

## INVESTMENTS AND DEVELOPMENT

The purpose of investments undertaken by the Company is to **drive up its market value**.

The investment programme of KOGENERACJA S.A. is focused mainly on both **internal** and **external fixed-asset investments**.

**Fixed-asset investments** are intended to be the drivers of the development, including pro-environmental initiatives. It is also used for modernisation and replacement of fixed assets. The aim of **modernisation and replacement investments**, i.e. investments in the Company's production assets, is to increase the efficiency and availability, decrease the failure rate of production system operations and to improve occupation safety.

### Capital expenditures

	from 1 January 2016 to 31 December 2016	from 1 January 2015 to 31 December 2015
Internal investments	115 674	220 852
External investments	4 946	2 138
<b>Total</b>	<b>120 620</b>	<b>222 990</b>

## INTERNAL INVESTMENTS

Internal projects are intended to gradually replace and upgrade depreciated production assets.

In 2016, significant part of the overall expenditure was allocated for the **continuation of investments commenced in 2014**:

- Adaptation of boilers at the Wrocław Power Plant to meet new SO<sub>2</sub> emission standards (PLN 25 855 thousand); Contractor: Rafako PBG Consortium
- Adaptation of boilers at the Wrocław Heat and Power Plant to meet new NO<sub>x</sub> emission standards (PLN 6 492 thousand); Contractor: Fortum Power and Heat Oy/Instal Kraków S.A. Consortium

Other **major projects** implemented in 2016 include:

- Modernisation of selected auxiliary facilities at EC Wrocław and EC Czechnica
- Capitalised overhaul of the K-1 boiler in EC Wrocław
- Capitalised overhaul of mill installations on K-3 boiler in EC Wrocław
- Capitalised overhaul of the mill installations at EC Czechnica
- Capitalised overhaul of the K-2 boiler in EC Czechnica
- Capitalised overhaul of the K-4 boiler in EC Czechnica
- Replacement of corner burners on the K-3 boiler in EC Czechnica

**Investment tasks** carried out in 2016 were **financed** mainly by the Company's **own funds** and **partly by external financing**

- Subsidy from the National Fund for Environmental Protection and Water Management and an investment loan from EDF Investissements Groupe SA helped to finance the construction of a flue gas denitrification unit for boiler 3 at the Wrocław Power Plant
- Preferential loan from the Regional Fund for Environmental Protection and Water Management was received for the construction of a flue gas desulphurisation system by the wet lime-gypsum process at the Wrocław Power Plant
- Cash pooling

Other **major projects planned in 2017** include the following:

- Adaptation of boilers in EC Wrocław to the new NO<sub>x</sub> emission standards
- Modernisation of the compressor facility in EC Wrocław
- Demolition of the H-120 chimney at EC Wrocław
- Capitalised overhaul of the mill installations at EC Czechnica

The investments to be delivered in 2017 will be financed by the Company's own funds as well as by external funds, including the subsidy from NFOŚiGW and an investment loan from WFOŚiGW towards the flue gas desulphurisation installation.

## EXTERNAL INVESTMENTS

In 2016, consumers with a total contracted capacity of 12.08 MWt were connected to the district heating network operated by FORTUM and the Company's own network

- In Wrocław - 27 district heating substations (the construction of company-funded and customer-funded substations) with a capacity of 8.93 MWt (5.29 MWt in the primary market and 3.64 MWt in the secondary market)
- In Siechnice and Święta Katarzyna - 9 district heating substations with the total capacity of 3.15 MWt (the construction and connection of substations to the Company's own network)

Work on the construction of a new district heating network in Siechnice and Święta Katarzyna was continued in 2016. New connection efforts will be continued and developed.

## QUALITY AND ENVIRONMENTAL PROTECTION

### Integrated Management System

KOGENERACJA S.A. has an **Integrated Management System certificate**, comprising the following three systems:

- Quality Management System compliant with PN-EN ISO 9001:2010
- Environmental Management System compliant with PN-EN ISO 14001:2005
- Occupational Health and Safety Management System compliant with OHSAS 18001:2007

The **Integrated Management System Certificate** has been issued by the Polish Centre for Testing and Certification (PCBC) in Warszawa and is valid until 15 September 2018. The certificate for the Quality Management System, the Environmental Management System and the Health and Safety Management System is valid until 5 May 2019.

### Integrated Permits

In 2016, there were no changes to the existing integrated permits.

In August 2016, new decisions were received regarding permits for greenhouse gases emissions. The obligation was imposed by the Act of 12 June 2015 on the system of trading in greenhouse gases.

### Trading system for CO<sub>2</sub> emissions allowances

The **free allocation of emission allowances** is based on the National Allocation Plan in accordance with the Regulation of the Council of Ministers of 13 April 2015 on the list of power generating installations and with the Regulation of the Council of Ministers of 10 April 2015 on the list of installations other than power generating installations.

The allocation of free allowances is primarily dependent on the completion of investment projects set out in the National Investment Plan and the use of investment outlays for the settlement of allocated allowances.

The number of allowances allocated may be lower than the one resulting from the Regulation. This was the case with the 2015 settlement, when - in April 2016 - the Company obtained electricity allowances of 436 539 Mg, i.e. less than 508,411 Mg stipulated in the 2014 Regulation.

Based on the Regulations applicable to the period of 2013-2020, the Company has been granted a limit of 747 920 Mg for 2016. Taking into account the value of capital expenditure that pre-conditions the receipt of the allowances, the estimated free allowances are 665 993 Mg.

According to the Company's estimation, free CO<sub>2</sub> emission allowances for:

- **Electricity generation** amount to **304,919 Mg**
- **Heat generation** amount to **361,074 Mg**

(limit for 2015: 882 819 Mg; limit for 2014: 1 091 947 Mg, limit for 2013: 1 280 830 Mg; limit for 2012: 1 626 966 Mg)

CO <sub>2</sub> emission in 2016	1 551 437 Mg
annual allowance allocation	665 993 Mg
2016 balance upon full settlement (shortage)	885 444 Mg
forwards (net) contracted for March 2017	885 444 Mg

In accordance with the Company's accounting policy, the Company set up a provision for the shortage of CO<sub>2</sub> allowances of PLN 31 604 thousand (PLN 14 158 thousand in 2015).

## Quality, environment and OHS policies of KOGENERACJA S.A.

KOGENERACJA S.A. is a company member of the EDF Group, specialising in the combined generation of heat and power, a technology that contributes to more efficient utilisation of the chemical energy of fuel and thereby to reduced environmental pollution.

The Company pursues its core business in compliance with the **principles of sustainable development**, an approach that ensures satisfactory economic performance without compromising its social and environmental responsibilities.

Through its adherence to strict **safety standards and the professional conduct of its personnel**, KOGENERACJA S.A. aspires to be perceived as a reliable company that earns the trust of its customers and shareholders and is accepted by the local community.

Being fully aware of the types and gravity of risks to the natural and workplace environment, the **Company undertakes to perform as follows:**

- Supply customers with heat and power in conformity with applicable quality parameters and in a safe and cost-effective manner
- Comply with the law, in particular with the regulations relating to occupational health and safety, fire safety and environmental protection
- Systematically identify, evaluate and mitigate hazards
- Take actions to mitigate the Company's adverse impacts on the environment and to maintain its diversity
- Make ongoing efforts to minimise risks associated with the hazards identified in the heat and power generation process in order to prevent failures, accidents, fire incidents and occupational diseases
- Conduct systematic reviews and effectiveness evaluations of the Integrated Management System
- Develop the qualifications, professional skills and awareness of employees and actively support all initiatives to improve quality, occupational health and safety and environmental protection
- Collaborate with all stakeholders, in particular local authorities and communities
- Meet the requirements of and continuously improve the Integrated Management System compliant with PN-EN ISO 9001, PN-EN ISO 14001 and OHSAS 18001

Aware of the provisions of this Policy, all employees of KOGENERACJA S.A. warrant that they will act to ensure that the services they provide are of high quality and are rendered in a manner which is safe for human health and the environment. They will also oblige guests and employees of other companies operating on the Company's premises to do the same.

In order to fully achieve the objectives set out in this Policy, the Company undertakes to ensure the resources necessary for its implementation.

Safety issues within this Policy are further addressed in the OHS Policy of KOGENERACJA S.A., which is related to the OHS Policy of the EDF Group in Poland.

## The status of the electricity sector

The situation of electricity suppliers in 2016 was determined by the following external factors:

### Demand for electricity

- The demand for electricity in the National Energy System (KSE) was stable and comparable to the previous year
- The key factor affecting the demand for electricity was the electricity production from wind farms
- December 2016 was a special month as it saw an oversupply of electricity due to high generation from wind farms (a period of high windiness) coupled with a limited demand from buyers during the Christmas period

## Prices of electricity

- The period of low electricity prices has continued, driven by:
- Low valuation of CO<sub>2</sub> certificates,
- Growing power generation from the renewable energy sources (an increase in installed capacity of wind farms)
- Increased possibilities of electricity imports

## Prices of green and red certificates

- In 2016, the prices of green certificates decreased. The main reason for the situation was the decrease caused by an oversupply of certificates on the market from previous years and an increased supply of certificates of energy from wind farms.
- Another factor driving reduction of certificates value was uncertainty about legal developments due to delays in implementation of a new act on renewable energy sources and implementation of an auction system.
- In the case of red and yellow certificates for electricity produced in high-efficiency cogeneration, the support mechanism put in place in 2014 was continued.
- However, due to the fact that the substitution fee for red certificates was set at a minimum level and given the lack of solutions extending the existing system of cogeneration support after 2018, the prices are not sufficient to create a business environment that would encourage new investments into cogeneration units.