



*Polska Grupa
Energetyczna*

PGE – A Socially Responsible Group

Report on non-financial data of PGE Polska Grupa Energetyczna S.A.
and PGE Group for 2019



Dear All,

The implementation of EU climate goals is a tremendous challenge not only from the perspective of the energy sector. This is a huge effort for the economy of each of the European Union countries. It is also a leading challenge for the PGE Polska Grupa Energetyczna, which I began to manage on February 20, 2020. The EU climate policy, green order, decarbonization, and social expectations are elements that already affect the energy sector and will determine the work of the PGE management board.

We are ready to actively contribute to the achievement of ambitious EU climate goals. However, this process requires significant investment outlays. Not all countries start from the same point, and the level of economic development has a significant impact on the pace of change. Our contribution to the implementation of the EU climate policy is not only the investments we undertake, but also our well-thought-out investment plans. The necessary actions, however, require appropriate support from the EU institutions. The mobilization of appropriate financial resources makes the implementation of an ambitious emission reduction path much more realistic.

Decision-making processes undertaken in the energy sector are characterized by high complexity. PGE is part of both the social and the economic ecosystems and cannot function in isolation. That is why, in addition to economic calculations, regulatory reasons and the needs of the Polish power system, I see the need for constant dialogue with the social side and undertaking actions aimed at obtaining social acceptance for our activities. By assuming the function of the President of the Management Board, together with the team of managers, I undertake the task of giving impetus to activities in the PGE Capital Group.

I consider the attitude of employees of the entire Group and their cooperation-oriented attitude to be a key element in the successful implementation of the tasks we have before us. I also count on constructive dialogue with financial markets, primarily with the environment of investors, banks and insurers. The green direction is achievable on the basis of a conventional resources that will allow balancing the growing number of renewable sources of energy being created and will provide our economy and society with secure and stable electricity and heat supplies.

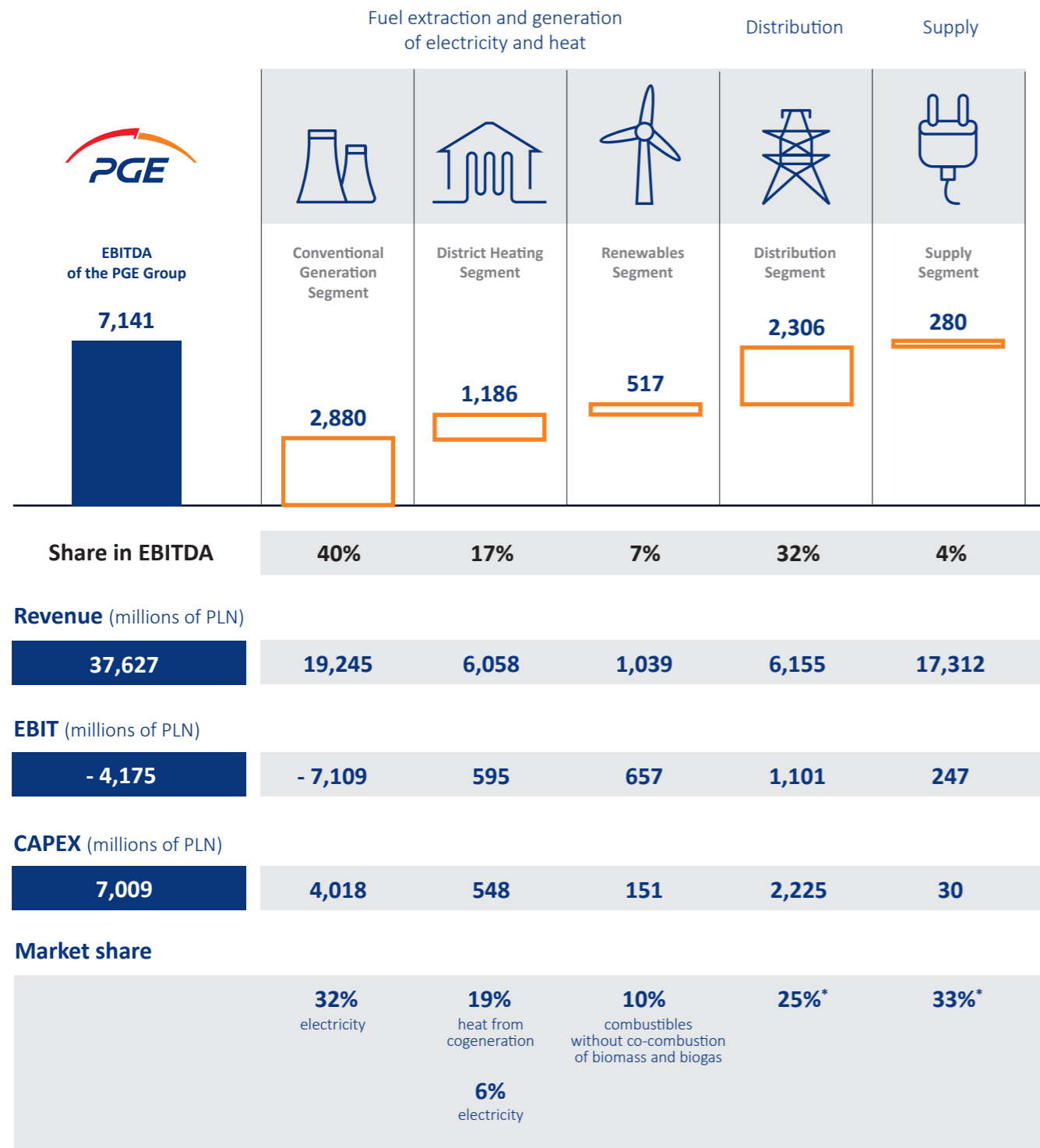
Wojciech Dąbrowski
President of the Management Board
PGE Polska Grupa Energetyczna

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The PGE Group's Business Model

PGE Group is Poland's largest vertically integrated producer and supplier of electricity and the largest producer of district heating. The Group operates throughout the entire value chain: from lignite mining at its own mines, through electricity and heating production, to distribution and sales.



* Estimated data concerning sales to end customers and distribution

The PGE Group's generating assets account for approx. 39% of the electricity produced in Poland, using a variety of technologies, including approx. 32% by the conventional generation segment and approx. 6% by district heating segment, of which approx. 19% in cogeneration. Conventional installations use lignite from their own mines as well as hard coal, gas and biomass from external suppliers. Renewable sources are also used to produce electricity: wind energy in wind farms, water energy in hydropower plants and solar energy (PV). With over 294,000 km of distribution lines, The PGE Group distributes electricity to customers in an area covering approx. 40% of Poland's territory.

With a combination of its own lignite resources, generation assets and distribution networks, The PGE provides secure and reliable electricity supplies to more than 5 million customers throughout Poland, including households, businesses and institutions. This means that it supplies almost every third electricity consumer in Poland. The PGE is also the leader in district heating production.

In 2019, the PGE Group generated EBITDA of approx. PLN 7.1 billion.

Conventional Generation Segment, responsible for generating electricity from conventional natural resources had the highest share of revenues and EBITDA. Investment outlays in this sector were the highest and amounted to approx. PLN 4 billion, including increasing the efficiency of existing units and their environmental upgrades and investments development (PLN 1.4 billion) in block projects with a capacity of 1,800 MW in Opole and a 490 MW block in Turów.

District heating Segment responsible for production of district heat generated 17% of the PGE Group EBITDA. Investment outlays in this segment amounted to PLN 0.5 billion and these were mainly modernization and replacement expenses regarding production assets and heating networks.

The Renewable Energy Segment is responsible for the production of electricity from renewable sources and management of the capacity of the pumped storage power plants. The Group actively invests in the development of renewable energy sources. After winning the RES auction in 2018, the Group is building an onshore wind farm with almost 100 MW installed capacity. It also implements one of the strategic development options of the PGE Group after 2020 – a project to develop offshore wind farms. The Group's plans are to reach 1 GW in 2026 and 2.5 GW by 2030.

The Trade Segment focuses its activities around trade in electricity and related products in wholesale and retail markets.

The business model in PGE

The PGE Polska Grupa Energetyczna SA is the parent company of the PGE Capital Group.

The company's activity concentrates mainly on the following areas: wholesale trade in electricity and trade in related products and fuels, supervision over the activities of central companies and holding companies, providing financial services for companies of the PGE Capital Group.

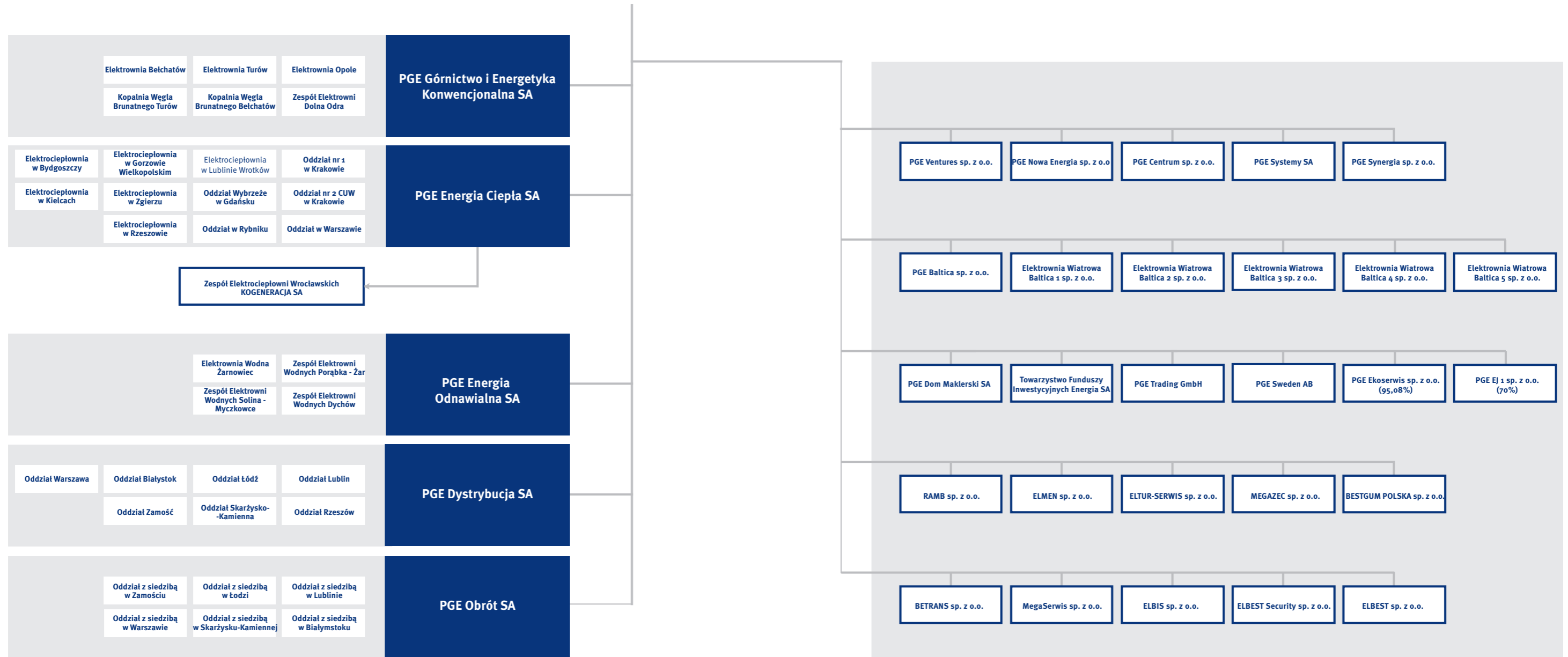
The PGE carries out the tasks of the parent company of the PGE Group, which includes, among others, creating development strategies and strategic management of the PGE Group, focusing on effective management of the PGE Group production portfolio.

The PGE S.A.'s organisational structure

on December 31, 2019



PGE Polska Grupa Energetyczna



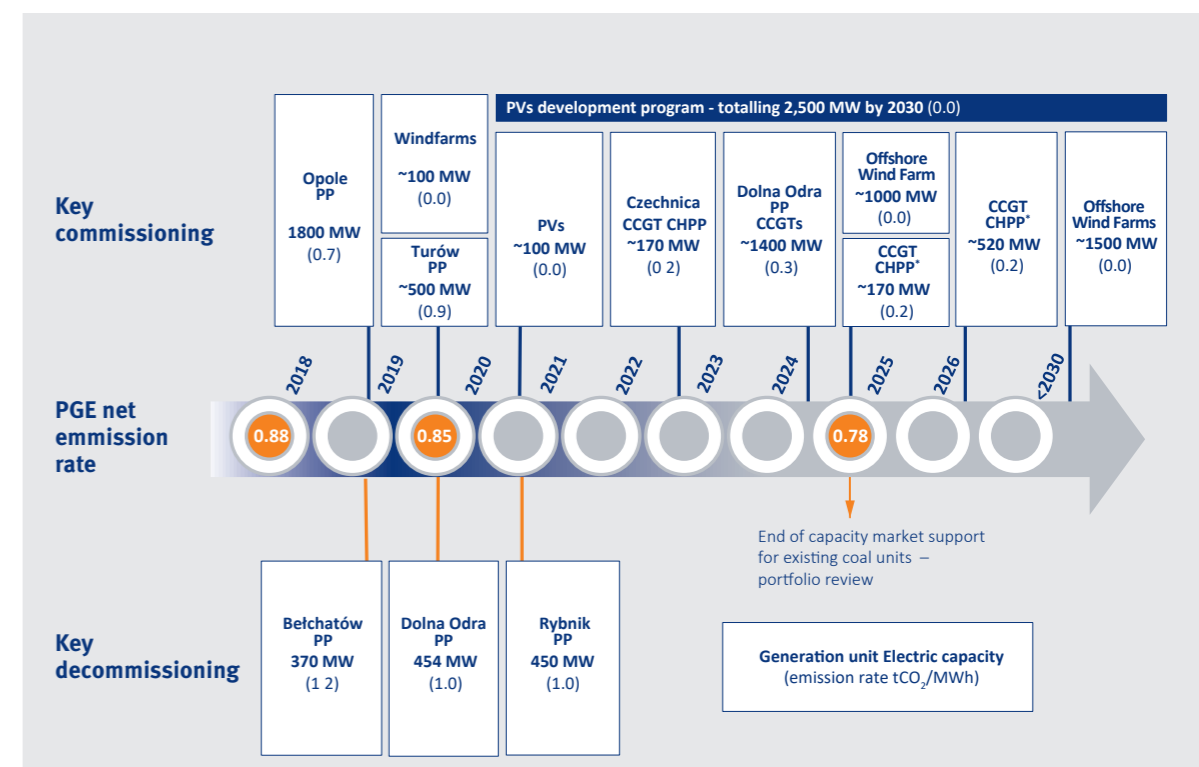
Companies with 100% equity participation (unless otherwise stated).
 PGE Energia Ciepła SA holds 58.07% of shares in the share capital of Zespół Elektrociepłowni Wrocławskich Kogeneracja SA.
 In January 2, 2020, the Rybnik branch was moved to the Conventional Generation business line and became a branch of the company The PGE Górnictwo i Energetyka Konwencjonalna SA.

Global energy transformation

Energy transition is no longer a choice – it's a necessity. Therefore, specific actions aimed at building low-carbon energy should be accompanied by a wide and open discussion on theme of the sector's future and sources of funding for this transformation.

Low-carbon transformation is a key challenge for the PGE Group, and its success depends on meeting national and EU greenhouse gas emission reduction targets. We are aware of the impact we have on the environment, which is why we want to effectively limit this impact and use natural resources rationally.

THE WIND FARM "LOTNISKO" (AIRPORT), PGE ENERGIA ODNAWIALNA



* New units, pre-investment analyzes



THE WIND FARM "RESKO II", PGE ENERGIA ODNAWIALNA

PGE Energia Odnawialna (Renewable Energy), a company of the PGE Capital Group has 14 wind farms with a total installed capacity of 542,680 MW. This year, two new facilities of this type – Wind Farm Starza / Rybice and Wind Farm Karnice II with the total installed capacity of 97.17 MW – will be open in the West Pomeranian Voivodeship, which will strengthen the company as the largest producer of „green” energy in Poland.

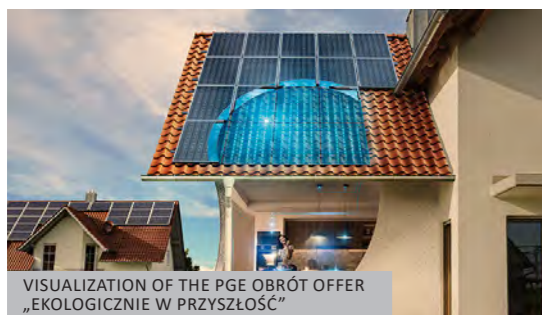
The PGE Group is a leader in the production of green energy, it develops ambitious plans to build offshore wind farms and solar power plants. In view of the progress of work and the time required for the low-carbon transformation, conventional power plants are supportive in the process of developing renewable energy. It is necessary to maintain a constant and uninterrupted supply of energy and heat until obtaining at least the same generation capacity from renewable sources.

The capacity market introduced in 2017 guarantees financial support for existing conventional units and justifies their modernization so that they can work longer and guarantee the security of the entire energy system. We are turning off old and inefficient coal blocks and rebuilding our production potential based on other technologies, e.g. gas units or blocks producing energy from municipal waste.

As a leader in wind energy production, the PGE Group implements projects to develop onshore wind farms, and also initiates the construction of the first offshore wind farms in the Baltic. Electricity from windmills in the Baltic will flow in 2026, and by 2030 the PGE offshore wind farms will reach 2.5 GW. The implementation of this project alone will reduce CO₂ emissions by approximately 7 million tons per year.

The PGE Group also runs a photovoltaic (PV) development program. The Group's aspirations in this area is 25 percent participation in the Renewable Energy segment. With the current assumptions of the project „Polish Energy Policy until 2040” this means obtaining approx. 2.5 GW of capacity by 2030. PGE Energia Odnawialna, a PGE Group company, is building solar farms all over Poland. The Group plans to cooperate in this area with large government-owned companies, e.g. PKP Polish Railway Lines, one of the largest land owners in Poland and at the same time one of the largest consumers of electricity in the country, as well as KGHM Polska Miedź and the Azoty Group „Siarkopol.”

The PGE Group is also a leader in connecting solar photovoltaic installations to the grid, thus enabling its clients to produce green electricity for their own needs. The decrease in the costs of PV technology and the support of government funding programs for this type of installation significantly accelerated the process of generating electricity for households' own needs in Poland.



VISUALIZATION OF THE PGE OBRÓT OFFER „EKOLOGICZNIE W PRZYSZŁOŚĆ”

In 2019, we connected nearly 42,000 PV installations with a total capacity of over 250 MW to the network, which means a threefold increase in the connections of solar photovoltaic installations to the grid in our distribution area.

Key development initiatives of the PGE Group

Developmental Activities

Development of offshore wind farms

- 2.5 GW of capacity installed in the Baltic Sea until 2030
- we plan to commission the first offshore wind farm in 2026

Investments in photovoltaic development

- we plan to obtain 2.5 GW of capacity by 2030 as part of the PV Program
- we implement large-scale projects in industrial areas using the infrastructure of the PGE Group companies
- we develop the portfolio of our own projects, but also use the potential for acquisition
- we establish cooperation with other companies with the participation of the Treasury striving to achieve synergies
- as part of increasing energy efficiency, we offer micro installations and are a partner of the micro network

Investments in heating

- by 2023, we plan to manage networks in 2/3 of our CHP locations
- we are planning to build 1,000 MW of new cogeneration capacity by 2030
- an increase in the share of low-emission fuels in the fuel mix of the heating segment to 50% until 2030

Construction of gas and steam power

- 2 blocks of 700 MW capacity at Dolna Odra Power Plant
- analysis of the potential for further development of gas capacity

Efficiency actions

- Increasing the energy efficiency of production assets due to modernizations
- Reducing our own energy consumption
- Reduction of network losses associated with the distribution of electricity
- Starting the distribution network cabling program
- Reduction of losses in heating networks



SOLAR FARM ON MOUNTAIN ŻAR, PGE ENERGIA ODNAWIALNA

Dialogue with stakeholders

Energy transformation has an important social dimension. The PGE Group is building its market position in such a way that business solutions take into account the social factor. This means constantly maintaining good relations with the environment, based on trust and openness, through active dialogue with stakeholders. The PGE Group companies organize such events as energy forums with representatives of local authorities and conduct public consultations accompanying investments. Local Information Points (LPI) have been launched in municipalities considered as potential locations of the first Polish nuclear power plant, where residents can obtain information about nuclear energy and the ongoing investment. PGE Energia Ciepła (Heat Energy) also organized the first workshops for contractors in the energy sector and sectors linked to it, at which it presented planned investments and rules for the proper preparation of tender procedures based on the Public Procurement Law.

The PGE Group regularly conducts dialogue sessions- Stakeholder Panels to get to know the opinions and expectations of both business and the local community. Representatives of the key PGE Group stakeholder groups, i.e. government administration, regulator, media, industry and non-governmental organizations, scientific communities, investors, representatives of local communities, and employees are invited to meetings.

The last panel of this type took place on October 26, 2017 at the PGE headquarters in Warsaw. Discussions were conducted in four thematic groups related to the General Procedure for Management of Social Engagement Activities (CCI) in the PGE Group, related to the business strategy: society (local communities), workplace, environment, and market.

Stakeholder representatives selected priority issues that they believe should be key for the PGE Group and topics that should be included in the PGE Group integrated report. The following topics were selected:



SOCIETY

- Educational activities in the area of functioning of the electricity and heat market, energy efficiency and safe use of energy and its infrastructure (including education of children and youth)
- Supporting the local community, active implementation of the good neighborhood policy; actions at the level of individual companies



ENVIRONMENT

- Investing in projects from the sphere of environmental protection, financing research projects in the area of possibilities of limiting negative impact on the environment, investments for increasing the share of renewable energy
- Limiting the environmental impact of activities
- Emissions to the atmosphere (types and amount of emitted substances- measurements, goals)



WORKPLACE

- Ethical business conduct, ethics management in the organization (including anti-corruption)
- Promotion of occupational health and safety (OHS) principles
- Generation gap management



MARKET

- Investments for the development of energy production from renewable sources
- Ensuring energy security – effective access to electricity and heat

Dialogue with regulatory and industry environment

The PGE Group operates in an extremely complex and changing regulatory environment. In order to successfully conduct business activity and meet the expectations of Stakeholders, it must monitor the legislative processes on an ongoing basis and actively participate in the dialogue with the environments responsible for creating law, both in Poland and in the European Union. Such activity translates directly into building the value of the entire Group.

Since 2008, the PGE Group has been actively participating in the initiative of the UN Secretary-General- Global Compact creating a standard for companies in the field of ethics. It also implements actions for sustainable development throughout the entire value chain – from extraction and generation to the final recipient of electricity and heat, while also contributing to the implementation of sustainable development goals (SDGs). Corporate social responsibility is therefore not only a response to the expectations of stakeholders. It is primarily a way of operating and one of the factors guaranteeing success in implementing the PGE Group strategy.

The Group undertakes activities in each of the 17 SDGs goals. However, the most important ones are the following:

- Goal 4. Quality education
- Goal 7. Affordable and clean energy
- Goal 8. Decent work and economic growth
- Goal 9. Industry, innovation and infrastructure
- Goal 11. Sustainable cities and communities
- Goal 12. Responsible consumption and production
- Goal 13. Climate action
- Goal 17. Partnerships for the goals

As a member of the Polski Komitet Energii Elektrycznej (PKEE), PGE belongs to EURELECTRIC Electricity Industry Union. This association represents interests of European power companies and is the strongest industry organization in this area participating in dialogue with European institutions. The company belongs also to other international industry organizations, including Global Sustainable Electricity Partnership (GSEP), Hydrogen Europe, Edison Electric Institute and Stanford Energy Corporate Affiliates and also to domestic organizations, including:

- Izba Gospodarcza Energetyki i Ochrony Środowiska,
- Towarzystwo Obrotu Energią,
- Polski Komitet Światowej Rady Energetycznej,
- Stowarzyszenie Elektryków Polskich,
- Stowarzyszenie Emitentów Giełdowych.

What is more, companies from the PGE Group belong and take an active part in the work of the following international industry organizations:

- EDSO for Smart Grids,
- World Nuclear Association,
- FORATOM,
- WindEurope,

and the following domestic organizations and associations:

- Izba Gospodarcza Energetyki i Ochrony Środowiska,
- Towarzystwo Gospodarcze Polskie Elektrownie,
- Polskie Towarzystwo Nukleoniczne,
- Polskie Towarzystwo Przesyłu i Rozdziału Energii Elektrycznej,
- Związek Pracodawców Dystrybucji Energii,
- Towarzystwo Obrotu Energią,
- Związek Pracodawców Porozumienie Producentów Węgla Brunatnego (ZPPPWB) and through this organization the PGE Group is also represented in the international organization Euracoal,
- Polskie Towarzystwo Elektrociepłowni Zawodowych,
- Izba Gospodarcza Ciepłownictwo Polskie,
- Towarzystwo Elektrowni Wodnych,
- Stowarzyszenie Elektryków Polskich,
- Polskie Stowarzyszenie Energetyki Wiatrowej,
- Stowarzyszenie Energii Odnawialnej.

The rules for joining international organizations have been included in the General Procedure for the Activities of the PGE Capital Group in the International Area. However, detailed guidelines for cooperation with national and international industry organizations are set out in the document „Good practices in cooperation with national and international industry organizations”.

GRI 102-12

GRI 102-13

GC-1

GC-2

GRI 102-43

GRI 102-40

Development programs supporting energy transformation

The PGE Group conducts research and implements development programs that, thanks to the latest technologies and solutions, support our core business and at the same time implement the PGE Group Environmental Policy. These include:

- The hydrogen program,
- The program for adjusting generating units to the requirements of the BAT / BREF conclusions,
- The Electromobility Program,
- The Pilot Program for Energy Storage.

A list of development projects is available on page 34.

The use of hydrogen hydrogen as an energy carrier has enjoyed great popularity in recent years. According to numerous publications, hydrogen can help meet energy challenges, such as: storage of energy from renewable sources, support of the decarbonisation process in various industrial sectors, including the energy generation and transport sectors, improvement of air quality and strengthening of energy security. The PGE Group launched the hydrogen program in December 2019. Its primary goal is to coordinate all initiatives, activities and projects in the field of hydrogen technologies currently implemented or planned to be launched in the PGE Group.

A program for adapting generating units to the requirements of the BAT / BREF conclusions was launched by the PGE Group at the beginning of 2019. Since then, five research and development projects have been launched:

- research on the impact of targeted bromine salt mixtures on the reduction of mercury emissions in the exhaust gas of Turów Power Plant,
- testing the effectiveness of the use of selected types of powdered sorbents to reduce mercury emissions at the Bełchatów Power Plant,
- activated carbon production technology and its dosage method to reduce mercury emissions,
- developing low-input methods for increasing the efficiency of flue gas desulfurization installations;
- implementing heavy metal removal technology in InnUPS technology.

The PGE Group Electromobility Program has the following goals:

- promotion and development of electric transport in Poland,
- acquiring the role of a key operator of infrastructure for charging electric cars and a key supplier of electric car charging services,
- development of the segment of services related to electromobility.

These goals are achieved by PGE Nowa Energia, a company belonging to the PGE Group, through the construction and management of a charging station network and the provision of value-added services based on charging infrastructure.

The charging stations of the PGE Nowa Energia belonging to the PGE Group are 100% powered by energy from renewable sources.



PHOTO: PGE NOWA ENERGIA / ELECTRIC CAR CHARGING STATION IN WARSAW AT 15 KŁOPOTOWSKIEGO STREET

By the end of 2019, the company launched 32 charging stations (one charging station may have more than one charging point) in various regions of Poland. In practice, this means 64 points in 19 cities.

The PGE Group is the largest partner of local governments in building infrastructure for electromobility. Knowing the specificity of local authorities requirements as well as extensive experience and good relations with local self-governing bodies, the Group has developed a comprehensive investment model corresponding to this specificity.

The PGE Group is also the first operator in Poland to supply charging stations with 100% energy from renewable sources. In this way, it achieves the goal of reducing greenhouse gas emissions, not only locally in places where electric vehicles are used, but also throughout the entire value chain of energy production. At the same time, the Group provides customers with fully ecological power supply.

On February 17, 2020, PGE Nowa Energia concluded an agreement regarding the construction of publicly accessible electric car charging stations at car dealerships of brands belonging to Volkswagen Group Polska. Under the agreement, up to 300 new charging points will be launched next to the showrooms in the next 2 years.

The implementation of the Pilot Energy Storage Program is a response to the needs of the market. Currently, one can observe constant increase of installed capacity in renewable energy sources, which requires the development of new methods for stabilizing the operation of power networks, in particular medium voltage networks. The PGE Capital Group program focuses on analyzing the possibilities of building the first electricity storage systems using electrochemical battery technology and gathering the necessary operational experience related to the management and maintenance of both batteries and power converters as well as IT systems supporting the operation of energy storage.

The share of the PGE units in the total installed capacity at pumped storage power plants in Poland is about 85 percent.

As part of the PGE Capital Group, four projects related to energy storage are currently underway.

- PGE GiEK Zakład Elektrownia Bełchatów is working on a warehouse integrated with a conventional unit with a net capacity of 1 MW and a capacity of 1 MWh. The investment will be completed in 2022.
- PGE Energia Odnawialna will build two energy storage facilities. A 500 kW facility with a capacity of 750 kW will be installed at the photovoltaic installation on Góra Żar, the other one, at the Karnice I wind farm, will have an estimated power of 1.75 MW and a capacity of 1.75 MWh.

PGE Dystrybucja, Branch Rzeszów wants to open a container energy store this year at the Rzepedź Main Supply Point with a capacity of approx. 2.1 MW and a capacity of 4.2 MWh. The facilities are to support the integration of renewable energy installations so that the energy generated in them can be used during the period of greatest demand. In addition, they can serve as a back-up power supply for the end customer, energy arbitration, as well as a current demand management system.



THE PUMPED STORAGE POWER PLANT IN ŻARNOWIEC

Environmental protection and counteracting climate change



THE PUMPED STORAGE POWER PLANT IN ŻARNOWIEC

GC
GC-7
GC
GC-9

The investments of the PGE Group are aimed at gradually lowering our emission rate. When taking up the challenge of gradual decarbonisation and diversification of the fuel mix, we count on the support of financial institutions as long-term partners of an effective and fair transformation of the energy sector.

The PGE Group is the largest producer of electricity and heat in Poland. It is also the largest producer of green energy in the country. Consequently, it actively participates in the implementation of climate policy objectives, including the reduction of CO₂ emissions and a gradual departure from fossil fuels.

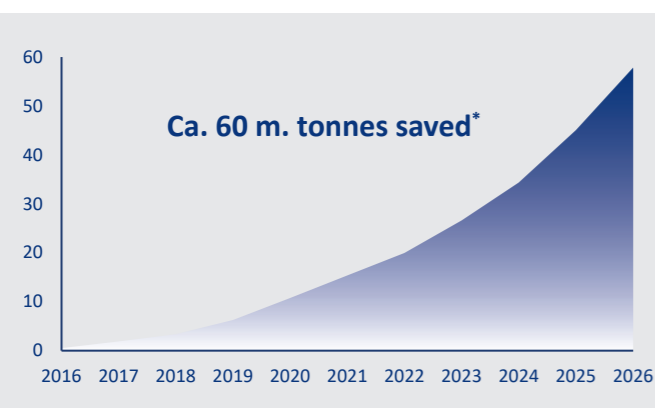
In recent years, most investments in conventional assets were aimed at reducing the environmental impact of these units directly through the construction of desulphurization, denitrification and dedusting installations, but also indirectly through modernizations aimed at improving production efficiency. The power plants belonging to the Group in Bełchatów, Turów, Opole, Dolna Odra, and Rybnik, due to consistent pro-environmental investments, systematically reduce the level of emissions of nitrogen oxides, sulfur dioxide, and dust into the air.

From 1989 to 2019, the Group's system power plants reduced their SO₂ emissions by 95%, NO_x emissions by 58%, and dust emissions by 99% (in kg / MWh).

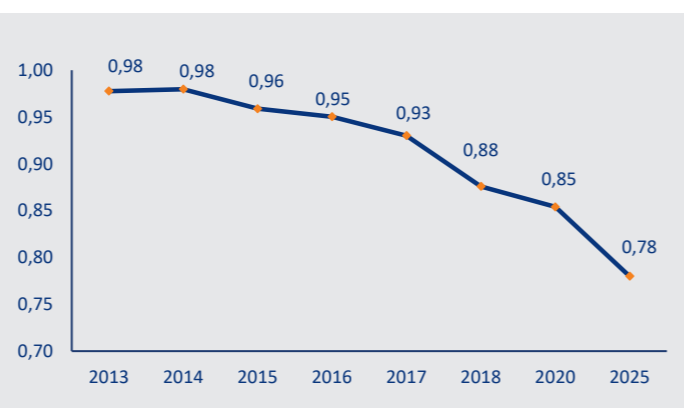
The PGE Group is consistently aiming to reduce carbon dioxide emissions

To realize this goal, the company recreates its production portfolio towards environmentally friendly sources.

CO₂ Saved Cumulatively 2016-2026
(m tCO₂)



Overall PGE Group emission rate
(tCO₂/MWh)**



* As a substitution effect of an average system hard-coal unit of 35% efficiency.
 ** For 2020 and 2025 estimated average emissions rates of PGE Group according to initial schedules of the projects given above (contribution of 2 gas-steam units and partial contribution of the offshore wind).

As a result of the investment, the net emission ratio (in terms of tonnes of CO₂ per MWh) will fall from 0.98 tonnes of CO₂ / MWh in 2013, to 0.88 tonnes of CO₂ / MWh in 2018, to 0.78 tonnes of CO₂ / MWh. After 2025, the emissions of the PGE Group units will continue to decrease, as a result of such developments as starting electricity production in offshore wind farms. The commissioning of currently implemented and planned investments

will avoid CO₂ emissions at the level of 60 million tonnes in 2016-2026. Projects for the construction of low-carbon sources mean that transformation costs are getting higher. Therefore, when taking up the challenge of gradual decarbonisation and diversification of the fuel mix, the PGE Group counts on the support of financial institutions, which will allow for an effective, but at the same time fair transformation of the energy sector.

The PGE Group is a leader in using the potential of renewable energy in Poland, and its goal is to achieve 25 percent. share in the green energy market by 2030.

The PGE Group is building onshore wind farms. It also began to implement the offshore wind farm project. The operations of the Group companies stimulate the increase in the number of prosumer installations. The group is also developing a solar farm construction program.

PGE Nowa Energia, which belongs to the PGE Group, actively participates in the promotion of electromobility - it puts charging stations for electric cars across Poland and supplies them with energy generated in 100% from renewable sources. It also invests in electric car-sharing. All these activities lead to the decarbonisation of the electricity and district heating market in Poland.

The PGE Group plans to develop effective capacity based on gaseous fuel as an alternative to phased out coal blocks in power plants and combined heat and power plants. Another argument supporting the construction of flexible gas power plants is the expansion of renewable energy sources requiring balancing depending on weather conditions.



The production portfolio of the PGE Group is changing due to the implementation of the modernization program of existing assets, which aims to increase production efficiency, and thus reduce carbon dioxide emissions. In 2016, the comprehensive modernization of 10 units at the Bełchatów Power Plant was completed, and currently the modernization of unit No. 2 is still ongoing. In June 2019, the oldest unit at the Bełchatów Power Plant was shut down, which worked for 38 years and met all environmental standards until the end of its operation. The Group is also implementing a modernization project for units 1-3 at Turów Power Plant, which will increase capacity from 235 to 250 MW while improving efficiency and availability.

The PGE is the largest producer and supplier of district heat

The PGE Group cares about partner relations with local authorities and local distributors, thanks to which it develops solutions that are beneficial for clients. By 2023, the Group plans to manage networks at 2/3 of our CHP locations.

The PGE Group's District Heating Strategy is a response to the need to improve air quality in cities through massive connections to the heating network and the elimination of old, inefficient and environmentally polluting coal furnaces. The strategy envisions the following developments:

- construction of 1,000 MW new capacity in cogeneration by 2030,
- increasing the share of low-emission fuels to 50% in the perspective of 2030 by using the potential of local sources (biomass, waste, gas),
- supporting the implementation of the 25% target share in Polish electricity production from renewable energy sources by 2030.

In 2019, on local heat markets, PGE Energia Ciepła connected to the municipal heating networks a record 239.9 MWt, i.e. 43.4 MWt more than in 2018. It is as if a whole city of the size of Gorzów Wielkopolski was connected to a heating system in one year.

On markets where PGE Energia Ciepła is only a heat producer 195.5 MWt have been connected, whereas where it operates as an integrated entity and is also a heat distributor, 42.4 MWt have been connected. Nearly 80 percent of connections were carried out in 3 large cities: Kraków, Wrocław and Gdańsk. On the primary market, that is, to newly constructed buildings to which heat flows for the first time, PGE Energia Ciepła connected 173.5 MWt (73% of all connections). However, on the secondary market, i.e. for buildings that have converted heat supply into a municipal heating network, it connected 66.4 MWt.



CHP PLANT IN RZESZÓW

In 2019, PGE Energia Ciepła



Connected a record 237.9 MWt to municipality heating networks

Which is 41.4 MWt more than in 2018



Carried out nearly 80 percent of connectins

In Kraków, Wrocław, and Gdańsk



Connected 171.5 MWt on the primary market

Source: PGE Energia Ciepła



Connected 66.4 MWt on the secondary market

The contribution of the PGE Group to the Circular Economy

The formation of by-products of combustion is a consequence of the production of electricity and heat in generating units using fossil fuels. Activities undertaken by the PGE Group, consisting in closing the loop are part of the European Union policy, which is focused on the

reuse of combustion by-products, protection of natural resources and minimizing adverse impact on the environment, including by limiting the amount of waste deposited in landfills.

The reuse of combustion waste in various industry sectors brings measurable environmental benefits:

- it limits the use of natural resources (e.g. natural gypsum, aggregates), and thus reduces the size of degraded areas due to their extraction,
- it limits the need to use new areas for the construction of waste landfill installations and associated infrastructure,
- it leads to a reduction of waste nuisance, both for people and the natural environment,
- it reduces the cost of doing business.

The idea of reusing combustion by-products has been around the energy sector for over 20 years. Years of experience with the increasing use of coal combustion by-products have allowed us to gather a lot of knowledge about anthropogenic minerals produced at PGE Energia Ciepła and at PGE GiEK. Cement and concrete producers, ceramics producers, mining and road companies are currently enjoying significant benefits through the use of proven and safe solutions. Products created using the technology of using by-products of combustion meet all the requirements that must be met by building materials or products. UPSs have also been used in the reclamation and macro-leveling of post-industrial and degraded areas, restoring the former landscape and natural values to many areas.

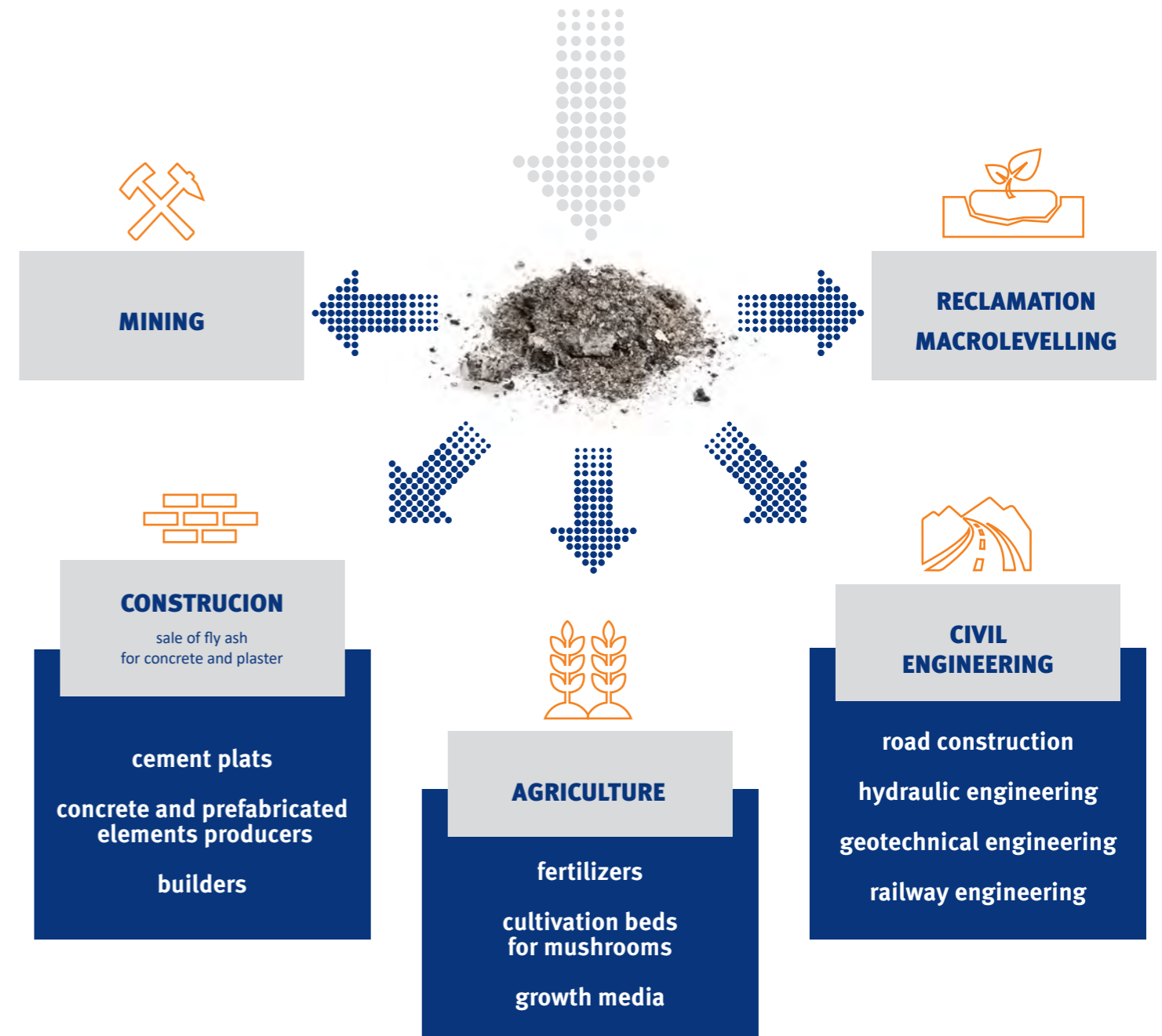
Combustion by-products are valuable raw materials widely used in various industries, most commonly in the construction sector. One of such substances is synthetic gypsum, which is the final product of the flue gas desulfurization process using the wet lime method, qualified for the best available technology (BAT).



SYNTHETIC GYPSUM IS MADE IN THE FLUE-GAS DESULFURIZATION PROCESS IN WET LIMESTONE-GYPSUM TECHNOLOGY IN THE PGE GI EK POWER PLANTS

Anthropogenic minerals produced in the PGE Group, used as raw materials for production, are constantly controlled, i.e. are subjected to a series of tests allowing production- this guarantees the quality and safety of use. The process of using anthropogenic minerals in construction is supervised by Instytut Techniki Budowlanej. The products have also been registered in the international REACH system. As part of registration, by-products of combustion were subjected to comprehensive toxicological, ecotoxicological and mutagenic tests in accordance with the requirements set out by the European Chemicals Agency (ECHA). The tests were carried out in laboratories with the highest world standard and unquestionable credibility. The test results clearly confirmed that they are safe substances that do not pose a threat to humans, animals or the environment. Their use need not be restricted in any way because of their environmental impact.

The market for by-products of combustion



Source: PGE Energia Ciepła

The processing of combustion by-products contributes to the creation of a waste-free industry. It also reduces the use of natural resources and decreases the amount of waste stored. The implementation of a closed-loop economy at the PGE Group allows for an increase in the amount of waste used as part of recovery and recycling and is contributing to the Group's sustainable development. The economic use of energy waste is in line with the European Union strategy recommending priority

for the use of secondary raw materials, where, in accordance with Article 4 of Directive 2008/98 / EC, hierarchical management of waste is recommended using the order of priority in the law. By using the produced anthropogenic minerals, the consumption of natural resources is reduced and the negative effects of ash deposition at landfills are reduced. The use of secondary raw materials such as by-products of combustion gives a favorable CO₂ balance and reduces environmental degradation.

By-products of combustion in the circular economy



Source: PGE Energia Ciepła

A way to implement the idea of circular economy is also the construction of an **Thermal Waste Processing Installation with Energy Recovery at the PGE EC heat and power plant in Rzeszów**. Thermal Waste Processing Installation processes up to 100,000 tons of mixed municipal waste and non-hazardous waste a year. This allows the production of energy from waste and its transfer in the form of electricity and network heat to consumers.

Therefore, Thermal Waste Processing Installation realizes the assumptions of the circular economy by limiting the consumption of fossil raw materials, reducing the amount of waste stored and recovering energy from them.

In 2019, we signed a letter of intent for the construction of the second line, which will increase waste processing to 180,000 tons per year.



One of the elements of the management strategy of PGE Energia Ciepła is the widest possible reuse of produced anthropogenic minerals and noble elements.

The BAT compliance program consists of a number of projects, including one project derived from a research and development project, i.e. the implementation of heavy metal capture technology in **InnUPS** technology.

Among the stricter requirements for the removal of nitrogen oxides and sulfur, requirements have been introduced for waste water parameters from wet flue gas desulfurization installations. The concentration of metals and metalloids in wastewater is one of the key parameters. Between 2013 and 2016, PGE Energia Ciepła developed a technology for wastewater treatment from wet flue gas desulfurization installations. The project was implemented as part of the GEKON program financed by the National Center for Research and Development and the National Fund for Environmental Protection and Water Management. The developed technology is based on a system of columns containing ion exchange resins dedicated to the removal of metals and metalloids. Recovered noble metals can be reused in industry.

The implementation of InnUPS technology is planned in four locations: in Gdynia, Gdańsk, Wrocław and Kraków. Site work is underway in Gdynia, and its completion is planned for October 2020. Commissioning of the installations at the other three locations is planned for July 2021.

The PGE Group ensures that the principles of circular economy are applied to the widest possible extent in water and wastewater management. Closing the water cycle in production processes involves diverting used water for purification and returning it to production processes again.

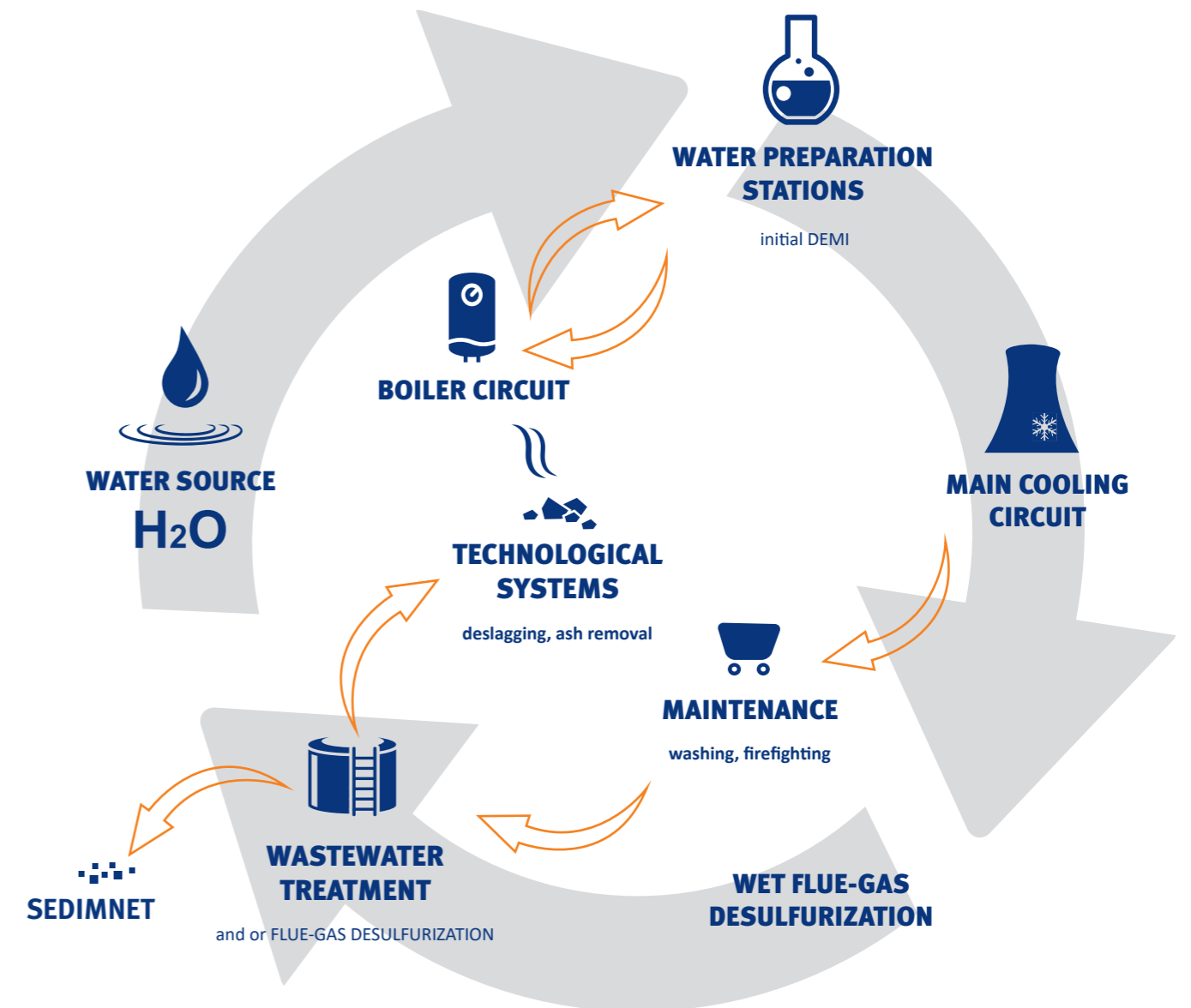
Depending on the size of the plant, and source and composition of raw water, various techniques are used to prepare water: lime decarbonisation, filtration, ion exchange, ultrafiltration, reverse osmosis, and electrodeionization. In each case, the complete water preparation sequence consists of a combination of several of the techniques listed above, which allows the preparation of water of appropriate (often better than collected) quality for individual water and water-steam circuits, and waste products from such treatment processes are still used in other, less demanding cycles. Sources for the production of process water are both surface and underground waters, and sometimes also water from municipal water supply networks.

At each stage of water preparation, special attention is paid to its rational use and very large part of the waste water generated during water preparation is recycled back to processes e.g. washings from filters, water recovered from sub-carbonization sludge, concentrates from reverse osmosis or electrodialysis processes, and regenerated brines from the softening process.

Also, sewage generated in other installations, if its composition allows, is recycled to the process, e.g.

- the rule is to turn back hot waste water as a source for the water preparation process,
- in many cases, rainwater or drainage water is reused to produce process water,
- part of the social and domestic sewage, after treatment, is used as a water source to supplement the closed cooling system, work is also underway on the use of treated sewage from the municipal sewage treatment plant as a source of process water,
- waste water is also used as water sources for domestic water systems or for supplementing ash removal and slagging systems.

The diagram of the water cycle in electricity and heat production processes at the PGE Group



Source: PGE Energia Ciepła

Ecology and ecological responsibility accompany the PGE Group throughout the entire supply chain. Exploitation of lignite by the opencast method results in large-scale transformations of the land surface, and in consequence changes in the natural environment, especially in the landscape aspect. The PGE Group is restoring the post-mining areas to an unchanged form, and **plans reclamation work at the initial stage of the investment.**

Our remediation activities are part of:

- best practices used in European mining regions,
- the EU biodiversity strategy,
- Floods Directive,
- social policy,
- directions and goals of the PGE Group business strategy.

Reclamation of post-mining areas consists in restoring the utility and natural values of depleted areas. It was as a result of reclamation that the highest hill in Central Poland (395 m a.s.l.) – **the Kamięński Mountain (Góra Kamięńska)** was formed. It was dumped from 1.4 million m³ of sand, gravel, loam and clays and their mixtures collected from the excavation (so-called overburden). The hill was first properly shaped, connected to the adjacent areas by building a road system and ramps and construction of the surface drainage system. The area prepared in this way was subjected to reclamation, which consisted in soil restoration and the introduction of herbaceous vegetation, the introduction of woody species and care plantings.



FRAGMENT OF A RESTORED OUTER SPOIL TIP / KWB TURÓW

The reclaimed area of Kamięński Mountain, in addition to its natural functions, also has economic and social roles. The wind farm located there- Kamięński Wind Park- with a capacity of 30 MW, produces clean energy for about 6,000 farms. There is also a year-round recreation and sports complex on the mountain. The Góra Kamięńska Sports and Recreation Center is one of the region's biggest tourist attractions. Tourists have at their disposal bicycle paths, a ski slope with pistes of varying difficulty, and a toboggan run.

The 30 MW wind farm located on Kamięński Mountain consists of **15 wind turbines.**



KAMIĘŃSKI MOUNTAIN

From 1977 to 2019, as part of the reclamation of post-mining areas at the Bełchatów Mine and Turów Mine, we planted a total of approximately 48.5 million trees and shrubs.

On July 16, 2019, the Bełchatów Lignite Mine completed the 17-year-old formation of the external **Szczerców Field** dump, i.e. the next hill after Kamięński Mountain near the mine, which has already reached its target height and shape. In the following years, the hill will undergo full forest reclamation. The new mountain will also have a recreational function.

The construction of the external Szczerców spoil tip began on October 21, 2002. During this time, nearly 1 billion m³ of overburden, i.e. land above lignite, were dumped near the pit. The mountain is about 170 m high and its area is over 1156.36 ha. The Bełchatów Mine started reclamation works on the newly formed dump in 2003. By the end of 2018, as many as 3 million 650 thousand trees were planted on it, and in about 5 years, the mountain will be fully forested and adapted for the construction of a recreation base.



OUTER SPOIL TIP SZCZERCÓW



KWB BEŁCHATÓW: PLANTINGS ON THE OUTER SPOIL TIP SZCZERCÓW FIELD

The PGE Group will also prepare other excavations for reclamation. After the end of operation of the **Bełchatów Field**, in the years 2021-2033 it is planned to shallow the excavation with earth masses and shape the escarpment. After the preparatory work has been completed, the reclamation will take place in the water direction, where the water surface will be rebuilt naturally.

Two water reservoirs with a total water surface of over 4,000 hectares will be created on the currently operated excavations of Bełchatów Field and Szczerców Field. They will contain as much as 3 billion cubic meters of water. At the deepest point, the water depth can reach about 170 meters. This means that the Bełchatów lakes will be deeper than Hańcza, the deepest lake in Poland.



KWB BEŁCHATÓW MANAGEMENT SCHEME

We care for fauna and flora in the vicinity of our assets

In 2019, the PGE Group tested a **bird monitoring system** whose task is to coordinate their migration routes with the energy production process in our wind farms. By excluding periodically selected turbines that flying birds are approaching, PGE protects them from collision with windmills without stopping the entire complex, which was necessary until now throughout the entire migration period.

PGE Energia Ciepła and PGE Górnictwo i Energetyka Konwencyjonalna have been cooperating with ornithologists from the Association for Wild Animals „Sokół” for years supporting the **reintroduction of peregrine falcons** in Poland. In the PGE Capital Group: Dolna Odra Power Plant Complex (ZEDO), Elektrociepłownia in Gdańsk, Gdynia, Toruń and Lublin, as well as in the Bełchatów Power Plant, there are 6 peregrine falcon nesting stations. The first 3 chicks hatched in ZEDO in 2004. Since then, 33 young falcons have hatched at the Dolna Odra Power Plant. In 2006 for the first time a female falcon was constantly observed in the chimney in Gdynia. The first nest was installed a year later. In February 2016, Gdynia falcons received a completely new nest with cameras, thanks to which it is possible to watch live the life of chimney tenants- peregrine falcons. From 2019, you can also watch the life of falcons from Toruń and Lublin. In the most interesting moments of the life of the falcon family, the on-line preview on the page peregrinus.pl is accessed about 200 thousand times per month. In 2018, a pair of peregrine falcons also nested 75 meters above the ground in the carburizing gallery of one of the 13 working power units at the Bełchatów Power Plant. All the nestlings chicks that the Association „Sokół” looks after are ringed. Birds receive two rings: yellow ornithological and blue observation ones. The yellow color of the ornithological ring means that the falcon has hatched in urban areas, the blue means that the falcon has hatched in the wild.



PEREGRINE FALCON ON THE CHIMNEY OF PGE ENERGIA CIEPŁA CHP PLANT IN GDYNIA

Only about 30 pairs of **peregrine falcons** live in Poland. They are under strict species protection.

Kestrels also nest in areas belonging to the PGE Group. These small falcons chose their nests in close proximity to the power generating units of Dolna Odra Power Plant and the reclaimed grounds of the Bełchatów and Turów mine dumps. Kestrels require active protection (they are fully protected).



SOURCE: PGE DYSTRYBUCJA

Every day, PGE Dystrybucja cares for **white storks**. For years, it has been mounting platforms for them on the poles of low voltage lines that raise nests above power lines. Such metal construction means safety for storks and reduction of network failure, and thus reduction of power supply interruptions. The design perfectly separates birds from the power grid and protects against electric shock. To date, over 25,000 platforms ensuring safe nesting of birds on power poles during their stay in Poland have been installed. In addition, bird warning balls, as well as special constructions and equipment are mounted on high and medium voltage lines to prevent birds from colliding with power line cables.



"FORESTS FULL OF ENERGY" PROGRAM

The PGE Group has been implementing the **„Forests full of energy”** program since 2000. For 19 years, the PGE employees with families, foresters, scouts, students of primary and secondary schools as well as residents of the areas where PGE operates planted almost 600,000 trees, mainly pines, spruces and oaks.



AUTHOR: MAŁGORZATA PIETKUN / "FORESTS FULL OF ENERGY" PROGRAM

Research and development projects in the field of environmental protection at the PGE Group

Project name	Company	Goal of the project	Research partners
Limiting Air Pollutant Emissions			
Activated carbon production technology and dosage method to reduce mercury emissions from combustion processes in energy boilers	The PGE GiEK branch, Elektrownia Bełchatów	Mastering the technology for producing brown coal sorbents and their dosing methods to the flue gas system to achieve the required emission limits resulting from the BREF / BAT conclusions.	Instytut Energetyki Warszawa; Instytut Chemicznej Przeróbki Węgla Zabrze
Research on the impact of targeted mixtures of bromine salts on the reduction of mercury and SO ₂ emissions in the exhaust gases of Bełchatów Power Plant	The PGE GiEK branch, Elektrownia Bełchatów	Assessment of mercury reduction by the technology of dosing targeted bromine salt mixtures to fuel, understanding mercury behavior in lignite combustion processes and dose selection to ensure that the mercury level is kept below 7 µg / Nm ³ in the exhaust gas.	ZPBE Energopomiar Sp. z o.o.
Impact of targeted bromine salt mixtures on the reduction of mercury emissions in the exhaust gases of Turów Power Plant	The PGE GiEK branch, Elektrownia Turów	Assessment of mercury reduction by the technology of dosing targeted bromine salt mixtures to fuel, understanding mercury behavior in lignite combustion processes and dose selection to ensure that the mercury level is kept below 7 µg / Nm ³ in the exhaust gas.	ZPBE Energopomiar Sp. z o.o.
Investigating the effectiveness of using selected types of dusty sorbents to reduce mercury emissions at the Bełchatów Power Plant	The PGE GiEK branch, Elektrownia Bełchatów	Selection of the optimal mercury emission reduction technology for power unit No. 14 at Bełchatów Power Plant. The subject of the research will be the dosage of bromine salt mixtures for fuel and the dosage of activated carbon or active coke dust into exhaust gases.	ZPBE Energopomiar Sp. z o.o.
Increasing the desulfurisation efficiency of wet flue gas desulfurization (WFGD) in Bełchatów Power Plant, while minimizing the precipitation of hard deposits in absorbers by dosing innovative chemical preparations	The PGE GiEK branch, Elektrownia Bełchatów	Development of the chemical composition and dosing method of the innovative biological preparation reducing sulfur dioxide emission while limiting the precipitation of hard sediments in the absorber and avoiding undervaluation of blocks with the need to comply with environmental standards resulting from the BREF / BAT conclusions.	JSW Innowacje S.A.

Project name	Company	Goal of the project	Research partners
Development of a low-cost method to increase the efficiency of flue gas desulfurization installations	The PGE GiEK branch, Elektrownia Bełchatów	Development and testing of technology enabling reduction of SO ₂ emissions to the level of new environmental conclusions in the field of sulfur oxides emissions below 130 mg / Nm ³ . (BREF / BAT)	RAFAKO Racibórz
Development of a technology to increase the efficiency of sulfur dioxide removal in IOS absorbers by using sorbent with increased reactivity without the need for milling	The PGE GiEK branch, Elektrownia Bełchatów	Construction of an alternative sorbent dosing installation with increased reactivity and development and testing of an optimal algorithm for the operation of the sorbent administration system for IOS. This will allow the maintenance of an acceptable level of SO _x emissions to the atmosphere in the event of combustion of coal with significant sulphation or failure of limestone mills.	The contractor will be selected in the purchasing procedure
Minimization of nitrogen oxides emission from Bełchatów Power Plant by dosing innovative dedicated chemical preparations to the IOS absorber	The PGE GiEK branch, Elektrownia Bełchatów	Development of the chemical composition and dosing method of the innovative biological preparation that reduces the emission of nitrogen oxides to the level meeting the BAT conclusions emission standard, i.e. below 175 mg/Nm ³ .	Megmar Magdalena Drac-Tatoń
Development and application of preparations to reduce NO _x and SO ₂ emissions from hard coal-fired power units at the Opole Power Plant	The PGE GiEK branch, Elektrownia Opole	Development of the composition and dosing method of an innovative biological preparation enabling reduction of NO _x and SO ₂ emissions from power units.	Megmar Magdalena Drac-Tatoń
FLEXICAL – development of flexible coal power plants with CO ₂ capture in the Calcium Looping technology	PGE Energia Ciepła	Assessment and increase of flexibility of the power plant integrated with CO ₂ capture in the Calcium Looping technology. During the implementation of the project, two new concepts will be verified, i.e. the flexibility of the Calcium Looping installation and expansion with a system using energy storage with CaO / CaCO ₃ . Data on load changes and energy storage will be used to test dynamic systems and reactor models to increase the efficiency and flexibility of calcium loop systems. The end result will be the technical and economic concept of the integrated Calcium Looping system with the selected the PGE EC plant.	Agencia Estatal Consejo Superior de Investigaciones Científicas, Spain; Universität Stuttgart, Germany; Politecnico di Milano, Italy; Hulleras del Norte S.A., Spain

Project name	Company	Goal of the project	Research partners
A predictive and diagnostic system supporting the management of SCR catalysts	PGE Energia Ciepła	Development of a predictive and diagnostic tool for the proper management of catalysts, which is crucial for achieving the efficiency of NOx reduction as well as for minimizing operating and repair costs of SCR installations. The predictive and diagnostic tool will be based on the Access database system, which will allow efficient access to large amounts of data for many users, quick organization, control and retrieval of information, as well as automated calculations. The diagnostic tool will be used by the PGE EC for optimal management of catalysts (packages and modules) in their SCR installations.	Company's own research
Electric vehicle charging system integrated with lighting infrastructure	PGE Dystrybcja	Construction of a new low-voltage network management system, using dispersed, mobile energy sources (electric cars) for the purposes of improving energy efficiency in the grid, limiting peak load power in the grid, reducing losses (limiting power transfers). The final product of the works will be: the V2G 50 kW charger, together with the accounting system and the methodology of location of charging points in the urban space.	Politechnika Lubelska
Low voltage distribution network management taking into account the active role of the prosumer	PGE Dystrybcja	Development and construction of an integrated and automated system for managing low voltage distribution network infrastructure, cooperating with distributed energy sources and storage facilities installed in prosumer installations. The result of the work will be dedicated to the LV network devices such as: digital relays LLE and CLE, together with the management system integrated with the SCADA class system. Thanks to the optimized network management capabilities, the quality of energy supplied to consumers will improve, and the number and power of renewable energy sources that can be connected to the network will increase, without having to rebuild it.	Apator Elkomtech Politechnika Łódzka Politechnika Lubelska

Project name	Company	Goal of the project	Research partners
Zero emission transport	PGE Dystrybcja	Study of the economic efficiency of the introduction of electric vehicles into the distribution network operators' fleet. As a result of implementation, the company will develop guidelines for, among others, the operation of electric vehicles, while reducing CO ₂ emissions. As a result, PGE Dystrybcja will obtain data that will allow to optimally prepare for the future transformation of the fleet from diesel to electric.	Company's own research
System of autonomous reduction of the effects of failures in the power grid	PGE Dystrybcja	The introduction of an autonomous system for MV networks, whose task will be to quickly isolate the place where the short circuit occurred, and reconfigure the network in such a way that the restoration of power supply to consumers takes place in an optimal way. Thanks to the implementation of the solution, the number of company car trips locating damage in the field will be reduced, and consequently the number of kilometers driven and exhaust emissions will be reduced, and the area of environmental damage during such trips will be reduced. Changing the structure of the network will also positively affect renovation works - the need to use power generators with a negative impact on the environment (noise, fumes) will disappear.	Apator Elkomtech MindMade
Intelligent low voltage network reconfiguration system with assembly service support system	PGE Dystrybcja	As part of the project, switchgears will be integrated with security automation having new functionalities, and an IT module for dynamic optimization of the power network will be created. These switching devices will be combined with the calculation module. The solution will allow connecting the existing infrastructure with the network layout optimization module in order to conduct dynamic reconfiguration of the LV network, enabling optimization of energy losses and automatic isolation of network fragments in which a failure has occurred. Automatic reconstruction of the LV network reduces both technical losses in the distribution of electricity to consumers, and strengthens the reliability and flexibility of the power system. The application for assembly services created as part of the project will provide accurate information about the location of the failure, which will ultimately limit the field trips of technical vehicles (to specific damage, without having to locate them), thus reducing the number of kilometers driven and consequently limiting the level of exhaust emissions and decreasing degradation of natural environment during journeys to locate damage.	Apator Elkomtech Globema

Project name	Company	Goal of the project	Research partners
Photovoltaic laboratory	PGE Energia Odnawialna	Comparison of PV technologies and selection of the most advantageous ones. The research covers such questions as optimal angle of the panels relative to the sun, battery packs, microinverters and optimizers. The devices include polycrystalline, monocrystalline and thin-film panels. The laboratory is equipped with monitoring, data collection, analysis, reporting and work control systems.	The town of Siedlce
Integrated system of hydrogen and biomethane in-situ generation BioHyMet	PGE Energia Odnawialna	Conducting industrial research, and experimental and development work aimed at acquiring unique knowledge in the field of optimization of the process of storing electricity from RES in alternative gases. The aim of the project is also to create a concept for the installation of an integrated hydrogen and biomethane generation system. Ultimately, the installation will consist of an electrolyser module and a biomethanization module generating a mixture of biomethane and syngas (derived from the reaction of hydrogen and carbon dioxide), which will eventually go to the gas network. Estimated amount of avoided CO ₂ emissions will be around 3200 Mg/year.	Uniwersytet Przyrodniczy w Poznaniu, Bałtyckie Centrum Transferu Technologii
Development of technology for the production of micro-cogeneration devices with solid oxide fuel cells (mCHP-SOFC) and technology for the production of stacks of solid oxide fuel cells (SOFC) fueled with natural gas	PGE SA	Development of a new, optimized and economically justified technology for the production of micro-cogeneration devices with solid oxide fuel cells (mCHP-SOFC) and technology for the production of stacks of solid oxide fuel cells (SOFC) fueled with natural gas. The project will enable PGE SA to acquire competences in the field of micro-cogeneration technologies and fuel cells in the area of the intensively developing distributed energy market.	Instytut Energetyki Warszawa
Innovative network services that improve the quality and reliability of electricity supply	PGE SA /PGE Dystrybucja	Improving the quality and reliability of electricity supply through the construction of storage facilities. The construction of a traditional HV line requires cutting down a large area of forest for the technological belt of the line. The use of energy storage is a good solution to improve the reliability of electricity supply to end users in areas where there is a lack of back-up power and is an alternative to the traditional expansion of the network system, which will significantly affect the surrounding environment and landscape.	

Project name	Company	Goal of the project	Research partners
Reduction of pollutant emissions to water			
Studies on the separation process of boric acid and hydrochloric acid mixtures	The PGE GiEK branch, Elektrownia Opole	Research and development of a method for separating hydrochloric acid from boric acid and the process of obtaining crystalline boric acid.	Wydział Chemiczny Politechniki Śląskiej w Gliwicach; ZPBE Energopomiar sp. z o.o.
Precipitation of heavy metals from sludge arising from sewage treatment plants from IOS	The PGE GiEK branch, Elektrownia Bełchatów	Avoiding the need to store / utilize sludge from the IOS wastewater treatment plant of the Bełchatów Power Plant, which is hazardous waste, by developing non-waste technology for the recovery of heavy metals from wastewater or sludge generated during wastewater treatment from IOS.	ZPBE Energopomiar sp. z o.o.
Removal of various forms of nitrogen from wastewater – consultancy activities, pilot installation for nitrate removal in Gdańsk	PGE Energia Ciepła	Development of the concept of technology for removal of ammonia and nitrates from wastewater from wet flue gas desulfurization for the Gdańsk Heat and Power Plant.	Instytut Ochrony Środowiska – Państwowy Instytut Badawczy
Optimization of water consumption for energy purposes	PGE Energia Ciepła	Identification of the possibilities of reducing costs related to water management at PGE Energia Ciepła.	Company's own research
Demonstration of INNUPS technology for removal and recovery of heavy metals and boron from wet flue gas desulfurization wastewater (WFGD) wastewater by ion exchange resins	PGE Energia Ciepła	Analysis of sales opportunities for metal concentrates and calcium borate from the INNUPS installation. This project is associated with an investment project in which a demonstration installation based on INNUPS technology in Gdynia is being built. The installation under construction is based on a system of ion exchange columns, the main purpose of which is to clean wastewater from wet desulfurization from metals and metalloids and from boron. As part of the project, the installation will need to ensure that the BAT conclusions can be met. The aim of the planned research project will be to obtain metal and boron concentrates from the regeneration of ion exchange columns and to recover metals from non-regenerative resin, and then assess the market value of the resulting products.	Purolite sp. z o.o.

Project name	Company	Goal of the project	Research partners
Comprehensive technology for removing various forms of nitrogen from wastewater generated in the wet flue gas desulfurization (WFGD) process	PGE Energia Ciepła	Development of technologies for removal of various forms of nitrogen, such as nitrates, nitrites, ammonium nitrogen and organic nitrogen from industrial wastewater from wet flue gas desulfurization installations in combined heat and power plants, by using a combination of biological processes. The project will test and select biological methods, including auto- and heterotrophic denitrification, nitrification, Anammox process. An important argument to start the project is the need to develop a comprehensive technology for reducing the concentration of various forms of nitrogen in wastewater resulting from legal requirements (Regulation of the Minister of Maritime Economy and Inland Navigation of 12 July 2019 on the conditions to be met when introducing sewage to water or soil, and on substances that are particularly harmful to the aquatic environment (Journal of Laws of 2019, item 1311). At present, in CHP plants with wet desulphurization, in which flue gas denitrification with the use of nitrogen compounds (ammonia, urea) is also used, these parameters are continuously exceeded.	Company's own research
Utilization of wastewater from municipal sewage treatment plant as the main source of water supply for generating units in Kraków	PGE Energia Odnawialna	Analysis of the possibility of using treated wastewater from the municipal sewage treatment plant at the PGE EC generating unit in Kraków.	Miejskie Przedsiębiorstwo Wodociągów i Kanalizacji S.A. w Krakowie
Waste heat recovery from sewage from the wet flue gas desulfurization system in Kraków	PGE SA	Reduction of costs of district heating production or CHP plants' own needs through recovery and management of waste heat from WFGD installations. The use of waste heat from the WFGD installation increases the efficiency of the combined heat and power plant and reduces CO ₂ emissions.	Company's own research

Project name	Company	Goal of the project	Research partners
Utilization of Combustion By-products			
Installation of ash vitrification in a hybrid boiler furnace (VITRO-ASH)	The PGE GiEK branch, Elektrownia Bełchatów	Reducing the amount of ash and slag intended for storage, and production of useful material that can be utilized in various industries, including building. An innovative technology for processing significant amounts of ash and slag in the combustion system of an energy boiler at the Bełchatów Power Plant consists in using part of the coal dust fed to the main burners to process the combustion waste in an additional special combustion chamber with liquid slag removal, integrated with the boiler.	Instytut Energetyki Warszawa; Project temporarily closed
Municipal waste management			
Energetic management of the biodegradable fraction of municipal waste for transport purposes (Biodiesel)	PGE Energia Odnawialna	A solution to the problem of managing selected organic waste obtained from municipal treatment in biomethane production technology. The biomethane produced in the installation can be used, for example, for transport purposes.	
Reduction of noise emissions			
Reduction of noise emissions on the transport routes of the OCT systems in P / Bełchatów and P / Szczerców by using innovative rollers	The PGE GiEK branch, Kopalnia Węgla Bełchatów	Meeting the noise emission standards of belt conveyors by improving and introducing changes in the construction of belt conveyor rollers.	Zakład Ochrony Środowiska „DECYBEL” s.c.
Optimization of wind turbine blade geometry	PGE Energia Odnawialna	Optimization of the wind turbine blade geometry, which will allow the PGE EO to achieve greater productivity under the same wind conditions, also with simultaneous reduction of the acoustic emission (noise level) of the turbines.	

Project name	Company	Goal of the project	Research partners
Animal protection			
Automatic monitoring and methods of bird protection at wind farms	PGE Energia Odnawialna	A system that monitors and catalogs migrations of various species of birds living in the area of wind farms. The mechanism is designed to eliminate their collision with the wind turbines of the wind farms Kieselice and Lotnisko. The system relies on the analysis of information recorded by turbine mounted devices. Data from video cameras and radar are used to automatically identify birds, catalog their individual species, and track flight paths. The apparatus is able to detect birds from a distance of 500 m from the turbine and assess the likelihood of collisions.	Bioseco



WHITE STORK (CICONIA CICONIA) IN FRONT OF THE DEFUNCT OUTER SPOIL TIP O/KWB TURÓW

Social awareness



INTERNATIONAL FOOTBALL TOURNAMENT IN MEMORY OF THE CHILD SOLDIERS OF THE WARSAW UPRISING, AUGUST 1-2, 2019. THE WINNING TEAM IN THE POLONIA STADIUM IN WARSAW.

Energy transformation has its very important social dimension. Our responsibility in this regard is to care for good relations with our employees, clients and local communities.

We constantly care for interpersonal relationships, regardless of whether it concerns relationships with our employees, clients or communities, working with them both locally and nationwide. In each area of activity, we use the compass of our values, focusing on Partnership, Development and Responsibility (PRO). We are a reliable employer, business and social partner.

GRI
102-16

Our Workforce



THE COMPANY'S EMPLOYEES CONDUCTING INSPECTION AND SERVICE WORK AT ONE OF PGE ENERGIA ODNAWIALNA WIND FARMS

The system of values and principles in the PGE Group

The PGE Group's Code of Ethics defines a system of values and principles used in everyday work regardless of the position held. In 2017, the Group implemented *The PGE Group Code of Conduct for Business Partners*, which sets minimum requirements for its contractors in respect of human rights, working conditions, environmental protection and integrity in their business operations. The PGE Group also has an Anti-Corruption Policy since 2017. Provisions regarding anti-corruption activities can be found in the *Code of Ethics* and the *Code of Conduct for Business Partners*.

The competences, experience and commitment of the PGE Group employees allow building a socially responsible organization that consistently pursues business goals.

- COOPERATION
- COMMUNICATION
- RESPONSIBILITY
- TRUST
- HONESTY
- SUPPORT

The PGE Group conducts intensive activities in the field of education and promotion of compliance-related rules. Training in this area significantly supports the Group Compliance Management System. Compliance structures currently operate in almost the entire PGE. They cover as many as 96.6 percent of all employees of the PGE Group employed in 24 companies of the Capital Group.

PGE has a Human Capital Management Strategy. Corporate Rules for Managing Human Capital and procedures specifying them in accordance with local specificities have also been introduced. At the level of the entire Group, a uniform architecture of positions and a competency model have been implemented. One of the main initiatives currently implemented resulting from the ZKL Strategy is the assessment of employee competences. In 2018, a competence assessment (Ocena Kompetencji) pilot project was carried out, and in 2019 work began to implement a coherent solution throughout the Group.



We also care about building a sense of belonging to the Group. New employees from key companies are covered by the "Turn on the light" ("Włącz Prąd") adaptation program implemented at the level of the entire PGE Group.

Common recruitment standards applied by PGE are described in the Corporate Employment Rules of the PGE Capital Group. PGE makes every effort to ensure that the recruitment process is transparent and user-friendly, and effective for the company.

Additional benefits

The PGE Group offers its employees not only interesting professional challenges and a rich training package, but also a high level of social benefits. Due to the specifics of the operations of individual business lines, each company individually determines the additional benefits offered to employees. A number of benefits include: holiday allowance, additional medical care, additional retirement benefits, electricity subsidies and additional life insurance.

GRI 102-16
GC-4
GC-5
GC-10

GRI 401-2



PGE ENERGIA CIEPŁA

As a responsible employer, the PGE Group provides employees with a safe work environment. PGE implements preventive measures and enables employees to broaden their knowledge and experience on health and safety. Individual Group companies have their own health and safety regulations. This is primarily due to the specifics of the activities of individual business lines. Due to the nature of the work, employees of PGE GiEK, PGE Dystrybucja, PGE EC and PGE EO are exposed to the greatest risk. Promoting safety among employees has been included in the PGE Group business strategy as a goal to be implemented as part of managing corporate social responsibility and sustainable development.

Internship programs

The low-carbon energy transformation is also a great challenge in the area of human capital. Internship and vocational training support programs are the answer to the needs of the changing PGE Group.

Currently, the PGE Group participates in three large enterprises of this type:

- #Energy for the Future – an internship program implemented in cooperation with PKN Orlen, PGNiG and PSE, under the auspices of the Ministry of State Assets (formerly the Ministry of Energy). The program participants are graduates and students who during the one-year internship gain experience in the areas of their interest and learn the specifics of work in the energy industry under the guidance of experts.
- Design a career – a summer internship program targeted at students and graduates of Polish universities who take 3-month paid internships at the PGE Group. Apprentices carry out a project which is to contribute to the development of the organization and at the same time help the participant acquire new competences or develop them.
- Empower PL Monitoring Program.- The Boston Consulting Group mentoring program, under which managers, including those from the PGE Group, provide mentoring for students from the best universities in the country and in Europe.

The PGE Capital Group implements a vocational training support program consisting in cooperation of the PGE Group companies with local industry schools and technical schools.

The cooperation includes:

- creating patronage classes for vocational education courses dedicated to the energy industry;
- organization of practical vocational training combined with visits to company branches;
- preparation for acquiring selected qualifications and conducting examinations for students;
- scholarships for the best students.

Vocational education is the area of education which, apart from higher education, has the greatest impact on the preparation of modern staff for the Polish energy sector. PGE Energia Ciepła runs the **Energetyczna Kariera** project, cooperating with technical secondary schools in cities where the company's assets are located.

Energetic Career – this project first implies enabling the students to learn the profession in real life working conditions, creating opportunities to familiarize themselves with the combined heat and power plant and with specific positions through apprenticeships and internships. Close cooperation with schools allows tailoring education programs to market needs of the heating industry.

In the 2018/2019 school year, the PGE Group ran 23 patron classes in total.

It also established cooperation with higher education institutions enabling the exchange of experience, cooperation in problem solving, and practical use of the scientific potential of the academic environment and recruitment of engineering and technical staff.

GC-3 We conduct social dialogue

There are 127 trade union organizations operating in the PGE Group, which associate nearly 29,000 of its employees. A high degree of unionization, at a level of nearly 70 percent, requires active social dialogue. Cooperation with trade union organizations consists of three levels:

- central level – social dialogue is conducted by the PGE management often with the participation of the presidents of individual business lines together with a selected body of the social side from the PGE Group,
- level of business lines – social dialogue, coordinated by management boards of companies, is conducted with all trade union organizations,
- level of employers – social dialogue is conducted by individual employers on an ongoing basis in accordance with the Labor Code, the Act on Trade Unions and the Act on Informing and Consulting Employees in matters relating to the economic, social and legal sphere.

In 2019, the social situation in the PGE Group was stable. Thanks to the active cooperation of the social dialogue cells in the Group with representatives of trade union organizations, the number of collective disputes has decreased significantly.



Our Clients

KEY VISUAL OF INFORMATION CAMPAIGN „INVOICE RETURNS TO THE ROOTS” PREPARED AS PART OF THE PROMOTION OF E-INVOICE

The PGE Group is constantly working on reliability of supplies and introduces more and more effective mechanisms limiting interruptions in energy supplies. It is constantly modernizing the network infrastructure, thanks to which it increases the quality parameters of the supplied electricity. Only in 2019, the PGE Group allocated over PLN 2 billion for investments in electricity distribution efficiency. One such project is a network cable program designed to increase the share of cable lines to a minimum of 30 percent in the medium-voltage network until 2023.

Investment outlays incurred in 2019 as part of the cabling program exceeded PLN 336 million. Under this budget, inter alia, almost 950 km of medium voltage cable lines, over 90 km of low voltage cable lines and 260 transforming stations were built. Changing the structure of the medium voltage network will ensure the most effective reduction of SAIDI and SAIFI – indicators of interruptions in the supply of electricity and guarantee the improvement of the quality parameters of energy supplies. This particularly applies to areas where due to difficult field conditions the removal of failures was long-lasting and where failures occur most often and cause unplanned shutdowns for a large group of recipients.

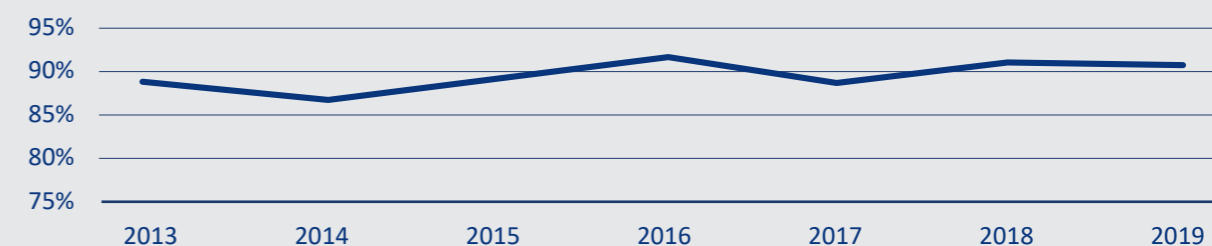
The PGE Group places great emphasis on the quality of customer relationships. Management policy and standards have been developed and implemented in this area, including: Code of Good Practice for Distribution System Operators, Service Quality Book, and Customer Service Procedures. These documents regulate the course of all processes related to sales, after-sales as well as connections and other technical matters. In order to ensure the highest quality of service, compliance with them is regularly monitored and reported. Companies also have procedures for accepting and processing customer applications. Matters subject to complaint are analyzed and are often used to change procedures, which allows for constant improvement of the standards of services offered.

For seven years, PGE Obrót has regularly conducted multi-dimensional monitoring of customer satisfaction. The company puts the most emphasis on aspects related to customer service in PGE Obrót’s Customer Service Offices and in its Contact Center. Despite many challenges brought by all energy sellers last year, the CSI (Customer Satisfaction Index) remained at a high level among both G tariff and C1 tariff customers.

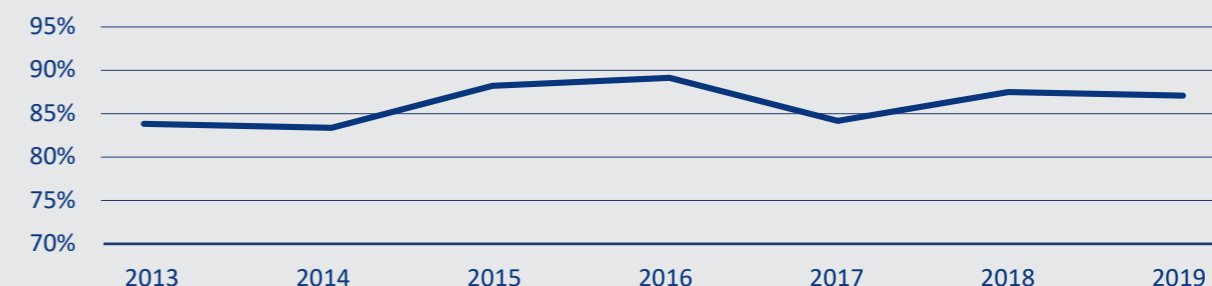
Satisfaction surveys have shown that PGE Obrót is the leader in the industry, noting the highest rates of overall satisfaction with contact, both in Customer Service Offices and on the hotline.

Customer Satisfaction Index

TARRIF G CUSTOMERS



TARRIF C1 CUSTOMERS



Source: „Badanie satysfakcji klientów po kontakcie z BOK i Contact Center” iAnswer, BrainLab

The sale of electricity always goes hand in hand with ensuring comfort of delivery, which is why for five years PGE Dystrybucja has been simultaneously monitoring customer satisfaction with services rendered. The connection process and contact with the energy emergency are subject to analysis. PGE Dystrybucja also tracks satisfaction with the visits of electricians. Since the beginning of the measurements, the NPS recommendation rate of the services of PGE electricians has been characterized by a stable upward trend.

Recommendation rate (NPS) for electrician services offered by PGE Dystrybucja



Source: „Badanie satysfakcji klientów z wizyty elektryka” 2019, 4P Research Mix

In the connection process, the internal operational data of PGE Dystrybucja were confirmed by the results of tests indicating an increase in satisfaction with the shortening of the average time of connection completion (the average declarative time of the connection process lasted about 6 months). The NPS indicator for this process remains high and currently stands at 41 points (on a scale from -100 to +100). The involvement of employees in explaining the content of documents that the customer is obliged to submit to provide the service is also very highly rated.

Recommendation rate (NPS) for PGE Dystrybucja connection services over the years



Source: „Badanie satysfakcji klientów z procesu przyłączeniowego” 2019, 4P Research Mix

Also all branches and companies of PGE Energia Ciepła perform similar monitoring. In 2019, as in previous years, a survey was carried out on the satisfaction and preferences of current and potential clients of the company in the area of heating and additional services. The General Customer Satisfaction Index (OCS) reached 89 percent among institutional clients, and 80 percent among individual clients. Developers were very satisfied with the cooperation with PGE Energia Ciepła – the indicator for these markets is 20 percent better than for the markets surveyed in 2018. The satisfaction level of architects and designers, i.e. those who consider network heat when designing future energy solutions for constructed buildings, is at a similar high level. In total, in 2019, the survey covered over 1,600 individual clients, a similar number of institutional clients and a group of 70- 80 developers and designers. The study showed a very high loyalty of existing customers towards the service, as well as a high willingness to recommend, both in the area of heating and hot water supplied to buildings.



The PGE Group regularly informs its customers about the mechanisms of fraudulent and dishonest energy sellers, often pretending to be the proven and reliable PGE brand. By organizing, among others our own educational and information campaigns in regional and local media, PGE warns against such a practice. Social media are widely used in information campaigns. In order to minimize the impact of unfair practices used by sellers impersonating PGE, the Group actively cooperates with local government administration, the police, and the fire brigade.

OUTSTANDING POLISH ATHLETES KAROL KŁOS, MARIUSZ WŁAZŁY AND ARKADIUSZ MORYTO WARN AGAINST FALSE INVOICES OF DISHONEST COMPANIES THAT IMPERSONATE THE PGE BRAND. A PGE CAMPAIGN TARGETED AT CLIENTS ON A SOCIAL NETWORKING SITE

Service with no barriers

The majority of the PGE Obrót branches, up to 78%, are equipped with wheelchair ramps and are located on the ground floor. In addition, people who have problems with access to stationary facilities can use remote channels, which are constantly improved and developed. The employees of the 12 largest customer service offices of PGE Obrót are able to serve clients in sign language. Based on their own experience, they have developed case studies that appear most frequently in their professional practice. All the PGE Obrót stationary service outlets also have magnifiers for the elderly and visually impaired. Thanks to this, customers can freely and independently read the documents, analyzing the content of the offer or contract.

Customers of the PGE Obrót offices are also greeted by Quality Ambassadors, i.e. service employees who meet people at the entrance to the facility. Ambassadors help clients identify cases, complete forms and collect documents, and they provide simple information before customers reach the service desk.

Examples of actions designed to help seniors in 2019

Senioralia – the PGE employees in Kielce educated the elderly how to identify dishonest electricity sellers.

International Senior Fair – experts of the PGE Obrót branch in Skarżysko-Kamienna taught seniors how to read the invoice correctly, annex or conclude a contract, and what to do if you sign an unfavorable contract with another seller. Several thousand seniors took part in the Fair.

OK Senior Certificate – PGE Obrót received the „OK Senior” certificate. The stationary PGE Obrót Customer Service Centers were examined. PGE introduces various types of facilities and conveniences for the elderly, such as magnifiers or other helpful equipment.

During the summer information and education campaign „Safely, Comfortably, At Hand”, the mobile PGE zone covered almost 14 thousand kilometers visiting 22 cities in 7 provinces. 50,000 people visited the stands, including over 5,000 seniors. The advisers spoke about eServices, warned against unfair competition, informed how to take advantage of quick and easy purchases at the PGE eShop and how to activate eFaktura, using its benefits.

In December 2019, PGE Obrót launched a mobile Customer Service Office. A special vehicle adapted to service activities will visit places where there are no stationary service offices. Thanks to qualified advisers, clients can solve all issues related to electricity and gas in the mobile office.



EXCEPT FOR THE FUNCTION OF MOBILE CUSTOMER SERVICE, THE OFFICE PLAYS THE ROLE OF LIVE ADVERTISEMENT, PROMOTING THE IMAGE OF THE COMPANY

Society



"SAFELY, COMFORTABLY, AT HAND". EVERY YEAR, PGE OBRÓT (SALES) GOES OUT TO MEET CUSTOMERS DURING THEIR MOBILE INFORMATION AND EDUCATION PICNICS, OFFERING PEOPLE PRODUCTS AND SERVICES AND WARNING AGAINST UNFAIR COMPETITION.

PGE builds local partnerships with communities oriented towards development and cooperation. We make every effort to be a good and responsible neighbor. In this area, the company sets high standards specified in the PGE Group's Code of Ethics. The directions of cooperation have been specified in a separate document – the General Procedure in the sphere of corporate community involvement (CCI).

Service Cable Lines

Using live working Technologies in service cable lines (SCL) makes it possible to conduct investment and modernization works on overhead medium voltage power lines without interruptions in electricity supply. The service cable line in Łódź district worked in different configurations for about 280 days. This helped avoid interruptions in electricity supply for about 600 energy recipients.

The Program to Support Development of Site Municipalities (in Polish: Program Wsparcia Rozwoju Gmin Lokalizacyjnych) strengthens partner relations with the local community and the authorities of three site municipalities: Gniewino, Choczewo and Krokowa, as well as the Puck and Wejherowo poviats. The program consists of financing or co-financing initiatives from residents and local governments as regards educational and information activities concerning nuclear power, activities related to the job market and support in professional development, cooperation on implementation of municipal infrastructural projects, charitable initiatives and sponsorship projects. Between 2015 and 2019, the PSDSM Program enabled us to spend about 9 million zlotys on those projects.



THE PROGRAM TO SUPPORT DEVELOPMENT OF SITE MUNICIPALITIES, THE CONSTRUCTION OF THE PRIMARY SCHOOL IN WIERZCHUCIN

PGE Energia Ciepła supports socially sensitive customers. Accordingly, the company created a **program "We Share the Heat"**. Its beneficiaries include NGOs, foundations and associations that help people in hardship and families in need, referred by social assistance centers. The program "We Share the Heat" by PGE Energia Ciepła was one of two PGE programs distinguished in the ranking 30x30, organized by the Forum of Responsible Business. The ranking included 60 best social projects created by businesses in the past 30 years.

PGE Energia Ciepła Grants to cover bills for hot running water and network heat in 2019 exceeded 300 thousand zlotys.

We approach the problem of integration of disabled people very seriously. For the fourth time, we have sponsored the organization of the Integration Meetings in Radomsk. The event serves to integrate disabled people from all over Poland during performances, meetings, and concerts. We also support the activity of the Society for the Care of the Blind in Laski, where the blind and short-sighted people learn how to live independently, gain their education, and prepare for occupational training or university studies in order to efficiently function in society.

Two corporate foundations are the pillars of our organization’s social involvement: the PGE Foundation and the PGE Energia Ciepła Foundation.

The mission of the **PGE Energia Ciepła Foundation** is to support positive social initiatives, creating an inclusive society in which everyone can find their place and take part in all aspects of social, economic, and cultural life.

In 2019, one of the most important tasks of the PGE Energia Ciepła Foundation was continuation of the “Commemorative Plaques Project”, started on the 80th anniversary of WWII.

The project is realized in cooperation with the Institute of National Remembrance, under the patronage of Deputy Prime Minister, Minister of Culture and National Heritage, Professor Piotr Gliński and Ministry of National Defense. The project meets three goals: displaying and paying due honor to memorial sites – plaques and monuments – describing heroic and dramatic events of World War II, reaching foreign tourists with information about historical facts, and finally popularizing and increasing the recognition of memorial sites. These goals are achieved by placing new plaques next to the existing plaques designed by Karol Tchorek, certified by historical research, in Polish and English, accompanied by a QR code. As part of the project, all memorial sites were inventoried: photographic documentation was made, each plaque was queried, and the content was translated into English. The plaques with QR codes were situated next to plaques designed by Karol Tchorek. As part of the “Commemorative Plaques Project”, the City of Memory educational program was carried out for 60 Masovian high schools, attended by nearly 3,000 students. Packages with educational materials have been prepared: a mini-textbook, a class scenario, an educational film, and a 10-board, large format exhibition. In addition, at the beginning of October, a concert “City of Remembrance” was organized at the Polish Army Museum. The concert was intended to commemorate the civilian victims of Warsaw who died between 1939 and 1945. Young musicians, including Bartas Szymoniak, Piotr Karpienia, and the band Luxtorpeda performed on the stage. Additionally, a 20-board exhibition “Civilian Victims of Warsaw During the German Occupation between 1939 and 1945” was prepared, showing German terror in Warsaw during World War II, from executions in Wawer, the Sękocin Forest, and in the village of Palmiry, to the mass murders committed during the Warsaw Uprising. The exhibition could be seen at the Polish Army Museum, as well as at the Central Railway Station Hall.



THE “COMMEMORATIVE PLAQUES PROJECT”, WARSAW, RAKOWIECKA ST. 15-17



THE “COMMEMORATIVE PLAQUES PROJECT”, THE CITY OF MEMORY CONCERT

The PGE Energia Ciepła Foundation is active in the area of sport and promotion of active lifestyle. In 2019, to meet the needs of people aged 55+, the Foundation organized the Polish National Senior Sports Olympiad – YOU WIN. This sport and recreational event was dedicated to seniors who wanted to develop their physical shape. Over 200 seniors from 7 cities of the region took part in the competition. In addition to sports competition, the Foundation provided the participants with the opportunity to take advantage of free tests and rehabilitation treatments.

Additionally, the PGE Energia Ciepła Foundation organized the 16th Rybnik Photography Festival during which several hundred photos were presented at 20 individual and collective exhibitions. The festival was visited by over 900 people from all over Poland.

The PGE Energia Ciepła Foundation was also the main organizer of the 16th Duel with Words – an educational and artistic competition, propagating the culture of the Polish language and literature, addressed to high school students.

With help of other institutions and associations, the PGE Energia Ciepła Foundation organizes events for people with disabilities who need specialized rehabilitation programs. The foundation provides the local community with access to a rehabilitation and recreation complex, including a swimming pool and other sports facilities.

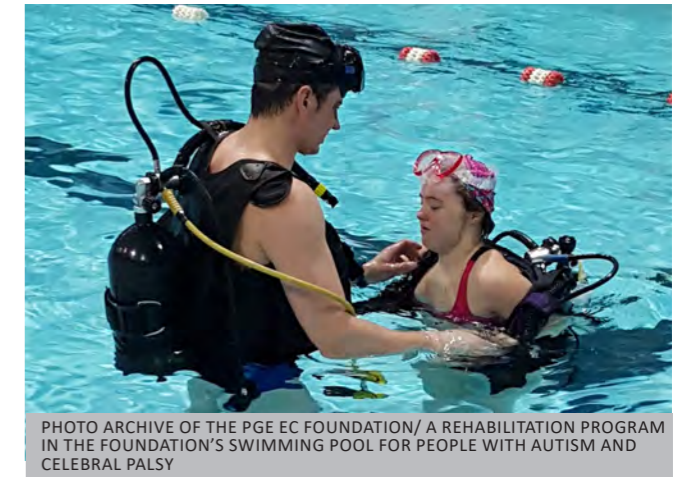


PHOTO ARCHIVE OF THE PGE EC FOUNDATION/ A REHABILITATION PROGRAM IN THE FOUNDATION'S SWIMMING POOL FOR PEOPLE WITH AUTISM AND CEREBRAL PALSY

The goal of the **PGE Foundation** is to ensure the transparency of activities, organize and strengthen social involvement of the PGE Group, and build engagement among all groups of stakeholders. The Foundation conducts public and socially useful activities, maintaining national tradition, nurturing the sense of Polishness, and developing national civic and cultural awareness, but we also propagate activities supporting the development of local communities. The Foundation supports health protection and promotion of healthy lifestyle, development of science, and education. What is more, we contribute to promotion of culture, art, and we protect cultural heritage and traditions. On top of that, the Foundation supports projects related to ecology and animal protection. Last but not least, the PGE Foundation gets strongly involved in charity work.

In 2019, the PGE Foundation prepared the second edition of the “Heroes of Our Future” program for the veterans of the Warsaw Uprising, thanks to which 395 Insurgents received one-off financial support. Once again, the Foundation carried out the “Food Parcel for a Veteran” program, dedicated to Warsaw insurgents, soldiers of the Polish Underground State, and former prisoners of German concentration camps. Between 2018 and 2019, the PGE Foundation donated 1,000 parcels.

Between 2018 and 2019, the PGE Foundation donated 1,000 parcels to veterans.

Additionally, the PGE Foundation supports hospitals. It co-financed renovation and building of many hospital rooms and purchase of specialized medical equipment. The Foundation also supports local communities. In 2019, it cooperated with several dozen Country Housewife Circles, local Associations, and Volunteer Fire Brigades, transferring funds for equipment, including life-saving equipment. Thanks to the PGE Foundation, playgrounds were built, teaching aids went to schools, and books to libraries.



EQUIPMENT OF THE FIRE BRIGADE UNIT IN KAZIMIERZ. GRANTED DONATION HELPED PURCHASE SHOES AND PROTECTIVE GLOVES

The PGE's employee volunteering program „We Help” (Pomagamy)

Local community support is also pursued through the PGE's employee volunteering program „We Help”. The needs are best identified by our employees, who themselves live in local communities. They come up with their own projects, which bring about positive social changes in a meaningful and lasting manner with the PGE's support. They reach different groups: children, teenagers, disabled people, single mothers, and the poorest people.

In 2014, the Foundation implemented employee volunteering in the entire PGE Capital Group. In six editions of the program, over 850 PGE volunteers – employees of the PGE Group companies – implemented 267 volunteer projects throughout the country.



The PGE's employee volunteering program by numbers.

The PGE Group				
	2019	2018	2017	2016
Number of employees involved in PGE's employee volunteering program "We Help"	210	327	276	180
Number of volunteering hours	9 391	15 024	12 500	13 000
Number of projects submitted	47	60	50	40
Number of applications submitted	72	122	106	109
Total amount of PGE's support [PLN]	272 081	350 000	300 000	200 000
The PGE Company				
	2019	2018	2017	2016
Number of employees involved in PGE's employee volunteering program "We Help"	14	20	17	9
Number of volunteering hours	380	505,5	1 077	347
Number of projects submitted	4	5	5	3
Number of applications submitted	6	7	9	8
Total amount of PGE's support [PLN]	23 700	25 000	25 000	15 000



The PGE Group has been running the “Energetic School Satchel” program for 17 years. The Company supports needy families in the areas where its branches are located. The Group cooperates with local social assistance centers to provide first-grade students from poor families with school equipment. In 2019, companies from the PGE Group, in cooperation with the PGE Foundation, prepared and handed over 70 satchels with the most necessary school supplies. In total, we have already presented 17,028 children with “Energetic Satchels” since the beginning of the action.



THE “ENERGETIC SCHOOL SATCHEL” IS A PARTNER PROGRAM OF THE PGE FOUNDATION AND THE COMPANIES OF THE PGE CAPITAL GROUP. IT CONSISTS OF GIVING FIRST-GRADE STUDENTS SATCHELS WITH SCHOOL SUPPLIES. THANKS TO THE PROGRAM, STUDENTS START THEIR ADVENTURE WITH THE SCHOOL FULL OF POSITIVE ENERGY.



THE “ENERGETIC SCHOOL SATCHEL” PROGRAM



PHOTO: THE PGE FOUNDATION/EDUCATIONAL THEATER PERFORMANCE HOW WERE PRSTYK AND BZIK ENLIGHTENED. IT IS ADDRESSED TO CHILDREN BETWEEN 5 AND 9 YEARS OLD. THE PROTAGONISTS TELL CHILDREN ABOUT ENERGY AND RULES FOR SAFE USE OF ELECTRICAL EQUIPMENT.

The PGE Group carries out educational projects in the field of safe and economical use of electricity. The Company initiates original educational programs, shaping good habits among the youngest users of electricity. PGE commissioned a theater performance entitled *How Were Prstyk and Bzik Enlightened*, addressed to children between 5 and 9 years old. The theater, thanks to the support of the PGE Foundation, visits schools, preschools, community day care centers, hospitals, libraries and other facilities throughout Poland. In 2019, the performance was seen by over 20,000 children from 179 schools and preschools, as well as during picnics and other educational events. Thanks to the PGE Foundation, a mural was created on the walls of the children’s health center Centrum Zdrowia Dziecka in Warsaw: it presents the characters from the fairy tale – Prstyk and Bzik – in cheerful and friendly colors.



THE PGE FOUNDATION/EDUCATIONAL THEATER PERFORMANCE HOW WERE PRSTYK AND BZIK ENLIGHTENED.



THE EDUCATIONAL CAMPAIGN “SAFE ENERGY”

Statistics show that a large proportion of those injured as a result of electric shock are children and young people, which is why the PGE Group also conducts an educational campaign called “Safe Energy”. Educational meetings for children are held in the branches of PGE Dystrybucja. Company’s employees visit preschools and schools to talk about safety when using electrical devices and proper behavior during energy failures. In 2019, about a thousand children took part in the educational campaign.

PGE GiEK is the title sponsor of the interactive **PGE Giganty Mocy Museum**. The facility was built as a result of cooperation between President of Bełchatów the Bełchatów Mine and Power Plant. The main purpose of the museum is to present information on brown coal, primarily about its extraction and conversion into electricity and heat. At present, the exhibition is one of the greatest tourist attractions in the Łódź region. **So far, nearly 23,000 people have attended the exhibition, and its interactive version was seen by over 16,000 visitors.**



THE PGE GIGANTY MOCY MUSEUM, AN INTERACTIVE EXHIBITION



THE PGE GIGANTY MOCY MUSEUM, A ROOM WITH A GEOLOGICAL SECTION OF THE BROWN COAL



THE PGE GIGANTY MOCY MUSEUM, VOLTUS’S CLUB (KLUB WOLTUSIA) – ONE OF THE BEST PLACES IN THE CITY FOR PARENTS WITH SMALL CHILDREN

Power plants and combined heat and power plants belonging to the PGE Group are often the key industrial assets in the cities where they are located. In order for the local community to learn about their specificity, PGE GiEK (Mining and Conventional Energy), PGE Energia Ciepła (Heat Energy), and PGE Energia Odnawialna (Renewable Energy) organize **open days** in their facilities every year. During these events, facilities belonging to PGE GiEK and PGE EC alone hosted 9.3 thousand visitors. Additional 9.6 thousand people saw the brown coal mine and conventional power plants, taking advantage of the tour offer for organized groups.



AN OPEN DAY AT THE HEAT AND POWER PLANT IN RZESZÓW

In the Podkarpace region, the **Museum of Energy** has been opened for 6 years. Every year, during organized educational events, the facility is visited by both children and adults, while employees of PGE Dystrybucja show them around exhibitions and conduct interactive shows and games for them. **In 2019, the museum was visited by 1.4 thousand people.**



PHOTO: TADEUSZ POŹNIAK / "ELECTROMAGNETIC STORIES" – CLASSES FOR CHILDREN AT THE MUSEUM OF ENERGY, AT THE HEADQUARTERS OF PGE OBRÓT S.A. IN RZESZÓW

Sports sponsoring

Since July 2015, the key sponsorship project of the PGE Group has been cooperation with the company PL.2012 +, the operator of the PGE Narodowy Stadium.

The PGE Group is the title sponsor of the most modern multi-functional arena in Poland – the PGE Narodowy - where the Polish national football team plays.

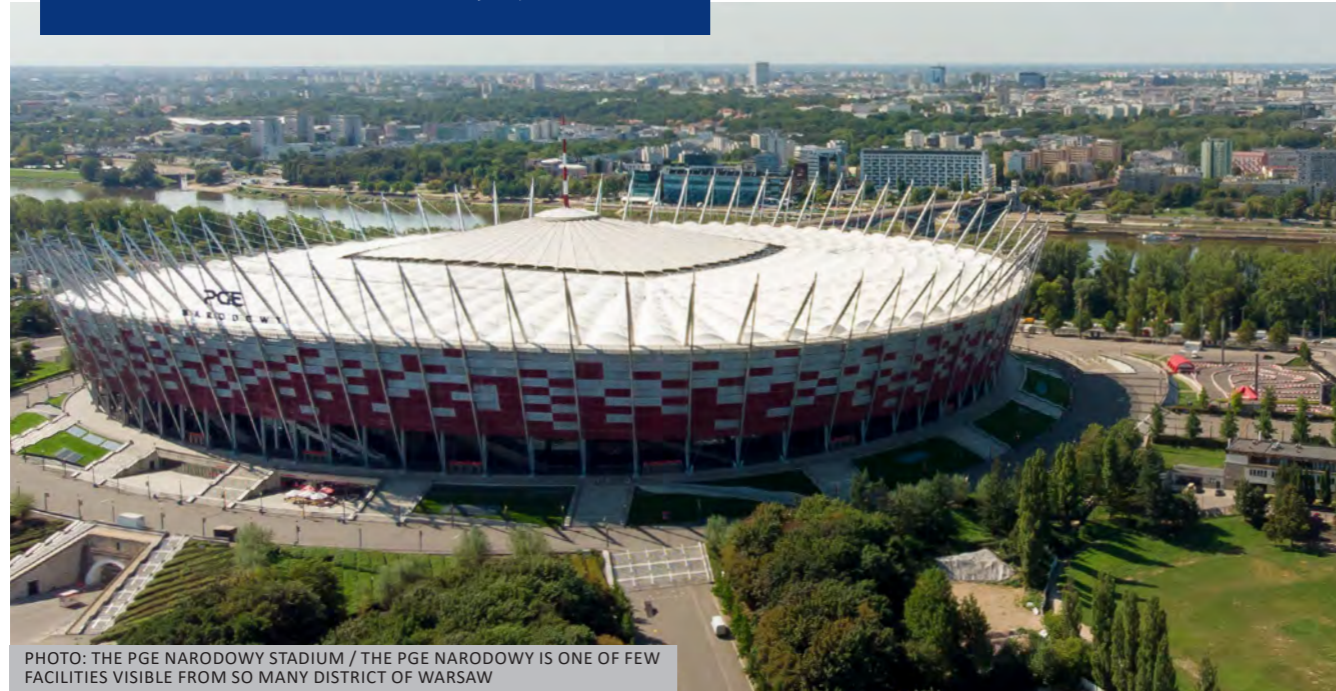


PHOTO: THE PGE NARODOWY STADIUM / THE PGE NARODOWY IS ONE OF FEW FACILITIES VISIBLE FROM SO MANY DISTRICT OF WARSAW

The PGE Narodowy beats attendance records. Football matches, motoring events, exhibitions, and concerts take place here. Polish and world pop stars appear, including The Rolling Stones, Paul McCartney, Depeche Mode, Metallica, Ed Sheeran, Bon Jovi, Pink, Bajm, Mrozu, Kombi, Ewa Farna, and many others. This is where the concert commemorating the centennial of Poland's independence took place. The arena has also become home to many annual shows and events, such as the Dancing PGE National, the Polish Book Fair, the Science Picnic and others, for example the Polish-American Military Picnic or the Picnic on the occasion of the National Sport Day.

The largest arena in Poland can host up to 58,500 fans during sports events, while almost 73,000 spectators during concerts and other events. The PGE Narodowy has 4,600 seats of a higher standard and 69 VIP boxes with places for 800 people.

From the beginning of its existence, the PGE Narodowy has hosted over 2,000 performances, including sport games, cultural festivals, business seminars, entertainment shows, and social meetings. The facility was visited by over 12.5 million guests.



PHOTO: THE PGE NARODOWY / ON THE FACADE, TWO NEONS SHOW THE NAME OF THE STADIUM

The PGE Group sponsors individual athletes and teams of various sports, including volleyball, basketball, football, and handball.

Since 2015, PGE – as the title sponsor – has been sponsoring the best speedway league in the world: the **PGE Ekstraliga**. In the 2019 season, 64 PGE Ekstraliga races were watched by a record number of spectators – nearly 700,000 fans visited speedway stadiums.



PHOTO: THE PGE EKSTRALIGA / COMPETITION ON THE TRACK



PHOTO: THE PGE EKSTRALIGA / A DRIVER OF THE VICE-CHAMPION OF POLAND IN 2019 – BETARD SPARTA WROCLAW

Since 2007, PGE has been sponsoring the men's volleyball team, **PGE SKRA Bełchatów**. This is the most distinguished Polish volleyball club, with nine Polish championships on their account, seven national cups, and four Super Cups. Moreover, the Bełchatów team has a great reputation in Europe and in the world. The club won the silver medal in the world championship twice and a bronze medal once. PGE SKRA Bełchatów stood four times on the podium of the elite Champions League – once it was second and three times third. Such a high professional level is guaranteed by volleyball stars from all over the world. The pantheon of the stars of PGE Skra contains World Champions from 2014 – Mariusz Wlazły and Karol Kłos, and champions from 2018 – Artur Szalpuk, Grzegorz Łomacz and Jakub Kochanowski. Other great players include Milad Ebadipour, Norbert Huber, and Kacper Piechocki.



PHOTO: TOMASZ WAŚIK / PGE SKRA BEŁCHATÓW, THE 5TH MATCH OF THE BASIC PHASE OF THE PLUSLIGA



PHOTO: TOMASZ WAŚIK / PGE SKRA BEŁCHATÓW, THE 23RD MATCH OF THE BASIC PHASE OF THE PLUSLIGA

Additionally, PGE Skra Bełchatów is the most popular and medially attractive volleyball team in Poland. In every hall, during their games, the stands are filled to the last place. In the last five years, the Champions League had the highest attendance ever, which made the players of the team role models.

The company is also the title sponsor of the best Polish men's handball team – **PGE VIVE Kielce**, 16-time Polish Champion, 16-time Polish Cup Winner, and the 2016 Champions League winner. In 2019, not only did the team achieve national successes (winning the Polish Championship and Cup), but also advanced to the Final Four of the Champions League.



PHOTO: PGE VIVE KIELCE / HANDBALL PLAYERS OF PGE VIVE KIELCE CELEBRATE ANOTHER VICTORY

Since 2017, PGE has been supporting the 1st league football club, **PGE FKS Stal Mielec**.



PHOTO: PGE FKS STAL MIELEC / THE MATCH OF THE 16TH ROUND OF THE FORTUNA 1ST LEAGUE. IN THE PHOTO: MATEUSZ MAK

In 2019, the PGE sponsored **PGE Spójnia Stargard**, playing in the Polish Basketball League.



PHOTO: TADEUSZ SURMA, PGE SPÓJNIA STARGARD

PGE also sponsors other individual athletes:

- Since 2010, the company has been supporting Waldemar Stawowczyk, a musher (dog range guide), gold medalist of the WSA Federation World Senior Championships in 2019 in all classes. Stawowczyk is also a multimetalist of the European Cup competition.
- Since 2012, PGE has been supporting Zofia Noceti-Klepacka, a windsurfing multimetalist, who won the Bronze Medal at the London Olympics in 2012. In 2019, the Noceti-Klepacka won the Polish Championship in the RS: X class.
- Since 2018, the company has been supporting Alicja Tchórz, Klaudia Siciarz, Damian Czykier, Konrad Czerniak and Artur Nogal, Maria Cześniak, and Rafał Wilk.



PHOTO: BARTŁOMIJ ZBOROWSKI / ZOFIA NOCETI-KLEPACKA, THE CHAMPION OF POLAND IN THE RS:X CLASS



PHOTO: MAGDALENA JAŚKIEWICZ / WALDEMAR STAWOWCZYK, THE GOLDEN FINISH OF THE "FOUR", VELKA CENA ZUBERCA



KLAUDIA SICIARZ, THE GOLD MEDALIST



KONRAD CZERNIAK, THE WORLD CHAMPIONSHIP IN HANGZHOU, CHINA



PHOTO: RAFAŁ OLEKSIEWICZ PZLS / ARTUR NOGAL, POLISH CHAMPIONSHIPS IN MULTI-SPRINT



MARIA CZEŚNIK, A WARM-UP

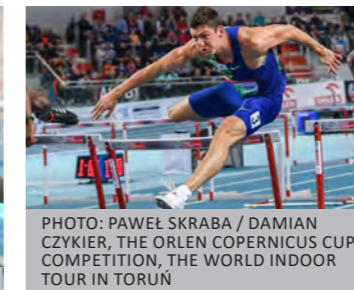


PHOTO: PAWEŁ SKRABA / DAMIAN CZYKIER, THE ORLEN COPERNICUS CUP COMPETITION, THE WORLD INDOOR TOUR IN TORUŃ



ALICJA TCHÓRZ



RAFAŁ WILK, THE GOLD MEDALIST OF PARAOLIMPIC GAMES IN HANDBIKE ROAD CYCLING

Sport clubs and individual athletes sponsored by PGE implement activities in the area of corporate social responsibility (CSR), including:

- meetings with children and young people in schools, kindergartens and hospitals,
- conducting PE lessons in schools,
- invitations to joint trainings,
- participation in charity campaigns,
- participation in environmental campaigns,
- transferring prizes to charity auctions,
- providing children and young people with disabilities with seats in the audience during sporting events.

Thanks to such activities, the PGE brand is recognizable in schools, preschools, orphanages, hospitals and community day care centers as well as by people with disabilities.

The PGE Group supports and promotes amateur sports, especially by propagating sport among children and teenagers. In 2019, PGE sponsored football academies, including PGE FKS Stal Mielec, Widzew Łódź, Avia Świdnik, and FC Lesznowola as well as many local initiatives spreading sports education among young people. In 2019, nearly 7,000 children and teenagers from all over Poland, including those with disabilities, participated in amateur sport support programs.



PHOTO: AVIA ŚWIDNIK

Thanks to the PGE's involvement, the second event combining patriotic education and children's sport took place in 2019 – a tournament unlike any other, i.e. finishing of the Polish league from the year 1939. The 2nd Independence Tournament for the PGE Cup was a copy of the unfinished and unresolved Polish Football Championships interrupted by the outbreak of World War II. The same teams that played in the then-league competed on the pitch of Polonia Warszawa: Ruch Chorzów, Garbarnia Kraków, Cracovia, Wisła Kraków, AKS Chorzów, Pogoń Lwów, Warta Poznań, and Polonia Warszawa. Nearly 400 players took part in the tournament.



THE INDEPENDENCE TOURNAMENT FOR THE PGE CUP

A year earlier, in the 1st Independence Tournament for the PGE Cup, which was held on November 9, 2018 under the patronage of President Andrzej Duda, the same clubs that competed with each other nearly 100 years ago stood up to the fight: ŁKS Łódź, Warta Poznań, Cracovia Kraków, Pogoń Lwów, and Polonia Warszawa. The tournament was a reconstruction of the first Polish football championship in 1921. 200 players took part in it.

PGE Energia Ciepła, in cooperation with the Polish Figure Skating Federation and Ministry of Sport and Tourism, has been implementing the "Let's Go Skating" program since September 2018.

The program is addressed to children and teenagers – primary school students. Thanks to the program, young people can benefit from free classes conducted by professional trainers working in clubs and being members of the Polish Figure Skating Federation (PZŁF). Classes on ice take place several times a week and are supported by motor training and exercises in dance and ballet. "Let's Go Skating" program operates in 14 Polish cities, including Warsaw, Lublin, Gdańsk, Krakow, and Łódź. Moreover, PGE Energia Ciepła is a partner of the Winter National – a zone of winter attractions at the PGE Narodowy. As a sponsor of the family ice rink and a titular partner of "Mornings for Children" – lessons with instructors and animators – PGE Energia Ciepła also sponsored the second edition of the program "Let's Go Skating", which was attended by over 500 children from 25 clubs and over 40 training groups, in 14 cities in Poland.



THE WINTER NATIONAL

Culture patronage

PGE sponsors cultural events, nationwide and regional, as well as local.

For the second time, PGE supported a nationwide campaign, commemorating the participants of the Warsaw Uprising. The campaign "Hero-on – turn on history!" promotes patriotic attitudes and national identity, and also creates a community that remembers Polish history and its heroes.



PHOTO: PRESS MATERIALS OF THE CAMPAIGN "HERO-ON – TURN ON HISTORY"

Caring for Polish national heritage and historical memory, PGE has been a partner of the Warsaw Uprising Museum since 2016. The museum is housed in a former streetcar power plant, a monument of industrial architecture from the beginning of the 20th century. The museum exhibition is designed in a unique way, and it influences the audience with the image, light, and sound. The interior design and the use of multimedia effects closely recreate details of the uprising for the viewer. The main elements of the exhibition are large format photos, monitors, and computers. The route outlines the chronology of events and leads through individual, thematic rooms. Visitors move around in the scenery so common in Warsaw seventy years ago, walking on granite cobblestones among the debris of the destroyed Capital.

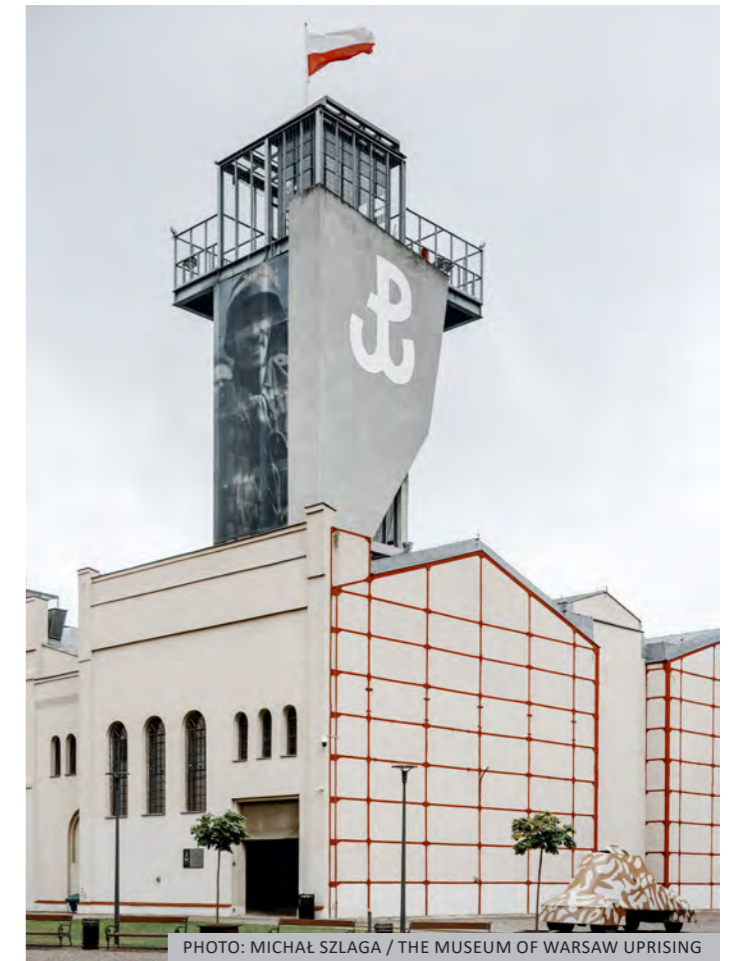


PHOTO: MICHAŁ SZLAGA / THE MUSEUM OF WARSAW UPRISING



PHOTO: MICHAŁ SZLAGA / THE MUSEUM OF WARSAW UPRISING



PHOTO: THE MUSEUM OF WARSAW UPRISING

The PGE Group supported the production of the film *Kurier*, whose world premiere took place on March 11, 2019, at the Grand Theater in Warsaw. President Andrzej Duda took part in the event.

The film directed by Władysław Pasikowski, with an international cast, is inspired by the true story of a “courier from Warsaw” – Jan Nowak-Jeziorański. The lonely mission of the courier was to decide the fate of the Polish underground and the future of Poland.

In March 2019, the film *Kurier* premiered, and its production was supported by PGE. The film directed by Władysław Pasikowski, with an international cast, tells the story of Jan Nowak-Jeziorański’s heroic mission.



PHOTO: BARTOSZ MROZOWSKI / KURIER



PHOTO: BARTOSZ MROZOWSKI / KURIER



PHOTO: CELESTYNA KRÓL / KURIER

The PGE Group is a patron of philharmonics throughout Poland. Since 2012, PGE has been distinguished by the honorary title of the Patron of the Year at the National Philharmonic in Warsaw. It supports concerts and makes a huge contribution to musical education of the youngest generation. As for PGE Energia Ciepła, it supports the Polish Baltic Philharmonic in Gdańsk, the Kraków Philharmonic, the Zielona Góra Philharmonic, the National Forum of Music in Wrocław, and the Toruń Symphony Orchestra.



PHOTO: THE NATIONAL PHILHARMONIC ARCHIVE



THE ZIELONA GÓRA PHILHARMONIC



THE KARKÓW PHILHARMONIC

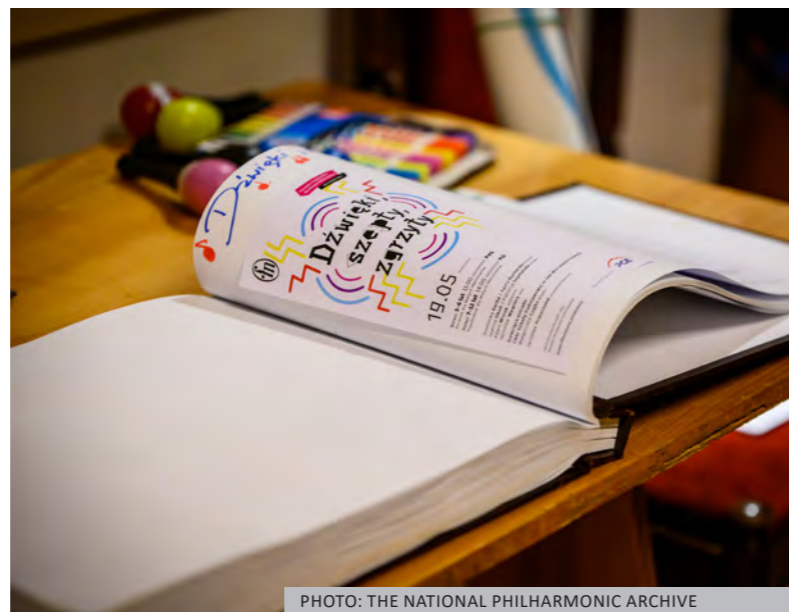


PHOTO: THE NATIONAL PHILHARMONIC ARCHIVE

Since 2016, PGE has been the patron of an international festival **La Folle Journée – Crazy Music Days** – which is successfully carried out simultaneously in France, Spain, Japan, and Poland. The festival has already gained a recognizable position in on the musical map of the world and is very popular. The idea of Crazy Music Days is to overcome prejudices against classical music by encouraging and facilitating participation in concerts, while maintaining the presentation of music at the highest possible level. Short concerts taking place from morning to evening in several rooms at the same time, low ticket prices, and a unique atmosphere make Crazy Music Days a meeting with music accessible for everyone. Around 35,000 listeners and participants of educational campaigns took part in all the events of the last year's edition of the festival. In three days, about 1,000 artists performed in 55 concerts. The organizer of the Crazy Music Days in Poland is the Sinfonia Varsovia Orchestra and co-organizers include the Grand Theater – National Opera, Art Education Center, the Music Gardens Foundation and C.R.E.A.



THE SINFONIA VARSOVIA ORCHESTRA / CRAZY MUSIC DAYS

PGE is also a patron of the **Mozart Festival in Warsaw**. During the Festival, for four weeks, the audience can admire the oeuvre of Wolfgang Amadeus Mozart presented in forty events, including new stagings of operas, concerts, and shows for children. The Mozart Festival has been one of the most important and largest ventures of the Warsaw Chamber Opera for the last 30 years.

PGE sponsors the Music Festival in Łańcut. The festival's reputation is testified by excellent artists who visited Łańcut, including Adam Harasiewicz, Rafał Blechacz, Joseph Malovany, Mischa Maisky, Shlomo Minz, Andreas Scholl, the legendary tenor – Jose Carreras, Kate Liu, and Julian Rachlin. The festival is very popular, and each year it attracts thousands of listeners.



PHOTO: THE WARSAW CHAMBER OPERA / MAGIC FLUTE, WOLFGANG AMADEUS MOZART



PHOTO: THE ARCHIVE OF PODKARPACIE PHILHARMONIC

PGE is also involved in projects addressed to mass audiences, such as the **Polish National Song Festival in Opole** and the New Year's Eve concert **"New Year's Eve with the National TV Program Two"** in Zakopane, which once again achieved the highest viewership among New Year's Eve television events. The greatest Polish entertainers as well as foreign stars appeared in Zakopane. The Krupowa Plain attracted over 70,000 people, and television broadcasts gathered over 5 million viewers in front of TV sets, reaching 8 million Poles at the peak of viewership, which took place at 22:43 when Zenon Martyniuk jumper on the Zakopane stage.

In 2019, the 56th National Polish Song Festival in Opole was watched by 2.24 million viewers. It is about 260 thousand viewers more than in 2018. The concert "From Opole to Opole" enjoyed the greatest popularity.

Risks

GRI 102-11

The risk management in the PGE Group and the PGE Company

The PGE Group companies, similarly to other entities in the sector of power engineering, are exposed to risks and threats resulting from the specific operations and functioning in a specific market environment, as well as from regulatory and legal issues. That is why the responsible development of the PGE Group requires multidimensional and multilevel risk management system.

The perspective of the PGE group

In the PGE Group, the risk management is carried out on the basis of the GRC model, that is Governance – Risk management – Compliance. This enables matching and integration process at all levels of management in particular areas of activity.

Governance	Establishing of the Reporting Risk Committee at the highest management level connected directly to the PGE Management Board guarantees supervision over efficiency risk management processes throughout the Group.
Risk management	Defining the risk management functions within the Risk Department and Insurance enables independent assessment of individual risks and their impact on the PGE Group.
Compliance	The separation of the Compliance function guarantees that the PGE Group will run its activities in accordance with legal conditions and ensures the compliance with adopted internal standards. The strengthened monitoring of the environment increases the efficiency of identifying potential gaps.

The owners of risks are involved in the risk prevention process at the operational level: the Department Risk and Insurance and the Risk Committee as well as the Audit Department avoid critical situations through independent periodic assessments of the key elements of the risk management system. The comprehensive management system for this area includes systematic risk assessment and analysis in the key companies of the Group. The area identification mechanisms of risk and its assessment are subject to constant verification and improvement. As a result, material risks to specific business segments are kept within established limits through reduction of the negative effects of these threats, which are annulled by preemptive or corrective actions. The principles of risk management in the PGE Group are described in the Corporate Risk Management Policy and in the General

Corporate Risk Management Procedure. For risks related to commercial activities, separate regulations regarding related issues are dedicated, with their management, monitoring, and mitigation. They include the General Procedure for Market Risk Management in Commercial Activities, the Credit Risk Management Policy, and General Procedure for Determining Internal Rating.

In 2019, a consistent approach to risk management was developed for six key companies of the PGE Group – the companies responsible for the operation of business lines: PGE Górnictwo i Energetyka Konwencjonalna (Mining and Conventional Energy), PGE Energia Ciepła (Heat Energy), PGE Energia Odnawialna (Renewable Energy), PGE Dystrybucja (Distribution), PGE Obrót (Sales), and for the PGE itself, which is the Corporate Center of the PGE Group.

ENVIRONMENT

Identified risks and management methods in the area of environmental issues in the PGE Group and the PGE Company.

ENVIRONMENTAL ISSUES – THE PERSPECTIVE OF THE PGE GROUP

GC-7

The risk of environment protection	The risk of concession
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resulting from the consequences of abandonment and improper activities in the field of environmental protection or the possibility of extraordinary events

related to the possibility of non-compliance with the conditions for receiving or renewing the required licenses

Risk reduction tools

Security training for employees environment	Monitoring of basic areas of activity companies in terms of compliance with the requirements specified in concessions
Monitoring of the technical condition of devices and installation	Monitoring of the date and amount of concession payment
Monitoring and updating of protection laws and regulations concerning environment	Monitoring of legal regulations concerning licensing
Scheduled and regular maintenance and renovation works as recommended by the manufacturers and regulations (norms, regulations)	Active participation in creating regulations and giving opinions about them
Social dialogue and information campaigns	Training employees in the field of Energy Law and implementing regulations as well fulfilling obligations arising from concessions
Environmental management system – control of emissions, noise, water intake in the technological process	Constant supervision of the application preparation process in the company
Management System Certificate Environmental ISO 14001	

The perspective of the PGE Company

The PGE Polska Grupa Energetyczna, as the Corporate Center managing the Group, creates and implements solutions in the area of integrated risk management architecture in the PGE Group. In particular, it shapes risk management policies, standards and practices, develops internal IT tools supporting the production process, determines the Group's willingness to accept risks and their limits, and monitors their levels.



A VIEW ON THE NEW ENERGY BLOCKS IN THE PGE GIEK POWER PLANT IN OPOLE

ENVIRONMENTAL ISSUES – THE PERSPECTIVE OF THE PGE COMPANY

The risk of environment protection

resulting from the consequences of abandonment and improper activities in the field of environmental protection or the possibility of extraordinary events

Risk reduction tools

- Monitoring of technical condition and modernization of devices and installations
- Monitoring of laws and regulations regarding environmental protection
- Adjustment of the company's internal regulations and activities in the field of environmental protection to changing legal regulations
- Writing reports to competent authorities and institutions responsible for environmental management
- Submission of utilization of harmful substances to a specialized company authorized to operate in the field of waste management

SOCIAL ISSUES

Identifying risk and means of its management in the area of social issues in the PGE Group and the PGE Company.

SOCIAL ISSUES – THE PERSPECTIVE OF THE PGE GROUP

Risk of damage to third parties	Risk associated with violating collective interests of consumers	Reputation risk
associated with the possible occurrence of property, personal or financial losses as a result of the company's core business activities	being the result of a potential lack of due care in the area of competition and consumer protection	related to possibly image damage to PGE Group in the course of its business
Risk reduction tools		
<p>Monitoring of the technical state of equipment and installations</p> <p>Control of working conditions Noise and electromagnetic field measurements</p> <p>Use of protective means to reduce harm for the natural environment</p> <p>Employee training in environmental protection</p> <p>Appropriate preparation of workplaces</p> <p>Periodic inspection of the security of facilities and assets</p>	<p>Following rulings by the Protection Court (SOiK) and opinions of the President of the Office of Competition and Consumer Protection (UOKiK)</p> <p>Observing internal standards regarding information sharing</p> <p>Providing universal access to regulations related to the company's operations</p> <p>Employee training</p> <p>Verification of contracts for legal compliance</p> <p>Verification of existing internal regulations as regards abuse of dominant position</p> <p>Legal consultations</p> <p>Monitoring of regulating environment</p>	<p>Media monitoring</p> <p>Conducting regular media relations activities</p> <p>Cyclical meetings of management with employees</p> <p>Observing procedures for managing internal, external, and crisis communication</p> <p>Observing rules for representing the PGE Group in the media (regulations concerning communication activities)</p> <p>internal trainings of the management staff</p> <p>Diversification of internal communication channels</p> <p>Monitoring of marketing activity</p> <p>Marketing strategy</p>

SOCIAL ISSUES – THE PERSPECTIVE OF THE PGE COMPANY

HR risk
resulting in unwanted personnel turnover
Risk reduction tools
<p>Competitive remuneration system compared to other employers</p> <p>Attractive system of non-wage benefits</p> <p>Monitoring of the labor market in the area of remuneration and incentive systems</p> <p>Development of bonus rules based on regulations using transparent and uniform rules for motivating</p> <p>The use of objective methods of assessing work results</p> <p>Linking salaries and incentives with periodic performance reviews</p> <p>Planning of professional development according to the needs of employees and individual units organizational</p> <p>Organizational culture based on the principles of integrity and diligence, as set out in the Code of Ethics at PGE Capital Group</p>



CONSTRUCTION OF NEW BLOCKS IN THE PGE GÓRNICZWO I ENERGIA KONWENCJONALNA POWER PLANT IN OPOLE

LABOR LAWS AND ISSUES

Identifying risk and means of its management in the area of labor laws and issues in the PGE Group and the PGE Company.

LABOR LAWS AND ISSUES – THE PERSPECTIVE OF THE PGE GROUP

Health and safety risk at a workplace	Risk associated with social dialogue	Risk associated with human resources
resulting from the consequences of the company, employees and people working for the company failing to observe workplace health and safety regulations and rules	connected with a failure in achieving agreement between the Group's management and employees, what could lead to strikes/collective labor disputes	resulting in unwanted personnel turnover
Risk reduction tools		
Control of working conditions	Organization of meetings regarding the situation market of the PGE Group	Competitive remuneration system in comparison with other employers
Training on health and safety at workplace and giving job-specific instructions prior to the start of work in a specific workplace	Information meetings concerning the scope of changes and the manner in which they are introduced	Rules regarding recruitment
Hiring of employees with qualifications and health status adequate to the Company's needs	Conducting surveys of employees	Managing employee development
Initial and periodic medical Checks	Ongoing analysis of trade union activities	Cooperation with high schools and higher educational institutions offering energy related courses/programs
Periodic assessment of technical state	Dialogue with the social side	Mentoring
Rules regarding the use of protective equipment and working tools		Training on the Code of Ethics
Monitoring of implementation of health and safety regulations by employees		

LABOR LAWS AND ISSUES – THE PERSPECTIVE OF THE PGE COMPANY

Health and safety risk at a workplace	Risk associated with social dialogue	Risk associated with human resources
resulting from the consequences of the company, employees and people working for the company failing to observe workplace health and safety regulations and rules	connected with a failure in achieving agreement between the Group's management and employees, what could lead to strikes/collective labor disputes	resulting in unwanted personnel turnover
Risk reduction tools		
Control of working conditions (measurements, checkups)	Organization of meetings regarding the situation market of the PGE Group	Implemented rules of recruitment and remunerating employees
Training on health and safety at workplace and giving job-specific instructions prior to the start of work in a specific workplace	Information meetings concerning the scope of changes and the manner in which they are going to be introduced	Labor market monitoring in terms of remuneration and systems of incentive
Hiring of employees with qualifications and health conditions adequate to the company's needs	Dialogue with the social side	Professional development planning as needed for employees and individual organizational units
Initial and periodic medical Checks	Ongoing analysis of trade union activities	Training on the code of ethics
Rules regarding first aid during accidents at workplace		Linking of salary and incentives with periodic reviews of employees
Periodic inspections of workplaces		
Periodic assessments of technical conditions (buildings and installations)		
Continuous analysis of costs related to ensuring appropriate conditions for safe work		



INSPECTION AND SERVICE BY THE COMPANY'S EMPLOYEES AT RENEWABLE WIND FARMS BELONGING TO PGE ENERGIA

HUMAN RIGHTS

Identified risks and management measures in the human rights area at the PGE Group and the PGE Company.

Risks associated with respect for human rights, such as discrimination, mobbing or molestation, have been identified and activities that are at the basis of preventing such risks are indicated and described in the Code of Ethics, the Code of Conduct for Business Partners and in other procedures. Provisions protecting against these risks are placed directly in the form of ethical clauses in contracts with business partners and, as a result, our high standards are also imposed on other companies. In the Code of Ethics, risks associated with human rights, such as discrimination in employment, mobbing

and molestation, hiring of children, illegal hiring, and work in unsafe conditions are addressed by relying on permanent employment contracts as the basic form of employment, ensuring the highest standards in organizing a safe workplace, applying objective and non-discriminatory criteria for hiring and promoting of employees. We show respect to diversity in terms of race, gender, sexual orientation, age, culture, marital status, religious and political beliefs, freedom of membership in social and professional organizations. We comply with all requirements concerning the issues of health and safety at a workplace.



THE COMPASS IS A SYMBOL, INDICATING THE DIRECTION OF ACTIONS IN COMPLIANCE WITH THE VALUES AND PRINCIPLES OF THE PGE GROUP

HUMAN RIGHTS MATTERS – THE PERSPECTIVE OF THE PGE GROUP

Risk associated with mobbing and molestation	Risk associated with employee discrimination
associated with the possible occurrence of property, personal or financial losses as a result of employee actions	resulting from potential unlawful acts
Risk reduction tools	
Trainings of employees and management	Labor regulations
Whistleblower function – a possibility to publicize irregularities observed in the organization	Employee training
	Internal standards related to submitting irregularities and providing information

HUMAN RIGHTS MATTERS – THE PERSPECTIVE OF THE PGE COMPANY

Risk associated with mobbing and molestation	Risk associated with employee discrimination
associated with the possible occurrence of property, personal or financial losses as a result of employee actions	resulting from potential unlawful acts
Risk reduction tools	
Trainings of employees and management	Labor regulations
Whistleblower function – a possibility to publicize irregularities observed in the organization	Employee training
Impartial Advisor function – possibility to contact an external company in cases related to mobbing	Internal standards related to submitting irregularities and providing information

COUNTERACTING CORRUPTION

Identified risks and management measures in the area of counteracting corruption at the PGE Group and the PGE Company.

GC
GC-10

FRAUD AND CORRUPTION ISSUES – THE PERSPECTIVE OF THE PGE GROUP

Fraud and corruption risk	Procurement risk
resulting from potential unlawful acts	stemming from errors in the process of procuring materials and service
Risk reduction tools	
The PGE Group's code of ethics	Procurement policy of the PGE Capital Group and general procedure of procurement in the PGE Capital Group
PGE Group's anti-corruption policy	
Employee training	The Code of Conduct for PGE Group Companies' Business Partners
Monitoring of business activities for identification and explanation of unusual events for rationally run business	Mandatory observance of the Good Procurement Practices and the Code of Ethics
Launch of fraud reporting system ensuring confidentiality to the person reporting the abuse	Analysis of tender specification records (Specyfikacja Istotnych Warunków Zamówienia) before approving them, in particular the conditions for participation and the description of the object of contract (Opis Przedmiotu Zamówienia)
Internal monitoring (compliance check) and external audits regarding internal processes and regulations applicable in the company	Communication with employees and organizing trainings for them
Universal access to regulations related to the company's operations (codes, rules, regulations)	Application of the contractor's assessment and qualifications system
Internal and external audits concerning the company's internal processes and regulations	Random additional verification of individual purchasing procedures and purchasing plans
Conflict of interest disclosure statements by employees	Statements regarding exemptions made by participants in proceedings

FRAUD AND CORRUPTION ISSUES – THE PERSPECTIVE OF THE PGE COMPANY

Fraud and corruption risk	Procurement risk
resulting from potential unlawful acts	stemming from errors in the process of procuring materials and service
Risk reduction tools	
The PGE Group's code of ethics	Procurement policy of the PGE Capital Group and general procedure of procurement in the PGE Capital Group
PGE Group's anti-corruption policy	
Universal access to regulations related to the company's operations (codes, rules, regulations)	The Code of Conduct for PGE Group Companies' Business Partners
Regular verification of internal regulations	Mandatory observance of Good Procurement Practices and Code of Ethics
Initial and periodic trainings for employees	Analysis of tender specification records (Specyfikacja Istotnych Warunków Zamówienia) before approving them, in particular the conditions for participation and the description of the object of contract (Opis Przedmiotu Zamówienia)
Conflict of interest disclosure statements by employees	Communication with employees and organizing trainings for them
Monitoring business activities for identification and explanation of unusual events for rationally run business	Application of the contractor's assessment and qualifications system
Monitoring of implemented activities in terms of granted proxies	Additional selective verification of individual purchasing procedures and purchasing plans
Ongoing supervision over tasks entrusted to employees and monitoring compliance of these tasks with assigned responsibilities	Statements regarding exemptions made by participants in proceedings
Launch of fraud reporting system ensuring confidentiality to the person reporting the abuse	
Internal monitoring (compliance check) and external audits regarding internal processes and regulations applicable in the company	

Report's approval

This report on non-financial data of the PGE Polska Grupa Energetyczna S.A. and the PGE Group for 2019 was approved for publication by the parent institution's Management Board on March 31, 2020.

Warsaw, March 31, 2020

Signatures of the members of the Management Board of the PGE Polska Grupa Energetyczna S.A.

President of the Management Board
Wojciech Dąbrowski

Vice-President of the Management Board
Paweł Cioch

Vice-President of the Management Board
Paweł Śliwa

Vice-President of the Management Board
Ryszard Wasilek

Vice-President of the Management Board
Paweł Strączyński

Useful links

About the PGE Group

The PGE's official website	https://www.gkpge.pl/
PGE Baltica	https://www.gkpge.pl/pge-baltica
PGE Centrum LUMI	https://lumipge.pl/
PGE Dystrybucja	https://pgedystrybucja.pl/
PGE EJ1	https://pgeej1.pl/
PGE Energia Ciepła	https://pgeenergiaciepla.pl/
PGE Energia Odnawialna	https://pgeeo.pl/
PGE Górnictwo i Energetyka Konwencjonalna	https://pgegiek.pl/
PGE Nowa Energia	https://pgene.pl/
PGE Obrót	https://pge-obrot.pl/
PGE Systemy	https://pgesystemy.pl
PGE Ventures	https://pgeventures.pl
Zrównoważony biznes	https://www.gkpge.pl/zrownowazony-biznes
Akcelerator PGE	https://akceleratorpge.pl/

Strategies of the PGE Group

Updated strategy of the PGE Capital Group in the perspective of 2020 <https://www.gkpge.pl/Relacje-inwestorskie/Grupa/Strategia>
Strategy of the heat engineering of the PGE Group <https://www.gkpge.pl/Relacje-inwestorskie/Grupa/Strategia/Strategia-Cieplownictwa>

Environmental Commitments

Environmental Commitment of PGE S.A. <https://www.gkpge.pl/zrownowazony-biznes/obszary-dzialalnosci/z-szacunkiem-dla-ziemi>; <https://www.gkpge.pl/zrownowazony-biznes/obszary-dzialalnosci/dobrze-znamy-wartosc-wody>; <https://www.gkpge.pl/zrownowazony-biznes/obszary-dzialalnosci/dbamy-o-powietrze-a-sokoly-to-lubia>
Environmetal Commitment EMAS, Elektrownia Opole <https://elopole.pgegiek.pl/Ochrona-srodowiska/Deklaracja-srodowiskowa>
Environmetal Commitment EMAS, PGE Energia Ciepła <https://pgeenergiaciepla.pl/o-spolce/system-zarzadzania>

Values and rules in the PGE Group

The Code of Ethics of the PGE Group <https://www.gkpge.pl/zrownowazony-biznes/compliance>
The Code of Actions of the PGE Capital Group companies <https://www.gkpge.pl/zrownowazony-biznes/compliance/pge-dba-o-najwyzsze-standardy-wspolpracy-z-partnerami-biznesowymi>
The Program of Compliance of PGE Dystrybucja <https://pgedystrybucja.pl/spolka/O-Spolce/Program-Zgodnosci>
The Code of Good Practices of System Operators <https://pgedystrybucja.pl/spolka/O-Spolce/Kodeks-Do-brych-Praktyk-Operatorow-Systemow-Dystrybucyjnych>
Consumer Rights <https://www.gkpge.pl/Oferta/Stefa-Klienta/Regionalna/Zbiory-Praw-Konsumenta>

Accounts and Reports

Integrated Report for 2018 <https://raportzintegrowany2018.gkpge.pl/>
RESPECT Index http://respectindex.pl/aktualnosci?ph_main_content_start=show&ph_main_content_cmn_id=1137
WIG-ESG <https://www.gpw.pl/indeks?isin=PL9999998955>

Internship programs

Programs for students and graduates <https://www.gkpge.pl/kariera/Praca-u-nas/Programy-dla-studentow-i-absolwentow>
Internship program in 2019 <https://www.gkpge.pl/kariera/Program-stazowy-2018>
Summer internships in 2019 <https://www.gkpge.pl/Kariera/program-praktyk-letnich-2019>
Energetic Career program <https://pgeenergiaciepla.pl/o-spolce/spoleczna-odpowiedzialnosc-biznesu/energetyczna>

Energy Industry Glossary

BAT	Best Available Technology
Biomasa	Solid or liquid substances of plant or animal origin, subject to biodegradability, obtained from agricultural or forestry products, waste and remains or industries processing their products as well as certain other biodegradable waste, in particular agricultural raw materials.
BREF	Best Available Techniques Reference Document
Distribution	transport of energy through distribution grid of high (110 kV), medium (15kV) and low (400V) voltage in order to supply it to customers
Pumped storage plants	A special type of hydropower plant allowing for energy warehousing. An upper body of water is used for this, where water is pumped from a lower body of water using electricity (usually excess electricity in the system). Pumped storage facilities provide regulatory services for the national power system. In times of higher demand for electricity, water from the upper body of water is released through a turbine. This way electricity is produced.
GJ	Gigajoule, a unit of work/heat in the SI system, 1 GJ = 1000/3.6 kWh = approximately 278 kWh
Circular economy	A system that minimizes the consumption of resources and the level of waste as well as emissions and energy losses by creating a closed loop of processes in which waste from one process is used as resources in other processes so as to maximally reduce the quantity of production waste
Energy cluster	A civil-law arrangement that may include natural persons, legal entities, scientific units, research institutes or local government units, concerning the generation, distribution or trade in energy and energy demand balancing, with this energy being from renewable sources or other sources or fuels, within a distribution grid with nominal voltage below 110 kV, with the operational area of the given cluster, not exceeding the area of one district in the meaning of the act on district authorities) or 5 municipalities in the meaning of the act on municipal authorities; an energy cluster is represented by a coordinator, which is a cooperative, association, foundation appointed for this purpose or any member of the energy cluster indicated in the civil-law arrangement.
Cogeneration	the simultaneous generation of heat and electricity or mechanical energy in the course of a single technological process
kV	kilo volt, an SI unit of electric potential difference, current and electromotive force; 1kV= 103 V
kWh	kilowatt-hour, a unit of electric energy in the SI system defined as the volume of electricity used by the 1 kW equipment over one hour. 1 kWh = 3,600,000 J = 3.6 MJ
MW	megawatt, a unit of capacity in the SI system, 1 MW = 106 W
MWe	one megawatt of electric capacity
Nm ³	normal cubic meter; a unit of volume from outside the SI system signifying the quantity of dry gas in 1 m ³ of space at a pressure of 1013 hPa and a temperature of 0°C.
NO _x	nitrogen oxides
Renewable energy source	a source of generation using wind power, solar radiation, geothermal energy, waves, sea currents and tides, flow of rivers and energy obtained from biomass, landfill biogas as well as biogas generated in sewage collection or treatment processes or the disintegration of stored plant or animal remains
Distribution system operator (DSO)	an energy company engaging in the distribution of gaseous fuels or electricity, responsible for traffic in the gas or electricity distribution systems, current and long-term security of operation of the system, the operation, maintenance, repairs and indispensable expansion of the distribution network, including connections to other gas or power systems
Prosumer	final customer who purchases electricity under a comprehensive agreement and generates electricity only from renewable sources at a micro-installations for own purposes, unrelated to economic activities
Regulator	President of the Energy Regulatory Office (URE), fulfilling the tasks assigned to him in the Energy Law. The regulator is responsible for, among others, giving out licenses for energy companies, approval of energy tariffs, appointing Transmission System Operators and Distribution System Operators.

SAIDI	System Average Interruption Duration Index – an indicator showing the average system interruption duration (long, very long or catastrophic), expressed in minutes per customer per year, constituting the product of multiplying its duration and the number of customers exposed to it during the year, divided by the total number of customers. SAIDI does not include interruptions shorter than 3 minutes and is calculated separately for planned and unplanned interruptions. It applies to interruptions on LV, MV and HV lines, although SAIDI in the quality tariff does not include LV interruptions.
SAIFI	System Average Interruption Frequency Index – measures the average frequency (number) of interruptions, expressed as the number of customers exposed to the effects of all interruptions in a given year divided by the total number of customers. SAIFI does not include interruptions under 3 minutes and is set separately for planned and unplanned interruptions. It applies to interruptions on LV, MV and HV lines, although SAIFI in the quality tariff does not include LV interruptions.
Low voltage (LV) line	a power line with nominal voltage of up to 1 kV
Medium voltage (MV) line	a power line with nominal voltage of between 1 kV and 110 kV
High voltage (HV) line	a power line with nominal voltage of 110 kV
SO _x	sulfur dioxide
Start-up	an early-stage company established in order to build new products or services and characterized by a high level of uncertainty. The most common features of start-ups are: short operational history (up to 10 years), innovativeness, scalability, higher risk than in the case of traditional businesses but also potential higher returns on investment
Renewable energy origin certificate	a document confirming generation of electricity from renewable sources, issued by the President of the Energy Regulatory Office (URE), i.e. green certificate
Tariff	list of prices and rates and terms of application of the same, devised by an energy enterprise and introduced as binding on the customers specified therein in the manner defined by an act of parliament
URE	Energy Regulatory Office (Urząd Regulacji Energetyki)
CSI	Customer satisfaction indicator
NPS	Customer loyalty indicator

Indicators

Chosen GRI indicators, Global Impact, and custom indicators

The report on non-financial information of PGE Polska Grupa Energetyczna SA and the PGE Capital Group is prepared in accordance with the requirements of the amendment to the Accounting Act, implementing Directive 2014/95 / EU to Polish law. It includes non-financial information for the period from January 1 to December 31, 2019. The report contains consolidated data for the PGE Capital Group (hereinafter „PGE Group”, „PGE Group”, „Group”) and for the parent – the PGE Polska Grupa Energetyczna SA (hereinafter „PGE”). The PGE Capital Group consists of 66 companies. The non-financial report covers 57 companies in which we maintain employment. In order to show the best and most transparent presentation of the PGE Group’s operations, except for selecting the most concrete topics from the point of view of both the company and its environment, we have also chosen

the most important indicators that describe our commitment to the environment, our care for employees and social issues, our respect for human rights, and our fight against corruption.

Our non-financial report includes selected indicators of the Global Reporting Initiative (GRI) and its standards, the Group’s own indicators, and references to 10 principles of the Global Compact.

The PGE Polska Grupa Energetyczna was among a small group of companies that were the first to report on progress in implementation of the Sustainable Development Goals priority for Polish business as the Impact Barometer survey. In this report, we also present the results of this study.

Indicators of the GRI standards and the Global Compact

Indicator	Global Compact Principles	Page
Environmental issues		
	Approach to the natural environment	GC-7 18-43, 75-77, 92-105
GRI 303-1	Total water withdrawal by source	94-95
GRI 304-1	Description of the significant impact of activities, products and services on the biodiversity of protected areas, including areas of high biodiversity value outside protected areas	GC-8 30-33
GRI 305-1	Direct greenhouse gas emissions	92
GRI 305-7	Emission of NO _x , SO ₂ and other significant compounds emitted into the air	93
GRI 306-1	Total sewage volume by quality and destination	GC-8 96-97
GRI 306-2	Total weight of waste by type of waste and methods of waste management	GC-8 99-103
GRI 307-1	Monetary value of fines and total number of non-monetary sanctions for non-compliance and environmental regulations	104
	The use and dissemination of environmentally friendly technologies	GC-9 13, 16-17, 19-31, 34-42
GRI EU5	Allocation of carbon dioxide emission allowances or its equivalent by system division emissions trading	92

Social issues		
GRI 203-1	Contribution to infrastructure development and provision of services to society through commercial activities, transfer of goods and pro bono activities	13, 16-17, 51, 53-73
GRI EU28	Frequency of interruptions in energy supplies (SAIFI)	114
GRI EU29	Average duration of interruption in electricity supply (SAIDI)	114

Labor laws and issues		
	Employment	GC-4, GC-5 47-49, 80-81
	Freedom of association and the right to collective bargaining	GC-3 48
GRI 102-8	Total number of employees by type of employment and type of employment contract, by gender	GC-6 106
GRI 102-41	Number of employees covered by the collective agreement	GC-3 107
GRI 401-1	Total number of newly hired employees, depart and admission rate and employee turnover by age group, gender, in different companies	GC-6 108
GRI 401-2	Additional benefits provided to full-time employees that are not available to temporary or part-time employees, by main operating unit	47
GRI 403-9	Type and rate of injuries, occupational diseases, lost days and absenteeism and total number work-related fatalities, by region and by gender	113
GRI 404-1	Average number of training hours per year per employee by employment category and gender	GC-6 109
GRI 404-3	Percentage of employees subject to regular quality assessment and career development reviews by sex	GC-6 110
GRI 405-1	Composition of management, supervisory bodies and staff by categories of sex, age, belonging to minorities and other diversity indicators	GC-6 111-112

Human rights matters		
GRI 412-2	The total number of employee training hours in respect of human rights policies and the percentage of employees trained	GC-1, GC-2 115

Counteracting corruption		
GRI 205-1	Total number and percentage of business units analyzed in terms of the risk of corruption	GC-10 115
GRI 205-2	Communication and training on anti-corruption policies and procedures	GC-10 115

Indicators of the GRI standards and the Global Compact

Indicator	Global Compact Principles	Page
The PGE Capital Group		
GRI 102-1	Organization name	6, 7
GRI 102-2	Main products / services	6, 7
GRI 102-3	Location of the headquarters of the organization	Poland, Warsaw
GRI 102-4	Number of countries in which the organization operates	The PGE Group operates mainly in Poland
GRI 102-11	Organization risk management	74-85
GRI 102-12	Economic, environmental and social declarations, principles and other external initiatives adopted or supported by the organization	GC-1, GC-2 15
GRI 102-13	List of state and international industry associations	15
GRI 102-14	Top management statement	3
GRI 102-16	Values, principles, standards and norms of organizational behavior such as a code of conduct or a code of ethics	GC-10 45, 47
GRI 102-40	List of stakeholder groups engaged by the organization	14
GRI 102-43	An approach to stakeholder engagement including the frequency of engagement by type and stakeholder group	14
GRI 102-45	The operating structure of the organization, with distinction from main departments, subsidiaries, related entities and joint ventures	8-9
GRI 102-50	Reporting period	01/01/2019- 31/12/2019
GRI 102-52	Reporting cycle	annual
GRI 102-55	GRI content index	90

Selected indicators in the area of environmental issues in the PGE Group

The Common Environmental Policy obliges all PGE Group companies to care for the natural environment. The indicators in this section, due to the specifics of the operations of the PGE Group companies, refer to selected organizational units for which a given issue is significant from the point of view of reporting and environmental

impact. For example, the indicators in the section on CO₂ emissions relate to the PGE Górnictwo i Energetyka Konwencjonalna and the PGE Energia Ciepła, whose main activity is the production of electricity and heat. Below we present the indicators that relate to our impact on the environment to the greatest extent.

CO₂ Emission

CO₂ emission from the Group's main installations and the allocation of free CO₂ emission allowances for 2019.

	CO ₂ emission in 2019	CO ₂ emission in 2018	CO ₂ emission in 2017	Allowance for CO ₂ emission in 2019*
Power and CHP plants in the PGE Capital Group [tonnes]	60,663,255	70,186,803	70,184,384	13,103,751

* the volume of CO₂ emission allowances relates to electricity and heat combined and is consistent with the volume of allowances for 2019, as indicated in the relevant ordinances of the Government. The volume of allowances includes allocations for new blocks 5 and 6 in the ELO (Opole Power Plant).

CO₂ emissions for 2019 have been verified by authorized verifiers for CO₂ emissions under the EU ETS system.

In 2019, CO₂ emissions from the PGE power plant and combined heat and power plant installations were reduced by 9.5 million tonnes of CO₂, in relation to 2018 and 2017, which is about 15.7 percent of total CO₂ emissions. Such a reduction is associated with a reduction electricity production at PGE GiEK by approx. 10% last year when compared to 2018.

The CO₂ emission rate per unit of electricity produced is systematically lowered. A decrease in CO₂ emissions per unit [tCO₂ / MWh] can be observed as a result of investments aimed at increasing the share of low-carbon technologies in the portfolio of the Group's companies. Currently, for the entire PGE Capital Group (power plants and combined heat and power plants) the rate amounts to 0.84 t / MWh. The target set by the Group for 2025 is 0.78 t CO₂/MWh.

Remaining emissions

Emission of NO_x, SO₂ and other significant compounds emitted into the air by PGE GiEK and PGE EC in 2019.

PGE Górnictwo i Energetyka Konwencjonalna			
	2019	2018	2017
Weight of relevant air emissions [tonnes]			
NO _x	37,179	47,966	47,014
SO ₂	36,831	63,130	55,631
Suspended dust	1,324	2,492	2,145
Emission for net generated energy from all production capacities [kg/MWh]			
NO _x	0.86	0.89	0.89
SO ₂	0.85	1.18	1.05
Suspended dust	0.03	0.05	0.04
PGE Energia Ciepła			
	2019	2018	2017
Weight of relevant air emissions [tonnes]			
NO _x	12,120	9,453	14,667
SO ₂	9,689	7,330	7,710
Suspended dust	821	509	628
Emission for net generated energy from all production capacities [kg/MWh]			
NO _x	0.47	0.48	0.72
SO ₂	0.38	0.38	0.38
Suspended dust	0.03	0.03	0.03

The main goal of production processes, taking place in power plants, is to generate electricity and heat. Combustion of fuels releases substances contained in the fuel into the atmosphere, including sulfur dioxide, which – in further reactions – adversely affects the environment. The production of electricity and heat is accompanied by the flue gas desulphurization process based on wet technology. This technology is the safest in the power industry: it is qualified to be the best available technology on the market (BAT). The use of low sulfur fuel may be a complementary technique, but it is not sufficient to serve the desired purpose of reduction of SO₂ emissions. The final product of the flue gas desulphurization process in wet technology is gypsum (calcium sulfate) used in the construction industry, including the production of drywall. The plaster that arises in our flue gas desulphurization installations (IOS) has been registered in accordance with the REACH requirements at the EU ECHA Agency and – according to research results – can be safely sold for commercial use. Wet desulphurization installations are common in the power plants belonging to PGE GiEK (Bełchatów, Opole, Turów, Dolna Odra, Rybnik), as well as in PGE EC heat and power plants (Kraków, Wrocław, Gdańsk, Gdynia).

The increase in emissions at the PGE EC combined heat and power plants results from the acquisition of new units in January 2019 (earlier belonging to PGE GiEK).

Water and sewage management

Total water withdrawal for production purposes by source in 2019.

PGE Górnictwo i Energetyka Konwencjonalna			
	2019	2018	2017
Total volume of water taken for production purposes from the following sources [m³]	823,248,035	1,042,814,300	1,176,371,368
Surface waters, including land waters wetlands, rivers, lakes	821,829,162	1,040,611,060	1,174,331,818
Groundwater	1,204,452	1,713,527	1,365,177
Rainwater directly collected and stored by the organization	-	-	-
Sewage from other organizations	2,297	3,824	13,495
Municipal water supplies and supplies from other water companies	212,124	485,889	660,878

The decrease in water intake at PGE GiEK is a result of the optimization of water consumption and the recycling of water from earlier technological stages.

PGE Energia Ciepła			
	2019	2018	2017
Total volume of water taken for production purposes from the following sources [m³]	588,941,446	528,781,596	731,062,150
Surface waters, including land waters wetlands, rivers, lakes	578,765,341	524,456,463	726,729,661
Groundwater	8,417,680	2,901,560	2,892,267
Rainwater directly collected and stored by the organization	16,867	-	-
Sewage from other organizations	1,744	-	-
Municipal water supplies and supplies from other water companies	1,739,814	1,423,573	1,440,222

In 2019, in the case of PGE Energia Ciepła, the position "groundwater" also includes subsoil water, hence its value increases. Groundwater is taken up by the PGE branches in Kraków, Zgierz and Lublin, and on the Baltic Sea coast. Increased water consumption also results from the acquisition of companies previously owned by PGE GiEK.

PGE Energia Odnawialna			
	2019	2018	2017
Total volume of water taken for production purposes from the following sources [m³]	9,569,414,678	12,431,666,682	17,721,590,023
Surface waters, including land waters wetlands, rivers, lakes	9,569,400,094	12,431,621,231	17,721,580,762
Groundwater	5,228	37,415	3,381
Rainwater directly collected and stored by the organization	-	-	-
Sewage from other organizations	-	-	-
Municipal water supplies and supplies from other water companies	9,356	8,036	5,880

The PGE Group makes sure that the principles of Closed Circulation Economy are applied to the widest possible extent in water and sewage management. Repeated use of water collected from the environment has been going on for years, with guaranteed maintenance of required physical, chemical, and biological parameters.

The conditions for conducting water and sewage management are specified in relevant administrative decisions, mainly in integrated permits and water law permits. In the company's branches and subsidiaries, monitoring is carried out on an ongoing basis in terms of the quantity and quality of water and sewage discharged.

The production of technological water in the Group is based on both surface and underground waters (which are subjected to purification and improvement). In several plants, water is also taken from municipal water supply networks. Depending on the size of the plant, source and composition of raw water, different techniques for water preparation are used: decarburization, lime filtration, ion exchange, ultrafiltration, reverse osmosis, or electrodeionization. Complete in any case, the water preparation string combines several of the techniques listed above, which allows preparation of adequate quality water (often better than collected) for individual water and water-steam circuits. Waste products from the above treatment processes are still used in less demanding cycles.

At each stage of water preparation, particular attention is paid to its rational use. A great part of waste water generated during water preparation is recycled back to the processes.

Also, sewage generated in other installations, if their composition allows, is recycled in the process, for example:

- as a rule, hot waste water is recycled as a source for the water preparation process
- in many cases, rainwater or drainage water is reused to produce process water
- part of household sewage, after treatment, is used as a source of replenishment water in cooling systems and very soon treated wastewater from the municipal sewage treatment plant is going to be used as technological water
- waste water is also used for domestic water systems or for topping up ash removal and slagging systems.

PGE Energia Odnawialna draws water for the production of electricity in accordance with its water permits. Measurements of the amount of water taken are carried out on the basis of installed meters or based on real work of the power plant.

Total sewage volume by quality and destination in 2019.

PGE Górnictwo i Energetyka Konwencjonalna			
	2019	2018	2017
Real total amount of wastewater [m³]	21,856,562	16,409,935	20,188,192
Amount of wastewater:			
Going to water	21,838,460	16,226,412	19,681,161
Going to ground	-	-	452
Going to municipal enterprises – to sewage systems	18,102	183,523	506,579
Water from drainage of the mining plant / water	213,285,383	211,854,878	214,919,799
Cooling water from open cooling circuits, which do not require cleaning	706,037,989	916,984,342	1,054,634,377

PGE Energia Ciepła			
	2019	2018	2017
Real total amount of wastewater [m³]	13,856,612	9,052,857	10,442,419
Amount of wastewater:			
Going to water	7,570,498	4,925,721	7,349,568
Going to ground	-	-	-
Going to municipal enterprises – to sewage systems	1,356,110	598,577	2,153,594
Water from drainage of the mining plant / water	not applicable	not applicable	not applicable
Cooling water from open cooling circuits, which do not require cleaning	542,577,387	541,288,560	723,422,747

PGE Energia Odnawialna			
	2019	2018	2017
Real total amount of wastewater [m³]	107,699	283,790	224,798
Amount of wastewater:			
Going to water	99,636	279,028	220,607
Going to ground	-	-	-
Going to municipal enterprises – to sewage systems	8,063	4,762	4,191
Water from drainage of the mining plant / water	not applicable	not applicable	not applicable
Cooling water from open cooling circuits, which do not require cleaning	1,000	4,683	35,784

PGE Dystrybucja			
	2019	2018	2017
Real total amount of wastewater [m³]	617	1,352	1,034
Amount of wastewater:			
Going to water	52	303	133
Going to ground	565	1,049	901
Going to municipal enterprises – to sewage systems	-	-	-
Water from drainage of the mining plant / water	not applicable	not applicable	not applicable
Cooling water from open cooling circuits, which do not require cleaning	not applicable	not applicable	not applicable

The year 2019 was, and 2020 will be a period of optimizations, modernizations and building of new installations and research to adapt to the BAT conclusions. These activities directly affect the amount of wastewater. Additionally, this amount depends on the quality of the fuel burned, because the more pollution it contains, the more sewage is generated.

The PGE Group constantly monitors water and sewage parameters. The Company also uses probes and sensors, connected to servers and decision supporting systems, managing data in real time as well as integrating and modeling purification processes:

- wastewater from the flue gas desulphurization installation is treated in dedicated treatment plants and then directed to secondary use in technology; it can be pretreated in dedicated pretreatment plants and then directed to rainwater and industrial sewage systems and, through other industrial sewage networks, it gets to the final treatment plant,
- wastewater from the cooling circuit (desalinated water from cooling towers) is used in other processes on site, e.g. in flue gas desulphurization processes or slag transport,
- sewage from demineralization, ion exchange regeneration, ultrafiltration and reverse osmosis – including acid or alkaline sewage before discharge to the industrial sewage system – is neutralized (mutually) in chemical tanks, in the pretreatment unit,
- rainwater and snowmelt water that may contain petroleum substances – rainwater from the entire site, and oil management (engine rooms, area of electrostatic precipitators and transformers, carwash and depot area, workshop area and oil management) is pretreated in oil catchers. Waste water containing suspension is treated in separators of solid particles and in mud traps,
- sewage from carbon squares – the area around the squares is equipped with retaining walls, drainage channels and manholes septic tanks to discharge sewage from rainwater from the surface to the combined sewer system, side heaps of coal. They also perform separation (settling) functions for solid, lifted fractions through rainwater,
- rainwater from bowls under transformers is discharged into the industrial and rainwater sewage system. The oil pan is connected by pipeline with oil catcher and hydraulic lock. Before draining rainwater from the transformer area to the sewage network, the water is treated in an oil separator / trap with an integrated settler,
- rainwater from the roofs is caught and reused.

To reduce emissions to water from flue gas treatment, primary techniques are used, i.e. optimal combustion, non-catalytic / catalytic denitrification and secondary techniques, i.e. adsorption on organic carbon of organic compounds and mercury. Waste water from flue gas desulphurisation installations is treated using the best available technologies and techniques (e.g. reverse osmosis).

The technologies used in these treatment plants are designed to treat wastewater to a quality that meets the legal requirements, including environmental objectives defined for basic water management units under the name „Uniform Surface Water Parts”.

Currently, research is conducted on:

- selective removal of heavy metals from wastewater,
- selective removal of the rare earth elements from wastewater,
- the use of treated wastewater for reclamation and in agriculture,
- reducing the use of chemistry in the wastewater treatment process,
- reducing the use of chemistry in technological processes generating wastewater.

At PGE Energia Odnawialna, in order to effectively separate petroleum substances and thus eliminate the risk of possible oil drainage to water or soil, oil pans and separators are installed on wind farms, under transformers. Similar solutions used in PGE Dystrybucja facilities, where company transformers are protected in a similar way. In addition, the Solina branch has a sewage treatment plant for oily waters, purifying wastewater from oil derivatives.

Waste management

Total weight of waste by type of waste and methods of waste management in 2019.

PGE Górnictwo i Energetyka Konwencjonalna			
	2019	2018	2017
Amount of hazardous waste by the method of utilization [tonnes]	1,385	1,606	1,058
Recovery (including energy recovery)	523	602	521
Recycling	304	158	189
Mass burn	-	-	-
Disposal	188	183	216
Storage at landfills	38	177	27
Retaining on company's site and storage	323	821	105
Other (e.g. transfer to authorized recipients)	-	-	-
Amount of non-hazardous waste according to the utilization method [tonnes]	5,665,324	7,095,232	5,333,626
Recovery (including energy recovery)	1,714,784	2,089,246	1,994,905
Recycling	20,700	6,314	9,323
Mass burn	-	-	7
Disposal	9,558	3,027	14,393
Storage at landfills	3,938,929	4,949,595	3,238,673
Retaining on company's site and storage	1,951	53,363	76,325
Other (e.g. transfer to authorized recipients)	-	-	-

PGE Energia Ciepła			
	2019	2018	2017
Amount of hazardous waste by the method of utilization [tonnes]	4,691	80	67
Recovery (including energy recovery)	4,430	12	4
Recycling	36	59	46
Mass burn	-	-	-
Disposal	725	9	10
Storage at landfills	1	-	0.6
Retaining on company's site and storage	1.3	-	-
Other (e.g. transfer to authorized recipients)	0.2	0.3	6.8
Amount of non-hazardous waste according to the utilization method [tonnes]	366,606	423,674	571,048
Recovery (including energy recovery)	481,603	143,775	271,536
Recycling	4,718	261,792	282,192
Mass burn	85,459	-	-
Disposal	7,376	21	9
Storage at landfills	12,772	15,582	12,600
Retaining on company's site and storage	231	66	69
Other (e.g. transfer to authorized recipients)	219	2,409	4,621

PGE Energia Odnawialna			
	2019	2018	2017
Amount of hazardous waste by the method of utilization [tonnes]	11	24	102
Recovery (including energy recovery)	1	-	7
Recycling	-	-	-
Mass burn	-	-	-
Disposal	3	4	5
Storage at landfills	1.5	-	-
Retaining on company's site and storage	3.5	5	66
Other (e.g. transfer to authorized recipients)	2	15	24
Amount of non-hazardous waste according to the utilization method [tonnes]	213	79	193.5
Recovery (including energy recovery)	-	-	-
Recycling	-	-	0.3
Mass burn	2	-	-
Disposal	3	2	1.2
Storage at landfills	12	77	-
Retaining on company's site and storage	164	-	74
Other (e.g. transfer to authorized recipients)	32	-	118

The discrepancy between the sum of waste in PGE Energia Ciepła and its individual branches results from the fact that the Thermal Waste Conversion Installation with Energy Recovery in Rzeszów thermally processes mainly waste received, not made.

PGE Dystrybucja			
	2019	2018	2017
Amount of hazardous waste by the method of utilization [tonnes]	2,253	2,141	2,350
Recovery (including energy recovery)	-	-	-
Recycling	-	-	-
Mass burn	-	-	-
Disposal	-	-	-
Storage at landfills	-	-	-
Retaining on company's site and storage	-	-	-
Other (e.g. transfer to authorized recipients)	2,253	2,141	2,350
Amount of non-hazardous waste according to the utilization method [tonnes]	4,821	3,425	6,913
Recovery (including energy recovery)	-	-	-
Recycling	-	-	-
Mass burn	-	-	-
Disposal	-	-	-
Storage at landfills	-	-	-
Retaining on company's site and storage	-	-	-
Other (e.g. transfer to authorized recipients)	4,821	3,425	6,913

The formation of combustion by-products of (CBPs) is an unavoidable consequence of the production of electricity and heat in conventional power plants using fossil fuels. The management of combustion by-products, generated in fuel combustion processes, carried out in the PGE companies, is a multidirectional activity whose purpose is to use them as a substitute for natural resources. By promoting the idea of „priority for secondary” we save the consumption of natural raw materials (aggregates). The idea of using CBPs has been known in the energy sector for over 20 years. The company consistently improves and expands the scale of their use, conducts research, and looks for new applications. These activities confirm the European Union policy aimed at reusing CBPs, protecting natural resources, and minimizing adverse environmental impacts by limiting the amount of waste deposited in landfills.

Production processes are successively analyzed for the selection of technological solutions that enable the recycling of as wide a stream of combustion by-products as possible rather than their storage. The design and implementation of installations enabling the quality parameters of post-production minerals to be obtained already at the stage of fuel combustion gives wider possibilities for their subsequent use. This approach is a part of the concept of the Road Map towards a circular economy, prepared at Ministry of Development and proposed as a pattern for the national implementation of the Circular Economy Model (in Polish “GOZ”: Gospodarka o obiegu zamkniętym).

The main waste streams generated in the PGE installations are waste and by-products of combustion from fuel burning and fumes after-treatment. Waste and by-products of combustion are managed in accordance with the directions specified in relevant permits and decisions. In addition to depositing them in furnace waste landfills or temporarily in waste warehouses, these substances – due to their desired properties – are widely used in the cement industry, construction, and road construction. Because they meet certain parameters, some combustion products are considered to be by-products and are not classified as waste.

In 2019, PGE Energia Ciepła increased the amount of hazardous waste due to the launch of the IMOS installation (wet desulphurization installation) and the acquisition of new plants (formerly owned by PGE GiEK). IMOS is the best known and effective method of SO₂ removal from flue gas. It is a technological system based on the wet lime-gypsum. In this technology, limestone powder is most often used as a sorbent, and – as a result of the reaction with water – gypsum (calcium sulfate) is formed. This product is suitable for further industrial use, for example in the construction industry, in the production of drywall gypsum.

At the PGE Capital Group, waste management is carried out in accordance with the permits for waste generation. At PGE Energia Odnawialna, the amount of waste generated in a given calendar year depends on the amount necessary to carry out service inspections or unforeseen failures. The generated waste is transferred to qualified and authorized recipients – companies that specialize in waste management and have qualifications to conduct such processes, as required by law in this respect.

All waste generated by PGE Dystrybucja in 2019 was transferred to authorized recipients for management. The amount of generated waste depends on the scope of works on the power grid, occurrence of failures, and investments.

Monetary value of fines and total number of non-monetary sanctions for non-compliance with laws and regulations regarding environmental protection in companies with the greatest impact on the environment [PLN].

PGE Energia Ciepła [Heat Energy]		
	2019	
Value of fines imposed and paid in a given year for non-compliance with laws and regulations regarding environmental protection	7,999	In 2018, an administrative penalty was imposed on the PGE EC Lublin for excessive dust emissions into the air, which occurred in 2018. PGE EC has taken measures to postpone the payment of the penalty and to pass it to ongoing modernization measures aimed at reducing dust emissions.
	500	The Bydgoszcz Branch – for late submission of the report resulting from art. 75 of the Waste Act
PGE Górnictwo i Energetyka Konwencjonalna [Mining and Conventional Energy]		
	2019	
Value of fines not yet imposed but estimated for non-compliance with laws and regulations regarding environmental protection	84,157	<p>PLN 62,157 - relates to the estimated penalty for exceeding noise emission standards in Kamień (KWB Bełchatów)</p> <p>PLN 22,000 - amount estimated by PGE GiEK Branch Turów Power Plant. Applies to the notification of the initiation of administrative proceedings regarding the imposition of a penalty for exceeding 0.00411kg / h of permissible mercury emission from power unit No. 5 for the period from November 29 to December 31, 2017</p>

In 2019, an administrative penalty was imposed for oversized dust emissions into the air at PGE EC Lublin, which occurred in 2018. PGE EC has taken actions to postpone the date of payment of the financial penalty, trying to pass the penalty towards ongoing modernization activities aimed at reducing dust emissions. As part of the implementation tasks in 2019, the filter bags were replaced in bag filters on WP-120 boilers used in the process of dedusting flue gas from water boilers, which allowed to improve the efficiency of flue gas dedusting.

Indicators in the area of environmental issues in the PGE Company

The following indicators present our approach to managing environmental impact in terms of energy, water and paper consumption at the PGE headquarters.

Annual electricity consumption at the PGE headquarters [MWh]			
	2019	2018	2017
Energy for administrative purposes	1,698	1,864	1,701
Energy for administrative and technical purposes (servers)	1,022	1,084	1,192
Annual heat consumption at the PGE headquarters [GJ]			
	2019	2018	2017
Annual heat consumption	6,675	6,940	7,414
Annual heat consumption [GJ/m ³]	0.06	0.06	0.07
Annual consumption of paper sheets at the PGE headquarters [A4 format]			
	2019	2018	2017
Office print paper	1,139,950	1,019,889	1,100,964
Consumption of office print paper (per person)	1,768	1,800	2,126
Annual water consumption and sewage disposal at the PGE headquarters [m ³]			
	2019	2018	2017
Annual water consumption and sewage disposal	7,391	7,301	6,284
Annual water consumption and sewage disposal (per person)	11.47	12.88	12.14
Annual toner consumption at the PGE headquarters [pcs.]			
	2019	2018	2017
Annual toner consumption	173	135	173
Annual toner consumption (per person)	0.26	0.24	0.33
Energy-saving LED luminaries at the PGE headquarters [%]			
	2019	2018	2017
LED luminaries	65	60	40

Selected indicators in the area of labor laws and issues in the PGE Group and the PGE Company

Number of employees by type of employment and contract by gender (in persons). As on December 31.

The PGE Group						
	2019		2018		2017	
Total number of employees	42,280		41,763		41,629	
	F	M	F	M	F	M
Total number of employees by gender	8,704	33,576	8,522	33,241	8,445	33,184
full time	8,613	33,462	8,429	33,133	8,358	33,092
part time	91	114	92	106	87	92
Job contracts						
indefinite period of time	7,590	30,835	7,601	30,986	7,510	30,899
fixed-term	1,114	2,741	920	2,253	936	2,285
Contracts / task contracts	283	507	384	582	344	475
Number of self-employed workers	0	22	2	22	8	17
The ratio of self-employed workers to all employees	0%	0.07%	0.02%	0.07%	0.09%	0.05%

The PGE Company						
	2019		2018		2017	
Total number of employees	667		628		536	
	F	M	F	M	F	M
Total number of employees by gender	331	336	313	315	261	275
full time	322	327	301	307	249	268
part time	9	9	12	8	12	7
Job contracts						
indefinite period of time	311	308	296	291	248	261
fixed-term	20	28	17	24	13	14
Contracts / task contracts	4	5	4	11	4	1
Number of self-employed workers	0	0	0	0	0	0
The ratio of self-employed workers to all employees	0%	0%	0%	0%	0%	0%

Number of employees covered by the collective agreement. As on December 31.

The PGE Group			
	2019	2018	2017
Number of employees	42,280	41,763	41,629
Number of employees covered by the collective agreement	32,339	31,393	32,137
Percentage of employees covered by the collective agreement (in relation to all employees)	76%	75%	77%

The PGE Company			
	2019	2018	2017
Number of employees	667	628	536
Number of employees covered by the collective agreement	1	4	508
Percentage of employees covered by the collective agreement (in relation to all employees)	0%	1%	95%

Number and share of newly recruited employees and employees who left the job by gender and age (in persons). As on December 31.

The PGE Group														
2019					2018					2017				
F	M	<30 years	30-50 years	>50 years	F	M	<30 years	30-50 years	>50 years	F	M	<30 years	30-50 years	>50 years
Total number of newly recruited employees														
3,040					2,785					3,507				
1,065	2,935	1,274	2,221	465	855	2,022	1,020	1,578	278	891	2,616	991	1,766	750
Share of newly recruited employees														
7%					7%					8%				
3%	7%	3%	5%	1%	2%	5%	2%	4%	1%	2%	6%	2%	4%	2%
Total number of employees who left the job														
2,711					2,688					2,564				
698	2,080	398	887	1,493	774	1,960	363	910	1,461	699	1,865	357	965	1,242
Share of employees who left the job														
6%					6%					6%				
2%	5%	1%	2%	4%	2%	5%	1%	2%	3%	2%	4%	1%	2%	3%
The PGE Company														
2019					2018					2017				
F	M	<30 years	30-50 years	>50 years	F	M	<30 years	30-50 years	>50 years	F	M	<30 years	30-50 years	>50 years
Total number of newly recruited employees														
77					81					79				
36	41	31	43	3	39	42	28	46	7	33	46	25	51	3
Share of newly recruited employees														
12%					13%					15%				
5%	6%	5%	6%	0%	6%	7%	4%	7%	1%	6%	9%	5%	10%	1%
Total number of employees who left the job														
40					49					64				
16	24	9	24	7	20	29	11	26	12	25	39	14	34	16
Share of employees who left the job														
6%					8%					12%				
2%	4%	1%	4%	1%	3%	5%	2%	4%	2%	5%	7%	3%	6%	3%

Average number of training days in a year per employee, by gender and employment structure (in persons). As on December 31.

The PGE Group						
	2019		2018		2017	
The total number of training days in a year	48,488		53,551		55,631	
Average number of training days in the reported period per employee	1.1		1.3		1.3	
Average number of training days per employee	2.2		2.8		2.6	
	F	M	F	M	F	M
by gender	1.1	1.1	1.5	1.3	1.6	1.4
Senior management (Board and Directors)	7.1		4.8		5.6	
Managerial positions	2.4		3.4		3.6	
Other employees	1		1.1		1.3	
The PGE Company						
	2019		2018		2017	
The total number of training days in a year	2,481		1,597		1,012	
Average number of training days in the reported period per employee	3.7		2.5		1.9	
Average number of training days per employee	3.8		2.7		1.9	
	F	M	F	M	F	M
by gender	3.4	4	2.9	3.3	2.3	2.5
Senior management (Board and Directors)	6.6		2.9		4.5	
Managerial positions	4		3.7		3.6	
Other employees	3.3		2.3		2.1	

Percentage of employees subject to regular job quality reviews and career development reviews by gender. As on December 31.

The PGE Group						
	2019		2018		2017	
Percentage of employees subject to regular job quality reviews	23.5%		23.5%		28.8%	
Number of employees receiving regular assessments results of their work	9,923		9,804		11,991	
	F	M	F	M	F	M
by gender	2,899	7,024	2,764	7,039	2,989	9,002
Number of managers / directors (managerial positions, names may vary depending on the company)	1,256		1,072		1,185	
Percentage of employees receiving regular assessments their work (women and men combined – % of the total number of all employees)						
Women (% of women in all women)	33.3%		32.1%		35.4%	
Men (% of men in all men)	20.9%		21.1%		27.1%	
Directors, managers	43.7%		37.2%		41.3%	
The PGE Company						
	2019		2018		2017	
Percentage of employees subject to regular job quality reviews	100%		100%		100%	
Number of employees receiving regular assessments results of their work	667		628		536	
	F	M	F	M	F	M
by gender	331	336	313	315	261	275
Number of managers / directors (managerial positions, names may vary depending on the company)	156		153		117	
Percentage of employees receiving regular assessments their work (women and men combined – % of the total number of all employees)						
Women (% of women in all women)	100%		100%		100%	
Men (% of men in all men)	100%		100%		100%	
Directors, managers	100%		100%		100%	

Makeup of management, supervisory bodies, and staff divided by categories of gender and age. As on December 31.

The PGE Group															
		2019					2018					2017			
F	M	<30 years	30-50 years	>50 years		F	M	<30 years	30-50 years	>50 years	F	M	<30 years	30-50 years	>50 years
Number of people on the Board															
		95					86					90			
8	87	0	55	38		7	79	0	47	39	7	83	1	46	43
Number of people on the Supervisory Board															
		190					181					165			
57	133	3	128	57		52	129	0	123	58	43	122	1	112	52
Total number of employees															
		42,280					41,763					41,629			
8,704	33,576	3,457	20,640	18,183		8,522	33,241	3,041	20,856	17,866	8,445	33,184	2,902	21,196	17,521
Percentage of people on the Board															
8.4%	91.6%	0%	57.9%	40%		8.1%	91.9%	0%	54.7%	45.3%	7.8%	92.2%	1.1%	51.1%	47.8%
Percentage of people on the Supervisory Board															
30%	70%	1.6%	67.4%	30%		28.7%	71.3%	0%	68%	32%	26.1%	73.9%	0.6%	67.9%	31.5%
Percentage of employees															
20.6%	79.4%	8.2%	48.8%	43%		20.4%	79.6%	7.3%	49.9%	42.8%	20.3%	79.7%	7%	50.9%	42.1%

The PGE Company														
2019					2018					2017				
F	M	<30 years	30-50 years	>50 years	F	M	<30 years	30-50 years	>50 years	F	M	<30 years	30-50 years	>50 years
Number of people on the Board														
6														
0	6	0	2	4	0	6	0	2	4	0	6	0	2	4
Number of people on the Supervisory Board														
8														
2	6	0	4	4	2	6	0	4	4	2	4	0	1	5
Total number of employees														
667														
331	336	78	499	90	313	315	96	448	84	261	275	89	369	78
Percentage of people on the Board														
0%	100%	0%	33.3%	66.7%	0%	100%	0%	33.3%	66.7%	0%	100%	0%	33.3%	66.7%
Percentage of people on the Supervisory Board														
25%	75%	0%	50%	50%	25%	75%	0%	50%	50%	33.3%	66.7%	0%	16.7%	83.3%
Percentage of employees														
49.6%	50.4%	11.7%	74.8%	13.5%	49.8%	50.2%	15.3%	71.3%	13.4%	48.7%	51.3%	16.6%	68.8%	14.6%

Implementation of the Voluntary Leave Program ("Program Dobrowolnych Odejść") in the PGE Group and the PGE Company (number of people).

The PGE Group			
	2019	2018	2017
The Voluntary Leave Program	26	88	312
The PGE Company			
	2019	2018	2017
The Voluntary Leave Program	0	0	0

Type and rate of injuries and absences from work, and the total number of work-related accidents, by company and gender. Period: January 1 – December 31.

The PGE Group						
	2019		2018		2017	
	F	M	F	M	F	M
The total number of all accidents at work	171		155		184	
by gender						
	15	158	16	140	20	173
Fatal accidents	1		0		1	
	0	1	0	0	0	1
Collective accidents	2		1		6	
	0	4	0	2	1	14
Severe accidents	2		2		0	
	0	2	0	2	0	0
Light accidents	166		152		177	
	15	151	16	136	19	158
Accident frequency indicator *	2.8		2.7		3.9	
Accident severity rate **	21.4		24		28.6	
Absenteeism rate ***	12,445		10,608		12,239	
	1,556	10,889	1,129	9,423	1,165	11,074

The PGE Company						
	2019		2018		2017	
	F	M	F	M	F	M
The total number of all accidents at work	0		1		0	
by gender						
	0	0	0	1	0	0
Fatal accidents	0		0		0	
	0	0	0	0	0	0
Collective accidents	0		0		0	
	0	0	0	0	0	0
Severe accidents	0		0		0	
	0	0	0	0	0	0
Light accidents	0		1		0	
	0	0	0	1	0	0
Accident frequency indicator *	0		1.6		0	
Accident severity rate **	0		0		0	
Absenteeism rate ***	0		0		0	
	0	0	0	0	0	0

* Index calculated according to the formula: number of accidents in a given year divided by number of employees (as at the end of a given year) and multiplied by 1000 – in relation to PGE Group companies
 ** Index calculated according to the formula: total number of days of inability to work of victims of accidents at work divided by number of victims in accidents at work (excluding persons injured in fatal accidents) – in relation to PGE Group companies
 *** Total number of days of absence due to accidents at work (counting calendar days) – in relation to PGE Group companies

Selected indicators in the area of social issues in the PGE Group

We place great emphasis on the quality of customer relationships. In companies where employees have direct contact with the customer (PGE Obrót, PGE Dystrybucja, PGE Energia Ciepła) we have developed and implemented relationship management policies and standards in this area. In the area of distribution, the implemented investments are aimed at increasing delivery reliability and reducing SAIDI and SAIFI indicators.

The PGE Group and the PGE Company own indicators regarding social issues are presented in the chapter: „Social awareness”.

Operational data	2019	2018
SAIDI indicator (in minutes) (average duration of electrical power outages), including:	261	299
Planned	58	87
Unplanned and related to disasters	203	212
SAIFI indicator (times) (average frequency of interruptions in electrical energy supply), including:	3.88	3.92
Planned	0.31	0.47
Unplanned and related to disasters	3.57	3.45

Selected indicators in the area of human right and counteracting corruption in the PGE Group and the PGE Company

Compliance structures – which include anti-mobbing policy, cooperation issues between employees and counteracting corruption – functioned in 24 companies of the PGE Group, as on December 31, 2019. These were PGE SA, PGE GiEK, PGE Energia Ciepła, PGE Energia Odnawialna, PGE Dystrybucja, PGE Obrót, PGE EJ1, PGE Nowa Energia, PGE Synergia, PGE Systemy, PGE Ventures, PGE Baltica, PGE Centrum, PGE Dom Maklerski, Bestgum, Betrans, Elbest Security, Elbis, Elbest, Elmen, Eltur Serwis, MegaSerwis, Megazec, and Ramb. Employee training took place in each of them, touching on the problems of human rights policies and procedures. Additionally, the companies have been rated for corruption cases.

Due to the fact that the total number of people employed in these companies accounts for 96.6% of all employees of the Group, the following ratios have been included as aggregated data (for the PGE Group).

Employee trainings in the PGE Group companies in the field of human rights policy and procedures that take into account aspects of human rights.

The PGE Group	
Total number of hours of completed training	468
Number of trained employees	39,582
Rate of trained employees	97%
The PGE Company	
Total number of hours of completed training	9
Number of trained employees	610
Rate of trained employees	95%

Trainings on the Code of Ethics, including a training module on respect for human rights, are organized in the PGE Group once every three years. Each employee who passes the exam at the end of the training receives a certificate. The document is valid for 3 years from the date of completing the training. The number of employees trained in a given company equals the number of employees who have a valid certificate.

Total number and percentage of companies assessed for corruption.

	2019
Number of companies assessed for corruption risk	24
Percentage of companies assessed for corruption risk	100%

Trainings on anti-corruption policies and procedures.

The PGE Group	
Percentage of Management Board and Supervisory Board members who underwent training on counteracting corruption	89%
Percentage of employees who have undergone training on counteracting corruption	72%
Percentage of employees in managerial positions who have undergone training on counteracting corruption	70%
Percentage of other employees who have undergone training on counteracting corruption	97%
The PGE Company	
Percentage of Management Board and Supervisory Board members who underwent training on counteracting corruption	100%
Percentage of employees who have undergone training on counteracting corruption	95%
Percentage of employees in managerial positions who have undergone training on counteracting corruption	98%
Percentage of other employees who have undergone training on counteracting corruption	95%

PGE is the first and only energy company in Poland (as on March 31, 2020), which participated in the first edition of the Impact Barometer survey. It is a pioneering tool on the Polish market, used to measure the business contribution to the Agenda for sustainable development 2030.

The Impact Barometer

The idea of the Impact Barometer was conceived in cooperation with the Central Statistical Office. 51 experts from 31 institutions were involved in its creation. The analysis of joint results of Polish businesses will allow to examine the progress in implementing the Sustainable Development Goals, which were selected by the Council of Seventeen. This is a group of 17 experts and key opinion leaders from various spheres: science, NGOs, public institutions, and businesses. On the basis of a comprehensive analysis, the Council identified 6 areas (among 17 existing areas) as the priority Sustainable Development Goals for Polish business:

- Goal # 3: Good health and quality of life
- Goal # 4: Good quality education
- Goal # 5: Gender equality
- Goal # 8: Economic growth and decent work
- Goal # 9: Innovation, industry, and infrastructure
- Goal # 12: Responsible consumption and production

Using the predefined indicators the Impact Barometer tests how the company contributes to these six key areas. The joint result of Polish companies will be presented on the Campaign's website: <https://kampania17celow.pl/>.

The impact of the company on implementing the Sustainable Development Goals

	Goal #3	Ensure a healthy life for all people of all ages and promote well-being
	Indicator	Indicator for Polish business Company's indicator
	3.1	Average expenditure on employee's health 321.23 zł
	Goal #4	Ensure high quality education for all and promote lifelong learning
	4.1	Average number of training hours per employee 9
	4.2	Number of pupils and students covered by the company's activities focused on the education process in relation to the number of employees 45.03 %
	4.3	Percentage of employees trained in the area of sustainable development 6.67 %
	4.4	Percentage of employees involved in initiatives supporting sustainable development 17.86 %
	4.5	Number of people covered by education on sustainable development in relation to the number of employees 2,157.77 %

	Goal #5	Achieve gender equality and empower women and girls
	Indicator	Indicator for Polish business Company's indicator
	5.1	Percentage of women in managerial positions 23 %
	5.4	Percentage of employees trained in counteracting mobbing, sexual harassment, violence or discrimination 9 %

	Goal #8	Promote constant, inclusive and sustainable economic growth, full and productive employment and decent work for all people
	8.2	Percentage of employees working on contract basis 98.12 %
	8.5	Staff turnover 2.83 %
	8.6	Percentage of persons with disabilities among employees 1.51 %
	8.7	The ratio of reported violations of the Code of Ethics to the number of employees 0.44 %
	8.8	Percentage of purchases whose suppliers have been verified in the field of CSR criteria 100 %

	Goal #9	Build disaster-resistant infrastructure, promote inclusive and sustainable industrialization and support innovation
	9.1	Expenditure on innovation activities in relation to revenue 4.5 %
	9.2	Percentage of expenditure allocated to sustainable solutions within expenditures on innovative activities 97.5 %
	9.4	Number of research projects carried out in cooperation with scientific institutions in the last three years 26

	Goal #12	Ensure sustainable consumption and sustainable production patterns
	12.2	Energetic efficiency 10.89 %
	12.4	Greenhouse gas emissions 61,489,339
	12.6	Percentage of recycled or reused waste 50.86 %



THE WIND FARM "LOTNISKO", PGE ENERGIA ODNAWIALNA

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