

## Water and raw materials

By producing electricity and heat, we are faced with the need to consume significant amounts of water and raw materials. As the Group, we pay attention to optimising their use in production processes by applying modern solutions.

In the production process we use mainly hard coal, gas, biomass and heating oils. The basic fuel we use is hard coal, which is supplied in significant quantities by LW Bogdanka. Biomass in the form of forest chips, energy willow chips and sunflower hull pellets is used primarily at the Białystok Combined Heat and Power Plant and at the 'green unit' of the Połaniec Power Plant. Production of electricity and heat obtained from gas takes place in Przedsiębiorstwo Energetyki Ciepłej Oborniki and Miejska Energetyka Ciepła Piła.

Main raw materials used by the Generation Segment in 2017:

| Rodzaj surowca                         | Ilość   |
|--|---------|
| Hard coal [thousand tons]              | 9823.9  |
| Biomass [thousand tonnes]              | 1676.3  |
| Gas [in thousands m <sup>3</sup> ]     | 16840.9 |
| Heavy fuel oil [thousand tonnes]       | 13.8    |
| Light heating oil [thousand tonnes]    | 6.1     |
| Limestone meal [thousand tonnes]       | 179.7   |
| Ammonia water [thousand tonnes]        | 10.1    |
| Calcinated magnesite [thousand tonnes] | 0.02    |
| Stone salt [thousand tonnes]           | 0.0028  |

Total water withdrawal in Enea Group companies in 2017 [m<sub>3</sub>]<sup>21</sup>

| Nazwa spółki                | 2017          | źródła  |
|-----------------------------|---------------|---|
| Enea SA                     | 12747.70      | water supply system: 7962.70<br>other source: 4785.00   |
| Enea Centrum sp. z o.o.     | 1759.20       | water supply system: 1759.20  |
| Enea Wytwarzanie sp. z o.o. | 1663050763.00 | groundwater intake: 798662.00<br>water from drainage: 5612230.00<br>surface water <sup>22</sup> : 1656582146.00<br>water supply system intake: 50817.00 |

| Nazwa spółki  | 2017          | źródła  |
|---|---------------|---|
| Przedsiębiorstwo Energetyki Ciepłej sp. z o.o. w Obornikach | 1716.00       | water supply system: 1716.00                                    |
| Enea Ciepło Serwis sp. z o.o. <sup>23</sup>                 | n/a           | n/a   |
| Enea Ciepło sp. z o.o.                                      | 16347.00      | water from deep wells: 13593<br>water supply system: 5463       |
| Miejska Energetyka Ciepła Piła sp. z o.o.                   | 6781.00       | water supply system: 6781.00                                    |
| Enea Operator sp. z o.o.                                    | 57237.60      | water supply system: 56412.60<br>water from deep wells: 825.00  |
| Enea Oświetlenie sp. z o.o.                                 | 796.70        | water supply system: 796.70                                     |
| Enea Elektrownia Połaniec SA                                | 1289784219.00 | surface water: 1289717042.00<br>water from deep wells: 67177.00 |
| Enea Bioenergia sp. z o.o. <sup>24</sup>                    | 120.96        | water supply system: 120.96                                     |
| Enea Pomiary sp. z o.o.                                     | 847.25        | water supply system: 847.25                                     |
| Enea Serwis sp. z o.o.                                      | 3178.00       | water supply system: 3178.00                                    |
| Enea Logistyka sp. z o.o.                                   | 1280.00       | water supply system: 1280.00                                    |
| Enea Trading sp. z o.o.                                     | 34.55         | water supply system: 34.55                                      |

<sup>21</sup> For some companies, the value of waste does not include administrative properties, which are settled on a flat-rate basis in rent for all utilities.

<sup>22</sup> Water taken from the Vistula river - taken back for cooling and without return for technological purposes.

<sup>23</sup> Water consumed by Enea Ciepło Serwis is recorded in Enea Ciepło Company's consumption. Enea Ciepło The service does not keep any records, because the fee for water is included in the lump sum for renting rooms.

<sup>24</sup> The amount of water used applies only to hygiene and sanitary rooms and offices. The water consumption of the equipment and installations entrusted to operate and the water consumption in the adjacent rooms (control rooms, bathrooms, etc.) are recorded by Enea Połaniec S.A. as their owner.

#### What have we done to reduce water consumption in 2017?

- The new Koźienice Power Plant unit uses a closed cooling water circuit and its reuse. This results in high savings in water energy production processes.
- At the Białystok [Cogeneration](#) Power Plant, we have reduced water intake from deep wells and reduced the amount of process wastewater resulting mainly from modernisation works.
- We have modernised part of the heating network in the Generation Segment.
- We take care of the tightness of water systems and heating networks, as well as the high efficiency of installation equipment, and subject it to regular inspections. This allows for quick diagnosis and intervention in the event of malfunctions or other problems.

#### Waste by waste type [Mg] in 2017<sup>25</sup>

| Name of company  | Waste type          | 2017 [Mg] |
|--|---------------------|-----------|
| Enea SA  | Hazardous waste     | 0.00      |
|  | Non-hazardous waste | 1 4065    |
| Enea Centrum sp. z o.o.                                      | Hazardous waste     | 0.00      |
|  | Non-hazardous waste | 32.5      |
| Enea Wytwarzanie sp. z o.o.                                  | Hazardous waste     | 83.70     |
|  | Non-hazardous waste | 529502.00 |
| Przedsiębiorstwo Energetyki Ciepłej sp. z o.o. w Obornikach. | Hazardous waste     | 0.01      |
|  | Non-hazardous waste | 1430.16   |
| PEnea Ciepło Serwis sp. z o.o.                               | Hazardous waste     | n/a       |
|  | Non-hazardous waste | 7.80      |
| Enea Ciepło sp. z o.o.                                       | Hazardous waste     | 16.61     |
|  | Non-hazardous waste | 1900.94   |
| Miejska Energetyka Ciepła Piła sp. z o.o.                    | Hazardous waste     | 9.50      |
|  | Non-hazardous waste | 4576.20   |
| Enea Operator sp. z o.o.                                     | Hazardous waste     | 517.09    |
|  | Non-hazardous waste | 4785.384  |
| Enea Oświetlenie sp. z o.o.                                  | Hazardous waste     | 4.54      |
|  | Non-hazardous waste | 97.07     |
| Enea Elektrownia Połaniec SA                                 | Hazardous waste     | 1.46      |
|  | Non-hazardous waste | 949890.97 |
| Enea Bioenergia sp. z o.o.                                   | Hazardous waste     | 0.00      |
|  | Non-hazardous waste | 117.355   |
| Enea Pomiary sp. z o.o.                                      | Hazardous waste     | 0.08      |
|  | Non-hazardous waste | 0.56      |
| Enea Serwis sp. z o.o.                                       | Hazardous waste     | 127.11    |
|  | Non-hazardous waste | 368.82    |
| Enea Logistyka sp. z o.o. <sup>26</sup>                      | Hazardous waste     | 4.84      |
|  | Non-hazardous waste | 12.70     |
| Enea Trading sp. z o.o.                                      | Hazardous waste     | 0.00      |
|  | Non-hazardous waste | 0.00      |

<sup>25)</sup> For some companies, the value of waste does not include administrative properties, which are settled on a flat-rate basis in rent for all utilities.

<sup>26)</sup> The amounts of waste include waste collected by Enea Logistyka sp. z o.o. from other entities of the Enea Group and waste electrical and electronic equipment collected under the provisions of the Waste Electrical and Electronic Equipment Act. They do not include municipal waste. Hazardous waste is sent for recycling by ElektroEko Organizacja Odzysku Sprzętu Elektrycznego i Elektronicznego SA, whereas non-hazardous waste is recovered.

#### Main regulations implemented by the companies concerning waste management

- Principles of waste management in Enea Wytwarzanie – location: Świerże Górne

- Waste Management Manual at the Białystok Combined Heat and Power Generating Plant
- Waste management manual in Enea Wytwarzanie - [RES](#) segment no. ZA-71-2015-3
- Procedure PŚ-4.4-02 Waste management for Enea Ciepło
- Waste management in Enea Oświetlenie
- Waste management programme at the Połaniec Power Plant