and heat energy in PEC Oborniki

Table 17. Total water withdrawal in the companies of Enea Group in m^3 in 2015

	Unit	2015
ENEA S.A.	m^3	4075
ENEA Operator	m^3	64134.81
ENEA Wytwarzanie	m^3	1 801 483 624
Elektrociepłownia Białystok	m^3	24 866
MEC Piła	m^3	5 677
PEC Oborniki	m^3	2334.5
Szpital Uzdrowiskowy ENERGETYK	m^3	25135
Enea Pomiary	m^3	659
Enea Oświetlenie	m^3	936
Enea Logistyka	m^3	1264
PEC Zachód	m^3	1097.5
ENEA Centrum*	m^3	no data

Enea Serwis	m^3	14850
Enea Trading **	m^3	no data

* 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.
* * 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.

Table 18. Waste by type of waste [Mg] in 2015

		Unit	2015
ENEA S.A.			
	Hazardous waste	Mg	3.89
	Other than hazardous waste	Mg	1.444
ENEA Operator			
	Hazardous waste	Mg	334.839
	Other than hazardous waste	Mg	4068.837
Elektrociepłownia Białystok			
	Hazardous waste	Mg	5.813
	Other than hazardous waste	Mg	304.229
ENEA Wytwarzanie			
	Hazardous waste	Mg	55.759
	Other than hazardous waste	Mg	590399.653
MEC Piła			
	Hazardous waste	Mg	2.5
	Other than hazardous waste	Mg	4751.3

PEC Oborniki			
	Hazardous waste	Mg	0.02
	Other than hazardous waste	Mg	831.7
PEC Zachód			
	Hazardous waste	Mg	no data
	Other than hazardous waste	Mg	no data
Enea Pomiary			
	Hazardous waste	Mg	0.014
	Other than hazardous waste	Mg	1.01
Enea Logistyka			
	Hazardous waste	Mg	7.488*
	Other than hazardous waste	Mg	6.330*
Enea Trading			
	Hazardous waste	Mg	no data
	Other than hazardous waste	Mg	no data
Enea Serwis			
	Hazardous waste	Mg	500.999

	Other than hazardous waste	Mg	838.273
Enea Oświetlenie			
	Hazardous waste	Mg	4.141
	Other than hazardous waste *	Mg	176.04
ENEA Centrum			
	Hazardous waste	Mg	no data
	Other than hazardous waste	Mg	no data
Szpital Uzdrowiskowy ENERGETYK			
	Hazardous waste	Mg	a. 3.50 Mg b. 520 m³
	Other than hazardous waste	Mg	0.043

*The above values include waste produced by the Company and waste collected by Enea Logistyka Sp. z o.o. from other Enea companies which result from provisions of the Waste Electrical and Electronic Equipment Act. The above figures do not include municipal waste. Hazardous wastes (used light sources) were handed over to ABBA Ekomed company Sp. z o.o from Toruń, while non-hazardous waste are subject to recycling.

RES

We use renewable energy sources (RES for short) in the form of combustion and co-combustion of biomass, hydropower, wind farms and biogas plants.

Power generating capacity of the Enea Group

In the Kozienice power station
the main raw material is
coal: 5,378,883.051 tonnes used in 2015.
Biomass: 155,312.640 tonnes used
in 2015.

CHP Białystok, MEC Piła, PEC Oborniki, PEC Zachod, MPEC Białystok.
Culm is an important raw material: 16,827.13 tonnes used in 2015
and biomass: 359,514.00 tonnes used in 2015

21 hydropower plants.
Wind farms in Bardy, Darzyno, Baczyna.
Biogas plants in Gorzesław and Liszkowo

- Total installed RES capacity: **134.31 MW**
- Amount of energy generated from RES in Enea Wytwarzanie: **303,838.813 MWh**
- Amount of energy generated from co-generation in Enea Wytwarzanie: **523,488.352 MWh**

Table 19. The generation by the Enea Group of electricity (net) from renewable energy sources [GWh]

		2014	2015
Co-firing of biomass		476	255
	Change [%]		-46.4%
Combustion of biomass		294	309
	Change [%]		5.10%
Hydropower plants		115.5	109
	Change [%]		-3.50%
Wind farms		154.66	162
	Change [%]		14.90%
Biogas power plants		10.464	14
	Change [%]		55.60%

The most important initiatives in the RES area

We invest in renewable energy sources (RES).

Table 19. Existing and planned capital expenditures of Enea in renewable energy

	2014	2015	2016
Capital expenditures in RES	13.1 million PLN	94.3 million PLN	298.8 million PLN

These amounts were spent in 2015 primarily on the development of new energy sources in the areas of wind energy and photovoltaics as well as modernization of hydroelectric power and biogas.

In 2015, within the RES segment, we conducted intensive activities in the area of acquisition of wind projects. On August 7, 2015, we entered into a preliminary agreement to purchase a 100% stake in the company which is building a wind farm with a capacity of 36 MW.

In 2015, we conducted the investment of a wind farm with a capacity of 14.1 MW in Lubno next to Gorzow Wielkopolski. We also continue the work on a pilot project to build a photovoltaic farm with a capacity of 1 MW in Jastrowie.