# Integrated report PGE Polska Grupa Energetyczna 2021



Leading in the green transition

# Letter of the CEO





#### Dear Readers,

I present to you PGE Group's latest Integrated Report. The Report, which has become one of the cornerstones of our communication with stakeholders, shows not only PGE's current activities but, and most importantly, the changes taking place in our Group.

The energy transition is a process that is transforming not just PGE but the entire Polish economy, and one that has an impact on the society. This is why transparent information on the course of this process and support for the society in this change are so important. This is what we stand for as the leader of the green transition.

This responsible role that we have assumed also requires us to listen to our surroundings. And this report shows that we are listening. It is the result of dialogue sessions in which nearly 80 representatives of various communities expressed their expectations towards PGE. These include local communities, customers, employees, institutions and counterparties. This is exceptionally important to us because, in following our growth strategy and executing our investments, we view our activities through more than just the business aspect.

We are focusing on sustainability and improving our organisation so as to tackle the challenges of a changing Poland and a changing world.

I invite you to read the report and share with us your observations about our Group's activity. This will allow us to jointly create an environment that is based on partnerships and one that maximises benefits for all participants.

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**Wojciech Dąbrowski** CEO PGE Polska Grupa Energetyczna SA



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# DIRECTION PGE 2050

Business activity Education

## **Direction: climate neutrality**

GRI: Own indicator (Implementation of the strategy), Own indicator (Climate awareness), 103 (305)

 

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Changes in the environment and, most importantly, societal expectations define the vision for the energy sector. PGE is the leader of the transition and modernisation of the energy sector in Poland and supports the development of a market environment conducive to the energy transition. A socially equitable decarbonisation with the target of achieving climate neutrality in 2050 is the basis for our actions.

## Decarbonisation roadmap

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Direction PGE 2050

We have announced climate neutrality by 2050 as a target. We will achieve sustainable decarbonisation by changing generation technologies, expanding renewable capacity and enabling customers to participate in the energy transition through attractive product offerings.



\*assuming the separation of the coal portfolio from the PGE Capital Group

\*\*investment in new deposits (Złoczew, Gubin) is the decision of the new enitity





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## Strategic objectives en route to zero emissions



2.5 GW (2030) >6.5 GW (2040) Offshore wind capacity



>1 GW (2030) Onshore wind capacity



0.8 GW (2030) Energy storage



50%

85% Zero – and low-emission sources (2030)

Share of renewable energy in portfolio (2030)



and businesses.

>3 GW (2030) Photovoltaics capacity

**Energy and economic security** 

A systematic increase in the share of renewable capacities and diversification of the fuels used is at the same time

a way to increase Poland's energy security through

independence from fossil fuels and the costs of CO<sub>2</sub>

An active investment process being pursued by PGE, with the simultaneous operation of the conventional base

of the power system in the new ownership structure with

the dominant role of the State Treasury, is a guarantee of uninterrupted electricity and heat supply. In this way,

the energy transition will be implemented in a socially

responsible manner and will aim to ensure the lowest

possible costs for energy users in Poland.

emissions burdening the bills of Polish households

## **Climate neutrality** as a development opportunity

Changes in the environment are not only a threat and a challenge for the sector but also an opportunity to provide an investment stimulus for the economy through the construction of new generating sources and the modernisation of energy infrastructure. The transition of the energy sector should translate into economic development, sustainable growth for companies and cities as well as an equitable transition of regions hitherto associated with coal mining.

It is also an opportunity to build a new business profile and create lasting value for PGE Group in both economic and social terms.

## Strategy #PGE2050: Climate neutrality in 2050



Business activity Education

## Strategy implementation

GRI: Own indicator (Strategy implementation)

Direction PGE 2050



Key performance indicators (KPIs) are determined in alignment with the strategic objectives contained in PGE Group's Strategy to 2030 with an Outlook to 2050. They are then translated into specific measures implemented by the Group.

The Group's strategic priorities translates into:



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generation of environmentally friendly energy



efficient and effective functioning of the Group

This way, a direct link is made between strategic objectives and the bonus system. We present the key activities implemented and indicators related to the implementation of the Strategy in 2021 against the background of the strategic objectives:

## Strategy implementation – Key actions in 2021

#### Leader of sustainable energy transition

#### Environmentally friendly energy



Evolution of the generating portfolio towards renewable units and the lack of investment in new mining and coal production

### >70% till 2030

#### Share of zero – and low-emission sources in heat production

- Nowa EC Czechnica start of construction of gas CHP
- EC Gdansk launch of new peak sources
- EC Bydgoszcz construction of new gas boiler
- EC Rzeszow preparation of new waste to energy projects
- EC Gdynia, EC Gorzow, EC Lublin, EC Zgierz, EC Kielce preparation of construction of new installations

## >3 GW until 2030

#### PV program

- Installed capacity in 2021: 4 MW, 18 MW under construction
- Auctions won in 2021: 23 projects with a total capacity of 46 MW
- Land secured: potential for 2.000 MW
- Capacity covered by construction permits: approx. 170 MW

## >2.5 GW in 2030 >6.5 GW in 2040

#### Offshore in the Baltic Sea

- Start of tender for delivery of turbines
- Execution of agreements on connection to transmission grid
- Launch of individual negotiations with European Commission regarding determining an individual price in a contract for difference
- Signing of letter of intent to establish service hub in the Sea Port in Ustka

### >1 GW in 2030

#### Development of onshore wind farms

- Capacity of projects in the pipeline: approx. 150 MW
- Analysis of opportunities for development of own projects at PG Group's locations: approx. 50 MW
- Analysis of acquisition projects: approx. 100 MW
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#### Modern energy services



Maintaning the highest level of customer satisfaction on the energy market

## 0.8 GW till 2030

#### Construction of energy storage systems

- Entry of Góra Żar energy storage system into operation (500 kW)
- Development of hybrid energy storage project in Żarnowiec (200 MW)
- Identification of energy storage projects integrated with renewable energy sources – 79 MW and distribution grids – 8 MW
- Analysis on the possibility of building a pumped-storage facility in Młoty (750 MW)

#### + PI N 0.4 bn

#### Increase of profitability of energy services

• Connection of new customers to district heating network (+240 MWt)

### 1 GW in merket services

#### Access to green energy for PGE Group customers

- Roll out of retail product offering (including photovoltaics for retail customers)
- Implementation of a RES energy sales model in the PA formula
- "Naturally, it's energy" product offering (approx. 2.9 TWh in 2021)

## + PLN 0.7 bn FCFF

#### Support in developing a SO regulatory model that guarantees meeting the challenges of transition

• Increased coverage of operating costs in SO tariff (92% in 2021 compared to 85% in 2020)

#### Efficient and effective organisation



Effective cooperation of qualified staff and integrated ICT systems will allow to improve productivity and cost-effectiveness

## 5% till 2025

#### **Optimisation of asset maintenance costs**

- Transition to gas fuel in district heating
- Use of autonomous drones and robots for inspection works at wind farms and hydropower plants

#### Unified organisational structure and management system

• Selection of key performance indicators (KPIs) based on the PGE Group's strategy – direct link between strategic objectives and the bonus system

## 25% till 2030

#### 25% of financing for investment program raised from preferential sources

• Approx. PLN 456 million in financing raised, including PLN 131 million in grants

## >25% till 2030

#### **Reduction of fixed costs**

- Signed agreement to sell stake m PGE EJ 1
- Consolidation of district heating assets
- Sale of Elbest
- Implementation of electronic procurement processes

#### 100% till 2030

#### Enhanced capability in remote customer service

- Expansion of electronic contact and sales channels (eBOK)
- Nearly 1 million customers using electronic invoices
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## Coal asset spin-off



It is our duty to ensure that the energy sector delivers a stable and secure supply of electricity to our consumers, because energy security and access to energy is the basis for the functioning of society as well as the entire economy and, ultimately, the entire state. For this reason, we are intensively working on the integration of the coal-based power sector. On the one hand, this will make it possible to speed up the deployment of investments by energy companies in RES, and on the other hand to improve the management of the coal-



based power sector, which remains the basis for electricity generation and the guarantor of security.

#### Ryszard Wasiłek

<sup>′</sup> Vice-President of the Management Board for Operations, PGE Polska Grupa Energetyczna

In March 2022, the government adopted a program to transform the electricity sector and spin off coal assets from energy groups. As a result, coal-fired power plants and lignite mines will be grouped in a separate entity with a 100% State Treasury ownership (National Energy Security Agency – NABE). This will allow PGE to focus on development in line with the Strategy in areas changing the face of the Polish energy sector – primarily renewable energy, energy distribution and decarbonisation of the heating sector. At the same time, concentration of generation within a single entity will secure Poland's energy security and an uninterrupted energy transition process.

Acquisition by the State Treasury from PGE Polska Grupa Energetyczna S.A, ENEA S.A, ENERGA S.A., TAURON Polska Energia S.A. of all assets related to power generation at hard coal – and lignite-fuelled power plants, including service companies providing services to them.

#### Highlights of the process:

- Due to the inseparability of lignite-fuelled energy complexes, the assets to be acquired will also include lignite mines
- Coal mining assets will not be integrated into the coalfired generation entity
- District heating assets in connection with planned upgrades to low – and zero-carbon sources will not be subject to the spin-off

#### Transfer of assets:

- The acquisition may take place through the purchase of shares of individual companies directly by the State Treasury and their subsequent consolidation within NABE or through conditional acquisition of shares of companies by PGE Górnictwo i Energetyka Konwencjonalna S.A. (PGE GiEK), subject to the acquisition of PGE GIEK shares by the State Treasury. The choice of transaction model will depend on the results of conducted analyses
- The acquisition will be preceded by an internal reorganisation of the energy groups.

#### Operation of NABE:

- NABE will be a fully self-sufficient entity, i.e. it will be able to provide itself with all the internal and external functions necessary for smooth operations, i.e. HR, IT, purchasing, trading
- NABE will focus on maintenance and modernisation investments necessary to maintain the efficiency of the coal units in operation, including those aimed at decarbonising the units in operation
- NABE will support a safe and sustainable transition due to the provision of the power needed to balance the National Electricity System.

## Coal carve-out timeline





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Business activity Education

## **Business model evolution**

GRI: GRI 102-1, 102-2, 102-7, 103, 201-1



## We are the biggest vertically-integrated producer and supplier of electricity and heat in Poland. We are changing and so is the Group's structure and our impact on the environment.

## From production to delivery to customers

We operate across the entire energy value chain. We produce electricity and heat at our power plants and CHPs from both fossil fuels and renewable energy sources. We then supply and sell these to our customers throughout Poland, both households and businesses, institutions and local authorities. We also provide additional services in the field of energy. Our activities are complemented by our activities in the area of circular economy. We exploit the potential of by-products arising in production processes.

## Main assets of the PGE Capital Group\*



## Building sustainable value

Along with progress in implementing PGE Group's Strategy and the government's plan to spin off coal assets, our model will change – from its key role as an electricity generator, PGE will become primarily an energy distributor. Only with the implementation of investments in new generation sources, especially offshore wind farms, will PGE's generating potential be rebuilt. In a changing organisation, capitals and their effects will also evolve.



## Growth in social and economic value



Growth in social and economic value

Direction PGE 2050 Sustainable investments

ESG – Foundation of Development

Business activity

Input	2021	2030
Human capital	<ul> <li>Number of employees: 38 299 people</li> <li>Employee volunteering</li> <li>Management of diversity</li> <li>Social dialogue</li> </ul>	<ul> <li>Employees: decrease in employment as a result of the spinoff of PGE GIEK and demographic and digitalisation trends</li> <li>Further development of employees focused on the area of renewable energy and modern energy services</li> </ul>
Intellectual capital	<ul> <li>Research and Development Centre for Circular Economy</li> <li>Research and development programs</li> <li>Cooperation with scientific institutions</li> </ul>	<ul><li>100% remote customer service capability</li><li>Automation and digitalisation of processes</li></ul>
Natural capital	<ul> <li>Lignite output 47.2 million tonnes</li> <li>Wind power capacity 688 MW</li> <li>Volume of water used for generation purposes at hydropower stations 25,130 million m<sup>3</sup></li> </ul>	<ul> <li>No coal mining activities</li> <li>Wind power capacity additional 1 GW</li> <li>Photovoltaic capacity &gt; 3 GW</li> <li>Offshore wind farms in the Baltic Sea 2.5 GW by 2030 and 6.5 GW by 2040</li> </ul>
Financial capital	<ul> <li>Equity PLN 48.3 billion</li> <li>Cash PLN 6.5 billion</li> <li>Available credit lines PLN 9.6 billion</li> </ul>	<ul> <li>Share of support funds in PGE Group's financing needs at 25%</li> <li>Investments in the project finance formula</li> <li>Use of the potential of green debt financing</li> <li>Funds from equity issue of PLN 3.2 billion</li> </ul>
Production capital	<ul> <li>Installed electricity capacity Conventional Generation 12 852 MW</li> <li>Installed electricity capacity Renewables segment 2 331 MW</li> <li>Installed thermal power District Heating segment 6,842 MWt</li> <li>Length of distribution network 297,029 km</li> </ul>	<ul> <li>Spin-off of coal assets (-12.8 GW)</li> <li>Change in energy mix towards low – and zero-emission sources</li> <li>Conversion of CHP plants to gaseous fuels and biomass, use of electrode boilers and large-scale heat pumps</li> <li>Development of distribution networks to make full use of distributed sources</li> </ul>
Social capital	<ul> <li>Just Transition for mining regions</li> <li>PGE Group Code of Ethics in relations with counterparties</li> <li>Involvement in charitable activities (PGE Foundation)</li> <li>Sponsoring culture and sport</li> <li>Nurturing national identity</li> </ul>	<ul> <li>Clean air and water. Cooperation in programs to combat smog.</li> <li>Cooperation with energy communities</li> <li>Building awareness and public engagement on the energy transition – "Leading the green change"</li> <li>Stakeholder education on the energy transition</li> </ul>

Outcome	2021	2030
Outcomes for employees	<ul> <li>Total number of training days 50 034</li> <li>Cost of employee benefits PLN 5,098 million</li> <li>Competence Development Centre</li> </ul>	<ul> <li>Provision of a modern and friendly working environment</li> <li>Development of competences and qualifications Redeployment and retraining in energy transition regions</li> </ul>
Outcomes for the environment	<ul> <li>CO<sub>2</sub> emissions 70.7 million tonnes</li> <li>Land rehabilitated 2300 ha</li> <li>R&amp;D programs focused on environmental protection: 16</li> <li>Construction of offshore wind farms with 2.5 GW capacity by 2030</li> <li>Processed Combustion By-Productions 65%</li> </ul>	<ul> <li>Over 120 million tonnes of CO<sub>2</sub> emissions avoided by 2030</li> <li>Increase in waste recycling rate and reduction in landfill volume</li> <li>Generating energy from waste – new thermal waste treatment installations</li> </ul>
Financial outcomes	<ul> <li>EBITDA PLN 9,535 million</li> <li>Capital expenditures PLN 4,662 million</li> <li>Financial standing: long-term rating Baa1 (Moody's), BBB+ (Fitch), stable outlook</li> </ul>	<ul> <li>EBITDA in 2030 PLN 6+ billion</li> <li>Average annual capital expenditures in 2021–2030 PLN 7.5 billion</li> <li>Stable credit rating maintained</li> </ul>
Outcomes for customers	<ul> <li>Customer Satisfaction Index (for Contact Center) 91%</li> <li>Connection of new customers to the district heating network (+240 MWt)</li> <li>Renewable energy sales offering (2.9 TWh in 2021)</li> </ul>	<ul> <li>100% remote customer service capability</li> <li>Maintaining the highest level of customer satisfaction in the energy market</li> <li>Renewable energy installations for customers</li> <li>&gt;100,000 individual heating sources replaced by 2030</li> </ul>
Social outcomes	<ul> <li>Taxes paid PLN 8,494 million</li> <li>Institutions supported by PGE Foundation donations: 166</li> <li>Volunteer hours for community purposes: 5 824</li> <li>Concept for the transition of the Betchatów region</li> </ul>	<ul> <li>Social engagement and corporate social responsibility</li> <li>Increased involvement in new investment regions, e.g. offshore wind farms</li> <li>Continued involvement in coal regions despite spin-off of coal assets</li> </ul>

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Business activity Education

## Organisational capitals

GRI: 102–7



Employees are PGE's most valuable capital. It is thanks to their experience and involvement that we are able to build an organisation that combines social responsibility with business objectives.

## Human capital

GE Group is a place for people with passion and motivation. Our ambition is to be the most effective energy group in Poland. This also entails the implementation of best practices in corporate governance as regards human capital management, support for business decisions and management of productivity as well as standardisation of support processes.

Contribution
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	2021	2020	2019
Number of employees	38,299	40,444	42,280
Share of female employees	20.20%	20.20%	20.60%
Share of male employees	79.80%	79.80%	79.40%

#### Results

5,098 m

Employee benefits expenses

50,034 Total number of training hours completed 160 Total number

of work-related accidents

**4.17** Accident frequency rate 64.63 Accident seriousness

indicator

#### Data in tabular form

	2021	2020	2019
Employee benefits expenses	5,098	5,450	5,464
Total number of training hours completed	50,034	42,105	48,488
Total number of work-related accidents	160	176	171
Accident frequency rate*	4.17	4.35	4.04
Accident seriousness indicator**	64.63	68.68	74.97

\* Number of accidents/ number of employees \* 1000

\*\* Total number of absent days of people injured at work / number of people injured at work (excluding victims of fatal accidents)



#### Our activities supporting the use of human capital

#### Transformation of capitals

Thanks to skillful and effective use of human capital, we are able to properly use our manufactured capital and increase our financial capital, which in turn is used to increase the productivity of human capital. Employee training and adapting their competences to the tasks allows us to increase human capital potential, although the Group is facing a big challenge in the form of adequate filling a generational gap. Appropriate use of human capital naturally contributes to growing and building up intellectual capital.

#### Capitals in new business model

Changing to a low-carbon and climate-neutral economy requires the diffusion of new skills. The value of skills in the area of modern services will increase. The competences of leaders related to change management will be more and more important. This requires further employee development focused on the renewable energy area and modern energy services, which requires a new quality of management. At the same time, demographic trends force productivity growth, automation and digitization.

For us, social capital means good relations with local communities in the areas where we operate. Caring for these relationships is also a principle enshrined in PGE Group's Code of Ethics. The companies and branches of our Group are in many cases the largest workplaces in the regions.

## Social capital

PGE Group fosters local partnerships focused on development and cooperation. It makes every effort to be a good and responsible neighbour. Thanks to the resources we have at our disposal, we can become significantly involved in local life by supporting educational, sporting or cultural initiatives. The industry in which we operate is characterised by a long-term planning horizon, and social acceptance of our activities is an important component of business. We believe that only sustainability based on partnerships is possible in the long term.

#### Contribution

- Organisational culture based on dialogue with employees and the surroundings.
- Adoption of PGE Group's Code of Ethics and the resulting provisions in the Code of Conduct for PGE Group's Business Partners and the Anti-corruption Policy.
- PGE Foundation was established by PGE Polska Grupa Energetyczna in 2011. For the past 10 years, by making donations and implementing our own and partner projects, we have been supporting social initiatives,

carrying out tasks in the fields of science and education, health protection, culture and national heritage, as well as ecological and environmental activities. We also provide support to PGE Group employees and their immediate families.

 PGE S.A.'s marketing activities, understood as sports and culture sponsoring and advertising activities, including image and sales ad campaigns and other forms of brand promotion, contributes to strengthening the position of the PGE brand.

#### Results

PGE

	2021
Taxes paid to central budget (PLN million)	5,437
Social security contributions (PLN million)	1,302
Taxes paid to local governments (voivodship, poviat and municipality budgets) (PLN million)	1,755
Customer satisfaction index (CSI)	89.60%

2024



• Employee volunteering: since the first edition of the program, i.e. since 2014, we completed 270 projects across the whole country. These included building new playgrounds, renovating school classrooms and delivering complete equipment for kids and youth day centres.

- In 2021, PGE Group volunteers supported **projects for the Kampinos National Park**, were involved in helping the Warsaw Uprising, veterans, senior citizens and retired PGE employees
- Energy Backpack: this is a continuation of a campaign started over a dozen years ago by Łódź-based electricians and consisting of gifting school supplies to first-graders.
- White stork protection: our energy professionals have for many years been participating in activities intended to protect the white stork, mainly by setting up platforms on LV line pillars. So far, we have installed over 25 thousand platforms within our distribution area to ensure bird safety.
- Forests full of energy: this is an in-house ecological initiative created in 2000 by energy professionals from PGE Dystrybucja and developed by employees from other PGE Group companies.

## Our activities supporting the use of social capital

#### Transformation of capitals

Social relations are a source of enterprise value creation. Thanks to social relations, production, intellectual, human and financial capital is built in the long-term. However, social capital also encompasses commitments, which we diligently satisfy through short-term deployment of financial capital. By promoting the right attitudes towards the natural environment in relations with our stakeholders, we contribute to a reduction in the use of natural capital.

#### Capitals in the new business model

Relations with the social environment will change along with changes in the Group's activities, which are involved in new locations. At the same time, despite the planned separation of coal assets, PGE Group intends to remain operative in the regions undergoing transformation – by implementing investments there and supporting the process of social changes.



We use funds generated in the course of operating activities as well as equity and debt financing in order to develop the Group and create lasting value for shareholders and bondholders. We use funds for organic growth and acquisitions.

## **Financial capital**

### Contribution

	2021	2020
Equity (PLN million)	48,291	43,501
Net debt (PLN million)	4,228	7,267
Available/unused financing (PLN million)	20,186/10,365	25,215/16,811
Volume of allocated free CO <sub>2</sub> allowances (million tonnes)	0.64	1.03
Regulatory asset base in Distribution (PLN million)	18,929	17,567
Capital expenditures (PLN million)	4,662	5,495

#### Results

Results				
52,730 mm Sales revenue	<b>9,535 m</b>	<b>18%</b> EBTIDA margin	<b>5,123</b> m EBIT	7,456 <sup>PLN</sup> Net cash from operating activities
Dane szczegółowe			2021	2020
Sales revenue (PLN m)			52,730	45,766
EBITDA (PLN m)			9,535	5,966
EBITDA margin			18%	13%
EBIT (PLN m)			5,123	1,408
Net cash from operating	activities (PLN m)		7,456	10,256
Net profit (PLN m)			3,945	148

Rating (Moody's/Fitch)

Earnings per share (PLN)

Net debt/12 M EBITDA (x)

#### Our activities supporting the use of financial capital

#### Transformation of capitals

Financial stability is the basis for the proper use of other types of capital and its growth.

In 2021, thanks to the use of financial capital, we increased our productive capital and supported human and social capital.

Financing of innovative projects allows us to increase PGE's intellectual capital. At the same time, a sufficient level of financial capital allows us to effective use natural capital and thus reduce its use.

#### Capitals in the new business model

Baa1/BBB+

2.12

0.44

The transformation of the business model – increasing the predictability of EBITDA and limiting the exposure to risks related to coal-based operations – will enable the Group to use financing more widely. This will allow for the planning and implementation of economically effective investments building future, stable value in financial terms through the creation and purchase of new productive capital.

0.06

1.22

Baa1/BBB+



## PGE Group's business experience and brand's position are values that enable us to maintain our market position and adapt to a changing world.

## Intellectual capital

The systems and procedures used by us allow the organisation to function efficiently and conduct business effectively in the area of electricity and heat generation and distribution of electricity. Along with the changes happening in our surroundings, the role of research and development activities is becoming relatively greater than material values.

#### Contribution

- PGE employees' knowledge and skills.
- Concessions for activities related to lignite mining and the production distribution and trade in electricity and heat.
- IT systems for infrastructure operations, customer service and support of management and communication.
- Effective procedures.

#### Results

- We have introduced a model for developing and implementing new solutions for the management of high-risk undertakings. In 2021 we continued operations of PGE Ventures, Corporate Venture Capital funds, whose goal is to invest in start-ups. PGE Ventures is able to meet the capital needs of startups at all stages of development (from the seed phase, through the growth phase, to the expansion phase).
- The portfolio of projects includes, among others companies:
  - ConnectPoint start-up reducing emission of CO<sub>2</sub>
  - PySENSE one of the most dynamically developing companies in the area of the modern communication technologies for the energy sector go.
- Our search for innovations is aligned with the idea of transformation towards circular economy.
- In 2021, work began on the construction of a Research and Development Centre for the Circular Economy, which will host projects focusing on the recovery and recycling of raw materials from decommissioned RES installations and more.

## Our activities supporting the use of intellectual capital Capital transformation

Intellectual capital is developed using financial capital. Skilful use of funds creates the Group's competitive position in the future, allowing for further growth of financial capital or increase in the value of manufactured capital due to it being used more effectively. Growing the potential of intellectual capital also contributes to the development of the Group's human capital.

#### Capitals in the new business model

The role of intellectual capital in the changing business environment is to consistently grow. For this reason, the Group's Strategy provides for focusing on building an efficient and effective organization – digitization of operations, remote asset management and monitoring.

The organization will increasingly rely on Big Data and AI solutions, as well as on robotics, machine communication and distributed ledger technologies.



Lignite and hard coal are key fuels used to generate electricity and heat at our conventional and CHP plants. Natural gas and biomass are also included in our fuel mix. Increasingly, natural capital is being recycled as part of the circular economy.

## Natural capital

IWe are investing in technologies that directly use the forces of nature – wind, water and sun energy, which are converted into electricity at our renewables installations. We strive to effectively use natural resources. Our priority is to limit negative environmental footprint and protect the natural ecosystem.

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.

At PGE Group, we strive to use natural capital as efficiently as possible, which is why another segment of our business, Circular Economy, was set up in 2021. We recycle waste as full-value substances in other branches of the economy (cement industry, construction, road construction, mining), and consequently reduce the amount of final waste generated. In 2021, as much as 65% of ash, slag, ash-slag mixture and gypsum from flue gas desulphurisation systems generated during electricity and heat generation were economically used in PGE Group power plants and CHPs.

We also utilise minerals associated with lignite deposits, which play an important role in sustainable supply chains for commodities and materials. These include limestone, lake chalk, sands, clays, flint cobbles and erratic boulders in the form of granitoids and other Scandinavian rocks. Management of associated minerals contributes to rational deposit management and protection of the earth's surface.

## Contribution

	2021	2020
Industrial resources of lignite (million tonnes)	837	890
Lignite extraction (million tonnes)	39.9	39.9
Use of hard coal (million tonnes)	11.98	9.91
Use of natural gas (million m3)	1,173.40	1,305.77
Use of biomass (million tonnes)	0.709	0.58
Use of renewable resources (water, wind, sun) – gross output (TWh)	2.33	2.33
Water abstraction for production purposes (million m3)	26,529	12,280

Education

#### Results



52,818 tonnes

NO, emissions

62,931 tonnes

SO<sub>2</sub> emissions

2,033 tonnes Particulate matter emissions

32.18 million m<sup>3</sup> Total quantity

of wastewater\*\*

	2021	2020
CO <sub>2</sub> emissions (million tonnes)	70.75	59.52
NO <sub>x</sub> emissions (tonnes)	52,818	43,576
SO <sub>2</sub> emissions (tonnes)	62,931	47,009
Particulate matter emissions (tonnes)	2,033	1,828
Total quantity of wastewater** (million m³)	32.1859	28.853
Water from mine de-watering / treated mine water*** (million m³)	199.06	200.95
Cooling water from open cooling water circuit, not requiring treatment**** (million m³)	1,245.59	1,154.18
Quantity of hazardous waste** (tonnes)	6,168.00	6,142.00
Quantity of waste other than hazardous** (tonnes)	6,194,850	5,281,341

#### Our activities supporting the use of natural capital

#### Transformation of capitals

Natural resources are consumed in producing electricity and heat at our conventional and CHP plants, however providing reliable electricity and heat supplies, we work for the society and industries, thus strengthening social capital. Using natural capital in an effective manner, we are increasing our financial capital that is used for development and the strengthening of our other capitals.

We strive to use natural capital as efficiently as possible, so following the idea of a circular economy, we introduce combustion by-products and mining by-products into the economic cycle, which we try to manage as much as possible.

#### Capitals in the new business model

In the target business model, PGE will use non-renewable natural capital to a lesser extent. The basis for the production activity will be the use of renewable wind and solar energy.

We will also seek to increase the efficiency of raw material use through the development of circular economy.

\*\* PGE GiEK, PGE Energia Odnawialna, PGE Dystrybucja and PGE EC. \*\*\* PGE GiEK.

\*\*\*\* PGE GiEK, PGE Energia Odnawialna and PGE EC.



We own the largest generation asset base in Poland in the area of electricity and heat production. At the same time, we are the second largest distributor of electricity in Poland, owning a substantial asset base for the transmission of electricity. This is the material foundation of our business.

## **Productive capital**

## Contribution

	2021	2020
Number of lignite-based plants	2	2
Number of hard coal-based plants	3	3
Number of CHP plants	16	16
Number of wind farms	17	17
Number of hydro-power plants and pumped-storage plants	33	33
Number of photovoltaic plants	5	5
Installed electricity capacities at conventional assets (MW)	15,460	15,629
Installed district heating capacities (MW)	7,685	7,834
Installed renewables capacities (MW)	1,070	1,070
Installed pumped storage capacities* (MW)	1,256	1,256
Number of distribution stations	95,987	95,603
Capacity of distribution stations (MVA)	32,956	32,663
Length of distribution lines (km)	297,029	295,613

#### Results

65.75 TWh

Net electricity output conventional assets

2.33 TWh Net electricity

output renewable assets

0.69 TWh Net electricity output pumped storage assets

37.74 TWh Distribution of electricity

56.77<sub>Pl</sub> Production of heat

Data in tabular form	2021	2020
Net electricity output conventional assets (TWh)	65.75	55.04
Net electricity output renewable assets (TWh)	2.33	2.33
Net electricity output pumped storage assets (TWh)	0.69	0.76
Distribution of electricity (TWh)	37.74	35.67
Production of heat (PJ)	56.77	50.12
Sale of heat (PJ)	55.07	48.6

1 🗆

#### Our activities supporting the use of productive capital

#### Transformation of capitals

Implementing growth projects and acquiring new assets, we increase the Group's manufactured capital of the Group. This development takes up financial capital but in the long term these investments should contribute to increasing financial capital. We focus on effectiveness and using the best available technologies, thanks to which we constantly contribute to reducing the use of natural capital. We constantly increase the use of new technologies and improve the existing ones, building up competences within our intellectual capital.

#### Capitals in the new business model

After the separation of coal assets, the Group's production capital will mostly be network assets, as well as combined heat and power plants and existing renewable installations. With the further implementation of the Strategy, renewable capacities are to increase significantly while the productive capital of the CHP plants will be transformed towards lowemission.





## **Perspectives / Surroundings**

## Perspectives

Short-term outlook (as at May 25, 2022) Recurring EBITDA: outlook for 2022

	2022 vs 2021 perspective	Main factors
Conventional Generation	->	<ul> <li>Average annual wholesale price of electricity ~510–520 PLN/MWh</li> <li>Average annual cost of CO<sub>2</sub> ~300–310 PLN/t</li> <li>Volatile state of the markets poses risk to margin on unhedged position</li> <li>Expected higher average cost of hard coal, although price of volume covered by long-term contracts is relatively stable</li> <li>Pressure on production volumes from new RES capacities and assumed higher wind generation</li> </ul>
District Heating	V	<ul> <li>A two-fold increase in cost of CO<sub>2</sub></li> <li>Average price of contracted natural gas higher by approx. 150–200</li> <li>The increase in heating tariffs and support for gas cogeneration to a large extent does not cover the increase in CO<sub>2</sub> prices and fuel costs</li> </ul>
Renewables	Ŷ	<ul> <li>Expected higher SPOT prices of electricity</li> <li>Expected average higher prices of green certificates</li> <li>New PV capacities</li> </ul>
Supply	$\rightarrow$	<ul> <li>Pressure on margin from substantial rise in cost of electricity</li> <li>Higher revenues from services of commercial management of generation capacities</li> </ul>
Distribution	$\rightarrow$	<ul> <li>Regulatory Asset Base (RAB) higher by ~PLN 0.7bn up to PLN ~19.6bn</li> <li>Slightly higher WACC 5.8% (before tax) as result of possible additional premium for reinvestment</li> </ul>

#### CAPEX: outlook for 2022

	2022 vs 2021 perspective	The main factors
Conventional Generation	$\checkmark$	<ul> <li>Reduction of investment spending to maintenance outlays as BAT adjustment program concludes</li> </ul>
Low-emission sources	↑	<ul> <li>Rising spending on construction of CCGT units in Dolna Odra along with the progress of the investment</li> </ul>
District heating	↑	<ul> <li>Increase in expenditures related to the construction of new low-emission gas units, including: New Czechnica CHPP, Bydgoszcz CHPP, Zgierz CHPP, Kielce CHPP</li> </ul>
Renewables	Ŷ	<ul> <li>Increase in outlays for the construction of offshore wind farms</li> <li>Consistent increase in outlays as part of the PV development program</li> <li>Regardless of the growing expenditure on organic growth, possible acquisitions</li> </ul>
Supply	$\rightarrow$	<ul> <li>Implementation of ongoing development and maintenance projects</li> </ul>
Distribution	↑	<ul><li>Increase in planned outlays for connecting new sources</li><li>Implementation of grid grounding program and smart metering installation</li></ul>



#### Medium term\*

The following tables present aspects influencing the development of PGE Group's operations in the medium term

	Main directions of change	Potential impact on PGE Capital Group
Macroeconomic environment – global	<ul> <li>Main directions of change</li> <li>GDP in the eurozone in 2021 grew strongly by 5.2%. This was driven by an economic recovery following the global recession of 2020 (GDP down by 6.4%) caused by the COVID-19 pandemic. The EC's forecasts for 2022 and 2023 expect the economic expansion to continue, at 4.3% and 2.4%, respectively.</li> <li>Potential effects in connection with the war in Ukraine and its aftermath (described in p. 5.4 of this report)</li> <li>The strong economic recovery along with supply restrictions and growing prices of fuel and energy led to an increase in inflation to levels not seen in nearly 30 years. At the end of 2021, annual CPI (consumer inflation) was up by 5% in the eurozone. Similar inflationary pressure was seen in other global economies such as the U.S. (7% annual inflation at the end of 2021) and U.K. (5.4%).</li> <li>With inflation targets being exceeded, central banks began to tighten the monetary policy by reducing asset purchase programs (FED and ECP) and raising interest rates capacitally in</li> </ul>	<ul> <li>Potential impact on PGE Capital Group</li> <li>Growth in GDP and industrial production in the eurozone should be supportive of economic activity in Poland, allowing us to expect an increase in demand for energy in the National Power System ("NPS"), although the pace of this growth will depend on both domestic factors and the situation in foreign markets, with particular emphasis on the level of international exchange.</li> <li>A large portion of funding from the recovery plan is earmarked for the decarbonisation of economy, which in combination with a stricter climate policy (increase in prices of CO<sub>2</sub> emission allowances, increase in share of RES, adoption of taxonomy and works on the Fit-for-55 package) will not improve the outlook for coal-based energy generation and in the long term should cause a further decline in demand and pressure on prices. Their level will be determined by the situation in global markets, which during periods of short-term imbalances may give rise to higher market volatility.</li> </ul>
	<ul> <li>and ECB) and raising interest rates, especially in our region (Czech Republic and Hungary).</li> <li>Following a strong rebound in the second quarter of 2021 resulting from a low base in 2020, industrial production in the eurozone decreased to – 1.5% y/y in November 2021. The decline mainly resulted from supply chain disruptions during the COVID-19 pandemic, especially visible in the automotive industry.</li> <li>In February 2022, PMI for industry was at 58.2 and for services at 55.5, showing a continued recovery in the nearest future.</li> <li>The key risks to economic growth include how the pandemic situation will develop, tightening the monetary policy and supply restrictions.</li> <li>EU economic growth in the coming years will be supported by a post-pandemic crisis recovery package worth EUR 750 billion.</li> <li>Planned tightening of the EU climate policy, adoption of a CO<sub>2</sub> reduction target of 55% in 2030, including expectations of further instruments to accelerate the decarbonisation of the economy will affect the levels and price relations of energy carriers.</li> </ul>	<ul> <li>Meanwhile, the wide availability of financial resources targeted at decarbonisation may facilitate the implementation of investments oriented towards the transformation of the PGE Group.</li> </ul>

\* (Based on the MANAGEMENT BOARD REPORT on the activities of PGE Polska Grupa Energetyczna S.A. and PGE Group for 2021).



Direction PGE 2050

Potential impact on PGE Capital Group

### Main directions of change

Macroeconomic environment – Poland	<ul> <li>Real GDP growth in Poland in 2021 reached 5.7%, according to estimates from Statistics Poland, as a result of a rebound after the pandemic decline in 2020 (-2.5%).</li> <li>Real GDP growth in Poland in 2021 reached 5.7%, according to estimates from Statistics Poland, as a result of a rebound after the pandemic decline in 2020 (-2.5%).</li> <li>The primary factor driving the strong GDP</li> </ul>	• Economic growth in the short and medium term may translate into increased demand for electricity. However, a high pressure on rising electricity costs (CO <sub>2</sub> costs, distribution charges, support schemes), increasing energy efficiency and a rapid reduction of costs of constructing own RES sources will have a negative long-term impact on the demand for energy from conventional generation sources.
	<ul> <li>growth was domestic demand (+7.6%), including consumption in the household sector (+3.4%). The impact of investment demand was lower (+1.3%).</li> <li>Industrial PMI has remained above 50 points since July 2020, which shows growth in economic activity in this sector, however the January 2022 readout (54.5 points) is slightly weaker than the data for December 2021.</li> </ul>	<ul> <li>In the longer term, lower levels of demand and changes to the energy mix may translate into a lower electricity price on the wholesale market and, in particular, a negative impact on the economics of coal-fired power generation. Short-term prices growth cannot be ruled out if the level of available reserves in generating units declines.</li> <li>An increase in interest rates and debt yields will</li> </ul>
<ul> <li>Given the stronger price pressure, with both supply-side and demand-side causes (including increases in fuel and energy prices), inflation grew strongly in 2021, reaching an annual average of 5.1% and an annual rate of 8.6% in December 2021 for consumer inflation. Core inflation, which excludes food and energy prices, was 4.1%. According to National Bank of Poland surveys taken in January 2022, average annual CPI inflation may rise even more strongly in 2022, to 7.4%, and decline to 4.4% in 2023. Given the anti-inflationary shields introduced by the government, these forecasts are accompanied by an elevated level of uncertainty.</li> <li>Strong inflationary pressure prompted the National Bank of Poland to raise interest rate. The reference rate has increased from 0.1% at the end of 2020 to 2.25% currently. At the same time, yields on debt instruments increased. According to a communication from the National Bank of Poland, further interest rate hikes are possible in order to bring inflation down to the target of 2.5% with a tolerable deviation of 1 percentage point.</li> <li>Forecasts from the European Commission and the National Bank of Poland survey inflation down to the target of 2.5% with a tolerable deviation of 1 percentage point.</li> </ul>	<ul> <li>raise the cost of debt financing in the investment program. No changes are expected in PGE Group's credit ratings in local currency and foreign currencies (Moody's Baa1 and Fitch BBB+), which should remain neutral for the availability of financing. In addition, on 18 January 2022, PGE's Management Board passed a resolution on commencing the company's recapitalisation in connection with planned investment projects in the area of renewable energy, decarbonisation and distribution, which may reduce the demand for debt capital.</li> <li>The Extraordinary General Meeting, which took place on March 7, 2022 did not adopt</li> </ul>	
	<ul> <li>Strong inflationary pressure prompted the National Bank of Poland to raise interest rate. The reference rate has increased from 0.1% at the end of 2020</li> </ul>	the proposed resolution due to the break in the proceedings announced until April 6, 2022. Further decisions will be made during the continuation of the General Meeting.
	to 2.25% currently. At the same time, yields on debt instruments increased. According to a communication from the National Bank of Poland, further interest rate hikes are possible in order to bring inflation down to the target of 2.5% with a tolerable deviation of 1 percentage point.	<ul> <li>An increase in the price indices of construction and assembly works, materials, as well as cost pressures in the specialised construction segment may result in higher expenditures for the execution of the planned investment programme and higher costs of external services.</li> </ul>
	• Forecasts from the European Commission and the National Bank of Poland expect the accelerated GDP growth to continue in the coming years (4.9% in 2022 and 4.4%-4.9% in 2023). This dynamic will depend on the intensity of the pandemic, impact of interest rate hikes, economic growth in Europe and the capacity for increasing investments.	In addition, the structural shortage of qualified employees in the construction sector may cause delays in the implementation of investment and overhaul tasks.



	Main directions of change	Potential impact on PGE Capital Group			
Trends in electricity and fuel markets	<ul> <li>Growth to record levels in domestic electricity consumption in Poland in 2021 (+5.4%) and in generation (+14%) above the figures from before the pandemic.</li> </ul>	<ul> <li>Rising energy consumption in Europe and supply constraints may significantly impact the level of cross-border exchange of electricity, resulting in higher prices on the wholesale market and higher load on PGE Group's units.</li> </ul>			
	<ul> <li>Significant decline in neclimport from 13.2 TWh In 2020 to 0.8 TWh in 2021 due to growth in energy prices and consumption in European markets.</li> <li>Supply restrictions in European markets in renewable sources. The planned shut-down of nuclear plants in Germany with a capacity of 4 GW in 2021 and a further 4 GW by the end of 2022.</li> <li>Sudden spike in energy prices in global markets in the second half of 2021 caused by a strong economic recovery (growth in the consumption of energy and fuels), lower wind speeds and geopolitical tensions.</li> <li>Natural gas prices on TGE's SPOT market increased from 96 PLN/MWh in the first quarter of 2021. Coal prices in ports ARA grew during that period from approx. 10 PLN/GJ to more than 25 PLN/GJ.</li> <li>On the Polish market, the cost of basic fuel, i.e. hard coal, was stable for power plants and reached approx. 11.5 PLN/GJ.</li> </ul>	<ul> <li>Persistently high fuel prices, especially for natural gas, in European markets may temporarily have a positive impact on margins generated by PGE Group's generating units, despite risk related to high redemption costs of CO<sub>2</sub> emission allowances.</li> <li>Hard coal-fired generation grew by 30% in 2021 due to high energy demand, lower wind and rising gas prices in European markets. In the short term, this results in increased consumption and upward pressure on coal prices on the Polish market. In the long term, coal consumption and production are expected to be steadily reduced as a result of structural changes in the energy sector, the development of renewable and gas capacities and the phase-out of solid fuels in households.</li> <li>Continued upward pressure on energy prices in Poland in the long term may have a negative impact on energy-intensive users' consumption and the competitiveness of electricity against other energy carriers, and thus on the sales volumes generated by PGE Group.</li> </ul>			
	<ul> <li>Rise in CO<sub>2</sub> prices – from approx. 37 EUR/t on average in the first quarter of 2021 to approx.</li> <li>67 EUR/t on average in the fourth quarter of 2021, reaching approx. 90 EUR/t.</li> </ul>	<ul> <li>An increase in prices for retail customers may have an adverse effect on margins in PGE Group's Supply segment.</li> <li>New patural cas supply potential (construction)</li> </ul>			
<ul> <li>Growing energy prices in Poland due of CO<sub>2</sub> and energy prices in Europear The price of annual BASE contracts o to 830 PLN/MWh on average in Dece from approx. 275 PLN/MWh on averag quarter of 2021.</li> <li>A systematic increase in demand for Poland and the region is expected in investments in natural gas-fired pow units and high-efficiency cogeneratic as a gradual change in the fuel mix in</li> <li>The Development of possibilities to s gas to Poland (the expansion of the L the Baltic Pipe project, infrastructura of LNG exporters).</li> <li>Launch by the Ministry of State Asso of the power-sector transition proje Poland and carve-out of coal-based assets from companies with a State shareholding</li> </ul>	<ul> <li>Growing energy prices in Poland due to the cost of CO<sub>2</sub> and energy prices in European markets. The price of annual BASE contracts on TGE grew to 830 PLN/MWh on average in December 2021, from approx. 275 PLN/MWh on average in the first quarter of 2021.</li> </ul>	<ul> <li>New natural gas supply potential (construction of the Baltic Pipe gas pipeline and expansion of the LNG terminal in Świnoujście) will make it possible to develop CCGT generating units and implement investments in high-efficiency gas cogeneration under the support system.</li> <li>PGE Group is participating in a project to carve-out</li> </ul>			
	<ul> <li>A systematic increase in demand for natural gas in Poland and the region is expected in view of new investments in natural gas-fired power generation units and high-efficiency cogeneration units as well as a gradual change in the fuel mix in Germany.</li> <li>The Development of possibilities to supply natural</li> </ul>	coal-fired generation assets from State Treasury- owned companies. The implementation of this project will significantly change the Group's generation profile into a low-emission one and will reduce risk related to the level of margins and output in coal units.			
	<ul> <li>gas to Poland (the expansion of the LNG terminal, the Baltic Pipe project, infrastructural projects of LNG exporters).</li> <li>Launch by the Ministry of State Assets of the power-sector transition project in Poland and carve-out of coal-based generating assets from companies with a State Treasury shareholding</li> </ul>	<ul> <li>The capacity market is an opportunity for a gradual transformation of the power structure in the NPS towards the construction of highly efficient baseload power generation units, flexible peak sources, and a gradual decommissioning of units which do not meet environmental requirements.</li> <li>Renewable energy auctions allow investors to secure the revenue side of their projects while maintaining a competitive cost of RES development for end users.</li> </ul>			





Trends in electricity and fuel markets	<ul> <li>Changes in the energy market model:</li> <li>implementing the capacity market mechanism and RES auctions.</li> <li>introducing changes to the balancing market rules in two phases, at the beginning of 2021 and 2022.</li> <li>introducing changes in establishing energy prices for end users.</li> <li>new settlement model for prosumers.</li> <li>implementing regulatory solutions dedicated to distributed power generation.</li> <li>implementing the Flow Based Market Coupling mechanism for trade on the synchronous link at the end of 2021. This mechanism enables the best economic use of available transmission capacities between countries.</li> <li>Start of process of granting new location permits for offshore wind farms.</li> </ul>	<ul> <li>Changes in the balancing market are intended to enable the market valuation of reserves and system services, strengthen price signals and provide an incentive to invest in flexibility on the part of generators and customers.</li> <li>Causing greater activity on the part of end users will allow the PGE Group to develop its product offer in new cooperation models.</li> <li>Development of offshore wind energy is one of the pillars of PGE Group's transition – PGE Group's long-term development strategy sees the construction of at least 6.5 GW by 2040.</li> </ul>
	<ul> <li>Start of process of granting new location permits for offshore wind farms.</li> </ul>	

#### Long term\*

Development of new technologies	<ul> <li>We observe the growing competitiveness of wind (including offshore) and photovoltaic technologies, which is confirmed by prices achieved in RES auctions and the rising number of micro-installations.</li> <li>In some countries, the dynamic dissemination of full-scale, new energy storage technologies, providing, among other things, regulatory services to the electricity systems or enhancing local security of energy supply, is clearly visible.</li> <li>The systematic development of prosumer power generation and the dynamic growth in the number of micro-installations.</li> <li>The development of electromobility.</li> <li>The development of information and telecommunications technologies for new applications in the energy sector.</li> </ul>	<ul> <li>Increasing the competitiveness of new RES installations affects affects the dynamics of their growth and changes the working conditions of conventional units.</li> <li>The falling costs of the offshore technology enable it to be used to maintain the PGE Group's leading position in generation with a significantly reduced average level of the portfolio's carbon footprint.</li> <li>The commercialisation of energy storage on an industrial scale will enable better use of RES, complementing conventional capacities in the role of system balancing and improving local energy security.</li> <li>With the development of prosumer power generation, the variability of network operating conditions at the local level increases, which means the need to invest in infrastructure (connections, modernisations), while limiting the volume of distributed electricity. In the conventional power generation segment, there is a higher demand for highly flexible generation.</li> <li>The development of electromobility will increase demand for electricity and change its daily</li> </ul>
		<ul> <li>profile, which may slightly alter the operating conditions of some conventional units. However, this development requires investments in the development of grid infrastructure and charging points, as well as a charging management system. It is also possible to use batteries in electric cars as storage facilities for energy produced by RES.</li> <li>The PGE Group's use of new technologies and the potential of data resources may allow it to develop in new roles and areas of activity, as well as improve its operational efficiency</li> </ul>

\* (based on the MANAGEMENT BOARD REPORT on the activities of PGE Polska Grupa Energetyczna S.A. and PGE Group for 2021).



## Surroundings

Direction PGE 2050

## Societal expectations define the vision for energy

Sustainable investments

The energy sector has undergone profound changes in recent years. Public expectations are now directed towards energy produced in an environmentally friendly way and solutions that are tailored to customers' needs and give a sense of independence. The main trends defining the future of the sector are Decarbonisation, Decentralisation, Competition. Regulatory changes have emerged tightening the European Union's environmental policy, aiming to achieve climate neutrality by 2050. With social and regulatory changes, the policy of banks and investors to finance projects in the energy sector has also changed. These days, money flows to investments in zero-carbon generation sources and grid infrastructure.

ESG – Foundation of Development

**Business** activity

Education

About the report

#### Decarbonisation

- targets aiming for climate neutrality
- electrification of district heating and transport

#### Decentralisation

- development of distributed energy
- new energy market roles and participants
- change in conditions for power grid operations
- automation and digitalisation

#### Competition

- the growing image of environmental neutrality
- new players from outside the energy sector
- simple and attractive product offerings supported by new technologies

#### Energy transition as element of economic model

Fiscal and investment policy linked to environmental targets

- Targeting funds for investment in zero-carbon generating sources and grid infrastructure
- Reducing the availability of finance for fossil fuel-based power generation
- Companies and cities striving for sustainability

Changes in the surroundings are not only a threat and a challenge for the sector, but also an opportunity to provide an investment boost to the economy through the construction of new generation sources and the modernisation of energy infrastructure. The transition of the energy sector should translate into economic development, sustainable growth for companies and cities, as well as an equitable transition of regions hitherto associated with coal mining. Energy transition is becoming part of the economic model. PGE Group's investments will focus on renewable energy, district heating transition and grid infrastructure. The total planned investment expenditures in 2021–2030 will amount to PLN 75 billion, of which approx. 50% will be allocated to the development of renewable energy sources (offshore and onshore wind farms, photovoltaics, zero-emission co-generation sources).







### Economic development Investment stimulus thanks

to power grid modernisation

Independence Use of renewable energy resources and energy storage assets

Changes in the surroundings are not only a threat

and a challenge for the sector, but also an opportunity to provide an investment boost to the economy

through the construction of new generation sources

of the energy sector should translate into economic

with coal mining. Energy transition is becoming part

and the modernisation of energy infrastructure. The transition

development, sustainable growth for companies and cities, as

well as an equitable transition of regions hitherto associated

of the economic model. PGE Group's investments will focus

infrastructure. The total planned investment expenditures in

2021–2030 will amount to PLN 75 billion, of which approx.

50% will be allocated to the development of renewable

energy sources (offshore and onshore wind farms,

photovoltaics, zero-emission co-generation sources).

on renewable energy, district heating transition and grid



#### Just transition

Creating an opportunity for post-industrial regions to develop new specialisations



#### Challenges for energy companies

Adapting the organisation to competing in a new surrounding

## This direction is inevitable.

Poland's energy sector needs a leader of change.

PGE wants to play the role of a leader in the transition and modernisation of the energy sector in Poland and to support the building of a market environment conducive to energy transition. PGE Group is ready to carry out transition processes in the sector and prepare the conventional base of the power system to function under a new ownership structure. As a transition leader, PGE is committed to reducing its environmental impact by achieving climate neutrality in 2050. Sustainable decarbonisation is planned by changing generation technologies, expanding the RES portfolio and enabling customers to participate in the energy transition through attractive product offerings. The company will pioneer the development and operation of offshore wind energy.

## Market environment

#### Electricity prices – domestic market

DAY-AHEAD MARKET (RDN, SPOT MARKET)

Market/measure	Unit	Q4 2021	Q4 2020	% change	2021	2020	% change
RDN – average price	PLN/MWh	617	246	151%	398	209	90%
RDN – trading volume	TWh	7.73	7.62	1%	31.06	28.73	8%

#### Analysis - selected price factors affecting RDN quotations

Factor	Unit	Q4 2021	Q4 2020	% change	2021	2020	% change
CO <sub>2</sub> emission rights	EUR/t	68.16	26.59	156%	53.87	24.14	123%
Polish Steam Coal Market Index PSCMI-1	PLN/GJ	11.35	11.82	-4%	11.42	11.91	-4%
Wind generation NPS	TWh	4.97	4.09	22%	14.23	14.17	0%
Ratio: wind generation/ NPS consumption	%	11%	9%		8%	9%	
Ratio: international trading/ NPS consumption	%	_	7%		0%	8%	

n the fourth quarter of 2021, the average electricity price on the day-ahead market was PLN 617/MWh and was higher by 151% than average price (PLN 246/MWh) in the preceding year. The increase in energy prices resulted mainly from lower net import in comparison to the fourth quarter of 2020 (-4.4 TWh). Higher demand for electricity (+ 1.2 TWh y/y) also contributed to the price increase. In full year 2021, the average price on the day-ahead market was PLN 398/MWh, which is 90% higher than the average price recorded in the preceding year (PLN 209/MWh). The increase in price was connected with the situation on related markets – average price of CO<sub>2</sub> emission rights in 2020 was by 123% higher than in the base year and amounted to EUR 53.87/t. The PSCMI1 index in 2021 averaged PLN 11.42/GJ – down by 4% y/y. On the other hand, price increase pressure was exerted by the net import volume lower by 94% y/y. The prices were also affected by a increase in demand by 8.9 TWh y/y.



#### Average monthly prices at the day-ahead market in 2020-2021 (TGE)

#### Forward market

Market/measure	Unit	Q4 2021	Q4 2020	% change	2021	2020	% change
BASE Y+1 – average price	PLN/MWh	515	227	127%	385	232	66%
BASE Y+1 – trading volume	TWh	28.35	29.09	-3%	104.44	126.75	-18%
PEAK5 Y+1 – average price	PLN/MWh	567	261	117%	428	272	57%
PEAK5 Y+1 – trading volume	TWh	3.48	4.00	-13%	12.38	14.07	-12%

Electricity prices on forward market are shaped by the similar fundamental factors, as the prices on the Day-Ahead Market described above. The observed forward market price increase y/y for the whole year for BASE\_Y+1 is related to increased demand for electricity and very high prices of CO<sub>2</sub>.

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#### Average monthly prices on the forward market in 2020-2021 (TGE)<sup>1</sup>

## Electricity prices - international market

#### Wholesale market (comparison of day-ahead markets)

Chart: Comparison of average electricity prices on Polish market and on European markets in the fourth quarter of 2021 (prices in PLN/MWh, average exchange rate EUR/PLN 4.62). Source: TGE, EEX, Nordpool

Chart: Comparison of average electricity prices on Polish market and on European markets in 2021 (prices in PLN/MWh, average exchange rate EUR/PLN 4.56). Source: TGE, EEX, Nordpool



<sup>1</sup> Średniomiesięczny poziom indeksów dla kontraktów terminowych na rok następny (Y+1), typu pasmo i szczyt, ważony wolumenem obrotu.



#### Evolution of spot market prices

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In the fourth guarter of 2021, the y/y change in prices on neighbouring markets ranged between PLN 444 and PLN 651/MWh (i.e. approx. 302–370%), whereas in Poland the average price level has increased to a lesser extent, by PLN 371/MWh y/y (increase by approx. 151%). The low correlation of energy prices results from differences in the technological mix (share of renewable energy sources) and the situation on the markets for related products. The price of hard coal in ARA ports rose by 191% y/y, while the domestic pulverised coal price index, PSCMI-1, decreased by 4% over the same period.



#### Hard coal indices ARA vs PSCMI-1<sup>1</sup>

<sup>1</sup> The comparison is illustrative only. Methodologies of counting the ARA and PSCMI1 indexes are different. Among other things, the ARA index includes insurance and delivery costs. The PSCMI 1 is an ex-mine index without insurance and delivery costs. Standards for calculating the caloric values are also different (ARA – 25.12 GJ/t vs. PSCMI1 caloric value – range 20–24 GJ/t). The aim is to compare the trend and not the absolute level. For illustration purposes ARA index is recalculated from USD/t to PLN/GJ.

Źródło: ARP, Bloomberg (API21MON OECM Index), opracowanie własne

On an annual basis, average energy prices on neighbouring markets increased by PLN 254–306/MWh y/y (i.e. by approx. 221–226%), while the average price in Poland increased by PLN 189/MWh y/y (approx. 90%). The price differential between Poland and neighbouring countries was largely attributable to differences in coal and natural gas prices at home and abroad.



### International trading

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Monthly imports, exports and cross-border exchange balance in 2020–2021.

Source: own work based on PSE S.A. data.



#### Quarterly trading volumes – import, export and international trading balance in years 209–2021

In the fourth quarter of 2021, Poland was a net exporter of electricity, and the commercial exchange balance was – 1.4 TWh (3.9 TWh import, 5.2 TWh export) and was lower by 4.4 TWh on a y/y basis. Export to Czechia and Slovakia together with import from Germany, Sweden and Lithuania had the largest impact on the balance of commercial exchange. In 2021, the balance of commercial exchange reached 0.8 TWh (import 15,1 TWh, export 14.3 TWh) and was 12.4 TWh lower on a y/y basis (i.e. by approx. 94% y/y). Export to Czechia and Slovakia together with import from Germany, Sweden, Lithuania and Ukraine had the largest impact on the balance of commercial exchange.



#### Parrarel exchange balance: average vs. maximum hourly flow in particular months

Global increase in fuel prices (which translate into an increase in the costs of electricity production from natural gas and hard coal) and, additionally, lower windiness translated into an increase in energy prices in neighboring countries, which in turn limited electricity imports to Poland.

## **Retail market**

The diversity of electricity prices for retail customers in the European Union depends both on the level of the wholesale prices of electricity and fiscal system, regulatory mechanism and support schemes in particular countries. In Poland in the first half of 2021 an additional burden (over sale price and cost of electricity distribution) for individual customers accounted for 41% of the electricity price and in comparison to EU average of 39%. In Denmark and Germany the proportion of additional charges in the price of electricity exceeded 50%.

Chart: Comparison of average prices for individual customers in selected EU countries in the first half of 2021 (prices in PLN/MWh, average exchange rate EUR/PLN 4.47).



Source: own work based on Eurostat data.


### The share of addistional charges in electricity prices for the individual customers in selected EU countries in the first half of 2021 (prices in PLN/MWh, average exchange rate EUR/PLN 4.47).

2 Parallel exchange – exchange between synchronised system on borders with Germany, Czechia and Slovakia.
3 Eurostat data on retail market are published in semi-annual intervals.

#### **Prices of certificates**

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In the fourth quarter of 2021 the average price of green certificates (index TGEozea) reached PLN 273/MWh and was higher by 94% compared to the analogical period of the previous year. An obligation to redeem green certificates has remained unchanged in 2021 as compared to 2020 (19.5%). The average price of green certificates in 2021 was at PLN 192/MWh and was higher by 39% compared to 2020. The closure of a certification system for new units and the upcoming end of a 15-year support period for first installations that had entered the system in 2005 and lower windiness in 2021 resulted in limited supply of cetificates on the market, what in consequence led to the prices increase.



#### Average quarterly prices of green certificates (TGEozea)

Source: Own work based on TGE quotations.

#### Prices of CO<sub>2</sub> emission rights

EUA (European Union Allowances) prices are one of the key factors determining wholesale energy prices and PGE Group's financial results. Installations emitting CO<sub>2</sub> in the process of electricity or heat production bear the expenses for purchasing EUA allowances to cover the deficit (i.e. the difference between CO<sub>2</sub> emissions at PGE Group's generating units and the free-of-charge allowances received under derogation in accordance with the National Investment Plan). Wherein, last allocations granted free of charge were planned for realisation of investment tasks for 2019. It means that the free allocations for electricity generation, in accordance with the currently used method, ended when 2019 allowances were received.

Following a sudden slump caused by the outbreak of the COVID-19 pandemic in mid-March 2020, the prices of CO<sub>2</sub> emission allowances began recovering until reaching dynamic growth from November 2020. In the fourth quarter of 2021, the weighted average price of EUA DEC 21 was EUR 68.16/t and was considerably higher (by 156%) than the average price of EUR 26.59/t for the EUR DEC 20 instrument in the similar period of the previous year. In whole year 2021, the weighted average price of EUA DEC 21 was EUR 53.87/t and was by 123% higher than the average price of EUR 24.14/t for the EUR DEC 20 instrument in the previous year.



#### CO<sub>2</sub> emission rights granted free of charge

The Group received emission allowance allocations for heat generation for 2020 on April 23, 2021, after verification of asset and financial reports for investments included in the National Investment Plan. Allocations for electricity producers are no longer awarded from 2020.

On July 7, 2021, the climate minister published a list of installations along with the final volume of CO<sub>2</sub> emission allowances allocated for the production of heat for 2021–2025 in accordance with the Act of June 12, 2015 on the ETS scheme. The publication of this list is the final step in the process of determining the allocation of emission allowances on the basis of reports concerning key data submitted by installation operators by June 30, 2019. The input data for the allocation concerned the period 2014–2018.

The publication of the list completes the process of determining the final volume of emission allowances allocated to installations in accordance with Commission Delegated Regulation (EU) 2019/331 of December 19, 2018 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council.

The final volume of emission allowances published is subject to adjustment based on the average level of production in the two years preceding the year for which emission allowances are granted. Data on production levels is provided by March 31 of each year starting from 2021 in ALC reports. Based on this data, emission allowance allocations are either decreased or increased if the average production level in the past two years exceeds the  $\pm 15\%$  threshold (if the threshold is exceeded, the threshold in the following years will be  $\pm 5$  percentage points above 15%). The final volume of emission allowances granted to an installation is determined on this basis. The adjustment will be performed on an annual basis in accordance with rules specified in Commission Delegated Regulation (EU) 2019/1842 of October 31, 2019. On October 12, 2021, emission allowances were issued to the installation's accounts in the Union registry, in line with the announcement of the Minister of Climate and Environment in the Public Information Bulletin. This issue concerns the final annual number of emission allowances allocated for 2021, resulting from the application submitted in 2019 and approved by the European Commission in June 2021, assuming no changes, resulting from the ALC reports submitted by the end of March 2021. The current issue of emission allowances does not include the adjustment of the allocation of emission allowances in terms of the additional number of allocated emission allowances. In the case of installations where the allocation of emission allowances has been reduced, such issuance has been suspended due to a change in the level of activity. The adjusted final annual number of emission allowances for an installation determined as a result of the adjustment of the allocation of emission allowances will be issued immediately after its approval by the European Commission.

#### Emission of CO<sub>2</sub> compared to the allocation of CO<sub>2</sub> emission allowances for 2021 (in tonnes)

**70,746,382** CO<sub>2</sub> emissions in 2021\*



**638,274** Allocation of CO<sub>2</sub> emission rights

\* Allowances for heat production.

#### **Competitive environment**



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District heating sector may be also distinguished, within which PGE Group is active in heat generation, distribution and sales.

The key participants of the electricity market in Poland are four nationwide, vertically integrated energy concerns: PGE, TAURON Polska Energia S.A., ENEA S.A. and ENERGA S.A., which was acquired by PKN Orlen in 2020.

PGE Group is the undisputed leader in electricity generation with a market share of approx. 43%. The Group produces more electricity than all of the competitors on the consolidated market combined, whilst having the largest achievable capacities, both conventional and renewable. Aside from integrated energy groups, significant producers on the market include PKN Orlen S.A., ZE PAK S.A. ("ZE PAK"), and PGNiG TERMIKA S.A. ("PGNiG"). While ZE PAK's production is based on industrial plants, Orlen's and PGNiG's production is based on cogeneration units generating electricity together with heat.

In 2021 54% of the electricity produced in the country was hard coal-based – and this is a key fuel for PGE Group's competitors.

Approximately 26% of the electricity produced in Poland was lignite-based. Aside from PGE Group, ZE PAK also bases its electricity production on lignite. Wind farms as well as gas units have approx. 8% share in electricity generation. The use of other fuels is of relatively low significance from the viewpoint of the NPS.



Source: own work based on information published by the companies and Agencja Rynku Energii S.A. ("ARE").

Energy production from renewable sources is much more dispersed than the conventional generation market. In the previous year wind photovoltaics was the most dynamically developing sector. As of the end of December 2021, this technology had the largest share in total installed RES capacities – 7.7 GW, although the vast majority of installations (5.9 GW) belonged to over 800 thousand prosumers. The development of photovoltaics is an element of PGE Group's investment plan, which sees the construction of approx. 3 GW in capacity by 2030. So far, PGE Energia Odnawialna has secured approx. 3 thousand hectares of land for the purpose of building farms with a capacity of more than 2 GW. Moreover, in 2021 the company received approvals for the implementation of new projects with a total capacity of nearly 200 MW. PGE Group remains the entity with the highest installed wind capacity – 688 MW and has an approx. 10% share in total wind capacity installed in Poland. Other notable wind farm operators include EDP Renewables Polska sp. z o.o., TAURON Ekoenergia sp. z o.o. and PKN Orlen S.A.

Offshore wind farms are an emerging RES segment in Poland. In the system's first phase, support is awarded by way of an administrative decision issued by the President of the Energy Regulatory Office, and from 2025 offshore wind farms projects will be able to participate in the auction system. In 2021, the President of the Energy Regulatory Office awarded support to two offshore projects with a total capacity of 2.5 GW, which are being implemented jointly by PGE and Ørsted (JO 50/50). The European Commission must still confirm compliance with the internal market of the public aid granted to a producer in order to receive support.

Growth in the market prices of energy allows for the development of RES investments also outside the support system, based on PPAs.

In the distribution area, the country is divided into regions, with four large distribution system operators (the "DSO") on the market, who are required to carve out distribution activities from their other business: PGE Dystrybucja S.A., TAURON Dystrybucja S.A., Enea Operator sp. z o.o. and Energa-Operator S.A.

Aside from the above-mentioned energy groups, another significant entities include Stoen Operator sp. z o.o. (company from E.ON Group, previously innogy Stoen Operator sp. z o.o.), responsible for electricity distribution in Warsaw, as well as PKP Energetyka S.A. managing the railway electric network throughout the country.

A historical division of the distribution areas has substantial impact on the operating conditions of the business, and this specific situation is reflected in the distribution tariffs approved by the URE president. PGE Group operates in an area that is less urbanised and industrialised, meaning that it has more than 5.5 million clients throughout an area of approx. 130 ths km2. For comparison, TAURON has a similar number of clients in an area nearly twice smaller and distributes a larger amount of energy.



Areas of operation of Polish distribution system operators

Source: own work.

# Share of particular energy groups in volume of energy distributed in 2020 and sales of electricity to final off-takers after three quarters of 2021



*Source: own work based on information published by the companies, ARE and ERO* 

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In the retail segment, which covers sales to end customers – individual, small and medium enterprises as well as large industrial customers – most of the sales are conducted by the four largest energy groups and E.ON Polska S.A. (formerly innogy Polska S.A.). PGE Group and TAURON remain the leaders, having over 50% of the market. Both PGE and TAURON sell electricity to over five million clients. Despite a growing number of competitors in the segment, including companies for which electricity is not a core product, companies from outside the four largest Polish groups continue to control little market share. The leaders control over 80% of the market, while other significant player is E.ON Polska S.A., based on sales connected with serving as distributor for the Warsaw area, as well as PKP Energetyka S.A.

The district heat production market in Poland is highly dispersed, with the four leading producers accounting for less than 40% of production countrywide. PGE Group is the undisputed leader of this market, too with a share at a level of over 20%. This market is of a local nature and bears the traits of a natural monopoly, with heating prices being set in an administrative procedure – tariffs approved by the President of the Energy Regulatory Office. The dominant producers focus their production activities in different urban areas therefore sector competition is limited and is local in nature. Besides PGE Group, the key producers of heat are PGNiG (focused on production mainly in the Warsaw agglomeration) and Veolia Group (Poznań agglomeration, Łódź).

#### **Energy group profiles**

The division of the electricity sector into segments is reflected in the segments. The electricity sector is divided into segments, what is reflected in the operating segments of the respective energy groups. In contrast to the other energy groups in Poland, whose dominant EBITDA driver is the electricity distribution segment, PGE Group derives much of its operating profit from the generation segment, even though the group is the country's second-largest electricity distributor by volume. This allows to optimally deploy its competences and capitalise on opportunities arising in the generation area (both conventional and renewable) as well as in wholesale energy trade, whilst generating high and stable EBITDA on regulated activities.

With acquisitions of the Bogdanka mine and Połaniec power plant and the launch of a new unit at the Kozienice power plant, ENEA increased its share of EBITDA from the generation segment. This brought ENEA's profile closer to that of PGE Group.

A key feature of all the groups is a relatively small contribution of retail sales to operating profit, which is a result of sales margin levels, driven by strong competition in the segment.

Profiles of Polish energy groups (size of the chart is proportionate to share in the 9M 2021 EBITDA of respective business segments and the amount of total EBITDA).



PGE Group operates in an environment with a significant impact of domestic and foreign regulations. Presented below is a summary of the most significant decisions, which took place in 2021 and which could have an impact on PGE Group's operations in the coming years.

#### Domestic regulatory environment\*

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
PGE	The bill on the amendment to the Energy Law. CM list: UC 17 Parliamentary document: 808 Act of May 20, 2021 on amendment of the act – Energy Law, and certain other acts.	<ul> <li>The amendment to the Energy Law contains a number of changes of systemic importance, including:</li> <li>comprehensive arrangements concerning the energy storage issue,</li> <li>the introduction of the obligation to install remote reading meters,</li> <li>the appointment of an energy market information operator whose role will be to establish and develop a Central Market Information System ("CSIRE").</li> </ul>	The act entered into force on <b>July 3, 2021</b> with certain exceptions when the vacatio legis period was extended to 12, 24, 30, 36 months.	-	The proposed solutions will affect all operating segments of the PGE Group, in particular the Supply and Distribution segments. The draft prepares the market for the further implementation of directive 2019/944 on common rules for the internal market for electricity.
	The bill on the amendment to the Energy Law and the Renewable Energy Sources Act. GLC list: UC 74	<ul> <li>The draft act includes, in particular, proposals for provisions implementing into the Polish legal system Directive (EU) 2019/944 of the European Parliament and of the Council of June 5, 2019 on common rules for the internal market in electricity and amending Directive 2012/27/EU.</li> <li>The draft expands on the directions of changes in regulations initiated in the act of May 20, 2021 on amendment of the act – Energy Law, and certain other acts. These include:</li> <li>the technical ability to change electricity supplier within 24 hours, starting from 2026,</li> <li>implementation of civic institutions of energy communities,</li> <li>the customer's right to voluntarily and temporarily reduce electricity consumption ("DSR"), aggregation, contracts with dynamic electricity prices,</li> <li>definition of the aggregator's function on the electricity market, along with its tasks and authorisations,</li> <li>definition of demand response and active customer on the energy market,</li> <li>allow DSOs and TSOs to own certain energy storage installations,</li> <li>expand the Energy Regulatory Office's authority,</li> <li>regulations concerning system services, flexibility services and changes in balancing,</li> <li>introduction of provisions introducing the separation of transmission and distribution activities from energy storage – (an energy system operator, with the exceptions provided for in the draft, cannot be the owner of and cannot build, operate or manage an energy storage system).</li> </ul>	The deadline for submitting comments was June 23, 2021. On January 19, 2022 the Ministry of Climate and Environment published a set of responses to the comments submitted.	Publication of draft following consultations, sent to Council of Ministers for further work.	The proposed solutions will have an impact on all of PGE Group's operating segments, especially the Supply and Distribution segments. The draft introduces or applies numerous EU laws addressing the electricity market, including directive 2019/944 on common rules for the internal market for electricity, and grid codes.

\* (Based on the MANAGEMENT BOARD REPORT on the activities of PGE Polska Grupa Energetyczna S.A. and PGE Group for 2021).

Business activity Education

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
	The bill on the amendment to the Energy Law and the Renewable Energy Sources Act GLC list: UD 162	The bill includes proposals for legislation to abolish the exchange obligation and to tighten liability for electricity market manipulations. The ERO President will have at their disposal appropriate tools to prevent abuses and attempted abuses in the electricity market. According to the explanatory memorandum to the bill, the abolition of the obligation is included in the Polish Electricity Market Reform Implementation Plan.	Comments submitted during public consultations were published on <b>April 8, 2021.</b>	Submitted for further work in the Council of Ministers.	The proposed change to abolish the exchange obligation will have no adverse impact on the PGE Group's operations.
	Act amending the Act on the Capacity Market and certain other acts.	The bill promoter's intention is to align the Act on the capacity market to the provisions of Regulation (EU) 2019/943 of the European Parliament and of the Council of June 5, 2019 on the internal market for electricity and to improve the capacity mechanism taking into account lessons learned from organisation of capacity auctions to date and the associated processes (promulgation of regulations and rules, definition of auction parameters, certification processes).	On August 7, 2021, the law was signed by the President. It entered into force on September 1, 2021, with the exception of Art. 6, (concerning the provision of data and information by the Distribution System Operator via CSIRE), which comes into force on July 1, 2024.	-	The amendment is of key importance for PGE Group, the holder of a significant stake in the capacity market.
A C O	Act of December 17, 2020 on promoting electricity generation in offshore wind farms. Parliamentary document: 809	<ul> <li>The Act provides for enabling the development of offshore wind power generation. Offshore wind farms are important for the fulfilment of international commitments in the field of renewable energy in the long term. The key to these is to create legal regulations that will stimulate the growth of this sector.</li> <li>The Act provides for: <ul> <li>A support system for the offshore technology, adjusted to its technical and economic conditions, consisting in granting the so- called right to cover the negative balance to be calculated on the basis of the offshore installation's LCOE,</li> <li>modifications of administrative procedures related to the investment process, taking into account the specificity of the project to construct offshore wind farms.</li> </ul> </li> </ul>	On <b>January</b> 22, 2021 the act was signed by the President of Poland. It entered into force on <b>February 18,</b> 2021.	-	The act is of key importance for the develop- ment of offshore wind farms and thus for PGE Baltica sp. z o.o., a compa- ny responsible for the implementa- tion of the Offshore Programme at the PGE Group and coordinating prepa- rations for the con- struction of offshore wind farms.



Business activity Education

Seg- ments	Regulation	Regulation objectives	Latest conclusions Next stage	Impact on PGE Group
	The bill amending the Act on renewable energy sources and certain other acts. GLC list: UD 107 Parliamentary document: 1 129	<ul> <li>The bill envisages in particular:</li> <li>zniesienie obowiązku koncesyjnego dla abolishing the concession obligation for facilities below 1MW,</li> <li>extending the life of the discount/FIT (guaranteed tariff scheme)/FIP (surcharge to the market price) support system by 5 years (possibility to enter the system while retaining a 15 years' period of support),</li> <li>introducing the obligation for the Minister of Climate to publish, in advance, RES energy volumes to be subject to support over the next 4 years,</li> <li>increasing the PV capacity threshold for PV above which it is required to include facilities and protection zones around them in local zoning plans,</li> <li>possibility of executing lease contracts for the State Treasury's agricultural property without a tender between the National Center for Agricultural Support ("KOWR") and capital companies, as referred to in art. 1 sec. 1 of the Act of March 18, 2010 on the special powers of the Minister responsible for state assets and their implementation in certain capital companies or groups operating in the electricity, crude oil and gaseous fuels sectors in order to build, modernise or expand equipment or installations related to generation of electricity, ensuring safety and maintaining the functionality of property disclosed in the uniform list of facilities, installations, devices and services being part of critical infrastructure.</li> </ul>	On <b>October4,2021</b> - the act was signed by the President. It entered into force on <b>October</b> <b>30, 2021.</b>	The bill regards mainly the RES segment, extends the period within which new RES projects may apply for support. It also facilitates planning the development of this segment by introducing the obligation for the Minister of Climate to publish the schedule and capacity volumes for RES which may apply for support in the next 4 years.
	Draft act on amendment of act on renewable energy sources and certain other acts. Sejm print no.: 1 382	The act introduces a change in the settlement method for renewable energy prosumers by replacing the current discount system, which provides for the possibility of storing energy in the grid and consuming it at any other time, with a net billing system, which means that energy is ultimately valued according to the value from the hour of generation and hour of consumption. Furthermore, the act requires prosumers entering the system from April 1, 2022 to pay a distribution fee (previously paid on behalf of prosumers by energy vendors). In order to enable vendors to settle with prosumers, the act requires DSOs to provide vendors with detailed metering information. Vendors will be required to provide detailed billing information to prosumers via a dedicated ICT system. The act also introduces the institution of collective prosumer (effective from April 1, 2022) and virtual prosumer (effective from July 2, 2024).	On <b>December 14</b> , - <b>2021</b> the President signed the act. The act enters into force on <b>April</b> <b>1</b> , <b>2022</b> , with the exception of provisions pertaining to the acquisition of the right to participate in the existing prosumer support system, which went into effect on <b>December</b> <b>22</b> , <b>2021</b> and provisions concerning the virtual prosumer, which will enter into force	The draft is of key importance for the Supply segment, which currently has obligations to settle with prosumers and pay a distribution fee on their behalf to DSOs, and for the Distribution segment, which will be required to collect and compile metering data on prosumers.

on **July 2, 2024.** 

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
L. O.	Amendment of the act on investment in wind farms. GLC ref. no. UD207	Modification of rule 10H – mitigation by allowing municipalities to define in local spatial development plans (after consultation with local communities) a distance less than the statutory distance for wind farms from residential buildings, but not less than 500 m.	The deadline for submitting comments to the draft act was June 4, 2021.	Publication of draft, further consultations or submission of draft to Council of Ministers for further work	The draft is of significance to the development of the Renewable Energy segment.
	The Act of April 15, 2021 amending the Act on the green- house gas emissions trading scheme and certain other acts.	The Act is meant to transpose Directive (EU) 2018/410 of the European Parliament and of the Council of March 14, 2018 amending Directive 2003/87/EC to enhance cost- effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814 ("Directive 2018/410"), which establishes the so-called Modernisation Fund to operate in 2021–2030 and finance the modernisation of large power facilities as well as smaller-scale projects (insulation of single-family dwellings, modernisation of district heating sources and systems, development of low-carbon dispersed generation). Although the Act does not prejudge what projects will receive financing, it provides that the function of the national operator of the Modernisation Fund will be held by the National Fund for Environmental Protection and Water Management (Narodowy Fundusz Ochrony Środowiska i Gospodarki Wodnej, NFOŚiGW). In consequence, the Fund will provide project financing within the framework of the NFOŚiGW's priority programmes.	On April 15, 2021 the bill was passed by the Sejm, aside from exceptions, the Act went into effect on June 25, 2021.	-	The Act can open the way to apply for financing for PGE Capital Group investment projects.
	The bill on amendments to the Electro- mobility and Alternative Fuels Act and certain other acts.	Within the scope of its regulations, the bill transposes into Polish law a number of EU directives, including in particular Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market in electricity and amending Directive 2012/27/EU, as regards the construction of charging stations by DSOs. The act provided for the removal of the so-called intervention mechanism for building the charging infrastructure. According to the proposed act, DSOs will not be responsible for the construction of missing charging points in municipalities that were required by the Act on electromobility to reach a certain number of charging points.	On December 9, 2021 thedraftwassigned by the President of Poland. The act entered into force on December 24, 2021.	-	The act will have no adverse impact on the operations of the PGE Group. The removal of the so-called intervention mechanism is associated with the abolition of obligations imposed on Distribution and Supply segments.
	Draft act amending the act onmaritimesafety and the act on maritime areas of the Republic of Poland and maritime administration. Print no. 2 071	The draft act contains provisions aimed at ensuring safety during the construction and operation of offshore wind farms in the Polish exclusive economic zone of the Baltic Sea and equipment for the off-take of power from these installations. To achieve this goal, the legislation provides for the implementation of appropriate oversight mechanisms over the design, construction and operation of offshore wind farms, including a certification system and oversight activities related to the investment implementation process.	On <b>December 22</b> , 2022 the draft act was adopted by the Council of Ministers and referred to the Polish parliament. On <b>March 7</b> , 2022 the draft was referred to the Committee on Maritime Affairs and Inland Navigation for first reading.	Consideration of the draft act by the Committee on Maritime Affairs and Inland Navigation. Further proceedings on the draft act in the parliament.	The draft is of significance to investments in the development of offshore wind farms. The introduction of excessive certification mechanisms may delay the investment and increase the cost of the investment to develop offshore wind farms.



Business activity

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
	The regulation oftheCouncilofMinisters on the maximum quantity and value of electricity from renewable energy sources that may be sold by auction in 2021.	The aim of this regulation is to facilitate auctions to take place in 2021, thus continuing the upward trend in the use of renewable energy sources, which will contribute to the fulfilment of new EU obligations.	The draft regulation was published on <b>December</b> <b>22, 2020</b> and, bypassing public consultations, was promulgated on <b>December 28,</b> <b>2020.</b>	-	The regulations will make it possible to place the Group's photovoltaic projects in auctions scheduled for 2021.
			The regulation entered into force on <b>January 12,</b> <b>2021.</b>		
	Regulation of the Minister of Climate and Environment on reference price for electricity from renewable sources in 2021 and periods applicable to producers that won auctions in 2021.	Important parameters for renewables auctions that were held in 2021. Small changes in relation to the 2020 prices.	Regulation adopted on <b>April</b> 16, 2021.	-	Important from the point of view of planning and development of RES investments in the PGE Capital Group.
PGE	Act amending the Act on disclosure of information about the environment and its protection, public involvement in environmental protection and environmental impact studies and certain other acts.	The Act aims to transpose the EIA Directive (specifying the principles of environmental impact assessment) as regards Article 11(1) and (3), i.e. regulations concerning public access to justice in the area of the environment by granting environmental organisations new powers affecting the possibility to use decisions on environmental conditions of projects significantly affecting the environment and to obtain further investment decisions in the investment and construction process.	Regulation was signed on <b>April 20, 2021</b> by the President of Poland, went into effect on <b>May</b> <b>13, 2021.</b>	-	The Act affects all business segments of the PGE Group that implement infrastructural investments.
	Regulation of the Minister of Climate and Environment on the change in the volume share of electricity resulting from redeemed certificates of origin confirming the production of electricity from renewable energy sources in 2022. Climate and Environment Ministry list: 638	The regulation specifies the level of the obligation to redeem certificates of origin for energy from renewable sources ("PM OZE") for the so-called obligated entities in 2022. The regulation reduces the level of the obligation for PM OZE (the so-called green certificates) by 1pp – from 19.5% to 18.5% – compared to the level in effect in 2021. At the same time, the justification to the regulation provides for the possibility of further lowering the level of the obligation in the coming years.	The regulation was published in the Journal of Laws and went into effect on <b>August 28,</b> <b>2021.</b>	-	The reduced level of the obligation may slow down the growth in Renewables-segment revenue from the sale of PM OZE. At the same time, it reduces the burden on the Supply segment with the need to purchase a certain amount of PM OZE in relation to the volume of electricity traded.



Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
	Draft regulation of the Minister of Climate and Environment on technical requirements, connection conditions and cooperation of micro- installations with the power system Government Legislation Centre list: UD 19	The draft Ordinance is an implementation of the authorisation contained in art. 9 sec. 4a of the Energy Law, which imposes on the Minister responsible for climate matters the obligation to determine: • wymagań technicznych w zakresie przyłączania technical requirements for connecting micro- installations to the grid and the conditions for its cooperation with the power system, • conditions for connecting micro-installations to the grid and the mode of: • issuing connection conditions for this installation, • notifying the connection of the micro- installation. In accordance with the guidelines contained in the statutory authorisation, when specifying the above-mentioned elements, the need to increase the share of electricity generated by renewable energy prosumers in micro-installations in the country's energy balance, safety and reliable operation of the power system, as well as requirements for the construction and operation of devices, installations and grids were taken into account. The main purpose of the regulation is to reduce and simplify formalities related to connecting micro-installations, and thus to make the investment process in this type of installation more attractive. The draft introduces, among other things: a standardised form of micro-installation notification, as well as a template of an application for a micro- installation connection conditions. Detailed technical requirements for connecting micro-installations to the grid and conditions for its cooperation with the power system and detailed conditions for connecting micro-installations to the grid are set out in an appendix to the regulation.	On June 28, 2021 following negotiations the draft was sent to be examined by the Legal Committee at the Government Legislation Centre.	Examination of the draft by the Legal Committee and submission of the draft for signature by the Minister.	The draft regulation has a significant impact on the Distribution segment as regards the connection of micro-installations to the distribution grid and the Supply segment as regards prosumers' settlements, including for sellers obligated to purchase electricity introduced to the distribution grid from micro-installations. The Distribution segment will be required to register and share metering data on the surplus energy generated in the micro- installation and fed into the distribution grid. Companies in the Supply segment will be required to settle surplus energy generated in micro- installations and fed into the distribution grid under the agreement.
	Draft regulation of Climate and Environment Minister regarding energy market processes Government Legislation Centre list: UD 603	Draft regulation of Climate and Environment Minister regarding energy market processes implements the statutory delegation contained in art. 11zh sec. 1 of the act – Energy Law. The draft regulation is to enable the preparation of IT systems (remote reading systems for electricity distribution system operators and the central energy market information system) in connection with new challenges on the electricity market. The definition of a full catalogue of energy market processes is necessary to ensure the transparency of obligations of all energy market participants, both electricity system users obligated to implement energy market processes through the Central Energy Market Information Operator ("OIRE") so that it is possible to assess the fulfilment by the above-mentioned entities of the obligations imposed on them. The regulation will define a catalogue of energy market processes, the implementation of which through CSIRE will be obligatory for system users. The catalogue of energy market processes includes the basic processes currently implemented on the electricity market, taking into account the greatest usefulness of CSIRE for system users.	On January 11, 2022 the Minister of Climate and Environment signed the regulation, which went into effect on January 25, 2022.	-	The regulation will have a significant impact primarily on the Distribution segment, but also on the following segments: Conventional Generation, Renewables and Supply.



Sustainable investments ESG – Foundation of Development

Business activity

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
	Draft regulation of Climate and Environment Minister regarding metering system. Government Legislation Centre list: UD 507	The draft regulation implements the statutory delegation contained in art. 11x sec. 2 of the act – Energy Law, which which imposes on the minister responsible for energy the obligation to regulate therein, in consultation with the minister responsible for computerisation, the detailed requirements and standards to be met by the metering system. In addition, the draft regulation satisfies the obligation specified in art. 19 sec. 3 of Directive (EU) 2019/944 of the European Parliament and of the Council of June 5, 2019 on common rules for the internal market in electricity and amending Directive 2012/27 / EU, according to which Member States joining the introduction of smart metering systems adopt and publish minimum requirements functional and technical related to smart metering systems to be introduced in their territories.	The draft has been referred to the legal committee at the Government Legislation Cen- tre for examina- tion.	Recognition of the project by the legal committee at the Government Legislation Centre.	The regulation will have a significant impact primarily on the Distribution segment, but also on the following segments: Conventional Generation, Renewables and Supply. As regards the DSO's activities, it will be necessary to clarify requirements for metering systems, including electricity meters and metering system.
	Draft regulation of the Minister of Climate and Environment amending the regulation on detailed rules for the formation and calculation of tariffs and settlements for heat supply Government Legislation Centre list: 641	A one percentage point increase in the possibility for planned revenue growth in tariffs for heat from cogeneration. Guaranteed minimum increase in planned revenue for tariffs shaped on the basis of costs – (generation, transmission and distribution). Additional incentive in the form of higher returns on equity for assets that were created in connection with the development of heat sources constituting renewable energy installations. A condition under which a real possibility needs to be presented for using funds resulting from increased planned revenue as approved by the President of the Energy Regulatory Office in the tariff for heat toward investments relating to the modernisation of infrastructure for environmental protection purposes. The possibility to change the tariff after a change in indicators concerning the minimum increase in planned revenue.	Regulation published in the Journal ofLawson <b>January</b> <b>10, 2022</b> (Polish Journal of Laws of 2022, item 37). It went into effect on <b>January</b> <b>25, 2022</b> .	-	The regulation has a positive impact on the District Heating segment, both on heat generation in heating plants and cogeneration units. Positive changes in the tariff process may become an additional investment impulse.
	Draft regulation of the Minister of Climate and Environment on the maximum quantity and value of electricity from high-efficiency cogeneration covered by support and unit amounts of guaranteed premium in 2022 Government Legislation Centre list	The regulation specifies the maximum quantities and values of electricity covered by support and the unit amounts of guaranteed premiums. These figures are necessary for the operation of the support mechanism for electricity generated in cogeneration in 2022. Regulation issued periodically until October 31.	The regulation was published in the Journal of Laws and entered into force on <b>October</b> <b>24, 2021.</b>	-	The regulation has a positive impact on the District Heating segment – cogeneration units participating in the cogeneration support in accordance with the Act on support for cogeneration.



Business activity

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
	Draft regulation of the Minister of Climate and Environment on reference values for new and significantly modernised cogeneration units in 2022	The regulation specifies the reference values necessary to conduct auctions and recruitment for the cogeneration bonus for new and significantly modernised cogeneration units in 2022. The regulation is issued regularly until October 31.	The regulation was published in the Journal of Laws and entered into force on <b>October</b> <b>24, 2021.</b>	-	The regulation has a positive impact on the District Heating segment – cogeneration units participating in the cogeneration support in accordance with the Act on support for cogeneration.
	Government Legislation Centre list no.: 654				
¢ <sup>c</sup> °	Draft regulation of the Minister of Infrastructure on assessment of applications in adjudication proceedings Government Legislation Centre list no.: 81	The regulation establishes transparent, detailed criteria for assessing applications in the adjudication procedure, clear scores for these criteria and a scope of information and documents allowing for the determination of applicants' compliance with the criteria in this procedure. The regulation addresses the qualifying minimum and the method of determining the most important criterion for evaluating applications in an adjudication procedure.	On <b>December 1</b> , <b>2021</b> the regulation was published in the Journal of Laws. It went into effect on <b>December 15</b> , <b>2021</b> .	-	The draft is of significance from the viewpoint of planning and developing offshore wind investments by PGE Group.
	Draft Regulation of the Minister of Climate and Environment amending the regulation on detailed rules for preparing and calculating tariffs and billing for heat supply. RCL register: 795	<ul> <li>The draft amends the reference index, which is an integral part of the tariffing process for heat from cogeneration.</li> <li>The amendments concern:</li> <li>definition of the k value, being an element of the formula for calculating the reference index so that the k value can be calculated and published by the President of the Energy Regulatory Office depending on changes in the operating conditions of energy companies that burden the production of heat in cogeneration – for individual types of fuel referred to in art. 23 sec. 2 point 18 letter c of the Energy Law.</li> <li>determination of the k value so as to reflect the lack of a full sample of ETS sources in the average heat sale prices published by the President of the Energy Regulatory Office.</li> </ul>	On <b>March 3,</b> <b>2022</b> released by the Legal Committee.	Submission of the draft for signing by the Minister.	The draft is of significance from the viewpoint of an increase in revenue from the sale of heat.
	Draft act amending the act on the energy profile of buildings and certain other acts RCL register: UC82	The update amends the Building Law. From PGE Group's viewpoint, this is an opportunity to tighten the obligation to connect to the district heating network.	On <b>February</b> 14, 2022 draft was submitted to the Legal Committee.	Examination of the draft by the Legal Committee and sending the draft for signature by the Minis- ter, if there is no need for substan- tive modifica- tions.	The draft will tighten the obligation to connect buildings to the district heating network, which will be positive for the district heating segment's financial situation.



Business activity

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
	Draft act on support allowance RCL register: 1 820	The draft is intended to provide support to approx. 6.84 million households in Poland, including the most energy-poor households, by covering a part of their energy expenses and the related growing food prices.	o The act, published , in the Journal ds, of Laws of 2022 es item 1, entered into force on 4 <b>January</b>		The draft is of importance to electricity vendors. The act generates costs for vendors due to new information obligations.
		From PGE Group's viewpoint, additional obligations, including information obligations, are introduced.	1, 2022.		Protective obligations for sensitive customers are also introduced.
	Draft regulation of the Minister of Climate and Environment on the rate of cogeneration fee for 2022.	The draft regulation implements the statutory delegation contained in the Act on Promotion of Electricity from High Efficiency Cogeneration, which requires the competent minister to set the cogeneration fee rate for year "i" by November 30 of year "i-1." The draft will have a significant impact on ensuring proper operation of the support mechanism for high-efficiency cogeneration in guaranteeing financing of the support system by determining the cogeneration fee rate for 2022	Regulation published in Journal of Laws on <b>November 30,</b> <b>2021</b> . Regulation entered into force on <b>January 1, 2022</b> .	-	The draft is of significance to the district heating segment, which can participate in the support system for producers of electricity in high efficiency cogeneration.

#### International regulatory environment\*

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
Еигоре	an Green Deal/ Fit f	or 55 package			
	Directive 2003/87/ EC establishing a scheme for greenhouse gas emission allowance trading within the EU (ETS Directive) as well as implementing and delegated acts, Decision (EU) 2015/1814 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme (MSR Decision).	Combating cli- mate change. Development of investment incentives through a CO <sub>2</sub> price signal to develop low-emis- sion sources.	<b>On July 14, 2021</b> the European Commission presented a draft reform of ETS and MSR decision (relevant legislative proposals). ENVI is the leading committee on the draft reform of the ETS directive at the European Parliament, and Peter Liese (EPS, DE) is the rapporteur. ENVI is the leading committee on the MSR decision, and Cyrus Engerer (S&D, MT) is the rapporteur. The European Parliament wants to vote on its position on both of the legislative acts in the <b>second quarter of 2022</b> , so as to begin negotiations with the Council and the European Commission on the final shape of the inter-institutional agreement in the second half of the year. Reaching a general agreement in the Council on the revision of the ETS Directive and the Market Stability Reserve decision is a priority for the current French Presidency.	The legislative proposal is being proceeded in accordance with theregularprocedure by the European Parliament and Council. The EC expects that negotiations at EU institutions may last until 2023, so that the higher EU targets can be implemented from <b>2024.</b> The deadline to transpose the changes in the ETS directive as stated in the draft is <b>December 31</b> , <b>2023</b>	Increased competitiveness of renewable sources and – in short-term – gas units to the detriment of generation assets using high-emission fuels. Increase in operating costs for conventional generation of electricity. Option to obtain direct investment support from 2021 from the Modernisation Fund and Innovation Fund. Another revision of the ETS Directive and MSR decision is likely to cause a further increase in prices of emission allowances.

\* (Na podstawie SPRAWOZDANIA ZARZĄDU z działalności PGE Polska Grupa Energetyczna S.A. oraz Grupy Kapitałowej PGE za rok 2021.

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
Еигоре	an Green Deal/ Fi	it for 55 package			
PGE	Directive 2018/2001 on the promo- tion of the use of energy from renewable sources (Renewable Energy Directive).	To adapt legis- lation related to increased share of renewables in reference to EU's new higher GHG reduction target by 2030.	On <b>July 14, 2021,</b> as part of Fit for 55, the European Commission presented a legislative proposal that includes a draft amendment to the renewables directive. It proposes a range of measures to achieve a higher binding target of 40% of energy from renewable sources in gross final energy consumption in 2030 at the EU level. ITRE is the leading committee in the European Parliament, and Markus Pieper (EPL, DE) is the rapporteur.	The legislative proposal has been sent for further work at the Council and European Parliament. The legislative proposal is being proceeded in accordance with the ordinary legislative procedure by the European Parliament and Council. The proposed deadline for transposing the proposal into national law is <b>December 31</b> , <b>2024</b> .	Improvement in the competitiveness of low- emission sources of energy in comparison with high-emission sources. Larger share of renewable sources in the Polish energy mix by 2030.
PGE	Directive 2012/27/EU on energy efficiency (EED Directive).	To adapt legislation related to energy efficiency improvements in reference to EU's new higher GHG emission reduction target by 2030.	On <b>July 14, 2021</b> as part of Fit for 55 the EC presented a legislative proposal concerning a draft amendment of the EED directive. It proposes a set of measures to achieve at EU level a binding target to reduce energy consumption by at least 9% in 2030 in comparison to 2020. ITRE is the leading committee in the European Parliament, and Niels Fuglsang (S&D, DK) is the rapporteur.	The legislative proposal is subject to further work at the Council and European Parliament. The legislative proposal is being proceeded in accordance with the ordinary legislative procedure by the European Parliament and Council. The published draft does not include a deadline for transposing the directive into national law.	Improvement in the competitiveness of low- emission sources of energy in comparison with high-emission sources, particularly in heating systems. A faster phase-out of coal- based cogeneration from heating systems in connection with the introduction of a new emission criterion. Need for more extensive development of renewable sources in district heating systems. A higher factor for annual final energy savings will result in an increase in burdens on the energy efficiency certificate system.
	Directive 2010/31/EU on the energy performance of buildings (EPBD).	Alignment of legislation re- lated to impro- ving the energy performance of buildings in the EU with respect to the 2050 climate neu- trality target and the new higher 2030 EU GHG reduc- tion target.	On <b>December 15, 2021,</b> the European Commission, as part of the next stage of the Fit for 55 legislative proposal for a draft amendment of the EPBD. The new directive aims to contribute to making all buildings zero-carbon by 2050. The EC proposed a range of mechanisms to improve the energy performance of new and already occupied buildings, including modernisations. Ciarán Cuffe was elected rapporteur for the Lead Committee of ITRE (Green Party, IR).	The legislative proposal was sent for further work at the Council and the European Parliament. The legislative proposal is being proceeded according to the ordinary legislative procedure by the European Parliament and the Council. The date for transposition of the Directive into national law is not specified in the published draft.	Greater competitiveness of renewable energy sources as a heat source in buildings. Reduction in the heat demand of buildings due to improved energy performance. Faster rate of displacement of fossil fuels in the heating sectors, including district heating. Potential inhibition of growth of existing district heating systems due to proposed requirements for new and modernised buildings.



Business activity

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group
Еигоре	ejski Zielony Ład/ Pa	kiet Fit for 55			
PGE	Directive 2003/96/ EC restructuring the Community framework for the taxation of energy products and electricity (ETD Directive).	To adapt legislation related to tax on energy products and electricity to the EU's new higher GHG emission target by 2030.	On <b>July 14, 2021</b> as part of Fit for 55 the EC presented a legislative proposal that includes a draft revision of the ETD directive. ECON is the leading committee in the European Parliament, and Johan van Overtveld (EKR, BE) is the rapporteur.	The legislative proposal is subject to further work at the Council and European Parliament. The legislative proposal is being proceeded in accordance with the consultation procedure by the European Parliament and Council.	Increase in the minimum tax rates for energy products.
				The proposal deadline for transposing the directive is <b>January</b> <b>1, 2023.</b>	
A	Alternative Fuels Infrastructure Regulation (AFIR Regulation).	The aim of the new regula- tion, which repeals Directive AFID, is to ensure faster development of charging infrastructure and implement targets for charging station locations, including targets concerning distances between charging points through- out the trans-European TEN-T network.	On <b>July 14, 2021</b> as part of Fit for 55 the EC presented a legislative proposal covering the AFIR Regulation. TRAN is the leading committee at the European Parliament, and Ismail Ertug (S&D, DE) is the rapporteur.	The legislative proposal is subject to further work at the Council and European Parliament.	The necessity to prepare the power grid to perform obligations resulting from the AFIR Regulation in the distribution area.
	Regulation on guidelines for trans- European energy infrastructure (revision of the TEN-E Regulation).	Establishing guidelines for the development of trans-European energy infrastructure and new criteria for projects of common inter- ests ("PCI").	After the publication by the EC in <b>December 2020</b> of a legislative proposal to revise the TEN-E regulation, on <b>June 11, 2021</b> , the Transport, Telecommunications and Energy Council adopted a general approach, while on <b>September 28,</b> <b>2021</b> the ITRE committee at the EP approved amendments to the draft regulation and the mandate to begin tri-partite negotiations, ultimately adopted as the EP's negotiation position.	Approval of the agreement by the Council and EP in the <b>first or second</b> <b>quarter of 2022</b> , followed by publication of the regulation in the EU Official Journal.	The definition of rules for im- plementing PCI is a potential opportunity for certain PGE Group invest- ments to apply for the status of PCI pro- jects that may receive financial support from
			Trilogues between the EP, EC and the Council took place on <b>October</b> <b>13, October 25, November 23</b> and <b>December 14, 2021</b> , when a preliminary agreement was reached.		the Connecting Europe Facility.
			The text of the regulation agreed in the course of the trilogues included a new category of radial infrastructure for offshore wind farms and new, more liberalised criteria for smart grid projects.		



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Business activity

Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group	
The regulations concerning the financial perspective 2021–2027 and financing for sustainable economic growth						
PGE	The Regula- tion 2020/852 on the establish- ment of a frame- work to facili- tate sustainable investment, changing the regulation (EU) 2019/2088 (the Taxonomy Regulation) and delegated act to this regulation determining technical screening criteria.	Facilitation of funding for sustaina- ble economic growth in EU.	On <b>April 21, 2021</b> the European Commission initially adopted delegated act establishing detailed technical screening criteria on the basis of which economic activities will be assessed to determine whether an activity is environmentally sustainable in relation to climate change prevention and adaptation. This act does not contain technical screening criteria for gas and nuclear power. On <b>June 4, 2021</b> the EC published the above-mentioned delegated act in the national languages. Neither the EP nor the Council objected to this delegated act within the deadline. On <b>July 6, 2021</b> the EC published a delegated act under art. 8 of the taxonomy regulation, specifying rules for reporting participation in trade, CAPEX and OPEX of environmentally sustainable activities. Neither the EP nor the Council objected to this delegated act within the deadline. On <b>December 9, 2021</b> a delegated act was published in the EU Official Journal, specifying detailed technical screening criteria, which will be the basis for assessment of economic activity is conducted in a sustainable manner in environmental terms. The act entered into force on <b>December 29, 2021</b> and is applied from <b>January 1, 2022</b> . A delegated act under art. 8 of the taxonomy regulation was published in the EU Official Journal on <b>December 10, 2021</b> . The act went into force on <b>December 30, 2021</b> and is applied from <b>January 1, 2022</b> . On <b>February 2, 2022</b> the EC unveiled a delegated act setting out detailed technical screening criteria for the use of nuclear power and gas. On <b>March 9, 2022</b> , the EC unveiled a delegated act setting out detailed technical screening criteria for the use of nuclear power and gas. On <b>March 9, 2022</b> , the EC unveiled a delegated act setting out detailed technical screening criteria for the use of nuclear power and gas.	Publication by the Platform on Sustainable Finance of a report on the taxonomy of harmful activities and activities having no significant environmental impact, report on social taxonomy and report on technical screening criteria for further environmental objectives – Q1 2022. Expiry of the time- limit for raising objections to the delegated act on nuclear energy and gas – Q2/Q3 2022.	Impact on availability and cost of funding obtained by PGE Group companies for investments. Direct impact on raising external capital for investments in condensation and high-efficiency gas-fired cogeneration, depending on the specified locations and meeting criteria established by an additional delegated act. The obligation to include information on the share in the trade, CAPEX and OPEX of environmentally sustainable activities in the statement on non-financial information or consolidated statement on non-financial information.	
PGE	European Commission Revised Climate, Energy and Environmental Aid Guidelines 2022 (CEEAG).	Definition of new rules for award of state aid, adapted to EU's new reduction targets resulting from the Cli- mate Law.	On <b>June 7, 2021</b> the EC published a draft of new CEEAG guidelines, which are to replace the existing guidelines. Public consultations	-	A change in conditions for ob- taining state aid in PGE Group's segments. Some of the provi- sions introduce stricter criteria for obtaining state aid, others clarify rules for obtaining it.	
			ended on <b>August 2, 2021</b> . On <b>October 20, 2021</b> the European Parliament adopted a resolution that includes its position on the wording of the CEEAG guidelines proposed by the EC.			
			On <b>December 21, 2021</b> , the CEEAG Guidelines were approved by the College of Commissioners.			
			On <b>January 27, 2022</b> , the CEEAG Guidelines were formally adopted by the European Commission and went into effect.			



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Seg- ments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE Group			
The reg	The regulations concerning the financial perspective 2021–2027 and financing for sustainable economic growth							
PGE	Revision of Regulation 651/2014 of 17 June 2014 declaring certain types of aid compatible with the internal market pursuant to Art. 107 and 108 of the Treaty (GBER regulation).	The regulation is intended to facilitate the implementation of state aid measures by Member States without prior notification in the area of: • regional aid, • risk finance aid, • aid for research, development and innovation, • aid for environmental protection and energy purposes.	On <b>October 6, 2021</b> , the European Commission launched public consultations on the draft revision of GBER. The draft amendment extends the set of measures exempted from prior notification and raises notification thresholds for climate, environmental and energy measures where objectively justified. It is also intended to provide additional flexibility by taking into account higher aid intensities, in particular where the aid is awarded on the basis of a competitive bidding process. Consultations were completed on <b>December 8, 2021</b> .	A meeting with the State Aid Advisory Committee (composed of experts and the European Commission) will be held in the <b>first half of 2022</b> . It will take place after the European Commission has analysed the comments received during the public consultation. The regulation is expected to be adopted and published in <b>mid-2022</b> .	Change in the terms for notifying public aid in PGE Group's segments. Some provisions tighten the criteria for obtaining public aid, others specify the rules for obtaining public aid.			



#### Impact of war in Ukraine on PGE group's activities

PGE is the largest energy company in Poland. PGE's units meet approx. 43% of the country's electricity demand and serve over 5.5 million customers, while PGE's distribution area covers over 40% of Poland's territory, including areas on the border with Ukraine and Belarus. The Group's activities are therefore of exceptional importance for the country's energy security. It is crucial for PGE Group to secure the continuity of operation of power plants and CHPs and distribution infrastructure so as to ensure uninterrupted supplies of electricity and heat to residents, institutions and businesses.

In connection with the situation in Ukraine, a Crisis Team has been established at the central level of PGE Group to continuously monitor threats and identify potential risks. The Crisis Team's work includes monitoring the security of energy generation and supply and the protection of critical and IT infrastructure. Its tasks also include undertaking actions minimising the risk of a crisis situation, preparing the Group companies in the event of a crisis situation and planning, organising and coordinating works ensuring continuity of the Company's and PGE Group's operations.

Crisis teams have also been formed at the Group's key companies, operating 24 hours a day, carrying out continuous monitoring and identifying potential risks in order to minimise risk to electricity and heat supplies.

All key PGE Group companies have adopted guidelines for developing business continuity plans. On this basis, companies develop and then implement their own business continuity plans that take into account the specifics of the company. A key assumption of business continuity plans is the development of a catalogue of risks for critical processes, on the basis of which emergency scenarios (instructions, procedures) are developed and adopted. The emergency scenarios are periodically tested and continuously updated. In the current situation, companies have been tasked with both urgently updating and reviewing internal regulations and business continuity plans. Cybersecurity is also particularly important in the current geopolitical situation. PGE Group has implemented special procedures for monitoring ICT networks due to increased activity of criminal groups aiming to attack ICT (Information and Communication Technologies) and OT (Operational Technology) systems. With the CHARLIE-CRP state of alert in force, the emergency plans have been reviewed. A significant change in the company's operating context triggered the launch of a threat analysis and risk estimation for cybersecurity incidents. There is also an increased focus on protecting the supply chain against cyberattacks.

The security of the Group's facilities has been strengthened. In order to protect key energy infrastructure, the Group cooperates with all services responsible for security in Poland, with a particular focus on the Internal Security Agency (ABW). In addition, PGE Dystrybucja is continuously supported by the Territorial Defence Forces (TDF).

For further information is available in the *Energy security section* (page XX).

We are wholeheartedly with the fighting Ukraine. Since the beginning of the war, we have been supporting our neighbours in this difficult time, we are organising aid for refugees arriving in Poland and we will certainly not leave Ukraine without help after the war ends. PGE has the experience and competence necessary to build and operate power grids. Once the war in Ukraine ends, PGE Dystrybucja employees would provide valuable support in the reconstruction of the distribution infrastructure. We declare our full cooperation in restoring



PGE

reliable electricity supplies to Ukrainian households and the recovering Ukrainian economy.

**Wojciech Dąbrowski** CEO PGE Polska Grupa Energetyczna S.A.

# SUSTAINABLE INVESTMENTS

### Investments that create value



We know how huge investment expenditures are related to the energy transition process. Therefore, we focus on the optimal use of our capital and implementation of investments that provide the greatest added value.

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PGE Group's activities in the area of investments are regulated by PGE Group's Investment Policy, which sets out rules for evaluating, selecting, planning and monitoring investments and for assigning roles and tasks.

#### Macro scenarios (update at least once a year)

Factors such as:

- Electricity demand forecast
- Database of existing capacities in national power system
- New projects
- Forecasts for fuel and CO, prices
- Development of renewables
- Transboundary exchange

#### Market model (Forecasts)



With the analytical and decision-making process, only the most economically effective projects may be implemented.



- In accordance with rules specified in the Investment Policy and Investment Committee Regulations, all Strategic Investment Tasks should receive a recommendation from the Investment Committee prior to moving forward to each phase of the investment life-cycle.
- This guarantees appropriate oversight of the process.
   This is also of key significance in a rapidly changing business environment, which may substantially alter the conditions for implementing specific investments.

#### Investment monitoring process



The investment process is continuously monitored by the Corporate Centre. This enables us to know exactly how well investments are progressing and to identify any emerging risks, allowing us to respond quickly in the event of growing risks, but above all to counteract their occurrence at an early stage.

All relevant information on the progress of the investment process is made available to investors in periodic and current reports.

#### **Investment Committee**

PGE Group operates in the energy sector, where longterm planning is exceptionally important, especially when it comes to investments in generation sources, the construction of which may take several to a dozen or so years, and the useful life of such assets is calculated in decades. For this reason, PGE has an Investment Committee, an opinion body that acts as decision-making support for the Management Board of PGE S.A. and the management boards of PGE Group companies. The Committee's primary task is to provide opinions on investments, assuming that the investment eligibility criteria are met.

The Investment Committee is composed of more than a dozen people. These include members of the Management Board, directors of divisions, directors of organisational units of PGE S.A., as well as management board members from subsidiaries directly responsible for individual investments. The works of the Committee are managed by the Vice-President of PGE's Management Board responsible for investments

- provides recommendations on the transition of investments to subsequent phases of the investment life cycle,
- gives its opinion on the consolidated investment plan,
- monitors the so-called mega-investments, i.e. strategic investments with a capital expenditure value exceeding PLN 1 billion or other investment tasks of exceptional importance to PGE Group.

#### As part of its work, the Committee:

- based on analysis, expresses an opinion

   on the economic and technical advisability of the investment
   and recommends to the Management Board of PGE S.A.
   and the management boards of PGE Group companies
   investments with the highest performance indicators,
   with particular consideration given to the compatibility
   of the planned investment with PGE Group's Strategy, PGE
   Group's current possibilities of financing the investment
   and the degree of economic efficiency of the investment,
- issues recommendations with respect to the transition of investments to subsequent phases of the investment life cycle,
- provides opinions on the consolidated investment plan,
- monitors the so-called mega-investments, i.e. strategic investments with the value of capital expenditure exceeding PLN 1 billion or other investment tasks of exceptional importance to PGE Group.

**Business activity** Education

# **Offshore wind farms**



Offshore wind farms will transform the image of the Polish energy sector, generating inexpensive, clean energy and providing the impetus to build a new industry in the national economy.

#### Development of offshore wind farms

Strategic target:

in 2030

2.5<sub>GW</sub> >6.5<sub>GW</sub> in 2040







#### Baltica project

PGE Group's offshore projects



being implemented in partnership with Ørsted.

#### Offshore wind farm Baltica – the largest offshore investment in the Polish part of the Baltic Sea

In February 2021, PGE Polska Grupa Energetyczna and Ørsted signed an agreement to establish a 50/50 joint venture to develop, build and operate two offshore wind projects in the Baltic Sea with a total capacity of up to 2.5 GW. The estimated investment is up to PLN 35 billion.

In May 2021, the agreement was finalised and the partners now each hold a 50% stake in the Baltica 2 and Baltica 3 projects, which make up the Baltica offshore wind farm – the largest offshore investment in the Polish part of the Baltic Sea.

Baltica 2 and Baltica 3 will significantly contribute to Poland's transition towards green energy, accelerate the development of the local supply chain and stimulate economic activity for years to come. Both phases have already received environmental permits and signed grid connection agreements, and on April 7, 2021 received contracts for difference from the Energy Regulatory Office. Depending on the final investment decisions of Ørsted and PGE Group, Baltica 3 (1 GW) could be put into service in 2026 and Baltica 2 (1.5 GW) before 2030. The next phase of PGE's offshore wind project, Baltica 1 with a capacity of 0.9 GW, is scheduled for completion after 2030.

In April 2021, the Energy Regulatory Office granted Baltica 2 and Baltica 3 the right to cover the negative balance (the so-called contract for difference) ensuring a price not higher than 319.60 PLN/MWh in accordance with the Regulation of the Minister of Climate and Environment and the Act on the Promotion of Electricity Generation in Offshore Wind Farms, the so-called Offshore Act. The award of the contract for difference is subject to the final approval of the European Commission.

In July 2021, PGE and Ørsted selected the consortium of Geoquip Marine and MEWO S.A. to carry out a geotechnical survey of the seabed. Surveying the seabed subsoil is one of the key elements in preparation for the construction of an offshore installation. The scope of work includes the drilling of deep boreholes, surveys to determine the sequence and depth of geological strata (CPT soundings), shallow boreholes, as well as conducting laboratory tests offshore and onshore. The performance of the subsoil

investigation work is necessary to obtain the final investment decision and to start the construction of offshore wind farms.

In August 2021, PGE Polska Grupa Energetyczna selected a financial advisor for the construction of the Baltica 2 and Baltica 3 farms, comprising the Baltica offshore wind farm – the largest investment of its kind in the Polish part of the Baltic Sea. PGE's advisor in securing financing for the construction of offshore wind farms in the Baltic will be Société Générale.

PGE and Ørsted have also notified the individual price in the contract for difference for both phases of the Baltica offshore wind farm project being carried out together – Baltica 2 and Baltica 3. After verification of the documentation by the Energy Regulatory Office and the Office of Competition and Consumer Protection, this has been forwarded to the European Commission and is awaiting a decision.



The Baltica project has also launched tenders:

• for the supply of wind turbine generators

- for the hiring of offshore wind turbine installation vessels
- for the execution of the third stage of geotechnical research (analysis of the geological structure of the seabed and its strength for offshore wind turbine foundations)
- for the general contractor for the land connection

#### Status of PGE Group's offshore projects

		Baltica 1	Baltica 2	Baltica 3
0	Location decission	Received	Received	Received
٩	Environmental permit for marine part		Received	Received
	Connection agreement	Received	Received	Received
	Right to CFD		Received	Received

#### Other offshore projects -

#### Cooperation with Tauron and Enea

In January 2021, PGE, Tauron Polska Energia and Enea signed a letter of intent to work on future offshore wind farm projects. In the letter of intent, the companies expressed their willingness to establish strategic cooperation related to future offshore wind energy investment projects in the area of the Polish Exclusive Economic Zone of the Baltic

Sea. The motivation for the cooperation is to achieve synergy effects when undertaking joint investments in the offshore field.

In November 2021, PGE Polska Grupa Energetyczna signed conditional agreements with Tauron Polska Energia and Enea for the sale of shares in four SPVs tasked with obtaining location permits for the construction of offshore farms in the Polish Exclusive Economic Zone in the Baltic Sea. These are conditional agreements. The approval of the Office of Competition and Consumer Protection was the only condition precedent for both preliminary agreements. The application to the President of the Office of Competition and Consumer Protection for the concentration between PGE S.A. and ENEA S.A. was submitted on July 5, 2021, and the concentration consent was issued on December 23, 2021. An application to the President of the Office of Competition and Consumer Protection for the concentration of PGE S.A. with TAURON Polska Energia S.A. was filed on October 28, 2021. The concentration consent was issued on January 10, 2022.

#### Location permits

The processes for obtaining location permits for offshore wind farms – for the construction and use of artificial islands – are in progress. PGE has submitted seven such applications to the Ministry of Infrastructure (November 2021 – 2 applications; 26 January 2022 – 3 applications; 2 February 2022 – 1 application, 9 February 2022 – 1 application).



We implement our investments in offshore energy based on a well-considered strategy and economic calculation. We are interested in prospective areas in the Baltic Sea that will allow us to develop offshore in the near future. As



planned, we are consistently applying for location permits for our wind farms in additional areas.

> **Wojciech Dąbrowski** CEO, PGE Polska Grupa Energetyczna



#### We are building the offshore industry in Poland

PGE's investments in offshore wind farms are pioneering projects on the Polish market – therefore PGE Group is contributing to the formation of a new sector of the economy in our country. The construction and development of the offshore wind energy sector on the Polish coast will have a positive impact on the development of the national economy, particularly in a regional dimension – the whole area of Pomerania. Local companies will be able to benefit from orders from general contractors, and the existing infrastructure on the coast provides opportunities for the development of Polish port and transport logistics.

A similar idea of increasing the share of local content and building added value in the Polish economy is guiding the Sectoral Agreement for the Development of Offshore Wind Energy in Poland, of which PGE is one of the signatories.

We also continuously engaged in dialogue with suppliers and subcontractors as part of Suppliers Days. In April 2022, we conducted such online presentations, which were attended by around 800 representatives of companies interested in cooperation, including more than 500 from Poland, indicating strong interest from Polish companies. In June, we held a workshop for suppliers with an emphasis on QHSE standards. During the events organised for suppliers, we not only highlight possible fields of cooperation, but also indicate the requirements for potential subcontractors.

Our efforts are paying off, as the first domestic contractors are already taking part in our offshore investments. In August we selected the contractor for the construction project for the offshore part of the Baltica offshore wind farm: it will be a consortium of the Polish branch of Denmarkbased Ramboll and the Gdańsk design office Projmors. We are announcing further major tenders – in the spring we announced procedures for the general contractor for the onshore part of the Baltica offshore wind farm, and in August for the contract engineer for the onshore part.

As part of its activities related to the development of the offshore sector, PGE also cares about the development of human resources. Experts in many areas related to the offshore wind sector are already being sought, including the design, construction, operation and maintenance of offshore wind power plants. The investment preparation process also requires managers who will be able to manage it efficiently and later supervise the proper operation of offshore wind farms. Preparing strategies for offshore projects, creating and handling financial instruments for emerging investments, risk management or crisis management – these are just a few examples of career opportunities in the promising offshore wind industry emerging in Poland.

That is why PGE Polska Grupa Energetyczna has joined forces with Łazarski University to prepare a postgraduate program called "Offshore wind energy: management, preparation and implementation of investments," based on the teaching staff from this renowned university in Poland and expert practitioners with experience in the offshore industry, which will be launched from October 2022 and is addressed to anyone interested in professional development in the offshore wind energy field. It will be the first course in Poland to prepare experts to manage investment processes in offshore wind energy.

In cooperation with the Maritime University of Gdynia, a major entitled "Risk Management in the Offshore and Wind Energy" has been created under the auspices of PGE. The studies are intended for managerial and technical staff of companies operating in the entire offshore industry and its component

sectors. Both OO&G (Offshore Oil&Gas) and OWE (Offshore Wind Energy) professionals can benefit from this offering. Graduates will acquire knowledge and skills primarily related to effective and safe risk management in offshore projects. This will be ensured by qualified staff consisting of experts in shipping, safety, law, as well as experts-practitioners from the offshore wind energy sector.

The construction of the installation and the accompanying infrastructure is preceded by a number of studies. We cannot imagine the implementation of PGE Group's offshore program without cooperation with Polish scientific institutions, especially from Pomerania. The knowledge possessed by the scientists of the Institute of Hydroengineering at the Polish Academy of Sciences will be a valuable asset in the course of our further cooperation. I am certain that Polish science will make a sizeable



contribution to offshore wind energy projects and that this contribution will grow.

Dariusz Lociński CEO, PGE Baltica

Building a new sector of the economy also means working with scientific centres:

- In autumn 2021, the Institute of Fluid-Flow Machinery at the Polish Academy of Sciences completed a research project for PGE Baltica to investigate the wind flow blockage effect of large offshore wind farms. As a result of the work, an advanced model of airflow through offshore installations was created,
- In June 2022, PGE Baltica, a PGE Group company, and the Institute of Hydroelectric Engineering at the Polish Academy of Sciences signed a letter of intent paving the way for cooperation to develop the offshore wind energy sector. The letter of intent includes, inter alia, subject-matter and operational consultation during the design work developing offshore wind farm projects in the Baltic Sea, and particularly concerns cooperation in studies related to port infrastructure.

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## **Onshore wind farms**



PGE is the leader in onshore wind energy. But we are not stopping. We are striving to make optimal use of this technology also on the sites of our current conventional power plants.

At the end of 2021, PGE Group had 17 wind farms with a total capacity of 688 MW. By implementing our strategy, we aim to reach approx. 1,700 MW of installed capacity in 2030. This will be achieved through our own projects but also via acquisitions of operational wind farms and projects at the building permit stage or repowering of existing assets.

In June 2021, we finalised the acquisition of three onshore wind farms with a capacity of 84.2 MW. For PGE Group, this acquisition means an increase in installed capacity from 688 MW to 772 MW of onshore technology and an increase in market share from 9.6% to 10.8% (according to data from the Energy Market Agency, installed capacity of wind farms at the end of 2021 was close to 7,117 MW).

The farms acquired by our Group are located in three different voivodeships: the Kujawsko-Pomorskie voivodeship (36.9 MW WF Radzyń), the Łódzkie voivodeship (22 MW WF Ścieki)

#### Objective set in the strategy:

>1 <sub>GW</sub> in new capacities by 2030

and the Wielkopolskie voivodeship (25.3 MW WF Jóźwin). This amounts to a total of 32 turbines with an overall capacity of 84.2 MW and an average annual production of 240,000 MWh, making it possible to supply electricity to 120,000 households, i.e. a city the size of Lublin. The farms have long-term contracts for the purchase of green electricity by external customers, which partially secure the volumes produced until as late as 2030. They will benefit from a support scheme in the form of green certificates until around 2030.

These farms are characterised by high productivity, in particular the Radzyń site, whose net capacity utilisation of over 3,400 full load hours (FLH) is close to the values achieved by offshore wind farms. In addition, the Ścieki farm is located in the immediate vicinity of the Skoczykłody wind farm acquired by PGE in 2020, which will generate additional synergies in their operation within the Group.



#### PGE expands onshore with portfolio

Wind farm Jóźwin in Wielkopolskie voivodeship with capacity of

25.3 MW



Wind farm Radzyń in Kujawsko-Pomorskie voivodeship with capacity of

#### 36.9 MW

Wind farm Ścieki in Łódzkie voivodeship with capacity of



This is the beginning of investment plans on the way to achieving the objective set out in the strategy. We will be pursuing investments in two tracks. On the one hand, we intend to build new power plants and, on the other, to acquire ready-made projects (we are analysing further acquisition projects with a total capacity of around 100 MW). In the first case, the planned amendment to the socalled Distance Act will greatly facilitate this. It will allow us to launch investments that have been frozen so far. PGE owns approx. 150 MW of capacity in such projects in very good locations, most of which are located in the Pomorskie and Zachodniopomorskie voivodeships. The draft amendment to the Distance Act, adopted by the government on July 5, 2022, allows for a new wind turbine to be built at a distance from an existing residential building that is less than the 10H rule, but not less than 500 metres. Currently, such a power plant cannot be erected at a distance of less than 10 times the height of the planned wind turbine. The next step will be to start work in the parliamentary committee (*as of the date of publication of the integrated report*).



### Photovoltaics development program

GRI: Own indicator (Implementation of the strategy)



Education

The use of solar energy is expected to complement PGE's diversified generating portfolio and contribute to the objectives of producing clean electricity and reducing dependence on fossil fuels.

#### Objective set in the strategy:

>3 <sub>GW</sub> in new capacity by 2030

#### Photovoltaic projects

In 2021, construction permits were obtained for large-scale photovoltaic farm projects with a total capacity of 166 MW, including PV Augustynka (25 MW), PV Gutki (12 MW), PV Huszlew (13 MW), PV Jeziórko (100 MW) along with over a dozen small-scale units of up to 1 MW each.

In June 2021, after winning a RES auction, 19 projects with a total capacity of some 18 MW received support. In the third quarter of 2021, implementing contracts were concluded for these projects. After the design phase, component deliveries started at the end of the year at the individual sites. The units will be put into service in 2022.

In December 2021, as a result of a successful RES auction, the Augustynka PV project and three projects in the basket of units up to 1 MW received support. At the end of 2021 and the beginning of 2022, tender procedures for the selection of contractors for the above installations were launched. Their entry into operation is scheduled for 2023.

In February 2022, PGE Energia Odnawialna purchased seven PV projects in the Wielkopolskie and Lubuskie voivodeships with a total installed capacity of 26 MW. All of the projects have valid technical connection conditions. The estimated production – at a level of nearly 29 GWh per year – will enable the electricity needs of approx. 12,000 households to be met. All of these power plants will be commissioned by the end of the third quarter of 2023. They will be built using stateof-the-art photovoltaic modules, the technical parameters of which allow high productivity to be achieved, under weather conditions typical of the climatic zones found in Poland. As part of the project, accompanying infrastructure related to power evacuation will be built alongside the PV systems.

### Tenders to build five more PV farms with a total capacity of 17 MW

July 2022, PGE Energia Odnawialna, a PGE Group company, settled tenders for the construction of five more photovoltaic farms with a total capacity of 17 MW. The new PV units will be built in the Wielkopolskie and Lubuskie voivodeships.

The solar investments will be put into service in the middle of next year. PGE Energia Odnawialna will build them on leased private land. All installations will be built using modern photovoltaic modules with a minimum power of 500 W each. Their technical parameters allow for high productivity, in weather conditions typical of the climatic zones found in Poland.

The largest investment will be the 8 MW PV Pasterzowice (Żagań district). The next smaller farms are: PV Krotoszyn (Krotoszyn district) with a capacity of 5 MW, the two-megawatt PV Ruchocinek (Gniezno district) and two one-megawatt PV Siedlisko 1 and PV Siedlisko 2 (Nowa Sól district).



In addition, the company has plans to secure construction permits for PV projects with a capacity of approx. 260 MW. In the coming years, when this process accelerates, PGE will be able to tender for more than 300 MW of solar power annually. The company has secured some 3,000 hectares of land on which projects with a total capacity of around 2 GW will be possible. PGE will implement investments both using the support system and through long-term PPAs.

#### Projects with a capacity of up to 1 MW

- PGE Energia Odnawialna has won RES auctions for installations up to 1 MW
- 15-year support period 2023–2037
- June 2021 auction: 14 PV installations (1 MW each), 5 installations of 0.5–0.8 MW
- Status: construction of 5 PV farms has already started

#### **Project PV Augustynka**

- Installed capacity 25 MWe
- Land for PV farm leased
- Building permit secured in October 2020
- PV Augustynka won in RES auction in December 2021
- Planned commissioning: 2023

#### project PV Jeziórko 1&2

- Installed capacity153 MWe
- Land for PV farms leased
- Building permit secured in December 2021
- Tender procedures commenced in April 2022
- Planned commissioning: 100 MW in 2023, 53 MW in 2024

# Building low-carbon capacity

GRI: Own indicator (Implementation of the strategy)

Direction PGE 2050



As part of the strategic objective of achieving zero-carbon in 2050, a transition period is assumed in which lowcarbon natural gas, among other fuels, will be used. Investments in natural gas in the Polish electricity system are to be limited to the scale necessary for the diversification and balancing of the domestic generation mix.

Investments in gas-fired capacities are part of PGE Group's strategy and result from the need to balance the system with the growing role of RES and a shortage of flexible generating capacity in Poland. In its new business model, PGE Group envisages a dedicated low-carbon energy segment. Capacity in the segment will come from two investment projects currently in progress: the construction of gas-fired units at the Dolna Odra plant and the construction of a new lowcarbon unit at the Rybnik plant.

#### Gas-and-steam units at Dolna Odra



The two gas-steam units at the Dolna Power plant (project Gryfino 2050) – each with a gross capacity of 683 MW – are a project of strategic importance to the Polish economy. The contract for the investment was signed with General Electric Global Services GmbH, Polimex Mostostal S.A. and General Electric International Inc in January 2020. The value of the contract is PLN 3.7 billion net and the value of the 12-year maintenance contract is over PLN 1 billion. The units under construction will constitute the largest and most modern gas-fired power plant in Poland. The investment will be commissioned prior to the end of 2023 and the new units, powered by low-carbon gas, will replace coal-fired capacity that is being phased out, contributing to the gradual decarbonisation of electricity generation in Poland. As of March 31, 2022, the project was approx. 62% complete.

PGE's emerging gas investment is at the forefront of the most modern gas-fired power stations in Europe and one of the key elements of the Group's low-carbon transition. It is also a practical example of how the Polish energy industry is changing. Flexible generation technology in this type of unit will enable system stabilisation and will be important support for the numerous onshore wind farms in Pomerania and the offshore farms under construction in the Baltic Sea, including the largest offshore



farms, built by PGE Group. Implementing a project of this scale is also a developmental stimulus for the region and jobs around the investment.

Wojciech Dąbrowski CEO, PGE Polska Grupa Energetyczna

A 17-year contract in the main auction of the capacity market, which will take effect from 2024, is secured for the capacities of the new Dolna Odra plant. They will meet strict environmental standards for emissions. Currently, the average emissions for power generation in the National Power System is around 0.8 tonnes CO<sub>2</sub>/MWh. **In the new units, the emissions will be below 0.35 tonnes of CO<sub>2</sub>**/ **MWh**. The commissioning of the new units will therefore **reduce emissions by approx. 2–3 million tonnes of CO<sub>2</sub> per year**. The new units will produce electricity equivalent to the demand of some 2.5 million households.



0.35 tonnes CO<sub>2</sub>/MWh

maximum emissions of new units



The construction of two new gas-fired units will restore the generation potential of the Dolna Odra plant. The investment in modern gas-fired plants is a guarantee of the long-term operation of the power plant, which plays a strategic role in the National Power System as the only system generator for the north-western area of Poland.

The location of the new units will make it possible to take advantage of the potential for gaseous fuel supplies from the nearby LNG terminal in Świnoujście and to exploit the potential of the Baltic Pipe, which is expected to be put into service in the second half of 2022. Connection to the gas network will be ensured through an agreement with GAZ-SYSTEM concluded in March 2020. The investment involves the construction of approx. 63 km of gas pipeline and a gas station.

#### Construction of a new low-emission unit at Rybnik



# The low-carbon 800–900 MW net CCGT unit construction project at the Rybnik plant is well-aligned with the decarbonisation of the energy sector.

- Rebuilding generation capacity in Rybnik
- Low-carbon unit, balancing increasing RES capacities
- Meeting the requirements for a low-carbon unit (BAT conclusions)
- Lower environmental risk a unit that can be adapted to stricter environmental requirements in the future
- Just transition Ensuring jobs at the new unit
- Gas units have lower CO<sub>2</sub> emissions than coal units and therefore lower exposure to changes in the price of emission allowances

#### New unit specification



The capital expenditure for the project is estimated at approx. PLN 2.95 billion, of which some PLN 0.88 billion would come from funds raised through the series E share issue that took place in the first half of 2022. According to the adopted schedule, the unit would be put into operation in 2027. The final investment decision will depend on the bids received for the construction of the unit and the outcome of the Capacity Market auction for 2027.

Business activity Education

## **Decarbonisation of district heating**

GRI: Own indicator (Implementation of the strategy)

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PGE Group's strategy adopted in 2020 is aimed at reaching climate neutrality. In the district heating segment, the key date is 2030, when the share of heat generated from zero – or low-emission fuels is to reach 70%. Currently, it is some 30%.

#### Objective set in the strategy: Share of zero – and low-carbon sources in heat generation at 70% by 2030

In line with the strategy, investment decisions for natural gas in district heating will be made by 2025 at the latest; commercialisation of zero-emission fuels (e.g. green hydrogen) or electrification of district heating will be necessary in later years. Already today, PGE is primarily considering the possibility of developing zero-carbon capacity at each location, with the current feasible decarbonisation of large-scale district heating only possible with natural gas as a transition fuel.

#### Outcomes of decarbonisation in district heating


#### Reduction of CO<sub>2</sub> emission (milion tonnes)



#### New EC Czechnica

June 2021, KOGENERACJA (a PGE Group company) signed a contract for the construction of a gas-fired combined heat and power plant in Siechnice (New EC Czechnica). The new EC Czechnica will have a thermal capacity of 315 MWt and an electrical capacity of 179 MWe and will replace coal-fired units. The unit is expected to be put into service at the beginning of 2024. The value of the contract signed for the investment in Siechnice is PLN 1.160 billion. The construction site has already been handed over to the General Contractor. Within the investment, the construction of a container town has been completed and earthworks have been started for the foundations of the main building and the gas and steam turbine sets. The financial advancement of the project is about 7% and the material advancement is about 5% (as of the end of March 2022).

This investment of key importance for the Wrocław agglomeration has already received the following funding:

- A preferential loan of up to PLN 300 million from the Energy Plus priority program implemented by the National Fund for Environmental Protection and Water Management (NFOŚiGW)
- A subsidy of PLN 50 million from the NFOŚiGW
- A grant of more than PLN 30 million provided under the Environment, Energy and Climate Change Program co-financed by the European Economic Area Financial Mechanism 2014–2021

In March 2021, the individual co-generation bonus for the New EC Czechnica unit was granted in a decision of the President of the Energy Regulatory Office.

#### Ecological effects – expected emission reduction



# Proceeds from PGE Polska Grupa Energetyczna share issue for decarbonisation of district heating

Some of the expenditures on the decarbonisation of district heating will come from funds raised through the series E share issue that took place in the first half of 2022. The total capital expenditure on the construction of the three gas units (EC Kielce, EC Zgierz, EC Bydgoszcz) is estimated at around PLN 460 million, of which PLN 230 million will be financed with proceeds from the share issue.

#### **Program assumptions**

Electric capacity	Thermal capacity	Entry into service	Total CAPEX	Funding from new share issue	Środki z nowej emisji akcji
EC Zgierz	15 MWe	13 MWt	2023	PLN 90 million	PLN 45 million
EC Kielce	8 MWe	14 MWt	2024	PLN 70 million	PLN 35 million
EC Bydgoszcz	54 MWe	41 MWt	2025	PLN 300 million	PLN 150 million

Customer perspective

Production of heat in a **more** effective and eco-friendly manner

Improved air quality for surrounding city areas vs. coal-fired CHPs

PGE

Meeting environmental and social expectations

Need for a **reliable and responsible** supplier of heat and electricity

Education

#### EC Kielce new OCTG construction project under the New Issue



Strategic rationale:

- Filling capacity deficit after shutting down of the WP120 coal fired boiler and two WR-25 boilers
- Construction of a new low-emission cogeneration system with a gas turbine
- Investment execution will cover heat demand in Kielce

#### EC Zgierz decarbonisation project under the New Issue



2023 - contracted participation in the Capacity Market from 2026 (17 years) or potential cogeneration premium for 15 years\*\*

#### Strategic rationale:

- Investment execution will allow to cover heat demand in Zgierz after the old coal-fired boiler OF-100 is decommissioned
- Reducing the carbon intensity of the generating units within the city of Zgierz

#### EC Bydgoszcz decarbonisation project under the New Issue



Strategic rationale:

- Covering capacity deficit after decommissioning of older coal-fired boilers K1 and K2 in Bydgoszcz
- Reducing the carbon intensity of the generating units within the city of Bydgoszcz

#### Key KPI for the investment in Kielce



\*Average annual energy production

\*\*The average emission for coal-fired CHP plants is 450 kg/MWh

\*\*\*NOx min-max monthly average concentration range (I-XI 2021)

#### Key KPI for the investment in Zgierz



\*Average annual energy production

\*\*The average emission for coal-fired CHP plants is 450 kg/MWh

\*\*\*NOx min-max monthly average concentration range (I-XI 2021)

#### Key KPI for the investment in Bydgoszcz



\*Average annual energy production

\*\*The average emission for coal-fired CHP plants is 450 kg/MWh \*\*\*NOx min-max monthly average concentration range (I-XI 2021)



#### Electrode boilers at EC Gdańsk

In December 2021, a reserve peak load boiler plant with Poland's first electrode boilers was put into service at PGE Energia Ciepła's cogeneration plant in Gdańsk. The investment is part of the transition of PGE Energia Ciepła's district heating assets towards low – and zero-emission. The objective of the change is to gradually replace existing generation sources with new units. The use of electrode boilers in Gdańsk is the first such deployment of this technology in Poland.

The new boilers are powered by electricity produced at the Gdańsk CHP. The technology, which is based on a combination of electrode and oil, and ultimately gas, boilers, enables a quick response to fluctuating heat demand in the power range from 2.5 to 130 MWt and the boiler plant can start operating in just a few minutes.

The new boiler plant consists of **two oil-gas boilers** of 30 MWt each and two electrode boilers of 35 MWt each. The use of electrode boiler technology at the Gdańsk CHP is an innovative solution in Poland. The new boilers will be powered by electricity produced at the Gdańsk CHP, which today generates energy for the national system.

The Polish district heating system is one of the most developed in Europe and its decarbonisation must take into account the specifics of heat supply to customers. Large district heating systems need stable generating units, such as today's low-emission natural gasfired cogeneration units. However, we are considering the potential for large-scale heat pumps, electrode boilers or the use of biomass at each of PGE's heat generation sites. At the same time, we are looking at the development of technologies such as green hydrogen, with a view to the future use of zero-emission solutions



at PGE's CHPs, in line with the Group's outlined climate neutrality plan for 2050.

#### Arkadiusz Szymański

Director, Regulation, District Heating and Support Systems Division, PGE Energia Ciepła

#### 2<sup>nd</sup> waste-to-energy incinerator line in Rzeszów

On May 26 of this year, the CHP branch of PGE Energia Ciepła in Rzeszów signed a contract with a contractor to build the second technological line for a waste-toenergy incinerator.

The second line of the incinerator will be housed in an existing building and will make maximum use of the existing infrastructure that was built during the construction of the 1st technological line, put into operation at the end of 2018. From the outset, the realisation of the incinerator in Rzeszów envisaged the construction of two technological lines with a total processing capacity of 180,000 tonnes of waste per year. Under to these assumptions, the main building was designed together with communication solutions and auxiliary installations. The current capacity of the first line is approximately 100,000 tonnes of waste per year. The capacity of the second process line will be approximately 80,000 tonnes of waste per year.

Under the contract, works related to the installation of the second process line at the incinerator are expected to be completed in the fourth quarter of 2024.

The expanded incinerator system will continue to process municipal waste and recover electricity and heat from it for the residents of Rzeszów connected to the city's district heating system. The functioning installation contributes to a significant improvement in environmental conditions by reducing landfilling of municipal waste in favour of its on-going processing for energy purposes, and also because of the reduction of fossil fuel combustion in the heat generation process.

As the leader of Poland's energy transition, we are committed to addressing the challenges currently facing the heating industry so that it can continue to function and provide energy security. Thermal waste conversion is evidence of PGE's application of circular economy measures and the use of municipal waste to



PGE

produce clean energy. Thanks to the new investment, additional heat and electricity will be added to the grid to supply around 15,000 households.

Wojciech Dąbrowski CEO, PGE SA.



#### Other decarbonisation projects

Further locations are in the pipeline for projects using gas fuel: EC Gdynia, EC Gdańsk, EC Kraków and EC Rzeszów.



#### The average emissivity of the selected large district heating systems operated by PGE

An example of a successful transition implemented is the replacement of a coal-fired CHP plant with a gas-fired one in Toruń. The investment has significantly contributed to reducing the environmental impact while improving the quality of life of the local community.



# **Electricity distribution**



# Energy transition without the development and automation of distribution grids is not possible. We are investing in the distribution business so that it can meet the challenges of the modern energy industry.

#### **Connecting new customers**

1 言

For PGE Dystrybucja S.A., connection tasks are about development, resulting in an increase in connection capacity and contributing to increased connection capabilities in the future. In 2021 the largest expenditures in amount of PLN 626 million were incurred for connection of new off-takers.

#### The Czosnów node realisation

PGE also continued implementing another stage of its investment at the Czosnów node in 2021. The 110/15 kV substation in Czosnów along with the HV power lines currently under construction will enhance the security of electricity supply and make it possible to connect new facilities to the grid. The Czosnów node is the most expensive and largest grid investment in the Mazowsze region being implemented by PGE Dystrybucja. The Main Electrical Substation Czosnów has already been built along with two tracks of a 110 kV cable line with the length of 14.8 km, which connects the existing substation in Łomianki with the new 110/15 kV substation in Czosnów and is the longest HV cable line owned by PGE Dystrybucja. Another 110 kV HV line was built, connecting Legionowo, Nowy Dwór Mazowiecki, Czosnów and Łomianki. The new overhead and cable line with the length of approx. 9.1 km was connected to the existing 110 kV line Legionowo – Nowy Dwór Mazowiecki. The final, fourth stage of the investment, i.e. construction of two HV cable lines from the 400/110 kV Mościska substation, owned by PSE S.A., to the 110/15 kV substation in Łomianki and the 110/15 kV Czosnów substation will make it possible to close this energy ring, referred to as the Czosnów node.

Aside from voice communication, LTE technology provides the broadband connectivity that is indispensable nowadays. State-of-the-art LTE450 connectivity will increase the security of the electricity grid and reduce the time it takes to locate and repair faults occurring in medium – and low-voltage grids. The LTE450 communications network in development is an integral part of the company's Remote Metering project, within



PGE

the framework of which modern electricity meters will be installed for all PGE Dystrybucja customers by 2030, enabling remote reading of metering data.

Jarosław Kwasek President of the Management Board, PGE Dystrybucja



#### LTE450 Programme

In 2021, a tender procedure for the purchase and deployment of CORE LTE450 core network components was announced.

The subject of the tender is to be completed by the end of 2023, and warranty and maintenance of the network is to be provided by the contractor until August 2033. The LTE450 communications network is one of PGE Group's most important investments. The LTE technology provides voice broadband communications, which is indispensable in modern times.

The modern LTE450 network and the telecommunications system under construction will support the integration of renewable energy sources, distributed generation and energy storage, as well as ensure reliable dispatcher communication and remote communication with energy meters. PGE Group's action plan for the coming years sees the implementation and launch of basic services on the LTE450 network by 2025, successive expansion of its coverage, provision of basic communications services, and development of new services dedicated to the power sector. The scope of deployment also provides for work to be carried out outside PGE Group, in particular for other entities in the energy sector. The modern LTE450 network and the telecommunications system under construction will support the integration of renewable energy sources, distributed generation and energy storage, as well as ensure reliable dispatcher communication and remote communication with energy meters.

### New share issue PGE Polska Grupa Energetyczna - project distribution of the future

In the first half of 2022, PGE Polska Grupa Energetyczna – the parent company of PGE Dystrybucja – issued new shares (Series E), raising a total of approx. PLN 3.2 billion. The proceeds from the issue will be earmarked for, inter alia, the Distribution of the Future project, which involves:

- increasing the share of underground cable lines,
- accelerating the introduction of smart meters, and
- increasing the efficiency of the process of connecting new customers and energy sources.

Approx. PLN 1.61 billion will be allocated to speed up the implementation of these three initiatives.

#### Remote metering program

The implementation of the project is mandatory and results from the requirements placed on Distribution System Operators by lawmakers in the amended Energy Law regarding the installation of remote reading meters. Under the Act, remote reading meters should be installed for all endusers throughout Poland by July 2031. In addition, by the end of 2025, all MV/LV substations owned by a Distribution System Operator (DSO) are to be equipped with remote reading (balancing) meters. For PGE Dystrybucja, this means the requirement to meter approx. 6 million end-users by the end of 2030 (which requires the replacement of approx. 750,000 meters per year) and approximately 60,000 MV/LV substations (installation of approx. 20,000 metering devices per year together with the necessary substation reconstruction) by the end of 2025.

The implementation of the Remote Metering project will allow the Company to better manage the electricity system thanks to the data flowing from the meters, which will be aggregated in the Central Metering Data Repository and also transmitted to the Central Energy Market Information System (CSIRE). The positive effects of the investment for customers include: better management of energy consumption, facilitation of supplier switching or the possibility of using a prepaid form of billing.

In May 2022, PGE Dystrybucja announced the first of many procurement procedures for the supply of meters for the Remote Metering project. PGE Dystrybucja plans to start mass installation of remote reading meters from 2023. The company intends to allocate a total of PLN 1.49 billion for the project in 2022–2025, including PLN 0.74 billion from the series E share issue by PGE Polska Grupa Energetyczna in the first half of 2022.

#### Cable program

The program to increase the share of underground cable lines to 30% in the medium-voltage (MV) network of PGE Dystrybucja consists of the reconstruction of medium-voltage power grids from overhead lines to cable lines, in particular in the locations of those sections of overhead lines where the nuisance and failure impact is the greatest.

ESG – Foundation of Development

PGE Group currently has the longest overhead and cable network in the country – due to the size and low density of the distribution area, the average share of cable networks in the Group's MV lines is 22%, against a national average of 28% and a European average of around 50%. Increasing the share of cable lines will have a positive impact on reducing grid failure rates. The advantages of cable lines over overhead lines are clear: connection capacity for RES sources by 2023. From the perspective of the customer and the dynamically growing number of micro-installations, this will mean an additional 18,000 connections and a **reduction in the average time to connect a new customer to less than 200 days in 2023** (compared to the previously assumed 257 days).



Greater resilience to weather anomalies



Shorter electricity supply interruption times

**PGE Group** (at the end of 2020)

22% - share of cable lines in MV lines in 2020200 minutes - SAIDI in 2020

**Approx. 25,000 km -** total MV cable lines in 2020



New issue (expected implementation

Approx. 25% - share of cable lines in MV lines in 2023 12 minutes - decline in SAIDI

2022-2023)

vs. 2021 Approx. 3,000 km -

additional cable lines vs. 2021

The project will bring tangible benefits as regards reducing operating costs and optimising operations:

- minimised lost benefits due to undersupplied energy
- decreased costs incurred for grid operation
- reduced network loss costs

From the customer's point of view, the project will mean increased security of supply:

- twice the reduction in SAIDI relative to the base investment plan
- ability to meet the increasingly stringent quality regulation requirements imposed by the Energy Regulatory Office

The company intends to allocate a total of PLN 1.22 billion to the project by the end of 2023, including PLN 0.61 billion from the series E share issue by PGE Polska Grupa Energetyczna in the first half of 2022.

# Increase in the efficiency of connection processes for new consumers and energy sources

The program assumes the modernisation of the grid in order to reduce congestion, increase connection capacities and accelerate connection processes. With the funds raised from the share issue, it will be possible to build an additional 1,100 km of connections and 800 MW of additional Base investment plan (without new share issue)

2,900 km of new connections built by 2023

**2,800 MW** of additional connection capacity for RES by 2023

Base investment plan (without new share issue)

Approx. 80,000 new customer connections by 2023

Reduced average connection time for new customers to **257 days** in 2023

## Investment plan with new share issue

4,000 km of new connections built by 2023

**3,600 MW** of additional connection capacity for RES by 2023

# Investment plan with new share issue

Approx. 98,000 new customer connections by 2023

Reduced average connection time for new customers to **less than 200 days** in 2023

The company aims to allocate a total of PLN 0.52 billion for the project in 2022–2023, including PLN 0.26 billion from the series E share issue by PGE Polska Grupa Energetyczna in the first half of 2022.

Business activity Education

# Energy storage

Direction PGE 2050

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GRI: Own indicator (Implementation of the strategy)



Energy storage systems are the future of zero-carbon energy and the basis of the green transition facing the Polish power sector. Especially, their task will be to balance the power system in the face of generation variability. This is due to the growing share of renewable sources in the National Power System.

With energy storage systems and pumped storage power stations, which are also electricity storage facilities, it will be possible to balance electricity demand with energy produced from wind and photovoltaic farms, the output of which is dependent on weather conditions. In this way, PGE Group plans to ensure the energy security of its customers in a future zero-carbon energy sector.

In December 2020, PGE launched Poland's first electricity storage system using Tesla Powerpack modules in Rzepedź in the Podkarpacie region.

Target set in the strategy: 800 mw by 2030

In July 2021, PGE Energia Odnawialna launched its **next** energy storage system with a power rating of 500 kW and a usable capacity of 750 kWh on Żar Mountain in the Silesian voivodeship. The installation was built next to the company's first photovoltaic farm. The investment was carried out as part of a research and development project and will serve to research the use of energy storage in PGE Group's business activities.



# PGE's Energy storage system in Żarnowiec

Battery Energy Storage System (BESS) in Żarnowiec

#### Hybrid system in Żarnowiec

Pumped storage power plant + Battery Energy Storage System in Żarnowiec with a total power rating of 921 MW and capacity of 4.6 GWh



Corresponds with the capacity of the largest conventional units in Poland



Will enable power system restoration



Will deliver electricity to approx. 200,000 households for 5 hours\*

\* with an average load of 5kW per household

PGE's energy storage project in Żarnowiec with a capacity of more than 200 MW, on a unique scale in Europe, has been granted Poland's first concession promise for storing electricity in a large-scale electrochemical energy storage system. The promise was issued by the President of the Energy Regulatory Office in July 2022. Before that – in June 2022 – the project was granted a decision on environmental conditions, which is a necessary and extremely important step for continuing the project work.

The construction of the large-scale Battery Energy Storage System (BESS) next to the Pumped Storage Power Plant (ESP) Żarnowiec with a power rating of no less than 200 MW and capacity of more than 820 MWh is one of the largest projects of its type in Europe.

The project aims to combine the existing ESP Żarnowiec with a rating of 716 MW with BESS with a rating of no less than 200 MW and capacity of over 820 MWh. This innovative hybrid setup with a power rating of at least 921 MW and capacity of more than 4.6 GWh, which corresponds to the capacity of the largest conventional units in Poland, will be capable of providing a full range of regulatory system services, providing "restoration" of the power system and supplying electricity to approx. 200,000 households for a period of at least 5 hours (given an average load of 5kW per household).

The planned BESS was entered in the Capacity Market register in the first guarter of 2022 and the on-going project work resulted in obtaining the conditions for connecting it to the transmission grid. In addition, BESS will perform technical and commercial balancing for unstable renewable energy sources, i.e. onshore and offshore wind farms and photovoltaic farms owned by PGE Group.

The project is located approx. 10km from the Baltic Sea, where PGE holds three location permits for the construction of offshore wind farms with a total capacity of 3.5 GW. PGE Group's "Lotnisko" wind farm with a capacity of approx. 100 MW and the potential to add a further 140 MW, including large-scale PV farms, is situated some 30km from ESP Żarnowiec and the planned energy storage system. All of these PGE Group assets will be connected to the National Power System through the 400/110 kV substation Żarnowiec located some 2km from ESP Żarnowiec and BESS and the 400 kV substation Choczewo, which is being built for offshore wind farm purposes in the vicinity (approx. 15–20km) of the Żarnowiec substation. Connecting these units within one area of the National Power System will make it possible to integrate green electricity produced by these assets and will enhance their flexibility and controllability.

The potential of the planned hybrid system may also prove to be helpful in increasing the energy security of Poland and the Baltic states. It will also increase the competitiveness of energy systems of Lithuania, Latvia and Estonia with the system of continental Europe throught the Harmony Link project, which is an interconnectior for the exchange electricity between Lithuania and Poland. With this connection, Lithuania's electricity system will be linked to the Polish system via a 330-kiometre-long submarine cable between the Żarnowiec substation in Poland and the Dorbian substation in Lithuania.

Work on the project is progressing and planned. The scale, funcionality, location and importance of this project for the National Power System and the development of renewable energy sources makes it possible to state that it is an innovative project not only on national scale but also in Europe.

The Group's strategic objective in the field of energy storage is to have 800 MW of new energy storage systems in Poland by 2030. These installations will ensure safe system integration of new renewable energy sources, contribute to the stabilisation of the power system and enhance the country's energy security. The energy storage project in Żarnowiec is in line with the objectives of the European Green Deal in



objectives of the European Green Deal in terms of better integration of electricity from RES and reducing the use of highcarbon conventional units.

Wojciech Dąbrowski CEO, PGE Polska Grupa Energetyczna

on batteries

CAUTION

9' 6.5" HIGH 8' 6" WIDE

CONTAINER



# **Capital expenditures 2021**

# 7 AFEORDABLE AND CLEAN ENERGY 11 SUSTAINABLE CITIES 3 ALTANCOMMUNITIES 11 SUSTAINABLE CITIES 4 11 SUSTAINABLE CITIES 11 SUSTAINABLE CITIES 4 11 SUSTAINABLE CITIES 11 SUSTAINABLE CITIES 4 11 SUSTAINABLE CITIES 11 SUSTAINABLE CITIES 5 12 RESPONSIBLE CONSUMPTION AND PRODUCTION 13 ACIMATE 6 13 ACIMATE 13 CONSUMPTION

# Despite the constraints caused by the global pandemic, we are pursuing our investments on the road to transforming the Polish energy industry.

In 2021, PGE Group's capital expenditures reached approx. PLN 4.7 billion (down 15% year-on-year).



Approx. 54% of expenditure in Conventional Generational, District Heating, Renewables and Other Activity (production capacities) and Distribution was for new projects and approx. 46% for modernisation and repairs.

Key projects	CAPEX in 2021
Construction of gas-and-steam units at the Dolna Odra plant	PLN 751 million
Construction of unit 7 at Elektrownia Turów	PLN 543 million
Modernisation of distribution assets	PLN 692 million
New projects in the Distribution segment	PLN 665 million

The construction of unit 7, with a capacity of 496 MW, at the Turów plant was completed in May 2021. It is a supercritical unit, fired with lignite from the nearby Turów mine with the relevant parameters specified in the investment contract. The unit meets strict environmental standards. SO<sub>2</sub> emissions are almost 20 times lower compared to previously decommissioned units 8, 9 and 10, and dust emissions are about 10 times lower. The unit is adapted to the emission requirements of the BAT conclusions, which take effect from August 2021 and assume the implementation of the best available pro-environmental technologies.

The investment in Turów was PGE Group's last project to build a coal-fired power unit. The Turów unit is the most modern among the assets of the planned new entity that will bring together the country's coal assets – the National Energy Security Agency.

\* In Q4 2021, the project to build units at the Dolna Odra plant was transferred from Conventional Generation to Other Activity (along with all capital expenditure incurred in the previous quarters of 2021).





#### Capital expenditures by operating segment

Segment (PLNm)	Q IV 2021	Q IV 2020	у/у	2021	2020	у/у
Conventional Generation*	50	896	-94%	1,759	2,372	-26%
District Heating	236	337	-30%	610	671	-9%
Distribution, including:	440	448	-2%	1,358	1,680	-19%
Connection of new customers	210	195	8%	626	694	-10%
Distribution lines and grids	134	132	2%	359	546	-34%
Renewables, including:	85	39	118%	189	715	-74%
Modernisations and replacements	27	28	-4%	86	59	46%
Supply, Circular Economy and other*	810	48	1 588%	862	186	363%
SUM TOTAL	1,621	1,768	-8%	4,778	5,624	-15%
SUM TOTAL (including consolidation adjustments)	1,593	1,727	-8%	4,662	5,495	-15%



<sup>\*</sup> In Q4 2021, the project to build units at the Dolna Odra plant was transferred from Conventional Generation to Other Activity (along with all capital expenditure incurred in the previous quarters of 2021).



# ESG – FOUNDATION OF DEVELOPMENT

Business activity Education

# Leading the green transition

GRI: 103 (305)

Direction PGE 2050



# Leading is not merely about being a leader and the most energy group in Poland in terms of climate neutrality. It is also about being a helpful company, mindful toward our customers and business partners, about serving them.

The energy transition in Poland is a tremendous process that impacts the entire society and economy. A change as large as this requires a leader that facilitates decarbonisation without sacrificing the stability of the electricity and heating systems.

By changing the energy industry, we are building an organisation that is an integral part of its surroundings – a partner to local communities and the natural environment.

PGE Group's response to climate change encompasses a new business strategy, which includes the goal of climate neutrality by 2050. In 2021, PGE Group continued its efforts aimed at the redesign of its generation portfolio towards low –

Our activity in the basis for

and zero-emission sources. The effects of the actions taken are already visible, and the positive emission reduction trend will continue in the coming years.

PGE as the leader of sustainable energy transition in Poland, including in environmentally friendly energy, is committed to reducing its impact on the environment through:

- decarbonising generation through technology change, expanding its RES portfolio and enabling its customers to participate in the transition,
- increasing the use of renewable sources and decarbonising the portfolio,
- developing a circular economy,
- reaching climate neutrality by 2050.



# We create value in financial terms for

# NATURAL ENVIRONMENT [E]



GRI: Custom indicator (Climate awareness), 201–2, 103 (Custom indicator: Climate awareness)

# Renewable assets are a key element of the energy transition, one that leads to lower CO<sub>2</sub> emissions and thus a higher share of renewable energy sources in the National Power System.

PGE Group's commitment to reducing its impact on the environment and to responsibly using natural resources is also confirmed by our pro-environmental investments. In 2021 alone, PGE Group companies spent nearly PLN 2.2 billion on environmental protection investments, with the following investments directly concerning decarbonisation:



1 言

# 637 PLN m

investments in the development and modernisation of the distribution network, including replacing overhead lines with cabling



#### 743.9 PLN m

strategic development investments in new gas units replacing coal units



#### 87 PLN m strategic development investments in renewable energy



81.4 PLN m connections of RES installations

The remainder of the expenditures are investments related in particular to adapting the generating assets to the requirements of the BAT Conclusions and modernisation and restoration investments related to increasing the operating efficiency of the assets.

# Decarbonisation of the generation portfolio

PGE Group's long-term strategic aspiration is to supply 100% of energy from renewable sources to customers by 2050, which will be possible through:

- construction of offshore wind farms,
- implementation of the PV program,
- development of the onshore wind portfolio,
- energy storage program.

The implementation of RES projects will contribute to the diversification of PGE Group's fuel mix, an increase in installed capacity in renewable energy sources, and thus to the implementation of the EU climate policy.





#### Offshore Program

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PGE Group is developing an Offshore Wind Farms Program (Offshore Program). By 2030, PGE Group will have built 2.5 GW of offshore wind farms under a strategic partnership with Denmark-based Ørsted. The Baltica 2 and Baltica 3 farms will be the largest offshore wind investments in the Baltic Sea. Another offshore wind farm, Baltica 1, with a capacity of 0.9 GW, is to be put into service after 2030. Taking account of the scale of planned investments, PGE Group intends to build up its capacities to independently operate and maintain its offshore wind farms. In a longer perspective, the construction of subsequent offshore wind farms is also planned. PGE intends to own offshore wind farms with a capacity of at least 6.5 GW by 2040. Further projects are planned to be implemented by PGE on its own or with selected partners.

#### **PV Program**

PGE Group has a program for the development of photovoltaic assets, where the strategic goal is to achieve an additional 3 GW of solar power capacity by 2030 and to ensure that PGE Group is a leader in the development of photovoltaics in Poland. In 2021, PGE Energia Odnawialna was intensively involved in the development of its own photovoltaic farms, as part of which PGE Group has obtained building permit decisions for nearly 200 MW of PV capacity. PGE Group also actively participated in RES auctions which contribute to the economic feasibility of implemented



projects. In the first half of the year, 19 projects won with a total capacity of approx. 18 MW, and in the second half – 3 projects with a capacity of up to 1 MW and one large project – PV Augustynka with a target capacity of 25 MW. The projects that obtained auction support will be put into operation already at the turn of 2022 and 2023. In addition, having secured all administrative decisions, the Group has started preparing tender procedures for the following projects: PV Gutki (12 MW), PV Huszlew (13 MW) and PV Jeziórko (100 MW). These assets will be built in 2022 and 2023. As part of the program to develop photovoltaics at PGE Group, preparations for the first stage of the construction of PV farms were continued at the Bełchatów power plant. These farms are to be built in the following areas of: Ashes Reservoir, Reservoir No. 5 and Szczerców Mountain, which requires, first of all, reclamation, changes to the Conditions Study and Local Spatial Development Plans, as well as obtaining all administrative decisions.

#### Development of onshore wind portfolio



PGE Group is also preparing to develop onshore wind farms. According to the strategy, PGE Group's objective for the onshore wind area is to build an additional 1 GW of capacity in onshore wind farms by 2030. The Group's current investment portfolio includes projects with a total capacity of approx. 200 MW, including: FW Lotnisko II, FW Karnice III, FW Bukowo, FW Resko III. However, their further development depends on the date of entry into force of the law liberalising the distance law, in particular the relaxation of the so-called "10H" condition. In a positive scenario, these wind farms will possibly be put into operation in 2026–2029.

#### Energy Storage Program

Between 2018 and 2021, PGE Energia Odnawialna implemented a pilot project co-financed by the Intelligent Development Operational Program called "Energy storage adapting PV farm for work in smart grids." The project involved the construction of a battery-based energy storage facility with a power rating of 550 kW and a total capacity of over 1 000 kWh, integrated with an existing 500 kW photovoltaic farm on Góra Żar in the Bielsko district. The goal of the project was to verify the technical feasibility of providing auxiliary services to the local distribution system operator. Currently, the project is in the process of clearing the grant and the infrastructure is being adapted to work in the energy price arbitrage function.



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ESG - Foundation of Development

In 2021, PGE Dystrybucja implemented a pilot project called "Innovative network services to improve the quality and reliability of electricity supply." Tests were conducted as part of the project on various modes of operation of the energy storage facility with a power rating of 2.1 MW and storage capacity of 4.2 MWh, operating in the distribution grid, including the possibility of its independent operation as a temporary power supply source in the n-1 and n-2 states. The facility is situated and connected at the 110/30/15 kV Rzepedź substation. Its functionality includes improving the reliability of power supply to consumers in Komańcza and Rzepedź. The tests confirmed the correct operation of the energy storage facility and maintenance of power quality parameters in compliance with the applicable regulations. The pilot energy storage system in Rzepedź will serve to develop solutions for energy storage projects related to power quality and reliability of PGE Dystrybucja's distribution grid operation.



PGE Group is analysing further projects concerning the development of energy storage systems. The aspirations expressed in PGE Group's strategy assume the construction of 800 MW of storage capacities by 2030. The Group currently sees potential in developing electrochemical energy storage facilities. In 2021, PGE obtained connection terms for an energy storage system with a capacity of over 200 MW, which will operate in a hybrid set-up with the Żarnowiec pumped storage hydropower plant. In addition, works are being carried out on a project involving the construction of 50 distributed energy storage facilities connected to 110 kV/15 kV substations (the so-called main supply points) in PGE Dystrybucja's coverage area. The total capacity of these energy storage systems is 270 MW. At the same time, the Group recognises opportunities in developing pumped storage hydropower plants, which play an important role in the National Power System. Pumped storage units also

perform energy storage functions. These investments are at the stage of analysis, business model development and preproject documentation. Their implementation depends on achieving appropriate economic feasibility and securing sources of financing.

#### District heating sector transition



PGE Group's business strategy adopted in 2020 sets a low – and zero-emission objective for the district heating area. The key actions undertaken by PGE that will contribute to the achievement of these goals above all include investments in the area of new gas-fired generating sources and thermal waste-to-energy systems as well as the use of renewable energy as a source of district heat.

In the second half of 2021, an asset decarbonisation plan was also developed for PGE Energia Ciepła in response to the objectives set out in PGE Group's business strategy. It has also been incorporated into the Group's Strategy Implementation Plan in the District Heating segment. The Decarbonisation Plan encompasses development and implementation of investment programs in alignment with the assumed strategic objectives for individual locations of PGE Energia Ciepła. Rebuilding generation capacities with the use of new low – or zero-emission generating units should be completed by 2030, and climate neutrality would be achieved by 2050. To this end, PGE Energia Ciepła is gradually replacing old coal-fired sources with new lowemission sources fired with gas and oil, taking into account the possibility of using hydrogen or ammonia in the future, as such fuel becomes available. The new generating units will be characterised by greater operational flexibility and reliability. In 2023–2029 most of PGE Energia Ciepła's locations will feature installations that result in a total or considerable withdrawal from coal fuel. The coal phase-out is first planned in: Zgierz, Kielce, Lublin, Rzeszów and Gorzów Wielkopolski,



followed by CHP plants in Bydgoszcz, Siechnice near Wrocław, Gdynia and Gdańsk. Gas, municipal waste, biomass, waste heat and renewable energy will be used to produce heat in the new and modernised heat generation units.

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The key investment projects in this area especially include: • construction of new gas-fired cogeneration sources PGE Energia Ciepła is also currently implementing investment projects to build new gas-fired cogeneration sources in Siechnice, Bydgoszcz and Zgierz. The following locations are currently working on preparing similar projects using gas fuel: Gdynia, Gdańsk, Kraków;

• construction of new reserve and peak load boiler plants At the turn of 2021 and 2022, a new peak load boiler plant with a capacity of 130 MW was put into service in Gdańsk, which consists of oil and gas boilers and modern electrode boilers powered by electricity. The use of electrode boiler technology at the Gdańsk CHP is an innovative solution in Poland. Furthermore, the construction of new peak load and reserve boiler plants started at the end of 2021 at six other locations, i.e. in Gorzów Wielkopolski, Lublin, Rzeszów, Kielce, Gdynia and Bydgoszcz, with a total capacity of approx. 743 MW, in order to replace the old coal-fired boilers. PGE Group also owns a waste-to-energy incinerator system in Rzeszów. This technology is safe for the environment, modern and tested in over 300 cities around the world. Thanks to the use of state-of-the-art filters, the incinerator meets the strictest EU requirements concerning environmental protection. This system is expected to be expanded by a second technological line.

PGE Energia Ciepła is also implementing projects with a longer time horizon as part of dedicated programs for the development of the existing generating assets in Kraków, Gdańsk and Wrocław. These are expected to be completed by 2030.

In implementing PGE Group's strategy, the development and investment plans that are being prepared take into account the deployment of low-emission technologies and ultimately the achievement of climate neutrality within an assumed time horizon. The assumptions for these PGE Group projects are drafted on the basis of analysis of potential regulatory trends, also in cooperation with industry organisations on the national and EU level. The development projects being analysed also consider the application of technology enabling the co-firing of hydrogen, which in the long term offers an opportunity to significantly reduce CO<sub>2</sub> emissions in cogeneration systems.

### Reducing greenhouse gas emissions from conventional energy generation

rrespective of investments related to the build-up of new RES capacities, which are to result in a shift of the generating mix to zero and low-emission generation, PGE Group is systematically working on reducing greenhouse gas emissions in its existing conventional units. Unit carbon dioxide emissions are being systematically reduced as generating assets are modernised and development investments are carried out.

Considerable capital expenditures are directed at this purpose every year. Combustion processes are optimised and solutions are introduced to improve generating efficiency, increase fuel and raw material use efficiency and reduce the energy intensity of generation processes and own needs.

#### Conventional power plants

The Bełchatów plant is a major greenhouse gas emitter  $(CO_2)$ . This is due to the fact that it is the largest unit in Poland and the world producing electricity from lignite, which causes emissions to accumulate in one place and reach significant absolute values.



New units 5 and 6 in the Opole plant support the process of limiting greenhouse gas emissions as these more efficient assets are started-up first before older units. In effect, at a given level of supply (capacity of installed units) and a stable level of demand in the country (demand for capacity), units with lower CO<sub>2</sub> emissions displace higher emission units. These actions contribute to the reduction of emissions from the national energy industry. In 2021, the emission factor for units 1–4 at the Opole plant was 0.897 Mg/MWh and for units 5–6 this was 0.731 Mg/MWh.

At the Turów plant, the reduction of carbon dioxide emissions was achieved by increasing the efficiency of electricity generation of units 1–3 and launching a highly efficient unit 7 in 2021. This unit meets strict environmental standards and is adapted to the emission requirements resulting from BAT conclusions, which address the best and most environmentally friendly technologies available.



At the Dolna Odra plant, there has been a gradual reduction in the amount of coal burned since 2013. At the same time, biomass combustion was introduced in 2004, replacing part of the coal that would have to be burned in the absence of biomass combustion. Modernisations of units at the branch have been aimed at increasing the efficiency of electricity generation and lowering emissions, including CO<sub>2</sub>.

The branch's transition towards climate neutrality is supported by projects using gas as a transition fuel. A project is in progress to build two gas-fired units, with a capacity of approx. 700 MW each, making it the largest and most modern gas-fired power plant in Poland. High-methane natural gas is the primary energy source for the selected generation technology. Worth nearly PLN 5 billion, the investment will be completed before the end of 2023. As of the end of December 2021, the overall project progress, including design works, production and delivery of equipment and works on the construction site exceeded 50%.

The average CO<sub>2</sub> emission of the new units will be more than two times lower than the current average emission of energy generating assets in the National Power System (NPS). Energy generation using the new units will deliver a reduction in CO<sub>2</sub> emissions in the NPS of approx. 2–3 million tonnes per year. The emission reduction is achieved not only due to a change



ESG – Foundation of Development

of fuel to gas but also thanks to the application of the latest generation of gas turbine, which has an energy generation efficiency in excess of 63%. For comparison, gas-and-steam plants with turbines from the previous generation have an efficiency of 59–60%, while most modern coal units – арргох. 46%.

#### Increase in connection capacity

The majority of investments in the area of electricity distribution in 2021 concerned the modernisation and development of the medium – and low-voltage electricity grid and transformer stations. These investments will increase the connection capacity of the distribution grid, including for renewable energy sources, as well as improve electricity supply interruption rates and further reduce grid losses. The energy efficiency of electricity equipment is increased by replacing transformers and procuring metering devices, including modern electricity meters. Renewable energy sources (RES) are an important element of sustainability, with measurable economic and environmental effects. In 2021, PGE Dystrybucja connected 141 000 household photovoltaic systems, with a total capacity of 996 MW, to its grid.



In 2021, 234 RES sources with a unit capacity of over 50 kW, i.e. sources that are not classified as micro-installations, also appeared in the PGE Dystrybucia grid, including:



### 222 units



#### photovoltaic plants with a total capacity of 174 MW



### 3 units

wind farms with a total capacity of 11 MW



### 7 units





## 2 units

hydropower plants with a total capacity of 0.15 MW

These initiatives are important from the point of view of the expected reductions in energy output from conventional sources and are part of positive efforts in the context of systemic climate change, with limited impact on PGE's own emissions.

#### Transparency on climate-related disclosures

In July 2021, in response to the expectations of investors for whom environmental impact



management is increasingly important, PGE Group took part in a voluntary, international Carbon Disclosure Project (CDP) study on climate change. CDP is a not-for-profit organisation that operates a global disclosure system on sustainable management by companies and cities. PGE participated in the survey for the first time. In the area of climate change management, the company received a grade of D (disclosure), on a scale of A to F. PGE's disclosure data is available by logging into the platform at http://www.cdp.net

Participation in the study allowed PGE Group to acquire new competences that will serve to better define PGE's development plans and to report on non-financial issues in an even more advanced way.



# PGE Group's carbon footprint

GRI: 305-2, 305-3, 103 (305)

Direction PGE 2050



Carbon footprint is a type of ecological footprint and one of the measures of a company's impact on the environment. Footprint calculations and data management show a strong climate awareness in the organisation. Identifying the greenhouse gas emissions of an organisation's processes makes it possible to manage them effectively and deploy mitigation measures.

Carbon footprint is the total sum of greenhouse gas emissions (carbon dioxide (CO<sub>2</sub>), methane (CH<sub>3</sub>), carbon oxide (N<sub>2</sub>, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF<sub>6</sub>, caused directly or indirectly by an individual, organisation, event or product.



## Sector cooperation for a unified approach to carbon footprinting

In April 2021, PGE Polska Grupa Energetyczna began active and deliberate efforts to implement a standard for calculating carbon footprint at PGE Group. Internal activities were undertaken in PGE Group within the framework of the established team for carbon footprint calculations, as well as external activities – within the framework of cooperation with the Polish Association of Professional Heat and Power Plants (PTEZ), which resulted in the development of a joint manual for carbon footprint calculations for the energy industry, with the substantive support of Bureau Veritas. The manual has been developed in accordance with ISO 14064 and GHG Protocol Standards and is designed to calculate the carbon footprint at different levels of the organisation. The manual has been developed in accordance with ISO 14064 and GHG Protocol Standards and is designed to calculate the carbon footprint



at different levels of the organisation. PGE Górnictwo i Energetyka Konwencjonalna, PGE Energia Ciepła and Zespół Elektrociepłowni Wrocławskich KOGENERACJA. The work on the development of the manual also involved the team responsible for the carbon footprint calculations at PGE Group.

The developed "Manual for Uniform Footprint Capture for Electricity and Heat Sector Entities" with an integrated IT tool aims at a uniform footprint capture for electricity and heat sector entities, including a proper approach to carbon footprint calculations as follows:

- Scope 1 these are direct emissions to the atmosphere from installations (equipment, vehicles, machinery, boilers, plants) that are owned or controlled by the organisation;
- Scope 2 these are indirect emissions related to the use of energy consumed by the company to operate its facilities, both owned and leased (electricity, heat, cold, transport and distribution losses);
- Scope 3 these are other indirect emissions that occur throughout the business value chain, i.e. purchases of goods and services, business travel, commuting to and from work, capital goods, etc.);

biogenic emissions – these are emissions related to the natural carbon cycle and result from the combustion, fermentation, decomposition or processing of materials of biological origin.

Based on this document, PGE Group developed a standard for calculating the carbon footprint to be applied by Group companies. The key in this process was the preparation of the companies and their training, in particular with regard to the identification of emission sources, their classification and appropriate conversion into CO<sub>2</sub> equivalent using the available and defined CO<sub>2</sub> emission factor



appropriate for a given reporting year. In subsequent years, it will be important to calculate the carbon footprint for a given reporting year based on updated CO<sub>2</sub> emission factors appropriate for that calendar year. As more data becomes available, in particular on the available emission factors for individual emission sources, and as maturity of the organisation continues to develop, this process is expected to be streamlined in subsequent years. At the same time, it will enable the development of specific emission reduction targets.

### PGE Group's carbon footprint

As part of a pilot project, PGE Group calculated its carbon footprint for the year 2020. However, in order to responsibly count the data and obtain comparable results within the sector, it treats the data for 2021 as the base, in which the carbon footprint was calculated on the basis of a manual developed in cooperation with PTEZ. The method adopted there is a consistent approach to counting the footprint in the electricity sector in the country.

The volume of greenhouse gas emissions in 2021 was calculated for key PGE Group companies with significant operations and significant influence over the level of carbon footprint, especially in terms of direct emissions within scope 1 and taking into account the amount of charges for environmental use and water services. The carbon footprint was calculated in full scope and encompassed the following PGE Group companies, which are decisive in terms of carbon footprint generation:

- PGE Górnictwo i Energetyka Konwencjonalna,
- PGE Energia Ciepła,
- Zespół Elektrociepłowni Wrocławskich KOGENERACJA,
- PGE Toruń,
- Elektrociepłownia Zielona Góra,
- PGE Energia Odnawialna,
- PGE Dystrybucja,
- PGE Ekoserwis,
- PGE Obrót.
- PGE Polska Grupa Energetyczna SA,
- PGE Baltica,
- PGE Systemy.
- PGE Dom Maklerski.

Other PGE Group companies which will be assessed as likely to have a significant impact on the volume of greenhouse gas emissions will be gradually incorporated into this process.





PGE Group's carbon footprint in 2021	t CO <sub>2</sub> e
Scope 1	
Fuels, of which:	70,169,857
– lignite	42,692,766
– hard coal	25,083,918
– natural gas	1,954,130
– other fuels	439,043
Process emissions	764,718
Refrigerants and other gases	51,836
Total scope 1	70,986,410.3
of which EU-ETS emissions (%)	99.7
Scope 2 Market-based*, of which:	2,183,395
Electricity losses in transmission and distribution	1,379,892
Purchased electricity for own use	759,699
Purchased thermal energy for own use	43,804
Scope 2 Location-based**	2,183,836
Scope 3	
Category 3. Energy – and fuel-related emissions	22,191,648
Category 1. Purchased goods and services	821,824
Category 10. Processing of sold products	755,065
Category 2. Capital goods	508,996
Category 4. Upstream – transport and distribution	259,805
Category 5. Waste resulting from operations	75,014
Category 11. Use of sold products	74,949
Category 7. Commuting of workers	34,965
Category 6. Business trips	158
Total scope 3	24,722,424.4
Total scope 1 + scope 2 + scope 3 Market-based	97,892,230
Total scope 1 + scope 2 + scope 3 Location-based	97,892,670.8
Biogenic emissions	687,876

\* Scope 2 Market-based – emissions resulting from the consumption of purchased electricity, calculated on the basis of an index published by a specific energy vendor

<sup>\*\*</sup> Scope 2 Location-based – Scope 2 emissions result from the consumption of purchased electricity. It is calculated on the basis of the average index for Poland, which represents the actual emissions generated in the country. This index is published on the KOBiZE website.

Conventional generation is responsible for 85.5% of PGE Group's calculated carbon footprint. Scope 3 accounts for approx. 25% of the total carbon footprint, understood as the sum of Scope 1, Scope 2 and Scope 3.



A detailed calculation of the carbon footprint in all scopes for an organisation as complex as PGE was no easy task, which nonetheless we successfully accomplished. We continue working to identify even more precisely all greenhouse gas emissions along the entire value chain and report them, inter alia, as part of Carbon Disclosure Project questionnaires. At the same time, the activities we undertake support us in planning a reduction of PGE Group's



carbon footprint by preparing appropriate development plans that take into account the environmental impact.

Damian Bronner

Director of PGE Polska Grupa Energetyczna's Operational Management and Investment Department

### Methodology and emission factors

#### 103 (305)

Data on the organisation's activities is monitored in accordance with the implemented process for calculating the carbon footprint at PGE Group. Emissions were calculated in accordance with the following standards: The Greenhouse Gas Protocol A Corporate Accounting and Reporting Standard Revised Edition-GHG Protocol Scope 2 Guidance and Corporate Value Chain (Scope 3) Accounting and Reporting Standard. CO<sub>2</sub> emissions of biogenic origin were identified and reported separately. Operational and/or financial control within the Group was adopted as the consolidation criterion, meaning that 100% of the companies' emissions were attributed to PGE Group. The sources of emission factors were publications from the following databases: National Balancing and Emission Management Centre (KOBiZE), DEFRA (Department for Environment, Food & Rural Affairs) database, European Environment Agency (EEA) and Ecoinvent 3.6.GWP (Global Warming Potential factor) coefficients for refrigerants were adopted according to the 5th IPCC (Intergovernmental Panel on Climate Change) Report.



By using uniform approach to counting the carbon footprint, the data will comparable the sector.



Business activity Education

# **EU Environmental Taxonomy**



PGE Group's intention is to deliver strategic investments in compliance with the EU Environmental Taxonomy. The basis for development investments, in line with the Group's strategy, are investments in renewable energy sources, electricity distribution and zero – and low-carbon conventional sources.

PGE Group, as a public interest entity preparing nonfinancial statements in accordance with the amended Accounting Act, which implements Directive 2014/95/EU of the European Parliament and of the Council into Polish law, is required to disclose for 2021 the extent to which its business activities can be considered environmentally sustainable. This requirement stems from EU Regulation 2020/852 on the establishment of a framework to facilitate sustainable investment, amending EU Regulation 2019/2088 and from the Delegated Regulations on the establishment of a framework to facilitate sustainable investment (hereinafter: EU Environmental Taxonomy, Taxonomy).

Pursuant to art. 10 of the Delegated Act of July 6, 2021, for the period from January 1, 2022 to December 31, 2022, non-financial companies will only disclose the percentage of business activities eligible for the Environmental Taxonomy and business activities not eligible for the Environmental Taxonomy, within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change), in total:

total turnover

capital expenditures

operating • expenditures

and related qualitative information (explanatory) – determined in accordance with the Commission Delegated Regulation (EU) 2021/2178.

Pursuant to the Commission Delegated Regulation (EU) 2021/2178, economic activity qualifying for taxonomy in disclosures for 2021 means the economic activity described in the Commission Delegated Regulation (EU) 2021/2139.

In order to prepare disclosures for 2021, a thorough analysis of the activities carried out in all segments and companies of the PGE Group was carried out, as a result of which activities eligible for the Taxonomy were identified, i.e. those that are consistent with the description of activities listed in Annex I (Climate Change Mitigation) or Annex II (Adaptation to climate change) to Commission Delegated Regulation (EU) 2021/2139.

# PGE Group's activities in the context of the EU Environmental Taxonomy

#### Step 1 DIVISION OF PGE GROUP ACTIVITIES

PGE Group's business is organised into seven operating segments:

- Conventional Generation,
- District Heating
- Renewables
- Supply
- Distribution
- Circular economy
- Other Operations.

Taking into account the NACE (Nomenclature statistique des Activités économiques dans la Communauté Européenne) classification of economic activities in the European Union, the following activities are carried out within the above segments:

- Mining of lignite NACE 05.20
- Production of electricity NACE 35.11
- Distribution NACE 35.13 and 35.30
- Sales NACE 35.14

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<sup>1</sup> Commission Delegated Regulation (EU) 2021/2178 of 6.7.2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by clarifying the content and presentation of the information on environmentally sustainable business activities to be disclosed by companies subject to Article 19a or 29a of Directive 2013/34/EU and specifying the method to comply with this disclosure obligation, OJ L 443.



# Step 2 IDENTIFICATION OF ECONOMIC ACTIVITIES INCLUDED IN THE EU ENVIRONMENTAL TAXONOMY

On the basis of supplementary annexes to Commission Delegated Regulation (EU) 2021/2139 of June 4, 2021, a selection was made of those activities that were carried out by PGE Group entities in 2021. These are:

- 4.1. Production of electricity using photovoltaic technology
- 4.3. Production of electricity from wind energy
- 4.5. Production of electricity from hydropower
- 4.8. Production of electricity from bioenergy (biomass)
- 4.9. Transmission and distribution of electricity
- 4.10. Electricity storage

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- 4.11. Thermal energy storage
- 4.15. Distribution in district heating/cooling systems
- 4.20. Cogeneration of heat/cooling and electricity from bioenergy (biomass)
- 4.24. Generation of heating/cooling from bioenergy
- 4.25. Generation of heating/cooling from waste heat

The Group's organisational structure was analysed, taking into account also companies operating in other areas, which were been specified however due to the fact that these activities are ancillary to the Group companies' core business.

### Step 3 DETERMINATION OF INDICATORS FOR ACTIVITIES ELIGIBLE UNDER THE EU ENVIRONMENTAL TAXONOMY FOR 2021

In the next step, the individual business segments of PGE Group were assigned to two categories:

- category I for PGE Group's business areas that qualify for the Taxonomy,
- category II for PGE Group's business areas that do not qualify for the Taxonomy.

In special cases, when within a given segment there were activities both included and not included in the Taxonomy, an additional division was made within a given segment, classifying it by type as having partial qualification.

This is the case for the segments Conventional Generation and District Heating, within which the production of electricity and heat from biomass and the distribution of heat were included among the activities eligible for the Taxonomy.



<sup>&</sup>lt;sup>2</sup> Commission Delegated Regulation (EU) 2021/2139 of 4.6.2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing technical eligibility criteria for determining the conditions under which an economic activity qualifies as a significant contributor to climate change mitigation or adaptation, and whether that economic activity does not cause significant damage to any other environmental objective, OJ L 442.



The following table indicates PGE Group's operating segments with their classification in the Taxonomy and indication of the related type of activity included in the delegated act:

PGE Group segment	Qualification for EU Environmental Taxonomy in terms of its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change)	Type of activity according to delegated act in terms of its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change) of EU Environmental Taxonomy
Renewables	YES	<ul><li>4.1. Production of electricity using photovoltaic technology</li><li>4.3. Production of electricity from wind energy</li><li>4.5. Production of electricity from hydropower</li><li>4.10. Electricity storage</li></ul>
Distribution	YES	4.9. Transmission and distribution of electricity 4.10. Electricity storage
Conventional Generation	PARTIALLY	Only within the following scope: 4.8. Production of electricity from bioenergy (biomass) 4.20. Cogeneration of heating/cooli
District Heating	PARTIALLY	Only within the following scope: 4.11. Thermal energy storage 4.15. Distribution in district heating/cooling systems 4.20. Cogeneration of heat/cooling and electricity from bioenergy (biomass) 4.24. Generation of heating/cooling from bioenergy
Supply	NO	
Circular economy	NO	

In addition, the "Other Operations" segment was divided, which is responsible for, among other things, IT, accounting and HR services provided to other PGE Group companies. Taking into account the nature of these services related to support of core activities, it was assumed that costs incurred by PGE Systemy, which is responsible for IT area in PGE Group, and PGE Synergia, which is responsible for the payroll area, and Elbest Security, providing physical security services, will be allocated to other segments in proportion to the support provided (determined on the basis of mutual settlements) and classified or not classified in the Taxonomy, analogically to the segment for which the given support was provided. The percentage breakdown of the support provided was determined on the basis of the level of turnover achieved by support companies in individual segments. In addition, the turnover and operating costs of the companies:

PTU ETRA, Energetyczne Systemy Pomiarowe and Bio-Energia, which support the activity of the Renewable Energy and Distribution segment, were assigned as qualifying to the Taxonomy, while costs incurred by other companies, accounted for within the "Other Operations" segment, were not qualified for the Taxonomy.

The final calculation of the Taxonomy qualification indicators required to be reported for 2021 was based on financial data allowing the allocation of specific volumes to the segments and the activity within the segment.

Due to the presentation of data from the entire PGE Group, the following indicators were calculated based on consolidated data.

### Value of turnover eligible for EU Environmental Taxonomy

This is the value of turnover from products or services related to business activities, which was classified in the Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change), broken down by segments of PGE Group.

PGE Group segment	Value of turnover eligible for EU Environmental Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change) [PLN million]		
Renewables	1,051		
Distribution	6,415		
Conventional Generation	90		
District Heating	303		
Supply	0		
Circular economy	0		
Other Operations	4		
Total	7,863		

### Value of operating expenditure eligible for EU Environmental Taxonomy

This is the value of operating expenditures corresponding to assets or processes related to business activities that have been classified in the Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change), broken down by segments of PGE Group.

PGE Group segment	Value of operating expenditures eligible for EU Environmental Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change) [PLN million]		
Renewables	899		
Distribution	4,382		
Conventional Generation	92		
District Heating	336		
Supply	0		
Circular economy	0		
Other Operations	79		
Total	5,788		

#### Value of capital expenditures eligible for EU Environmental Taxonomy

This is the value of capital expenditures corresponding to assets or processes related to business activities that have been classified in the Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change), broken down by segments of PGE Group.

PGE Group segment	Value of capital expenditures eligible for EU Environmental Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change) [PLN million]	
Renewables	181	
Distribution	1,358	
Conventional Generation	2	
District Heating	70	
Supply	0	
Circular economy	0	
Other Operations	0	
Total	1,611	



# **PGE Group data**

PGE Group's indicators for 2021 were calculated based on the following data:

Turnover			
Activity eligible for EU Environmental Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change)	Activity not eligible for EU Environmental Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change)		
14.9%	85.1%		
Capital expenditures			
Activity eligible for EU Environmental Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change)	Activity not eligible for EU Environmental Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change)		
34.6%	65.4%		
Operating expenditures			
Activity eligible for EU Environmental Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change)	Activity not eligible for EU Environmental Taxonomy within its objective 1 (Climate change mitigation) and objective 2 (Adaptation to climate change)		
11.2%	88.8%		

The revenue, operating costs and capital expenditures specified in the denominator in the above calculations are taken from PGE Polska Grupa Energetyczna's consolidated financial statements for 2021.



The investments currently being implemented by the Group will result in an increase in taxonomy indicator values, not only within the first two objectives, but also in the next four objectives, which will be implemented by the European Union in the near future. At the same time, the scale of the conventional coal-fired energy generation business,

which is to be spun off at the beginning of 2023, is of key importance for the 2021 results. Last year, it had a decisive impact not only on revenue and operating costs but also on overall capital expenditures, primarily through maintenance expenditure required to operate the business.

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Business activity Education

# Environmental protection process management

GRI: 103 (305), 103 (custom indicator: Climate awareness), 103 (307), 307–1, 103 (303), 103 (306)



# Actions taken to reduce the Group's impact on the natural environment are treated as a priority. Concern for this area is reflected in our environmental policy.

The Environmental Policy is a document that defines the competences and responsibilities as well as processes and activities relevant to environmental protection. It takes a systematic approach to preventing and mitigating adverse impacts on the environment and climate. The Environmental Policy sets out:

- general rules, rights and obligations in the area of environmental protection at PGE Group,
- processes and activities carried out at PGE Group that are of key importance to environmental protection,
- key roles defined in the environmental management process for appropriate levels within PGE Group's organisational structure,
- environmental processes in business units, taking into account the specifics of each one,
- continuously raising awareness of PGE Group's employees in the field of environmental protection.

Environmental impact management issues have been incorporated into PGE Group's Code of Ethics, which requires all employees to use natural resources rationally and into the PGE SA Management Board's Declaration on Environmental Policy. In it, the Management Board commits to continuous improvement of activities for the protection and enhancement of the environment and to the prevention of pollution by implementing high and economically justified technological standards.

Declaration by the Management Board of PGE Polska Grupa Energetyczna S.A. on the environmental policy is available <u>here</u>.

### **Environmental Management System**

PGE SA has since 2019 had a team responsible for implementing, maintaining and improving the environmental management system based on the PN-EN ISO 14001:2015 standard. Regarding to the key PGE Capital Group companies (PGE SA, PGE GIEK, PGE EC, PGE EO, PGE Dystrybucja, PGE Ekoserwis), the ISO 14001:2015 standard is implemented in 100% of the companies and certified in 50% of the companies (PGE GiEK, PGE EC, PGE Ekoserwis). To ensure that PGE Group's Environmental Policy is successfully implemented, environmental management system administrators and coordinators have been appointed in individual companies. The results of cyclical audits confirm that both the developed regulations and the activities carried out as part of the certified management system are compliant with the requirements of the standards and increase the effectiveness of management. Where necessary, improvement measures are implemented.

## EMAS

The EcoManagement and Audit Scheme (EMAS) is an EU environmental certification scheme and an instrument to support the implementation of a sustainable culture within an organisation with regard to effective management of available resources and energy. EMAS operates on the basis of the EU Regulation on the voluntary participation by organisations in a Community eco-management and audit scheme.

EMAS is currently implemented at two branches of PGE Górnictwo i Energetyka Konwencjonalna – in Elektrownia Opole and in Zespół Elektrowni Dolna Odra. The Eco-Management and Audit Scheme (EMAS PI:2999) is in place at PGE Energia Ciepła's Wybrzeże CHP branch. Together with the environmental declaration, it is subject to annual verification by an independent accredited verifier. EMAS registration means compliance with the highest standards in environmental management and audit.

The Opole and Dolna Odra branches of PGE Górnictwo i Energetyka Konwencjonalna are among the organisations that have been registered in the national eco-management and audit scheme (EMAS) for the longest time. The Opole plan is the national leader in this respect.

### **Green Office Certificate**

Green offices with functionalities that meet environmental objectives are one of the manifestations of PGE's environmental commitment. Across many PGE Group locations, offices have undergone a Green Office certification process, carried out by the Foundation for Environmental Education. The certificate is issued for two years. The certificate issue is preceded by an independent certification survey, and employees take part in a series of training sessions concerning, inter alia, good ecological practices used in the office and at home.

The Green Office certificate confirms that PGE Group undertakes new pro-ecological initiatives that result in

the reduction of the company's impact on the natural environment, also in the administrative aspect.

The benefits of implementing Green Office certification include:

- credible proof of compliance with environmentally relevant parameters,
- participation in a national initiative providing an opportunity to exchange experience, explore the potential for cooperation and mutual promotion (green marketing),
- raise environmental awareness among the company's employees and customers,
- lower operating costs through more rational management of raw materials, energy, water and waste.

The following companies held the Green Office certificate in 2021:

- PGE SA,
- PGE Dystrybucja: central office and branches: Białystok, Lublin, Łódź, Rzeszów, Skarżysko-Kamienna, Warsaw, Zamość,
- PGE Obrót: central office in Rzeszów and 6 locations: Białystok, Lublin, Warsaw, Łódź, Skarżysko-Kamienna and Zamość,
- PGE Energia Odnawialna: central office,
- PGE Górnictwo i Energetyka Konwencjonalna: central office and seven branches.



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# Concern for air quality

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The production of electricity and heat from fossil fuels has an impact on the environment, which is why PGE Group attaches great importance to minimising the harm. Given the profile of our operations, air quality in Poland is of key importance to us.

### PGE – largest producer and supplier of district heating

PGE places particular emphasis on the development of district heating, knowing how its use has a positive impact on the improvement of air quality and the environment. Thermal energy for heating is produced in high-efficiency CHP plants equipped with efficient systems for denitration, desulphurisation and particulate matter filtering. In addition, electricity is produced in a cogeneration process, which means that the energy contained in the fuel is converted and used more efficiently.

District heating is one of the most effective ways of combating smog, which – especially in the autumn and winter season – is a problem in many Polish cities. PGE Group attaches great importance to working with local authorities, jointly counteracting smog problems to improve the quality of life for residents. Research indicates that, depending on location, one of the main sources of smog is individual heating of buildings with low-quality fuels.

PGE Group cares for partner relations with local authorities and local distributors, thanks to which it develops solutions beneficial to customers. PGE Group's District Heating Strategy is an answer to the need to improve air quality in cities through mass connections to the district heating network and the retirement of old, inefficient and environmentally polluting household coal furnaces. The strategy aims to:

- replace over 100 000 individual heat sources by 2030,
- make investment decisions for natural gas by 2025 at the latest, with commercialisation of zero-carbon fuels (e.g. green hydrogen) or electrification of district heating necessary in subsequent years,
- exceed 70% share of zero and low-carbon sources in heat generation by 2030,
- build new waste-to-energy incinerator systems.

In local markets in 2021, PGE Energia Ciepła connected buildings with an aggregate demand of 229 MWt to the municipal heat networks. It is as if an entire city the size of Gorzów Wielkopolski was connected to the district heating system in one year. In markets where PGE Energia Ciepła is only a heat producer, buildings with a demand of 197 MWt were connected, whereas in markets where PGE Energia Ciepła operates as an integrated entity and is also a heat distributor, buildings with a demand of 32 MWt were connected. Three quarters of connections were made in three large cities: Kraków, Wrocław and Gdańsk. PGE Energia Ciepła also connected buildings from the primary market, i.e. newly constructed buildings with heat demand of 164 MWt. On the secondary market, i.e. facilities which replaced their heat supply with the municipal heating network, the company connected buildings with heat demand of 65 MWt.

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### Modernisation of generating assets

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Consistent investments in generating assets reduce PGE Group's environmental impact. Using the best available technologies, PGE Group strives to further improve its environmental performance. In 1989–2021, PGE Group's power plants reduced emissions as follows: SO<sub>2</sub> by 94%, NO<sub>x</sub> by 65%, particulate matter by 99%.



Depending on the location, modernisation programs have different scopes of adaptation works. A large group of modernisation and restoration investments in 2021 consisted of tasks aimed at adapting generating units to the requirements of BAT conclusions. Most of them have been completed. In the case of PGE Górnictwo i Energetyka Konwencjonalna, the following power stations were adapted to BAT conclusions: Bełchatów, Opole, Dolna Odra, Rybnik, Turów, Pomorzany. In the case of PGE Energia Ciepła, a dozen or so tasks were carried out at the following CHPs: Wybrzeże, Kraków, Wrocław. Some adaptation tasks are still in progress due to time derogations secured. In the case of PGE Energia Ciepła the derogation period lasts until the end of 2023. The undertaken measures were mainly aimed at adjusting PGE's generation assets to environmental limits (e.g. reduction of emissions of dust,

SO<sub>2</sub>, NO<sub>x</sub>, Hg and more) but they also contributed to improvements in other parameters, including generation efficiency and the increase of control capabilities, which are also important due to the reduction of failure rates.

Another example of an investment that contributes to reducing emissions into the environment and at the same time improves generation parameters is the modernisation of a gas turbine at the Zielona Góra CHP. The investment is in progress. It is expected to be completed in autumn 2022. As a result of the modernisation, the unit's emissions will be reduced (e.g. NOx), the efficiency of energy generation will be increased and the regulatory parameters of the entire generating unit will be improved, which also has an impact on the CHP's failure rate.

# A responsible approach to water resources management

GRI: 303-1, 303-2, 306-1, 103 (303), 303-5

Water is fundamental to our business. We use it both in generation from conventional sources and in hydroelectric power plants. On-going attention to the quality of this resource is our responsibility.

PGE Group monitors the quantity and quality of water abstracted and wastewater discharged in accordance with administrative decisions issued in this respect. Processes related to water and sewage management at PGE Group's sites are carried out mainly on the basis of the Water Law and other executive acts dedicated to water and sewage management. They are carried out in accordance with administrative decisions issued by competent authorities, such as integrated permits or sectoral decisions (waterlaw permits).



In the survey, PGE reported a wide range of data in the area of water management, especially in relation to electricity and heat production and lignite mining. The data disclosed includes, among other things, the individual levels of water treatment in the operations, including technical information on the level applied for discharged water. Detailed data on water abstractions and wastewater discharges for individual installations are compared on a year-on-year basis. Water management information provided by the CDP study is available by logging on to the platform at <u>cdp.net</u>.

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#### 303-5

### Water management<sup>\*</sup> in the organisation

2021	Volume (megaliters/year)
Total withdrawals	28,230,728.29
Total discharges	28,123,422.88
Total consumption	141,061.96

### Water management in the mining process

Lignite deposit exploitation using the open-pit method, carried out at the Bełchatów and Turów lignite mines, requires prior dewatering of the rock mass, which has a significant impact on hydrogeological conditions and results in changes in hydrodynamic relations. Water management in lignite mines is connected with both deep dewatering and surface dewatering of open pits. Water from the pits is discharged to field settling ponds for final purification by natural sedimentation of suspended solids supported by a plant filter or to dedicated treatment plants. Each of the open-pit lignite mines owned by PGE conducts scheduled water protection activities. Drainage facilities to ensure water purity are being expanded and modernised.

#### Bełchatów lignite mine

Since the beginning of its operation, the Bełchatów mine has been carrying out planned and rational activities in the field of water protection. The dewatering system in Bełchatów drains both underground and surface water in order to dewater the rock mass to the extent enabling safe exploitation of lignite from the Szczerców field and Bełchatów field. To counteract the effects on the environment, the mine:

- has a deep-water drainage system using large diameter deep wells, which makes it possible to lower the groundwater table while maintaining the safety of mining operations and limiting the amount of pumped water,
- uses selective extraction and discharge of pumped water in the pit in order to reduce the amount of dirty water requiring treatment,
- uses a multi-stage treatment system for water discharged from the pit dewatering,
- maintains a proper hydrodynamic system in the area of the "Dębina" salt diapir in order to protect its structure,
- monitors the impact of mining activities on the environment, making it possible to observe any early signs of deterioration in the condition of a particular environmental feature and to take appropriate preventive measures.

Water from deep drainage is discharged through a system of ditches and canals in quantities and physiochemical parameters that do not exceed the statutory provisions contained in the valid water law permits. Waters discharged into surface watercourses must feature at least class II purity.

The existing natural watercourses in the region are used to safeguard water purity:

- Central Wastewater Treatment Plant in Rogowiec mechanical and biological type. It treats the following types of wastewater: domestic and social sewage, rainwater and industrial. The plant provides wastewater treatment services for external companies,
- Sewage treatment plant in Chabielice mechanicalbiological treatment plant. It treats social and domestic sewage from the facilities of O/Szczerców and provides treatment services for the Municipal Facility in Szczerców.

The operation of the following facilities is important for water protection: sedimentation tanks for surface drainage water and a protective barrier for the "Dębina" salt diapir to maintain uniform water levels in the rock mass surrounding the diapir.

<sup>\*</sup> Water used for the organisation's own and technological needs. Volume for key companies in terms of water management: PGE GIEK, PGE EC, PGE EO.



#### Turów lignite mine

Direction PGE 2050

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In 2021, the Turów mine branch discharged the following to external watercourses: mine water from surface dewatering of the pit, well water and domestic sewage. The quality of well water allows it to be discharged directly into external watercourses. Mine water and domestic sewage were treated at 5 on-site sewage treatment plants. Mine water treatment plants at the Turów mine branch are equipped with the Actiflo system – a highly effective process of suspension reduction, and these are:

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- Mechanical and chemical treatment plant on the Ślad creek
- Mechanical and chemical treatment plant on the Biedrzychówka stream
- Mechanical and chemical treatment plant on the Nysa Łużycka river

Mechanical-biological treatment plants operate on the basis of activated sludge, and these are:

- Mechanical-biological treatment plant for the OAU Administrative and Service Centre
- Mechanical and biological treatment plant for 5<sup>th</sup> slipway OSA-2

The amount of discharged mine water depends on the amount of precipitation and in 2021 it was shaped at the level of approx. 13 million m3. The parameters regarding the quantity and quality of discharged sewage are regulated by the requirements of valid water law permits held by the branch. The quality and quantity of discharged water and sewage are monitored on an on-going basis.

At the same time, the mine is actively working to eliminate potential risks of mining impacts on the environment and surrounding areas, in addition to many years of continuous groundwater monitoring by Polish-Czech and Polish-German specialist teams. The most recent environmental investment at the mine is the nearing completion of the construction of an anti-filtration screen, which protects the land adjacent to the mine on the Czech side of the border against potential groundwater outflow. Its purpose is to protect the drinking water intake in the Czech town of Uhelna, which is located in close proximity to the Turów complex. In accordance with arrangements made by the Czech and Polish sides, set out in the environmental decision, an underground barrier is being built at a cost of several million zlotys to additionally secure water relations on the border between the two countries. The anti-filtration screen, about 1 100 meters long and 1 metre wide, is being constructed at a depth of between 65 and 117 metres using several hundred boreholes and injection technology. 200 injection boreholes have been completed thus far. Construction of the anti-filtration barrier will be completed in June 2022. In accordance with an agreement executed on February 3, 2022 between the Government of the Republic of Poland and the Government of the Czech Republic on cooperation in the field of addressing the effects on the territory of the Czech Republic resulting from the exploitation of the Turów mine, after the completion of the investment, hydrogeological studies and analyses will be initiated to determine the functionality of the barrier, in particular in terms of preventing groundwater outflow from the territory of the Czech Republic. In case the barrier proves not to be fully functional, Poland has committed to expand, deepen and tighten it. The existing network currently comprises approx. 550 groundwater table measurement sites, of which more than 150 belong to the Czech-Polish and German-Polish measurement network.

A similar but much longer underground barrier, more than 4 km long, has been in place at the mine site along the German border for many years, protecting the waters of the Nysa Łużycka river from entering the mine and fulfilling its role 100 percent.



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## Water management in power stations

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For technological purposes, water from surface water intakes is used, which is then subjected to purification and treatment processes. In order to reduce the amount of raw water consumption, closed circuits are used, and the used process water and wastewater are introduced to other production processes. Wastewater generated by the production activities of the power plant undergoes treatment, including multi-stage treatment, and is then discharged to surface waters or transferred to municipal enterprises. Depending on environmental conditions, the units have appropriate water treatment and wastewater treatment technologies to ensure that all environmental requirements are met. Adapting to the requirements of the BAT conclusions at PGE Górnictwo i Energetyka Konwencjonalna also means reducing pollutants to water from flue gas cleaning systems generated in the process of electricity generation. The wastewater treatment plant is being modernised and extended in this respect.

#### Turów power plant

The Turów plant, due to its location, is situated in an area characterised by higher than average precipitation levels. Part of the precipitation falling at the foot of the Izera Mountains is naturally retained in the Witka Reservoir, located on the Witka River. This reservoir is the main water intake for the Turów plant. Given the fact that the water in the Witka reservoir comes largely from rainfall, it can be stated that the Turów plant uses rainwater for its technological processes. The Turów plant uses only surface water for its operations and does not use underground water intakes.

At the Turów plant, the closing of the water cycle in production processes is carried out by diverting used water for treatment and returning it again to production processes. All wastewater from the power plant site is treated in wastewater treatment plants: Industrial Wastewater Treatment Plant, Wastewater Treatment Plant from Wed Flue Gas Desulphurisation System at unit 7, Wastewater Sub-treatment Plant from Flue Gas Desulphurisation System at units 4–6, Ash Settling Plants, Sanitary Wastewater Treatment Plant.

The closing of the water cycle in production processes is carried out by diverting used water for treatment and returning it again to production processes:

- with the entry into operation of the new unit, the wet flue gas desulphurisation wastewater treatment plant of unit 7 was put into service – the treated wastewater is reused in technological processes,
- modernisation of the wet flue gas desulphurisation system wastewater pre-treatment plant at units 4–6 was completed – pre-treated wastewater is directed to further treatment in the wet flue gas desulphurisation system wastewater treatment plant unit 7,
- optimisation of water consumption and amount of discharged wastewater – water from desalination of the main cooling system or as an emergency is used for water supply to the wet flue gas desulphurisation system of units 4–6,
- a contract was signed for the modernisation of the Industrial Wastewater Treatment Plant.



The expansion of the industrial wastewater treatment plant at Turów power station began in 2021. This is a proenvironmental measure aimed at improving the environment around the Turów energy complex. The recipient of sewage from the Turów plant is the Miedzianka River. In order to achieve the environmental objective, it must be ensured that wastewater discharged into the river does not deteriorate its condition, thus the wastewater parameters must meet the water quality requirements for a mountain stream class. The on-going project will ensure the achievement of environmental objectives and thus adapt the Turów plant to EU and national environmental requirements. The planned industrial wastewater treatment plant will be based on modern, highly efficient membrane technologies microfiltration and reverse osmosis. The efficiency of reverse osmosis is approx. 96%-98%, meaning that over 96% of all pollutants will be captured in this process. This will be the first wastewater treatment plant in Poland and one of the few in the European Union to use this type of technique so widely. As a result of this project, the Turów plant will be the first power station where treated wastewater can be returned to technological systems. The new treatment facility will be the largest in the Polish energy sector, using membrane technologies with a total capacity of over 14 000 m3 per day. Implementing this investment will have a positive impact on the border river – the Nysa Łużycka.

As part of monitoring, the quality of water in the Miedzianka River is also tested periodically at three sampling points. Physiochemical parameters are tested every two weeks by an in-house laboratory, while once every two months the quality of water is tested by an accredited laboratory.



#### Opole power plant

At Elektrownia Opole, all wastewater from the company's premises is treated in a final treatment plant. Some types of industrial wastewater are subject to multi-stage treatment. Industrial wastewater and rainwater is directed to the final mechanical-chemical treatment plant, where it undergoes a coagulation process (merging of dispersed colloid phase particles into larger aggregates). Wastewater is treated using the activated sludge method in a biological system, also located in the final treatment plant. The treated industrial wastewater and domestic sewage is discharged through a common collector to the Odra river. In order to improve the sedimentation of inflowing suspended solids in raw wastewater and to improve and automate the discharge of sludge to the sedimentation plots, a new radial settling tank with an integrated coagulation chamber was built in 2019. The new settling tank increased the operational reliability of the treatment plant and created a capacity reserve for the equipment at the treatment plant. The new settling tank operates as the primary plant of the sewage sequence. The design capacity ensures the capture and treatment of the inflow up to the nominal size of 3 200 m<sup>3</sup>/h and has a hydraulic reserve.

#### Dolna Odra power plant

The Dolna Odra power station has an open cooling system and is equipped with facilities for the reduction of pollutants contained in wastewater. Depending on the type of wastewater, it is treated in a chemical, biological or mechanical treatment plant or neutralised in neutralisers. Depending on the composition of the wastewater, it is treated in one or two facilities. Rainwater and snowmelt from the power plant area are treated using settling tanks and separators.

In order to improve the sedimentation of incoming suspended solids in raw sewage and to improve and automate the discharge of sludge to the sludge plots, a new radial settling tank with an integrated coagulation chamber was built in 2019. The new settling tank increased the operational reliability of the treatment plant and created a capacity reserve for the equipment at the treatment plant. The new settling tank operates as the primary plant of the sewage sequence. The design capacity ensures the capture and treatment of the inflow up to the nominal size of 3 200 m<sup>3</sup>/h and has a hydraulic reserve.

#### Bełchatów power plant

In order to reduce water consumption and the amount of wastewater discharged to water, the water used at the Bełchatów plant is reused in closed internal circuits and is not discharged to water. Used process water is used for slagging and making up losses in the hydro-ash cycle. Sanitary sewage and rainwater or snowmelt are discharged to the sewage treatment plant at the Bełchatów mine.



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#### Rybnik power plant

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At the Rybnik plant, all wastewater from the power station premises is treated in the industrial sewage treatment plant and the flue gas desulphurisation system. The Rybnik plant uses closed water circuits wherever possible. The water taken from the intakes is used in internal processes and only when there is no possibility to use it in the power plant installations, it is discharged as wastewater. None of the volumes in 2021 exceeded in this respect the limit values specified in the water permits. In connection with the need to adapt the treatment plant to the requirements of BAT conclusions, the method of sewage treatment using the modern Nalmet preparation was successfully applied.

Sustainable investments

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# Water in heat generation and supply

One of the elements of PGE Energia Ciepła's management strategy is to optimise the consumption of raw materials, including in particular water, and to reuse, as far as possible, the produced substances accompanying the main production process and precious elements.

At PGE Energia Ciepła, process water is produced using mainly surface water or, in certain places, groundwater. At the Szczecin CHP, internal sea waters are abstracted. All groundwater intakes in operation have established direct water protection zones. Several plants also use water from municipal water supply systems. Depending on the size of the plant, source and composition of the raw water, different water preparation techniques are used, such as lime decarbonation, filtration, ion exchange, ultrafiltration, reverse osmosis, electrodeionisation. In each case, the complete water preparation sequence consists of a combination of several of the above techniques.

Depending on the technological requirements, water is directed to reception points after various stages of preparation. At each of these stages, particular attention is paid to the rational use of water. Many of the wastewater streams generated in the course of water preparation are returned to the process for re-use. Sewage generated in other installations, if their composition permits, is also returned to the process. Examples of this are:

- return of so-called hot sewage as a source for the water preparation process,
- frequent use of rainwater or drainage water for water production,

- returning to the desulphurisation process the treated wastewater from the desulphurisation process, if its composition directly depends on the quality of the coal combusted,
- using part of the domestic sewage, after treatment, as a source of water for closed recharge,
- on-going work on the cooling system at the Krakow CHP to use treated sewage from the municipal treatment plant as a source of process water,
- using sewage as a source of water for domestic water systems or for supplementing ash extraction and slagging systems.

In order to adapt installations that have wet flue gas desulphurisation at the following locations: Kraków, Wrocław, Gdańsk and Gdynia, a number of actions have been planned to increase the efficiency of wastewater treatment accompanying this treatment method. The existing flue gas desulphurisation systems are equipped with highly efficient wastewater treatment plants; however, due to the requirements related to compliance with BAT conclusions, their operation will be further optimised. At the Wrocław, Gdańsk and Kraków CHPs, active work is being carried out on the dosing of the modern Nalmet preparation, which together with modernisation works planned for 2022 will allow optimisation of the operation of the treatment plants at individual locations.





# PGE Energia Ciepła with innovative INNUPS technology

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Among the stricter requirements of the BAT conclusions in the field of nitrogen and sulphur oxides removal, requirements were introduced concerning the parameters of wastewater from wet flue gas desulphurisation systems. One of the key parameters are concentrations of metals and metalloids in wastewater. As part of the program of adjustment to BAT conclusions, a number of projects were implemented, including in the field of water and wastewater management a project derived from a research and development project, i.e. implementation of heavy metals capture technology in InnUPS technology. In 2013– 2016, PGE Energia Ciepła developed a technology for treating wastewater from wet flue gas desulphurisation systems. The developed technology is based on a column system containing ion exchange resins dedicated to the removal of metals and metalloids.

In 2021, the INNUPS treatment system was put into service at PGE Energia Ciepła's Gdynia CHP. Thanks to the new technology, wastewater is treated to a much higher degree than required by the EU regulations in force since August 2021. In addition, the installation enables the recovery of marketable metals, such as rare earth metals and precious metals. This is an example of the widest possible re-use of produced anthropogenic minerals and precious elements, in line with the principles of circular economy binding at PGE Group.

# **Renewables**

For PGE as Poland's leader in hydropower generation, a responsible approach to the use of hydropower and pumped storage plants is of particular importance. As regards PGE Energia Odnawialna, the key issues include surface and underground water intake and discharged wastewater, which is subject to constant testing and analysis for compliance with the requirements of water permits. Wastewater treatment facilities are operated at individual sites, where operational inspections of separators are performed by specialist companies and, as required, waste is cleaned, collected and disposed of, and adsorption filters are replaced. In its operations, the company takes into account the risk of harmful substances entering the environment through contamination of water reservoirs as a result of failures of the hydro-set equipment. PGE Energia Odnawialna takes remedial measures which consist in continuous monitoring of equipment operation by power plant operators, regular inspections and carrying out repair, operation and modernisation works. Municipal sewage is discharged in accordance with contracts with municipal companies.



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# Circular Economy

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GRI: Custom indicator (Implementation of the strategy), 103 (306), 301–3

According to PGE's strategy, one of the ways to achieve the goal of climate neutrality by 2050 is to implement the principles of circular economy in all areas of activity. Actions taken by PGE to close cycles of raw materials are aimed at the optimum use of resources, protection of natural resources and mitigation of adverse environmental impact by, inter alia, reducing the volume of generated waste.



Fig. Environmental and social effects of implementing circular economy products

Processes and assets that are in alignment with the circular economy include:

- extending the life cycle of raw materials and materials used,
- reducing energy losses and material waste,
- processing waste into wholesome products in order to minimise waste,
- reclamation and restoration of investment values of postindustrial sites.

The concept of re-using combustion by-products has been around in the energy sector for over 20 years. Reduction of emissions to the atmosphere causes an increase in the amount of substances captured in air protection systems and thus an increase in the possibility of using combustion byproducts. PGE Group places strong emphasis on the economic use of combustion by-products, implementing the concept of reducing environmental footprint in practice. The reuse of combustion waste in various sectors of industry brings tangible benefits to the environment:

- does not give rise to the need to allocate new land for the construction of landfill facilities and associated infrastructure,
- reduces the use of natural resources (e.g. natural gypsum, aggregates) and thus reduces the area of degraded land associated with their extraction;
- leads to a reduction in nuisance caused by landfills, both for people and the environment;
- reduces the cost of doing business.

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In pursuing its strategy, PGE places great emphasis on 🛸 developing solutions that maximise the economic use of raw materials and waste, thereby achieving environmental and climate protection objectives. In the area of waste management, indicators have been set for waste recirculation and reduction of the volume of landfilled waste by 2035 in the form of two targets:

 recycling above 65% and

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 landfilling of no more than 10% of the waste generated.

By conserving the Earth's natural resources, we remove carbon dioxide from the atmosphere. We safeguard raw materials and breathe cleaner air. And natural



deposits remain untouched, preserved for future generations.

Lech Sekyra President of the Management Board. PGE Ekoserwis

# **Dedicated Circular Economy segment**

PGE Group has set up a dedicated Circular Economy segment, where PGE Ekoserwis plays the leading role. Its activities are focused on the implementation and deployment of ecological and economic solutions in the area of resources of raw

materials and post-industrial waste from the energy industry. The main objective of the new segment is a coherent, strategic and business-oriented management of postindustrial raw material streams in line with the circular economy, taking into account care for the environment and sustainability.

The Circular Economy segment's priority is to promote, create and implement circular economy principles across the entire PGE Group and to increase the degree of utilisation of raw materials involved in energy generation processes. This is a response to the challenges facing the Polish economy both in the long term and in the coming years as an important element of the transition process. An efficient Circular Economy model will make it possible to carry out an energy transition that will fit in with national challenges in the area of waste-free and environmentally friendly energy.

Environmentalfriendly energy organisation

Sustainable investments

# **Circular Economy**

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Fig. Implementation of PGE Group's strategic priorities within the Circular Economy segment

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at PGE Group

Adequately ensuring the use of secondary raw materials is connected with the necessity to implement the principle of priority for these raw materials in economic processes. The EU Circular Economy package, which reduces and eventually eliminates landfilling in principle, is a major challenge for the energy and mining industries. At the same time, this is an opportunity for the energy sector and a benefit resulting from the preservation of natural resources for future generations and lower environmental impact.

Business activity

# **Combustion by-products**

#### 301-3

Combustion by-products are the result of electricity and heat production in generating units using fossil fuels. Combustion by-products management at PGE Group, based on circular economy, leads to the use of waste as full-value substances in other branches of the economy (cement industry, construction, road construction, mining), and in consequence to the reduction of the volume of generated final waste. In 2021, a total of nearly 11 million tonnes of combustion by-products in the form of ash, slag, ash-slag mixture and gypsum from flue gas desulphurisation systems were generated in PGE Group's power plants and CHPs during the production of electricity and heat, of which as much as 65% was economically used, including as full-value products which find their use in many diversified economic directions. The reuse of combustion by-products in various industrial sectors brings tangible environmental benefits. The inconv enience of landfills, both for people and the environment, is reduced as there is no need to allocate new land for their construction, with accompanying infrastructure.

Combustion by-products are successfully replacing natural raw materials (e.g. natural gypsum, aggregate), thus reducing their extraction and the accompanying emissions. The responsible use of secondary raw materials, such as gypsum from flue gas desulphurisation systems, is a good example of implementing the principle of priority for secondary raw materials in economic processes. Such measures help to protect fossil resources for future generations.

Greenhouse gas emission reduction is not insignificant in production cycles that use combustion by-products. Examples include reducing the carbon footprint of cement production using fly ash, or gypsum boards using synthetic gypsum. The use of high-calcium ash from energy generation reduces the CO<sub>2</sub> emissions that accompany the cement and lime industries in the production of traditional binders (i.e. cement or lime). Therefore, the conventional energy industry contributes to part of the avoided CO<sub>2</sub> emissions due to the use of combustion by-products supplied from the energy industry to the cement industry. According to a report by the National Centre for Balancing and Emissions Management, thanks to the production of binders from combustion by-products, which successfully replace cement and natural lime in selected geotechnical applications – mainly in road construction, the reduction of CO<sub>2</sub> emissions over a 5-year period may be reduced by almost 568 thousand tonnes of CO<sub>2</sub>.

The methods of combustion by-product waste management applied by PGE are eco-friendly and constitute an alternative to landfilling. Solutions are developed using the company's own research and development facilities and laboratory, and are supported by leading scientific and research institutions with which the company cooperates on a regular basis. The combustion by-products and gypsum produced are monitored for quality and, depending on the parameters, are directed to the appropriate use.



PGE

Manufacturers of cement, concrete, ceramics, mining and road construction, among others, benefit from the use of proven and safe solutions. Products made using combustion by-products technology meet all the requirements for building materials or products.

By-products of combustion are also used in the reclamation and macro-levelling of post-industrial and degraded land, restoring many areas to their former landscape and natural beauty. They are also widely used in the mining industry to protect pits.

In 2021, the largest volumes of combustion by-products were directed to the construction segment.



# Mining by-products

The minerals that accompany lignite deposits, called mining byproducts, play an important role in the sustainable supply chain of raw materials and materials. These include limestone, lake chalk, sands, clays, flint cobbles and erratic boulders in the form of granitoids and other Scandinavian rocks. Management of associated minerals contributes to rational deposit management and protection of the earth's surface.

The reclamation and restoration of investment values of postindustrial sites is an integral stage in ending the extraction of energy minerals. The decommissioning of pits is aimed at making them usable and restoring them to the environment. In the case of lignite pits, international experience shows that water reclamation is most popular option. For this purpose, macro-levelling is carried out using the earth and rock masses accumulated during the exploitation phase in order to shape the land appropriately for leisure and recreation or in another direction.

Reclaimed areas can also be an attractive area for investments in renewable energy sources. The location of these areas in the vicinity of energy connections will allow them to be used in the future for the construction of wind farms, photovoltaic farms or energy storage facilities.

# Circular Economy Research and Development Centre

In a time of transition, PGE faces new challenges related to the development and implementation of waste processing technologies and recovery of raw materials from RES installations, which in a discernible time horizon will also constitute a potential for their optimal use in accordance with the principles of Circular Economy. To be able to achieve this, specialised competence and dedicated research and development activities in this area are required. Therefore, work began in 2021 on the construction of the Circular Economy Research and Development Centre, where projects will be focusing on, inter alia, the recovery and recycling of raw materials from decommissioned RES installations.

The role of the Circular Economy Research and Development Centre is to develop and implement solutions aimed at the optimal economic utilisation of post-industrial energy waste and recovery of valuable raw materials which, when re-used, will reduce the consumption of natural resources and minimise the generation of waste.

The Circular Economy Research and Development Centre will focus on the utilisation of all waste generated in the energy production processes, both from the current conventional energy sector and from the energy sector based on renewable energy sources. The aim of the Centre is to create a centre of competence for research and development in the area of waste management from the energy industry. The specialised facility will have its own research and technical laboratory. The scope of work on advanced projects will include the development of technologies and solutions for waste processing, recovery of raw materials and manufacture of high value products from the resources obtained.

# Waste

Direction PGE 2050

GRI: 306-2, 103 (306)



# Priority for us is given to preventing and reducing waste, carrying out recovery or disposal of waste. All waste is collected in accordance with the rules of waste segregation and is initially stored in designated areas.

We adapt in advance to new waste management requirements and implement emerging obligations on an ongoing basis. Waste management at PGE Group is carried out on the basis of relevant administrative decisions, i.e. integrated permits and sectoral decisions.

Secondary raw materials are collected selectively for further economic use. All waste is transferred for management to authorised entities. Only two types of waste that are not suitable for further use are sent directly to landfill.

Starting from January 1, 2020, PGE Group companies actively participate in the national waste database system and perform all their obligations in this respect on an ongoing basis. This has made it possible to develop an effective tool for all participants in the waste management process in the companies' branches.

The volume of hazardous waste generated is decreasing every year. On the scale of the entire PGE Group, a reduction by approx. 14% is observed in 2021 compared to 2020. Particularly noteworthy is the intensified activities in recovery processes (including energy recovery) for non-hazardous waste. PGE Group recovered approx. 59% more waste of this type than in 2020.

# Waste in conventional energy generation

In conventional energy generation, it is imperative that as much of the waste and combustion by-products generated are managed economically as possible within the circular economy. Only when no use is possible is the waste landfilled.

## Bełchatów power plant

The combustion of lignite at the Bełchatów plant results in the production of combustion by-products: fly ash and furnace slag, and synthetic gypsum (as a product) as a result of flue gas desulphurisation. At present, the Bełchatów plant operates three landfills for nonhazardous and inert waste – the "Zwałowisko" and "Lubień" landfills, where ash-slag mixture is stored, and the "Rogowiec" landfill, where gypsum waste and partly waste from production that can no longer be recovered are stored.

Fly ash from ash removal processes in electrostatic precipitators is transported to retention tanks, where each has a working capacity of 1 800 m<sup>3</sup> and is equipped with 1 or 2 loading sleeves depending on the type of tank and ash. The volume of ash which was not collected by external customers is directed to the suspension production and transport installation and is deposited in the "Lubień" landfill.

The second type of waste produced during the combustion of lignite is slag, which is transported hydraulically to the "Zwałowisko" landfill.

## Turów power plant

PGE

Ways to manage waste as well as quantities of waste generated at the Turów plant are in accordance with conditions defined in the valid integrated permit. The amount of waste generated depends on the investments made and the scope of operations carried out at the installation. In order to prevent the necessity of storing combustion waste at the landfill, this waste is transferred to the Turów lignite mine for recovery. This consists of filling in the areas



that have been adversely transformed. The waste recovery process consists of mixing the combustion waste with mine overburden and then filling the post-mining excavation with the obtained mixture, in accordance with the conditions specified in the decision on waste treatment. The target area of the pit together with the internal heap, where the recovery of combustion waste from the power plant is carried out, will be developed in the direction of forestry.

### Opole power plant

The Opole plant produces by-products from fuel combustion (slag, fly ash), flue gas desulphurisation (synthetic gypsum), fly ash as waste (non-quality fly ash) and insignificant amounts of other waste from fly ash flotation (microspheres). These substances result from the operation of generating units 1–4 and new units 5–6.

Flue gas desulphurisation systems are operated on all generating units. Synthetic gypsum (as a by-product) is entirely collected by Knauf Bełchatów sp. z o.o. and PGE Ekoserwis. It was decided that the power plant will not carry out combustion by-products storage. All combustion byproducts will be subject to economic use. The Opole plant has a combustion waste landfill, but due to the economic use of all generated combustion by-products, no waste has been deposited there since 2000.

#### Dolna Odra power plant

At the Dolna Odra plant, mainly combustion waste called ash-slag mixture is generated, which is deposited at the combustion waste landfill located at the fuel combustion installation. Microspheres and sludge from the flue gas desulphurisation system are produced in insignificant amounts. Coal fly ash, which is considered a by-product, as well as synthetic gypsum are collected by PGE Ekoserwis.

#### Rybnik power plant

The Rybnik branch transfers the generated combustion byproducts to PGE Ekoserwis for further management. It should be emphasised that in 2021 the Rybnik plant did not produce ash, slag and gypsum classified as waste. Ashes and slag were produced only as by-products, while gypsum as a product.

## Waste in mines

The reclamation and restoration of investment values of postindustrial sites is an integral stage in ending the extraction of energy minerals. The decommissioning of pits is aimed at making them usable and restoring them to the environment. The minerals accompanying lignite deposits play an important role in the sustainable supply chain of raw materials and materials. The management of associated minerals contributes to rational deposit management and protection of the earth's surface. All waste generated that is not managed on the companies' premises is transferred to external entities.

#### Turów lignite mine

The Turów mine recovers combustion waste from the Turów power plant. Sewage sludge from domestic sewage treatment plants is a valuable fertiliser and soil improver and is used in the process of biological reclamation of post-mining areas.

The mine also carries out rational management of humus (removed as part of the preparation of the forefield), which is used as a sodding material and to protect the surface of the internal dump from excessive dust.

#### Bełchatów lignite mine

Storage and recovery of generated waste is carried out at the mine site. Waste is stored selectively, depending on its type, with preliminary separation of recyclable waste, in separate and adapted places, with a ban on mixing and in conditions protecting against penetration of harmful substances into the environment, access of unauthorised persons and animals, in appropriate containers or in bulk.

## PGE Energia Ciepła

Most of the volume of post-processing waste is sent to external customers, either as waste or as a by-product. Once in a while there are situations when the volume of transferred waste is higher than the current volume, which is due to the transfer of waste to external customers from the previous period's stock. When waste has no economic use, it is sent to landfills. In recent years, these quantities have been marginal in relation to the total outfall. Taking into account the regulatory context and processes of the transition of energy sources, a gradual reduction in the volume of postprocess waste should be expected in the coming years.

# PGE Energia Odnawialna

Waste in the operations of PGE Energia Odnawialna is limited. Waste is managed in accordance with the Waste Act, internal regulations and provisions set out in permits for the generation of hazardous and non-hazardous waste.

# PGE Dystrybucja

In the case of PGE Dystrybucja, the amount of waste generated depended on the scope of operations carried out on the power grid, the occurrence of failures and the investments carried out.

Reducing the amount of waste generated in the distribution area is achieved, among other things, through the development of modern live-work technology, which allows the operation of the electricity grid to be carried out without having to shut down the lines supplying electricity, extending the life of the switching equipment.



# Land rehabilitation

Direction PGE 2050



One of the most important environmental protection activities carried out at PGE Group's lignite mines is the rehabilitation of post-mining areas, which restores usable and natural values to post-mining areas and recreates or shapes new environmental features. To this end, types and methods of rehabilitation are defined and visions of the landscape after completed rehabilitation are presented.

The reclamation of post-mining areas is a complex issue, consisting of design and technical as well as biological activities. It includes the following stages:

preliminary (preparatory) reclamation – concerns the recognition of factors determining the correct course of rehabilitation. At this stage levelling measurements are taken, mining maps are drawn up and cost and project documentation is prepared,

basic (technical) rehabilitation – refers to macro-levelling covering earthworks, consisting in proper shaping of the heap into a system of slopes and shelves, regulation of water relations by means of hydrotechnical facilities and equipment and reconstruction or construction of access roads,

detailed (biological) rehabilitation – concerns improvement of air and water properties of soil, elimination of its excessive acidification, supplementation of missing nutrients, introduction of herbaceous and woody vegetation recreating biological conditions of the area and protection against surface erosion,

post-rehabilitation treatment – includes the care of seedlings and the replenishment of outcrops.

First of all, the works eventually shape the slopes and ledges of the heap, protect the slopes by controlled drainage of rainwater, consolidate the top layer of soil and protect the area against erosion, reduce the volume of rainwater runoff by increasing soil retention, improve the quality of water flowing from the heap and reduce fugitive emissions.

#### Bełchatów mine

The Bełchatów mine conducts large-scale land rehabilitation activities. So far, it has already rehabilitated more than 2 300 ha of post-mining land and handed over more than 1 500 ha of rehabilitated, forested land to the State Forests. At present, the post-mining areas of the Bełchatów lignite mine are dominated by the forestry direction. It can be preliminarily estimated that about 5 500 ha of the land (including protective strips around water reservoirs) will be eventually handed over for forest management. So far, the Bełchatów mine has handed over to the State Forests more than 1 500 ha of transformed forested land. As part of rehabilitation activities, more than 23 million trees have been planted on all mine sites, thus ensuring biodiversity.

The rehabilitation of post-mining areas at the Bełchatów mine is carried out on the basis of a technological project for the Bełchatów field and the Szczerców field, as well as on the basis of annual detailed technical projects for individual areas.

# 234 ha of land

PGE

In 2021, on the external dumps of the Szczerców field and the internal dumps of the Bełchatów field, the Bełchatów mine rehabilitated 234 ha of land, including biological rehabilitation on 112 ha. ESG – Foundation of Development

Góra Kamieńsk is a flagship example of comprehensive rehabilitation efforts. It is the highest hill in central Poland, 395 metres above sea level. It was formed from 1 354 billion m3 of overburden, taken off in the process of accessing successive layers of lignite. Currently, it is one of the main

tourist attractions in central Poland. A ski lift, hiking and cycling routes and a 620-metre-long sledge run make Góra Kamieńsk an important point on the map of summer and winter sports enthusiasts.

The formation of a second heap, this time at the Szczerców Field, was also completed. This process took 17 years, and resulted in the creation of the "twin" Góra Kamieńsk. The heap was formed from almost 1 billion m3 of overburden located above lignite seams. Currently, the mountain has an area of 1 114 ha and a relative height of approx. 170 m.



The rehabilitation of the heap is being carried out in a forestry direction, taking into account the recreational function through the creation of forests, cycle paths, a golf course, autodrome, hippodrome and a ski slope. A photovoltaics farm will also be built at the top.

Within the area of the Bełchatów field, work is being carried out on corrections and additions to afforestation from the rehabilitation carried out in previous years. The target rehabilitation directions include:

- forest, woodland direction internal dumps of the Bełchatów field,
- forestry, recreational and sports, agricultural (cultivation of energy crops), economic (construction of a wind farm) – the external dump of the Szczerców field,
- water direction mining pits of field Bełchatów and field Szczerców,

• recreational and sports facilities and wooded areas in coastal areas.

Ultimately, the main rehabilitation task for the Bełchatów mine will be the water reclamation of both end pits, combined with the creation of a large leisure complex. The scale of difficulty of this project is unparalleled in Poland. Once the mining is fully completed, the Bełchatów mine may become an important place for water sports enthusiasts. Over 4 000 ha will form a reservoir on which economic or recreational and sports activities can be conducted in accordance with local needs.

In 2021, the Bełchatów mine obtained administrative decisions to recognise the reclamation as completed in forestry direction for approximately 137 ha of land in the Bełchatów field and approximately 41 ha of land in the Szczerców field.

#### Turów mine

In the case of the Turów mine, the rehabilitation of the external dump, which has been carried out since 1960s, is aimed at target forest management, where mining operations have been finished. The rehabilitated external dump of the Turów Mine is a forest complex of the area of almost 22 km2 which constitutes invaluable oxygen generating area of the Bogatynia municipality. It is also environmentally diversified, where habitats and ecological corridors are created (habitats of very numerous representatives of both plant and animal world, including many rare and protected species). It is the largest site of its kind in Poland and one of the largest in Europe.

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The effects of the land rehabilitation works carried out contribute mainly to the improvement of the quality

Direction PGE 2050 Sustainable investments

ESG – Foundation of Development

of basic environmental components, i.e. air, water and soil. Uncontrolled emission of dust from the heap decreases with the increase of the area of forested land. The anthropogenic forest complex formed on the external dump contributes significantly to the increase of forest cover in this industrialised region. Although the age structure of afforestation is characteristic for young forests, it is already an important landscape and climate factor for the Bogatynia municipality.

The rehabilitated external dump perfectly fits into the mountainous surroundings of the "Worek Żytawski", which is part of the Izera Foothills. After more than fifty years since the start of reclamation work, the dump should be seen as an integral part of the entire ecosystem. It improves the quality of life of the region's inhabitants thanks to multidirectional reduction of negative impacts of industrial activity. It also performs protective functions, including:

- prevents wind erosion (reduction of fugitive emissions),
- reduces water erosion and flood prevention through the controlled drainage of surface water made within the framework of reclamation,
- increases retention and recreational or productive function (harvesting of timber).

Drainage works were carried out in 2021. Maintenance of existing drainage ditches was carried out and new culverts and flow traps were constructed. These facilities will allow rainwater to be managed in a controlled manner, which has a significant impact on subsequent biological reclamation works.



In 2021, a wildlife inspection was also carried out on 28.5 ha of the open-pit foreground area, establishing the principles for the continuation of mining with respect to the principles of species protection for animals, plants and fungi. The necessary tree and shrub cutting was carried out outside the bird breeding season.

The result of the rehabilitation works are dynamically growing multi-species stands forming components of the forest environment, including the soil and its specific microflora and local microclimate. There is relatively rich biological life in the reclaimed land. As years go by, the colonisation by fungi, bacteria and actinomycetes increases. There is a clear predominance of forest species over non-forest species, testifying to the transformation of the forest ecosystem developing towards fertile upland forest habitats.

Over the next few months, under a signed agreement with the Czech Republic, the mine will plant additional saplings on a strip of the surface dike that will be built on the mine-Czech border.

The kilometre-long earth embankment will be planted with trees and rich vegetation.

# Reclamation of waste dump at PGE Energia Ciepła

Reclamation activities are also carried out by PGE Energia Ciepła. After a landfill is closed, it is formally shut down and then recultivated in the green direction. Vegetation is introduced, grass covers and tree plantings are made. Where possible, measures are planned to restore the land to its economic function. The levelling works carried out are intended to enable adaptation of the land for various economic functions of an industrial, service or municipal nature.

Currently, there are 12 landfills in the branches of PGE Energia Ciepła with various status of operation – operational, closed – prepared for rehabilitation, as well as rehabilitated. An example of landfill restoration is the process of rehabilitation of the disused furnace waste landfill in Gorzów Wielkopolski, owned by PGE Energia Ciepła, which began in 2021. The rehabilitation of the inactive landfill of non-hazardous and inert waste will be carried out in accordance with the relevant administrative decisions and the technical design developed in this respect.



Business activity Education

# Biodiversity

Direction PGE 2050

GRI: 304-1, 304-2, 304-4

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When planning new projects, PGE each time analyses its impact on the natural environment and ecosystems. In addition to analyses of the potential impact of new investments and modernisation of existing ones, PGE also meets the challenges related to the protection of biodiversity, understood as the multiformity and variability of life on Earth in all its forms and interactions, which includes diversity within species, between species and the diversity of ecosystems.

# Locations in the vicinity of protected areas or areas of high biodiversity value

## PGE Górnictwo i Energetyka Konwencjonalna

The following are located near the Bełchatów mine:

- Łuszczanowice nature reserve (approx. 9.5 km),
- Murowaniec nature reserve (approx. 15 km),
- Widawka valley, in the nearest distance approx. 5 km.

In the case of the Turów mine, it is located close to Natura 2000 areas. Two protected areas are located in the vicinity of the Turów mine:

- Natura 2000 area "Przełomowa Dolina Nysy Łużyckiej"

   a section of the Nysa Łużycka valley from Trzciniec to Zgorzelec,
- Natura 2000 area "Neißegebiet." This area includes the floodplain of Nysa Łużycka and the preserved forest fragments connected to it. The area is complementary to the Polish side of the Natura 2000 area "Przełomowa Dolina Nysy Łużyckiej." Together they encompass the entire Nysa Valley with the preserved ecosystems in its immediate surroundings.

There are also three natural monuments located in the vicinity of the open pit and the former external dump of the Turów mine:

- fossil stem of the conifer Taxodixylon gypsaceum,
- small-leaved lime tree,
- pedunculate oak.

In case of the Rybnik plant, on the northern side of the site and around the "Rybnik" Reservoir there are natural protected areas in the form of Cystercian Landscape Compositions of Ore Mountains Landscape Park. South of the power plant there is the Okrzeszyniec valley. The nearest Natura 2000 areas are located several kilometres from the power station:

- Special Bird Protection Area "Stawy Wielikąt i Ligota Tworkowska". (approx. 17 km),
- Special Area of Habitat Protection Stawy Łężczok (Nędza) (approx. 17 km),
- Special Habitat Conservation Area Graniczny Meander Odry (approx. 26 km),
- Special Protection Area of Dolina Górnej Wisły (approx. 38 km),
- Special Area of Habitat Protection Tarnogórsko-Bytomskie Podziemie (approx. 40 km).

In the vicinity of Elektrownia Dolna Odra there are the following forms of nature protection: a landscape park, five Natura 2000 areas, five nature monuments (more than 116 trees), an ecological grassland and a nature and landscape complex. In the immediate vicinity of the Dolna Odra plant there are two partly intersecting areas under protection within the Natura 2000 network. These are:

- Dolina Odry Special Habitat Conservation Area (Habitats Directive) (approx. 0.8 km),
- Dolina Dolnej Odry Special Protection Area (Birds Directive) (approx. 0.3 km),

• Dolina Dolnej Odry Landscape Park (approx. 1.3 km). PGE Energia Ciepła

#### PGE Energia Ciepła

Direction PGE 2050

PGE Group's CHPs operate in industrial areas where there is a limited degree of biodiversity. In PGE Energia Ciepła locations, especially within the boundaries of areas to which the company has a legal title, there are no Natura 2000 areas or other areas subject to protection under the Act of 16 April 2004 on nature protection (e.g. national and landscape parks, etc.). There are also no large or small ecological corridors. The site is fenced, so there is no possibility of animals entering. However, in the closer and further vicinity of PGE Energia Ciepła installations there are such areas, therefore they are taken into account at the stage of investment preparation.

Sustainable investments

The following areas are located in the vicinity of the Pomorzany CHP:

- Dolina Odry Special Habitat Conservation Area,
- Dolina Dolnej Odry Special Protection Area (Birds Directive) (approx. 200 m),
- Areas important for the condition of the urban environment and preservation of biodiversity include allotment gardens, the valley of the Bukowa river, housing estate greenery, street greenery, biologically active areas accompanying buildings and developed areas, publicly accessible greenery (squares, plazas) and the Odra river with its wetlands.

The Szczecin CHP is situated approx. 1.3 km from two Natura 2000 areas, i.e.

- Dolna Odra Special Habitat Conservation Area,
- Dolina Dolnej Odry Special Protection Area.

The exception is the combustion waste landfill, which is located in the immediate vicinity of the areas mentioned, next to the Odra river.





#### PGE Energia Odnawialna

ESG - Foundation of Development

There are protected areas in the vicinity of PGE Energia Odnawialna facilities. Technological processes, equipment operation and investments carried out do not cause interference in biodiversity of these areas. There are Natura 2000 special habitat areas (SACs) in the vicinity of the sites.

The following areas are located in the Solina branch:

- Areas of Protected Landscape,
- Beskid Niski Protected Landscape Area and Wschodniobeskidzki Protected Landscape Area – there are two protected landscape areas in the Lesko county,
- Wschodniobeskidzki Protected Landscape Area,
- Landscape parks in the Lesko county:
  - Landscape Park of Góry Słonne,
  - Ciśniańsko-Wetliński Landscape Park,
  - Dolina Sanu Landscape Park,
- Natural monuments Skałki Myczkowieckie,
- Nature reserves: Koziniec, Nad Jeziorem Myczkowieckim and Przełom Sanu pod Grodziskiem – in the vicinity of Solina and Myczkowce,
- Natura 2000 sites of European Community importance only in the area of the Lesko county, there are no such sites in the vicinity of the use:
  - Góry Słonne,
  - Dorzecze Górnego Sanu,

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- Bieszczady,
- Natura 2000 areas Special Bird Protection Areas
- Two special bird protection areas Natura 2000 have been established in the Lesko county:
- Bieszczady,
- Góry Słonne.

#### PGE Dystrybucja

PGE Dystrybucja's office buildings are not located in Natura 2000 areas or other areas subject to protection under the Nature Conservation Act of 16 April 2004 (e.g. national and landscape parks, etc.). There are also no large or small ecological corridors in the area. However, electric power lines run through protected areas and there are various types of switching stations in them – among others within the boundaries of the Wigierski, Biebrzański and Narwiański National Parks, Puszcza Piska, Białowieska, Augustowska, Knyszyńska and Kampinoska Forests, Landscape Parks: These include Międzyrzecza Warty i Widawki, Wzniesień Łódzkich, Nadbużański, Mazowieckie, Chojnowski, Spalski, Sulejowski and Bolimowski Landscape Parks, Natura 2000 Areas: Pradolina Warszawko-Berlińska, Dolina Przysowa i Słudwi and the Jeziorsko Reservoir, as well as the protected areas of the Bieszczady and Roztocze Mountains.

# Efforts for biodiversity

PGE Group is actively working to preserve and develop biodiversity. Monitoring of non-forest habitats and protected plant species as well as forest habitats is carried out in the vicinity of mines.

#### Bełchatów mine

The following survey work was carried out at the Bełchatów mine in 2021 as part of the monitoring:

- Monitoring of spring pasqueflower and marsh helleborine,
- Monitoring of Natura 2000 non-forest habitats lowland fresh meadows used extensively,
- Monitoring of hydrological conditions in peatlands,
- · Monitoring of protected peatland species,
- Monitoring of rare and protected species: swamp fern, common yew, wolfsbane laurel, common melliferous helleborine, mountain ash,
- Relocation (metaplantation) of mountain ash and common swamp from Uroczysko Stróża to the Bełchatów Forest District, Borowiny Forestry,
- Active protection of Natura 2000 habitats monitoring of light oak, implementation of active protection works at the site Wola Wiewiecka, Forest District Radomsko.

In terms of monitoring forest ecosystems in 2021, studies were carried out on damage to stands in habitats such as: wet forest, fresh mixed forest, wet mixed forest, fresh mixed forest, wet mixed forest, swampy mixed forest, fresh forest, alder swamp. Additionally, recommendations for wet and swampy habitats were developed as part of this monitoring.

#### Turów mine

Within the area of the rehabilitated external dump of the KWB Turów branch there is a diversified natural environment (habitats of numerous representatives of both plant and animal world, including many rare and protected species). In the course of the inventory of animals carried out by ecologists and foresters it was found that the following species live here: roe deer, wild boars, foxes, muskrats, hares, badgers, martens, polecats, weasels and ermine. Birds are represented by many species, both migrating, breeding and wintering. Some of them, such as the kestrel or tawny owl, are now counted among the species which are becoming rarer in Poland. The wetlands are home to numerous



amphibians and reptiles, including protected tree frogs, fire-bellied toads, mountain newts, grey toads, viviparous lizards and grass snakes. The flora is represented by more than a hundred species of woody and herbaceous plants. Some of them were introduced during recultivation works, but most of them found their way here by natural succession, finding favourable conditions for living. The resulting ecosystem is a constantly evolving environment, undergoing constant changes and transformations. With the passage of time the biodiversity of the former heap will increase. The plants introduced in the course of recultivation works, through their influence on the surrounding environment, are already paving the way for other, more demanding species. This is evidenced, among other things, by the observed phenomenon of animals migrating from the adjacent areas not transformed as a result of mining and settling in rehabilitated areas.

As part of a biodiversity study in 2021, the Turów plant conducted a study on mercury content in ichthyofauna (fish). The study was carried out at measuring stations of the Miedzianka and Nysa Łużycka waters.

## PGE Energia Odnawialna

On-going nature research makes it possible to learn about the real impact of the company's activities on species richness. The observations made during nature monitoring have shown positive effects of the activities carried out so far. PGE Energia Odnawialna participates in the costs of restocking rivers and lakes in accordance with the provisions of water permits, and the constructed fish ladders enable unimpeded fish migration. In the area of restocking rivers, it also cooperates with anglers' associations.

In 2021 the Dychów branch took an active part in drawing up plans for conservation tasks for Natura 2000 areas, such as the Krośnieńska Dolina Odry and Dolina Dolnego Bobru areas. Another fish ladder (in Stare Raduszec) was also put into use.

The green areas owned by the company are maintained by employees and cleaning services. Investigations of wind farms in operation did not indicate any need for significant biodiversity protection measures. Should such a need arise, preventive measures will be taken. Nature surveys will continue in the coming years.

#### Small hydro power plants

The Dębe hydro power plant has a fish ladder to allow fish migration. As regards EW Smardzewice, PGE Energia Odnawialna participates in the costs of restocking the Pilica river. Out of 21 power plants operating in the Odra river basin, only five do not have a fish ladder: EW Rakowice, EW Kliczków, EW Małomice, EW Żarki Wielkie and EW Gubin.

#### Wind farms

In 2021, PGE Energia Odnawialna continued to conduct bird and bat monitoring at its wind farms Resko II, Kisielice II, Karwice, Lotnisko and Wojciechowo. Last year's monitoring carried out on these wind farms were the last cycles of research within the framework of natural observations of ornitho – and chiropterofauna (birds and bats). On-going nature research makes it possible to learn about the real impact of the company's activities on species richness. In the case of positive effects, the observations made during the natural monitoring make it possible to undertake actions conducive of their preservation. Whereas if significant negative effects occur, it will be possible to take preventive measures. The nature monitoring of the wind farms so far has not indicated a need to undertake actions increasing the protection of biodiversity.

#### PGE Dystrybucja

PGE Dystrybucja takes care to protect birds, including storks. To this end, it undertakes actions aimed at increasing their safety.

Due to the location of their nests on electricity poles, storks are particularly exposed to the risk of electrocution. For years, metal platforms have been put up on poles above the power lines for the storks to make their nests. This prevents direct contact between the storks and the power lines, which significantly reduces the risk of electrocution, especially for young storks. Currently, there are about 27 000 such platforms or other protective devices placed on the company's premises. More than half of them are located in the Białystok branch of PGE Dystrybucja S.A. where, due to exceptionally favourable living conditions, the occurrence of storks is the highest in Poland. In order to protect the birds, the power infrastructure of PGE Dystrybucja is additionally equipped with special protection devices: platforms, deterrents, colourful balls suspended on lines.

Energy professionals between 2018 and 2021 secured 300 medium voltage facilities as well as installed 100 reflective rotating markers over the Biebrza and Narew rivers, 120 protections on power line poles and built 50 platforms for stork nests. As part of stork protection, PGE also repairs damaged platforms. This work is carried out between mid-October and the end of February, when the storks fly out of Poland for the autumn-winter period. The protective season for storks starts after that period.



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# Restoration of the peregrine falcon population

#### 304-4

The peregrine falcon is one of the rarest bird species in Poland, and 20 years ago it was almost non-existent in our country. There are currently 80 pairs of falcons in Poland and they are under strict species protection. PGE Group has been actively working to restore the peregrine falcon population in Poland for 19 years.

Over the years, falcons have taken a liking to PGE's chimneys. For the first time ornithologists spotted a pair of falcons on the premises of the Dolna Odra power plant complex in 2003 and then the first nestlings were ringed. In the following years, the birds settled in nests prepared for them on chimneys of heat and power plants in Gdynia, Gdańsk, Toruń, Lublin and on the chimney of the power plant in Bełchatów, at the Dolna Odra power plant complex. In 2020 and 2021, 18 chicks were hatched and ringed in six nests in PGE branches. Since 2003, 110 young falcons have fledged from nests located on PGE Group installations, which constitutes 19.43% of all young peregrine falcons that have been born in Poland in urban areas since 1999 (a total of 566 nestlings have hatched).

In the area of the Dolna Odra power plant complex, apart from falcons, there are also protected sand martins nesting in the inactive section 4 of the furnace waste dump, as well as kestrels living in the chimneys and units of the power plant. The swallows have adapted the slopes created as a result of ash-slag extraction as their habitat. Their protection consists mainly in protecting young birds, which often fall out of their nests during the first flights.

## Partnerships for biodiversity

As part of activities related to the restoration of the peregrine falcon species, PGE cooperates with the Association for Wild Animals "Sokół." As part of the cooperation, cameras were placed on falcon nesting boxes installed in heat and power plants in Gdynia, Toruń and Lublin, which allow viewing the birds online on the website peregrinus.pl.

The opportunity to watch live the family life of the peregrine falcon is intended to spread knowledge about the restoration efforts of the species. It also allows indirect contact with nature, especially the unreachable, as in the case of the peregrine falcon, which usually has its nest at



an altitude of one hundred metres. Observing the life of peregrines is extremely popular. Statistics show that the highest number of nest viewing visits occurs in May. In this month alone, more than 670 000 visits to the peep-holes established on PGE chimneys can be recorded. The Group organises naming contests for young falcons, with nearly 3 000 participants each time. Posts and videos promoting PGE's activities in the field of peregrine falcon protection are published on PGE Group's YouTube channel and social media.

PGE also supports the "Sokół" Association in its information and education activities, encouraging local communities to take an interest in the life of wild birds. At the Gdynia CHP, it is a tradition to invite children from a nearby primary school to a "live" nature lesson, during which they have the opportunity to see the process of ringing young birds.

PGE also cooperates with other associations and foundations whose goal is to protect birds. These include the Białystok branch of the Polish Society for the Protection of Birds (PTOP), the Ecological Group from Siedlce, the "Chance for Stork" Association from Kozubszczyzna and the Lublin Ornithological Society. Thanks to an agreement with PTOP, the project "Protection of white stork in river valleys of eastern Poland" was implemented between 2017 and 2021, with the main objective of reducing white stork mortality due to electrocution.

PGE Group is also involved in a number of other projects in the area of ecology, nature and climate protection. It supports national parks, cooperates with the Regional Directorates of the State Forests, forest inspectorates, ornithological associations and other organisations working for the benefit of nature and climate protection. PGE is also a strategic partner of the League for Nature Protection.

# Forests Full of Energy

The objective of the Forests Full of Energy program is to improve air quality and the condition of groundwater as well as to restore tree stands in Polish forests. The program develops appropriate social and ecological attitudes among employees and their families, and fosters the establishment and maintenance of good neighbourly relations between PGE Group and local communities.

In the implementation of the program's assumptions, PGE cooperates with the Regional Directorates of State Forests in order to jointly take care of forests. Foresters develop planting plans and prepare seedlings, and PGE employees, mobilising their families and local communities, come to places designated by foresters to plant trees. Over time, scouts and school children have joined the program.

# League for Nature Protection

PGE Polska Grupa Energetyczna and the League for Nature Protection signed a strategic partnership agreement in 2021. The cooperation assumes the implementation of activities in the field of environmental protection and nature and ecological education.

The cooperation assumes the implementation of activities in the field of environmental protection and nature and ecological education.

As part of the strategic partnership between the League for Nature Protection and PGE, the PGE Foundation together with the League carries out environmental, educational and ecological projects.

# **Revitalisation of the Crooked Forest**

The Crooked Forest is a natural monument located in the Gryfino Forest Inspectorate, in the direct vicinity of the Dolna Odra power plant. This is a cluster of nearly a hundred-year-old unusual pine trees, which due to their age in some places show a tendency to die. The revitalisation of the Crooked Forest will involve the construction of an educational path and tourist infrastructure based on exposing the most beautiful fragments of this natural monument, as well as the establishment of two experimental pine plantations from seeds obtained in the Crooked Forest. Funds for this purpose were provided by the PGE Foundation, which is the Strategic Partner of the Project.



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## Cooperation with national parks

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PGE has also established cooperation with the Park with regard to the education of children and young people, the protection of cultural and historical values in the Park, and active nature conservation.

PGE Group and the PGE Foundation supported the Biebrza National Park both financially and substantially in the implementation of the project to install photovoltaic panels on two buildings of key importance to the Park: Education and Management Centre in Osowiec-Twierdza and Animal Rehabilitation Centre and Tourist Information Building in Grzędy. This is the first photovoltaic project, developing renewable energy sources, carried out jointly by PGE and a national park. The Foundation donated the funds for the installation of the panels, and PGE Group's employees will provide the Park's management with expert support, which made it possible to realise the construction of both power plants according to the most optimal parameters.

Support for the Biebrza National Park is an element of PGE Group's long-term efforts in the field of environmental protection. *Low – and zero-carbon projects are a key direction in PGE Group's* Strategy until 2030. The photovoltaic installation in the Biebrza National Park was delivered with financial support from the PGE Foundation. The 30.36 kWp installation will contribute to reducing CO<sub>2</sub> emissions by more than 20 tonnes per year. In 2022, PGE will implement further joint initiatives with the Biebrza National Park. These will include educational, scientific



conservation projects.

#### Paweł Śliwa

Vice President of the Management Board of PGE Polska Grupa Energetyczna for Innovations



The Biebrza National Park also hosted photography workshops for PGE Group employees, aimed at showing the beauty of the unique nature of the Biebrza river valley, vast peat bogs and extremely rare endangered plant, bird and animal species. Photographs taken during the workshops were presented at an exhibition entitled "Biebrza Valley," presented in the Open Air Gallery of the Royal Łazienki Museum in Warsaw, in October 2021.

PGE and PGE Foundation also supported the Świętokrzyski National Park with a donation for the installation and commissioning of a photovoltaic system. Thanks to this a comprehensive energy modernization of the Education Centre and the Management of the Świętokrzyski National Park in Bodzentyn is possible.

Similarly to the implementation of the photovoltaic project in the Biebrza National Park, PGE supported the management of the Świętokrzyski National Park both in terms of content and financing. A donation for this project was made by PGE Foundation. In 2021, PGE also started cooperation with the Roztocze National Park, with regard to the protection of natural and cultural values in the park.

The project, carried out with funds donated by PGE Foundation, consisted of two tasks: a research and conservation project entitled "Roztocze storks – protection of symbols of the cultural landscape and forest backwoods" and the revitalisation of the dendrological path in the area of the former tree and shrub nursery in Florianka.

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# Just transition

GRI: 203-1

# In accordance with its business strategy, PGE Group's energy transition involves new investments, new technologies in electricity generation, but also a higher demand for new competences and professional qualifications of employees.

PGE is a partner to local communities, listens to their needs and takes them into account in its plans related to sustainable transition. PGE Group makes sure that energy-sector firms and employees as well as the residents of coal regions are part of the entire transition process and actively participate in it.

A just transition should be conducted in such a way that the changes taking place take into account and respect the interests of the local community and territorial administration, investors and business, environmental interests, as well as the creation of new jobs for workers in the coal sector.

It is important to make sure that just transition is conducted in accordance with best change management practices that emphasise coordination, long-term planning and multidimensional collaboration between social and business partners, local authorities and the government. The transition of mining and quarrying regions is a complex, difficult and ambitious task therefore comprehensive measures are required to maximise the security of the local community (especially mine and power plant employees and their families, who are directly exposed to the effects of transition in the coal regions), as well as to maintain the economic potential of regions that have been heavily dependent on mine and power plant operations for several decades. It is also crucial to ensure the energy security of the region and the entire state in the process of gradually reducing coal assets.

The transition projects being implemented by PGE Group in the Łódź and Lower Silesia regions are part of the process of changing Poland's energy mix towards low – and zeroemission energy.

PGE Group has developed a transition concept for the power generation complexes in Bełchatów and Turów. This assumes further development of renewable energy sources (mainly in the area of photovoltaics and onshore wind farms), as well as ambitious investment projects aimed at stabilisation of generation capacities and strengthening of social, economic and territorial cohesion. Regardless of the process of spinning off its coal assets, PGE Group will remain active in today's coal regions, both as an active investor in the energy transition process and as an initiator of activities supporting their economic development.

We plan our investments with full social responsibility while at the same time looking after the interests of PGE Group. The energy transition can become a development opportunity for the current mining regions. We have already identified the potential of renewable or low-carbon power generation next to our conventional power plants. We are consistently preparing these investments, taking into account the pool of qualified personnel

and existing energy infrastructure, which we want to utilise as much as possible.



### Damian Bronner

Director of the Operational Management and Investment Department, PGE Polska Grupa Energetyczna



# Betchatów energy complex

Direction PGE 2050

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PGE Group, which includes PGE Górnictwo i Energetyka Konwencjonalna and subsidiaries providing support services to the power plant and mine, is the largest employer in the Bełchatów region. Currently, the Bełchatów Complex employs almost 11 200 people.

In order to reduce the employment gap in the region, which will result from gradual reduction in the operation of the mine and power plant, PGE plans to carry out a range of projects over the next several years, including activities related to the development of renewable energy sources, land reclamation projects and pro-community projects such as the already operating Competence Development Centre. The lack of ambitious, costly investment and protective measures for the employees of the energy complex and those employed in industries related to conventional energy may lead to a serious social crisis in the region.



PGE Group has prepared a concept for the transition that comprehensively presents a plan for investment projects along with their justification and time-frames. In the case of the Łódź region, where the Bełchatów energy complex is located, it presents specific investment projects for 2021–2043 carried out both by PGE Group and complementary projects implemented outside PGE Group, which will create a total of over 15,000 new jobs in modern sectors of the economy. Implementing this ambitious plan depends on the involvement of many entities, also at the country-wide level, as it exceeds the capacities of PGE Group alone. These are projects such as:

- three wind farm projects with a capacity of close to 100 MW
- PV farms with a capacity of approx. 600 MW
- energy storage systems with a capacity of up to 300 MW
- establishment of a RES technology centre on the basis of today's conventional energy support companies, which will be re-focused to implementing renewable projects: production, renovation and recycling and recovery of end-oflife raw materials from renewable sources
- Competence Development Centre a dedicated program for power plant and mine workers and local residents that creates opportunities for retraining for work in the renewable energy sector.
- waste-to-energy incinerator with a capacity of 60 000 tonnes per year
- program "Virtual Power Plant" use of IT competences
- development of a recreational/tourist/cultural centre



# Supplementary projects:

- Renewables Technology Centre
- Competence Development Centre
- Central Multimodal Hub: rail and road nodes, warehouses
- Recreational tourism cultural centre



In 2021, preparatory work was carried out for investment projects (RES, waste-to-energy incinerator, low-emission generation sources) and updated strategies of support companies were adopted, including the construction of a RES Technology Centre based on their resources. The new investments (RES, waste-to-energy) are expected to be implemented in 2025–2027. September 2021 also saw the launch of the Competence Development Centre, the offering of which is already being used by 200 employees of, among others, support companies, to build competence in the field of renewable energy. On 3 February 2022 by signing a letter of intent concerning the Combined Transport Consortium (Multimodal Hub in Zduńska Wola – Karsznice), thus formalising the cooperation between PGE – Betrans and PKP Cargo. The role of Betrans, a PGE Group transport company, will be to handle the wheel transport in the planned multimodal terminal, which will ensure the possibility of maintaining jobs in the future with a smaller number

# Turów energy complex

PGE Polska Grupa Energetyczna SA has prepared and submitted to decision-makers at the local and national level detailed information on seven projects to support the implementation of the Just Transition Plan for the Lower Silesian Voivodship, six of which are to be implemented in the Zgorzelec County. The list of projects includes:

of orders coming from the conventional power industry.

### Zgorzelec county:

- Construction of PV farms with a capacity of ~100 MW
- Construction of wind farms with a capacity of up to 150 MW
- Construction of energy storage systems
- Construction of a new CHP for the purposes of the district heating network in Bogatynia
- Open pit mine museum: "Discovery Centre the science and history of Opencast Mining and the Transition of the Region – an educational and tourism project with elements of land reclamation."
- "Virtual Power Plant" program harnessing IT competences.

#### Kłodzko county:

 Construction of a pumped storage power plant "Młoty" – this project is planned in the Kłodzko county, but it will also be important for the Zgorzelec country and the entire Lower Silesia voivodship as a project stabilising electricity supplies in the context of gradual phasing out of conventional units in the region.

Aside from the work being done by the complex transition team, PGE Górnictwo i Energetyka Konwencjonalna has jump started the activities of the South-Western Energy Cluster, which is located in the Zgorzelec county. This is one of the elements of preparations for the energy transition of the region. The Cluster will work on the region's transition program and will include the process of re-skilling and educating employees from the Turów complex into new branches of the economy.

Preparatory work is currently under-way on investment projects, with implementation planned with a view to 2029.

Given the current conditions, upon shut-down of the last coal-fired power unit at the Turów plant, the plant will be earmarked for closure, which is in line with the European Union's decarbonisation policy. Depending on available financial resources, low – and zero-emission investments will be implemented within the current energy complex. Without a doubt, the funds from the Just Transition Fund will enable the implementation of a broader range of project activities that will mitigate the negative effects of the energy transition on the region's inhabitants and the local economy.

# **Just Transition Fund**

PGE Polska Grupa Energetyczna SA has since 2020 been undertaking a number of activities to support the Łódź and Lower Silesia regions in their efforts to obtain funding from the EU's Just Transition Fund, actively participating in work on the creation of:

- Territorial Just Transition Plan for Łódzkie Voivodship,
- Territorial Just Transition Plan for Lower Silesia Voivodship (in reference to the Zgorzelec country area),

and

• National Just Transition Plan, each time postulating that the needs of the Łódzkie and Lower Silesia regions (Zgorzelec sub-region) be taken into account in these documents.

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According to the Regulation of the European Parliament and of the Council (EU) of 24 June 2021, the Just Transition Fund is earmarked for mitigating the negative social and socio-economic effects of climate and energy transition in the so-called coal regions. PGE SA is making efforts for the Łódź region (where the Bełchatów power complex operates) and the Zgorzelec sub-region (with the Turów power complex is located) to be recognised by the European Commission as "coal regions" within the meaning of the Just Transition Fund, thus gaining access to support from the EU Just Transition Fund (and the Mechanism more broadly). The funds from the Just Transition Fund could be used, inter alia, for actions relating to the creation of new jobs, employee training facilitating retraining and broadening professional competences of employees formerly employed in the coal sector, reconstruction of the region's economic potential, diversification and modernisation of the local economy, undertakings facilitating development of renewable energy sources, or even projects supporting reclamation of post-mining and post-mining areas. PGE Group maintains an intensive dialogue with representatives of public and local administration and the European Commission, supporting the Łódź region and the Zgorzelec Poviat in their efforts to gain access to EU resources from the Fund. PGE SA also took part in consultations on successive versions of draft Territorial Just Transition Plans and the National Just Transition Plan.

PGE Group allows for the possibility of modification of the projects it develops, which are part of the just transition, depending on the final decisions and decisions regarding the possibility and manner of using the funds coming from, among others, the Just Transition Fund, so that the financing of these projects is as effective as possible from the perspective of PGE Group and at the same time so that these activities serve the regions and the local community in the best possible way.

Application for funding from the Just Transition Fund within the regional envelope (i.e. Territorial Just Transition Plans) or the national envelope (i.e. National Just Transition Plan) is to take place at a later stage, in accordance with procedures envisaged by the European Commission. Currently, both the Łódzkie Province and the Zgorzelec sub-region (within the Lower Silesia region) are still awaiting a decision from the European Commission on whether they will be recognised as a region eligible to benefit from the just transition fund in the upcoming financial perspective.

Photovoltaic investments in the Lower Silesian province are part of PGE Group's long-term PV Program, the objective of which is to have solar installations with a total capacity of approx. 3 GW in operation by 2030 and to strengthen PGE's position as the leader of the RES market in Poland. Just as important is the fact that by building the PV Zawidów 1 and PV Zawidów 2 farms, for which we have secured EU funding, we are actively involved in the process

of energy transition of the areas around the Turów mine and power plant.

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#### Marcin Karlikowski

President of the Management Board, PGE Energia Odnawialna

Business activity Education

# **Energy security**

Direction PGE 2050



Providing energy security has multiple dimensions and is relevant to both on-going operations and long-term investment plans. Generation units from the Conventional Generation, District Heating and the Renewables segments are deployed in ensuring energy security. The Distribution segment also plays an important role.

## **Energy system foundations**

The deployment of generation units in the National Power System depends on energy demand, which fluctuates around the clock and changes seasonally. The Transmission System Operator issues work or stand-by orders to generation units in accordance with the rule that units with the lowest variable cost are deployed first.

As demand grows, the operator engages further (increasingly expensive) generating units, thereby increasing the wholesale price of energy. PGE Group has in its portfolio competitive generating units operating on lignite that, owing to their cost advantage and access to their own fuel, are engaged by the operator also during off-peak hours, in practice 24 hours a day, all week long, which accordingly translates into production volumes and economies of scale in the operation of power generating complexes. Hence, the availability of PGE's generating assets directly affects energy security and a competitive price of energy for the Polish economy.

# **Regulatory system services**

PGE Group's generating fleet is distributed throughout the country, which is why we are an important partner for the Transmission System Operator. The operator's role is to balance the system, i.e. to match demand for electricity with electricity supply.

The most important services provided by PGE Group to the Transmission System Operator include:

 Forced operation, i.e. use of cogeneration units to ensure the quality of energy supply in response to system limitations (of a local nature).

- Use of pumped-storage plants to ensure equilibrium of capacity balance and the quality parameters of energy. Pumped-storage plants are activated at the operator's request and depending on the needs they can either generate or receive energy.
- Demand management (DSR) if a shortage or lack of reserves takes place in the system, the operator may try to reduce demand, which consists of voluntary limiting energy intake by energy-intensive customers (e.g. lignite mines).



These revenues constitute stable part of the Group's revenues, and with the launch of the capacity market, their role increases even more. Thus, PGE's exposure to the electricity market will become relatively lower.

## **Capacity market**

The Capacity Market was entered into operation from 2021. In November and December 2018, three auctions were held – for the periods starting in 2021, 2022, 2023. The main auction for 2024 took place in December 2019, the main auction for 2025 took place in December 2020 and the main auction for 2026 took place in December 2021. The additional auctions took place in March 2020, 2021 and 2022 – concerning deliveries for the particular guarters of 2021, 2022 and 2023.

Main auctions for delivery years:

	2021	2022	2023	2024	2025	2026
Clearing price (PLN/kW/year)	240.32	198.00	202.99	259.87	172.85	400.39
Volume contracted (MW)	22,427	10,580	10,631	8,671	2,367	7,189
Multiyear contracts (MW)	12,459	125	853	5,669	166	2,678



#### PGE's estimated revenues (unindexed\*)

As a result of the above auctions, the PGE Group concluded agreements, securing a revenue of more than PLN 2.5 billion per annum during the next 8 years (2021–2028). Multiyear auctions concern new units (at Opole, Turów and Dolna Odra power plants) or modernized ones. Low-emission units (like Dolna Odra) benefit from the extension of the contracted capacity supply period by 2 years.

\* Estimated revenues based on auction clearing price. Capacity obligation price for multiyear agreements will be adjusted annually with the annual average consumer price index (assumed 3.4% for 2022, 5.1% for 2023, 7.6% for 2024, 6.2% for 2025 and 2.5% in the following years).In addition, remuneration for new or modernised units is lowered by the amount of public aid granted to investments. PGE minimalised the risk that capacity market revenues will be significantly curtailed because of public aid.

# Significance of the capacity market for our investments

PGE Group is engaged in long-term projects. The construction of new generation capacities and their diversification are some of the key objectives in the Group's strategy. The profitability of investments in generation assets cannot be based solely on the volume of energy produced, but requires an additional support system. The solution is the capacity market in which generating units are remunerated not only for the volume of energy produced but also for their willingness to supply it. Obtaining 17 years of support for the construction of new gas-fired capacity at the Dolna Odra plant will provide a solid rate of return on investment, while guaranteeing stable revenues.

#### **Electricity distribution**

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Delivering electricity to customers is no less important than producing it. As Distribution System Operator, we are responsible for the reliability of energy supplies in the eastern and central parts of the country. We deliver energy to end customers over high-, medium – and lowvoltage grids. Ensuring energy security means, above all, continuously maintaining the distribution network in proper shape, conducting essential modernisations and immediately removing failures caused by forces of nature. We want interruptions in energy supply to be as short and infrequent as possible. The quality of distribution services is measured using generally accepted indicators – SAIDI and SAIFI.

The President of the Energy Regulatory Office requires distribution system operators to systematically improve quality indicators, tying this to the level of regulated revenue. The tariff process includes the option to adjust network operators' remuneration due to objective difficulties caused by weather conditions.



In 2021, the SAIDI and SAIFI indicators and the time to connect new customers to the grid were as follows:

SAIDI (minutes per customer)







#### Connection time (days)

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ESG – Foundation of Development

PGE is the largest energy company in Poland. PGE's units meet approx. 43% of the country's electricity demand and serve over 5.5 million customers, while PGE's distribution area covers over 40% of Poland's territory, including areas on the border with Ukraine and Belarus. **The Group's activities are therefore of exceptional importance for the country's energy security**. It is crucial for PGE Group to secure the continuity of operation of power plants and CHPs and distribution infrastructure so as to ensure uninterrupted supplies of electricity and heat to residents, institutions and businesses.

In connection with the situation in Ukraine, a Crisis Team has been established at the central level of PGE Group to continuously monitor threats and identify potential risks. The Crisis Team's work includes monitoring the security of energy generation and supply and the protection of critical and IT infrastructure. Its tasks also include undertaking actions minimising the risk of a crisis situation, preparing the Group companies in the event of a crisis situation and planning, organising and coordinating works ensuring continuity of the Company's and PGE Group's operations.

Crisis teams have also been formed at the Group's key companies, operating 24 hours a day, carrying out continuous monitoring and identifying potential risks in order to minimise risk to electricity and heat supplies.

All key PGE Group companies have adopted guidelines for developing business continuity plans. On this basis, companies develop and then implement their own business continuity plans that take into account the specifics of the company. A key assumption of business continuity plans is the development of a catalogue of risks for critical processes, on the basis of which emergency scenarios (instructions, procedures) are developed and adopted. The emergency scenarios are periodically tested and continuously updated. In the current situation, companies have been tasked with both urgently updating and reviewing internal regulations and business continuity plans. Cybersecurity is also particularly important in the current geopolitical situation. PGE Group has implemented special procedures for monitoring ICT networks due to increased activity of criminal groups aiming to attack ICT (Information and Communication Technologies) and OT (Operational Technology) systems. With the CHARLIE-CRP state of alert in force, the emergency plans have been reviewed. A significant change in the company's operating context triggered the launch of a threat analysis and risk estimation for cybersecurity incidents. There is also an increased focus on protecting the supply chain against cyberattacks.

The security of the Group's facilities has been strengthened. In order to protect key energy infrastructure, the Group cooperates with all services responsible for security in Poland, with a particular focus on the Internal Security Agency (ABW). In addition, PGE Dystrybucja is continuously supported by the Territorial Defence Forces (TDF).

# Key areas in PGE Group affected by the war in Ukraine

- fuel availability and prices,
- disruption to the component supply chain,
- rising inflation and interest rates and weakening of the domestic currency,
- prices of CO<sub>2</sub> emission allowances
- greater pressure for energy transition,
- cybersecurity
- geopolitics,
- counterparties (sanction letters).

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# PGE's key operating risks related to the war in Ukraine

- reduced availability of hard coal on the Polish market due to the embargo on supplies of this raw material from Russia,
- increase in hard coal prices on the international market,
- logistical disruptions due to the high utilisation of rolling stock and changes to current travel routes,
- reduced availability of biomass on the Polish market due to the suspension of feedstock imports from Belarus,
- logistical disruptions in road transport related to fuel prices and the availability of service providers' employees.

#### **Risks related to gas supplies**

CHP Gorzów and CHP Zielona Góra are supplied with field gas (so-called Ln nitrogenous gas). Due to the use of dedicated transmission infrastructure between the mine and the CHP plant, these generating assets are neutral to supply disruptions to Poland's National Gas System.

CHP Toruń, CHP Zawidawie, CHP Lublin-Wrotków and CHP Rzeszów are supplied with high-methane gas (so-called gas E). Gas E drawn from the National Gas System is secured in the form of adequate storage, and in Poland this is at a relatively high level.

PGE Group has no influence on the directions of supply and management of fuel transmission therefore the risk of possible disruptions lies with PGNiG and the Transmission System Operator (Gaz-System). PGE has established communication channels with PGNiG and Gaz-System in commercial and operational management in cooperation with the respective PGE Group location. In accordance with national gas supply constraint management programs, securing supplies for electricity and heat generation is favoured over other customers.

# Impact of fuel availbility on electricity and heat generation

In the case of gaseous fuel, due to the lack of stock-holding possibilities, reduced availability translates into an immediate disruption in electricity and heat production. However, if there are reserve coal-fuelled water boilers at a given CHP plant, heat production is possible until stocks are exhausted (concerns locations Branch Lublin-Wrotków, Branch Rzeszów, in the case of Branch Gorzów Wielkopolski the production reserve is the coal-fuelled OP-140 steam boiler). At the EC Zielona Góra location, the reserve for heat production is constituted by oil boilers.

The main suppliers of hard coal for electricity and heat production are Polish mining companies. The generating units have reserves of hard coal to enable uninterrupted production of electricity and heat.

The electricity supply for PGE Dystrybucja and PGE Obrót is secured on a commercial basis. The physical supply of energy is conditioned by the current situation of balancing and operation of the National Power System. Disruptions in electricity generation will affect the energy supply depending on the location on the grid in the NPS. So far, PGE Group has not identified any risk associated with electricity or heat supply to residents, institutions and businesses.



#### Impact of war on commodity and financial markets:

The war in Ukraine has contributed to dynamic volatility in the commodity, CO<sub>2</sub> emission rights and prices of goods and services, affecting margin levels and capital raising possibilities. The disruption or complete shutdown of a number of production facilities in Ukraine has disrupted the supply chain of components for key investments or significantly raised their prices.

PGE mitigates risks by continuing its policy of hedging electricity generation costs together with energy sales on the wholesale market, which is reflected both in hedging CO<sub>2</sub> emission allowances and foreign currencies for transaction purposes.

As a consequence, the aforementioned risks may have a material impact on individual areas of PGE Group's operations and future financial performance. In particular, the recoverable amount of selected asset items, the level of expected credit losses and the measurement of financial instruments may change.

In view of the dynamic course of the war on the territory of Ukraine and its macroeconomic and market consequences, PGE Group will monitor its development on an ongoing basis and any events that occur will be reflected accordingly in future financial statements.

# **ICT** security

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Being aware of the importance of PGE Group's infrastructure for the country's energy system and due to progressing digitisation, PGE treats ICT security issues as a priority. PGE Systemy, a PGE Group company, is responsible for ICT infrastructure management and ensuring ICT security. Infrastructure security is subordinated to the Cyber Security Department in PGE Systemy, which also includes a specialised PGE-CERT team responsible for handling ICT security incidents and minimising their potential effects. Counteracting cyberattacks takes place on many levels. PGE-CERT monitors threats to system security, reacts to detected incidents and undertakes actions related to the coordination of incident handling. PGE Systemy continuously improves competences and skills of the Cybersecurity Department employees through training. The PGE-CERT team has an international accreditation of the Trusted Introducer organisation, it is also a member of FIRST.org, a leading organisation associating teams responding to incidents. Since 2020, it has had the status of a certified CERT team. It has also undergone independent certification for compliance with ISO 22301 and 27001.

To secure the infrastructure, technical safeguards are in place to protect PGE Group against malware, targeted attacks and denial of service attacks. Thanks to the implemented software, computers operating in PGE Group network are monitored on a regular basis. Procedures regulating employees' rights and obligations with respect to

IT security have been implemented in the entire company. Among other things, it is prohibited to use company IT devices for private purposes, to use social media except when it is necessary (PGE Group profiles), to log into private email accounts and to use unsecured Wi-Fi networks.

It is exceptionally important to build IT security awareness among the employees of PGE Group through education and on-going information on possible and existing threats, reminding of the principles of safe use of computers, the Internet and company mobile phones. Articles and information on this topic are published in internal company media.

Access to corporate resources from the Internet is based on encrypted VPN connections. In order to enable remote work by PGE Group employees, the VPN infrastructure and group communication and teleconferencing environment have been developed.

Employees are equipped with PKI (Public Key Infrastructure) certificates, which are used to secure e-mail messages and electronically sign documents. Computer equipment used for remote work has disk content encryption enabled. We have also developed instructions and advice on IT security rules for remote work, which have been published on PGE Group intranet.

# Growth impulse

Direction PGE 2050

GRI: 201–1

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We are one of the largest employers in Poland. We provide stable employment to more than 38 000 people across around 200 locations throughout the country. Most of our personnel are residents of towns in the vicinity of our assets. Taxes that we pay to the municipalities in which we do business often account for a significant part of their local budgets.

Many activities for local communities originate at the initiative of PGE Group companies. PGE is a local patron of sports and culture. PGE Group companies engage in educational and charitable activities.

A large part of our subcontractors are local firms that, by working with us, have an opportunity to develop their business. Our investments constitute a very substantial element of economic development and their implementation helps to improve the quality of life and work for local communities.

IOur Baltic Sea offshore energy investment that we are currently working on is an opportunity for many Polish businesses to spread their wings; many of them specialise in the manufacture of components for wind farms and devices accompanying such undertakings. Close to 800 firms, including more than 500 Polish businesses, participated in April 2022 in information workshops for suppliers, subcontractors and other entities interested in cooperation in the implementation of the Baltica Offshore Wind Farm.

# Investments and activities stimulating regions

We are one of the largest domestic investors. Since the foundation of PGE Group 15 years ago, our capital expenditures have exceeded PLN 80 billion. These funds were spent on the construction of new generating capacities, eco-friendly modernisations of existing assets and expansion of power and district heating networks. This is a very large amount, which could have financed, for example, more than 2 000 km of highways in Poland.

In 2021, we invested PLN 4.7 billion. Our investments provide an impetus for the Polish economy – these are not just orders that mostly go to Polish businesses but also thousands of jobs at construction sites and subsequently in operating these new units. Thanks to the electricity that we supply and our investments in distribution grids, companies can develop their business and search for new opportunities. In places where we operate we are often the largest or one of the largest employers and our investments constitute additional support for the development of local markets.



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#### Direct economic value generated and distributed

	PLN thousand	
A. Total revenue	57 866 437,18	
B. Operating costs	33 563 384,57	Total with income tax
B. Remuneration and employee benefits	5 077 509,41	Item includes: salaries, social security and pensions, jubilee bonuses, discounts, change in the value of provisions for employee benefits, other (excluding training)
B. Payments to providers of capital	311 401,49	Item includes: interest on financial instruments, no dividends
B. CO <sub>2</sub> emissions costs	11 553 045,70	
B. Payments to the state (taxes)	3 361 219,46	Item includes: income tax, amortisation of property rights, excise tax, property tax, other environmental charges, other
B. Social investment (donations and investments for the benefit of society)	17 533,00	Item includes only donations
B. Sponsoring	37 660,29	
ECONOMIC VALUE STOPPED (A-B)	3 944 683,26	

## Our contribution to local budget

PGE Group is one of the largest payers of taxes in Poland. At state and local level, our business in 2021 brought in approx. PLN 8.5 billion\* in tax (approx. PLN 7.3 billion in 2020)\*. This amount mainly includes: VAT, taxes and contributions on the remuneration of the Group's employees, real estate tax, corporate income tax, excise tax and other taxes and fees.

PGE Group is a responsible taxpayer in Poland. Each year, PGE Group pays hundreds of millions of zlotys of corporate income tax to the state budget and local government entities. With these funds, paid by PGE and the country's other largest businesses, the Polish government carries out investments that are



important for the national economy and social programs supporting Polish companies and families, which has a real impact on the development of our country.

Wojciech Dąbrowski CEO, PGE Polska Grupa Energetyczna

# Tax impact – local governments in voivodships<sup>\*</sup> (in PLN million)

As a result of our activities, local governments (municipality, county and district budgets) received close to PLN 1.8 billion in 2021. In the municipality of Kleszczów, which is where the largest lignite-fired power plant in Europe and lignite mine are located, approx. 50% of all expenses incurred by the local government are financed with taxes paid by PGE Group.



\* Estimates based on the consolidated financial statements, tax returns and records of other levies paid for the benefit of local governments resulting from the laws in force. The estimated breakdown into individual local government levels was made on basis of information concerning the amounts of taxes paid by individual PGE Group companies, employment at individual companies and voivodships, as well as information about division of income from Personal Income Tax and Corporate Income Tax between the local governments and the State Treasury.

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	2021
Municipal budgets	1,324
County budgets	55
Voivodship budgets	376
State Treasury	5,437
Social Security	1,302
Total	8,495

	Taxes – total	CIT	PIT	Property tax	Other taxes	VAT	Social security con- tributions	Excise tax
Total								
State Treasury	5,437	515	206	-	171	4,408	-	137
Social Security	1,302	-	-	-	-	-	1,302	-
Administrative division								
Municipal budgets	1,324	45	166	965	149	-	-	-
District budgets	55	9	43	-	3	-	-	-
Voivodeship budgets	376	99	7	-	271	-	-	-
Total	1,755	153	216	965	421	-	-	
Voivodships								
Dolnośląskie	234	26	35	110	63	-	-	-
Kujawsko-pomorskie	25	2	1	15	6	-	-	-
Lubelskie	154	10	13	100	31	-	-	-
Lubuskie	31	7	-	18	6	-	-	-
Mazowieckie	220	15	29	141	33	-	-	-
Małopolskie	26	1	2	13	10	-	-	-
Opolskie	65	6	10	32	17	-	-	-
Podkarpackie	132	9	11	71	42	-	-	-
Podlaskie	67	5	6	44	13	-	-	-
Pomorskie	17	-	1	10	6	-	-	-
Warmińsko-mazurskie	14	1	1	10	2	-	-	-
Wielkopolskie	-	-	-	-	-	-	-	-
Zachodniopomorskie	66	4	8	40	18	-	-	-
Łódzkie	580	59	85	287	150	-	-	-
Śląskie	33	3	6	15	8	-	-	-
Świętokrzyskie	88	6	7	58	17	-	-	-

\* Estimates based on the consolidated financial statements, tax returns and records of other levies paid for the benefit of local governments resulting from the laws in force. The estimated breakdown into individual local government levels was made on basis of information concerning the amounts of taxes paid by individual PGE Group companies, employment at individual companies and voivodships, as well as information about division of income from Personal Income Tax and Corporate Income Tax between the local governments and the State Treasury.

# Participation in EU ETS

Costs related to CO<sub>2</sub> emissions under EU ETS reached approx. PLN 8.8 billion in 2021. EU ETS is a key element of the EU policy on combating climate change and a key tool for reducing greenhouse gas emissions. Proceeds from the sale of emission allowances do not solely go to state budgets but also finance climate protection and energy transition.

# **Transition of regions**

PGE is a partner to local communities, listens to their needs and takes them into account in its plans related to sustainable transition. Sustainable transition requires comprehensive changes in both company operations and its surroundings. The societal aspect is one of its key dimensions. PGE Group's responsibility in this respect entails optimal preparation of its employees, customers, business partners and local communities for its assumptions. The change directions being introduced are beneficial for each of the parties, taking into account especially significant aspects for the natural environment, resource management and future generations. PGE Group makes sure that energysector firms and employees as well as the residents of coal regions are part of the entire transition process and actively participate in it. PGE Group has developed a transition concept for the power generation complexes in Bełchatów and Turów. This assumes further development of renewable energy sources (mainly in the area of photovoltaics and onshore wind farms), as well as ambitious investment projects aimed at stabilisation of generation capacities and strengthening of social, economic and territorial cohesion. Regardless of the process of spinning off its coal assets, PGE Group will remain active in today's coal regions, both as an active investor in the energy transition process and as an initiator of activities supporting their economic development.

### Just transition – Bełchatów energy complex

PGE Group, which includes PGE Górnictwo i Energetyka Konwencjonalna and subsidiaries providing support services to the power plant and mine, is the largest employer in the Bełchatów region. Currently, the Bełchatów Complex employs almost 11 200 people.

In order to reduce the employment gap in the region, which will result from gradual reduction in the operation of the mine and power plant, PGE plans to carry out a range of projects over the next several years, including activities related to the development of renewable energy sources, land reclamation projects and pro-community projects such as the already operating Competence Development Centre. The lack of ambitious, costly investment and protective measures for the employees of the energy complex and those employed in industries related to conventional energy may lead to a serious social crisis in the region.


#### Just transition

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PGE pays special attention to today's coal regions and thinks long-term about their development. For more information, see the chapter *Just transition* (p. 145).



PGE Group has prepared a concept for the transition that comprehensively presents a plan for investment projects along with their justification and time-frames. In the case of the Łódź region, where the Bełchatów energy complex is located, it presents specific investment projects for 2021– 2043 carried out both by PGE Group and complementary projects implemented outside PGE Group, which will create a total of over 15,000 new jobs in modern sectors of the economy. Implementing this ambitious plan depends on the involvement of many entities, also at the country-wide level, as it exceeds the capacities of PGE Group alone.

These are projects such as:

- three wind farm projects with a capacity of close to 100 MW
- PV farms with a capacity of approx. 600 MW

- energy storage systems with a capacity of up to 300 MW
- establishment of a RES technology centre on the basis of today's conventional energy support companies, which will be re-focused to implementing renewable projects: production, renovation and recycling and recovery of endof-life raw materials from renewable sources
- Competence Development Centre a dedicated program for power plant and mine workers and local residents that creates opportunities for retraining for work in the renewable energy sector.
- waste-to-energy incinerator with a capacity of 60 000 tonnes per year
- program "Virtual Power Plant" use of IT competences
- development of a recreational/tourist/cultural centre.

Business activity

## **Employees**

GRI: 401-2, 403-3, 403-6, 403-1, 403-2, 403-4, 403-5, 403-7, 404-2, GC-3



Education

In accordance with its business strategy, PGE Group's energy transition involves new investments, new technologies in electricity generation, but also a higher demand for new competences and professional qualifications of employees.

PGE Group's commitment to the transition is not focused solely on the organisation itself. PGE Group takes a broader approach because the transition also concerns the inhabitants of the coal regions. PGE actively participates in the preparation and implementation of transition plans for these regions, in particular Bełchatów and Turoszów, the functioning of which is strongly dependent on the activity of PGE Group's energy complexes located in these areas (more details in Chapter 3.1). Project teams appointed for this purpose are responsible for developing directions for the further development of these regions. A separate project team performs tasks related to the preparation of the spin-off of coal-fired generating assets to a new entity – the National Energy Safety Agency (NABE). One of the most important elements of each of these projects is the human capital management policy, based on the use of own human resources, which allows for the development of the potential of competences and knowledge of the specifics of our operations.

## New vocational training courses

An important step in preparing employees associated with the Bełchatów complex for a just energy transition is the establishment of the Bełchatów Competence Development Centre. The centre was established as part of the "Transition Concept for the Bełchatów Region" and it operates in cooperation with the Marshal's Office of the Łódź Voivodeship.

#### The aim of establishing the Bełchatów CDC is:

• providing opportunities for retraining for both workers and residents of the region,

- preparing employees for work in the area of renewable energy (PV, offshore, onshore) and modern energy services,
- secondary education in fields of study leading to qualifications in professions employable in the renewable energy sector,
- vocational training for adults in fields useful for new energy production technologies

The Bełchatów Competence Development Centre began its training activities in September 2021. The following qualified vocational courses were offered to people who were interested: renewable energy equipment and systems technician, automation technician, IT technician, programming technician, welding technician. Almost 200 people have already taken advantage of the educational offering. New fields of study will be developed in accordance with the needs of the Bełchatów complex transition program and the inhabitants of the Łódź region.

## Circular Economy Research and Development Centre

The formation of the Circular Economy segment in PGE Group's business model is also an important transition project. The Circular Economy Research and Development Centre in Bełchatów was established in November 2021 and will open in Q4 2022. The centre will develop and implement solutions to increase the use of post-industrial waste from the energy sector and the recovery of raw materials from decommissioned RES installations. The functioning of the centre is related to the need to provide appropriate employees and equip them with the necessary knowledge and skills.



Analysis carried out in 2021 identified the following key professional qualifications: laboratory technicians in the physical and mechanical laboratory, technology specialists, specialists in raw material recovery, recycling of materials from Circular Economy waste (PV installations, energy storage facilities, wind farms), designers of engineering solutions, REACH specialists, environmental specialists, specialists in economic use of other waste generated in connection with the operation of energy infrastructure, specialists in carrying out reclamation processes, liquidation of landfills and demolition of waste heaps. Depending on the situation on the labour market, decisions will be made to recruit employees from outside or to train employees already working in the Circular Economy segment and provide them with the necessary competences.

## Recruitment in the RES area

In view of PGE Group's strategic turn towards renewable energy, activities aimed at securing staffing levels in this area are a priority. A number of recruitment processes were carried out at PGE Energia Odnawialna in 2021 with the aim of:

- ensuring staffing levels that guarantee the availability and continuity of electricity generation,
- recruiting for positions related to building and developing competences in the Renewable Energy Investments
   Department, which is responsible for the development

of new photovoltaic projects, and in the future, after the relaxation of the distance law, also wind projects,

 expanding the scope of in-house maintenance of wind turbines (electrical and mechanical services, including replacement of large components – generators and gearboxes) and developing a wind turbine propeller repair team. With the hiring of wind turbine blade repair specialists, the company will gradually become less dependent on services provided by external companies and will be able to react more flexibly in case of bad weather conditions by transferring employees to other farms, where weather conditions make it possible to repair blades.

The company plans further recruitments in the coming years. These will strengthen the team responsible for implementing RES projects and ensure the effective operation of new generation capacities and fill vacancies left by retiring employees.

Offshore wind is a new branch of the Polish energy industry. PGE Baltica, in charge of implementing PGE Group's offshore program, will create jobs and professions of the future. This is a huge challenge for the HR department. The processes of recruitment, adaptation and development of employees are exceptionally important to the company. The company is involved in a range of programs addressed 1\_1

to young people who are entering the labour market, including students and graduates of technical faculties. They have the opportunity to take part in internships and apprenticeships in the company. They learn reporting, knowledge management, planning, finance, analysis, market research in the context of individual areas of an offshore wind farm. They support the implementation of tasks in the technical, business development and project areas. For them, this is an invaluable experience, and for the company – an opportunity to develop the potential of its future employees.

The company is also active in the field of offshore wind energy education in Poland. An example of this is the cooperation with Polish universities on a new renewable energy major. In order for the company to influence the curriculum and its quality, it willingly shares its expertise and guidance with the Gdańsk University of Technology and the Gdynia Maritime University.

The retail sales company, PGE Obrót, is also involved in the energy transition process. As part of its strategic initiatives, projects related to the sale of pro-ecological green energy offerings are being implemented. In 2021, the "Pro Eko" project was launched, establishing an organisational unit dealing with the sale of products related to photovoltaics. Activities related to the support of prosumers are being implemented. The company also runs a number of communication and product campaigns related to the development of green energy.



## **Program for interns**

Aware of the business challenges related to the implementation of a new business strategy, PGE continued its involvement in the development of the internship program being implemented under the auspices of the Ministry of Climate and Environment – Energy for the Future. In 2021, its 5<sup>th</sup> edition was completed and the next edition was launched. In the sixth edition, PGE Group funded internships for six interns selected in the recruitment process from among the program participants. The program is being carried out by the largest fuel and energy companies in Poland and enables people from the best Polish universities to take the first steps in their professional careers in the energy sector.



## **Business strategy implementation plans** in the area of human capital management

In 2021, work began on developing a plan for the implementation of the business strategy in the Human Capital Management area for 2022 – 2025, enabling the Group's strategic goals and objectives to be met. Each company has identified the necessary directions of development in the HR area and has defined key initiatives. Joint activities have been identified within the entire PGE Group, which will be implemented by the Corporate Centre in cooperation with the companies.

Joint initiatives include the following programs and projects:

- implementing a Competence Assessment to be based on the Competence Model and shared rules,
- equipping managers and project managers with the right change management tools,
- increasing the effectiveness of competence management of key personnel across PGE Group, which will consist of the identification of positions understood as ones

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of particular importance and value to PGE and in ensuring their systemic management and implementing a succession mechanism,

Sustainable investments

Direction PGE 2050

- reviewing the rules of corporate human capital management and making necessary adjustments resulting from both structural changes which have taken place at PGE Group in recent years and adjusting the provisions to the current business needs,
- implementing the role of HR Business Partner in companies where this function does not yet exist and creating a forum for the exchange of knowledge, good practices and experience for those involved in this area, consolidating selected areas of support.

The internal corporate policies that govern the key elements of the human capital management (HCM) strategy remain in force. These include corporate rules for: systemic key personnel management, job architecture, HR controlling, mobility, training and development, cooperation of the HCM area, recruitment and employment, and remuneration. The corporate rules in the HCM area are communicated to all employees in the manner adopted at PGE Group, which is aligned with internal regulations.

It should be emphasised that the detailed terms and conditions of employment and remuneration are determined in accordance with the regulations in force at the individual companies of PGE Group and the generally applicable labour law and legal system (including the freedom of choice and exercise of profession and place of work provided for in the Constitution or regulations on the employment of young people).

These rules refer to the highest standards of human capital management in the entire Group. They concern, inter alia, the issue of unification of remuneration principles in relation to the business needs of individual business segments and areas, as well as monitoring the competitiveness of total remuneration in relation to the external market and internal benchmarks, with concern for its link to individual, team and PGE Group performance. Remuneration tables are created assuming a reference value and a range of minimum and maximum salaries, with observance of the law, including in particular the minimum wage.

### Internal communication

One of the objectives set out by PGE Group in its new strategy until 2030 with an outlook to 2050 is to increase the organisation's effectiveness and efficiency. This is a task that cannot be achieved without the acceptance and involvement of employees. Internal communication at PGE Group is aimed at raising employees' business awareness and building an understanding for activities related to the energy transition, of which PGE is the leader. These assumptions are realised via numerous publications in internal media featuring expert commentary from PGE Group employees.

1,070 articles published on the Corporate Portal and further development of internal communication channel in 2021:



**361** Articles from PGE Group

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Articles from Compliance

13



**10** Online editions of employee publication "Pod Parasolem" (400 pages in total)





74

Materials

in PGE TV





**169** Articles from Sports and Culture



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Newsletter editions

50

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ESG - Foundation of Development

In 2021, a total of 1 070 materials were published on PGE Group's Intranet. 50 editions of the newsletter were delivered to employee inboxes. 10 online editions of the employee magazine "Pod Parasolem" were also published. Transparent and two-way communication is a vital element of the company's organisational culture. Employees are encouraged to share their views through opinion surveys. They can also share ideas and exchange observations on internal blogs focused on ecology, green energy and conscious consumer choices. They also have dedicated email addresses at their disposal, to which they can send questions related to HR matters or the company's strategy and on-going projects.

## Dialogue with employees – employee opinion survey and leadership profile survey

At PGE Group, dialogue with employees is an important element of building employee engagement. This is evidenced by the fact that solutions building the Company's organisational culture and improving the well-being of employees are implemented on the basis of their opinions and diagnosed needs. The tools of such dialogue include the "Employee Opinion Survey" and the survey of leadership competences of managers: "Leader Profile." Thanks to cyclical activities, PGE collects opinions from a large number of employees, which would not be possible using other tools.

Standardised questionnaires measure the most important indicators for employee engagement in the workplace and effective cooperation with managers. The Employee Opinion Survey includes 16 indicators, such as engagement, cooperation, communication, among others. In 2021, the survey was conducted at the following the companies: PGE SA, PGE Baltica, PGE Ekoserwis, PGE Systemy and PGE Energia Ciepła. The results are discussed with the management boards of the companies, social partners, managers and all employees. Improvement plans are developed on this basis. Examples of such actions include, among others, improvements in the area of communication between employees, such as organisation of cyclical meetings or definition of rules for cascading information within teams, as well as well-being initiatives, the "Let's get to know each other" campaign in which teams talk about themselves and their work, implementation of mechanisms and tools supporting the work of specific teams, and implementation of rules for remote work in the Work Regulations.

The "Leader Profile" survey was conducted for the first time in 2021. Areas assessed by managers include: communication, building relationships, motivating and building engagement, developing employees and achieving results. The survey was conducted in the form of a questionnaire with 23 closed guestions and 2 open guestions. The turnout in the first edition of the survey was 74%. The "Leader Index," i.e. the average percentage of positive answers given to all 23 questions, was: 89%.

The "Leader Profile" survey was conducted at PGE SA and PGE Systemy, which in 2021 completed the process of changing its organisational structure and optimising its personnel resources. The company faced a challenge of how to strengthen and retain its current employees and how to recruit new ones. In PGE Systemy's case, the "Leader Profile" survey was extended to include an examination of the level of cooperation among senior managers ("Cooperation Survey"). The information obtained was used to further develop team management skills among the company's management staff. Managers received individual reports with feedback on their level of managerial competence.

## **Employee safety during** the COVID-19 pandemic

Another year of the pandemic confirmed that internal communication is essential in the process of providing employees with necessary information, also when it comes to safety. PGE Group employees were informed about the current epidemic situation, new guidelines and legal regulations and recommendations related to the sanitary regime via the intranet, newsletter or the company magazine "Pod Parasolem." Regular announcements were sent out, at both the Group and company level, which kept employees up-to-date on particularly important issues related to safety during the pandemic. Encouraging employees to get vaccinated against COVID-19 was also an important part of communication activities related to the pandemic. The most important information on the National Vaccination Program was presented in a special tab on the intranet.

Since the beginning of the pandemic, crisis teams have been operating in individual companies and monitoring the situation in workplaces on an on-going basis. At PGE SA, an interdisciplinary crisis team coordinates actions related to the pandemic in the entire PGE Group.

Direction PGE 2050 Sustainable investments



## The actions undertaken are based on the following assumptions:

#### Safe work organisation

at PGE Group, solutions to minimise the pandemic risk are implemented on an on-going basis. Employees are provided with appropriate personal protective equipment, with instruction in the form of videos and posters on how to use it. Depending on the specific situation of individual companies, appropriate recommendations were introduced with regard to conduct in the office – i.e. how to organise meetings, cover the mouth and nose, move around the office and use shared spaces. In selected companies, a vaccination campaign was organised for interested employees, who could receive the first and second dose of the vaccine and a booster dose. The companies also promote vaccination through exemption from work duties for the time the vaccine is received or an extra day off for those vaccinated. Some of the companies also allow employees to test for both Covid-19 and antibodies. The companies are also continuing to train managers in managing distributed teams (with a particular focus on remote working).

#### Communication

PGE Group continuously improves ICT tools which support online communication between employees in times of pandemonium, as well as the organisation of remote work, e.g. with regard to electronic document circulation and correspondence records. In addition to information provided on an on-going basis to all employees, information exchange at all levels is important. At PGE SA, meetings of the employer's representatives with employee representatives (trade union organisations and the Employee Council) are held every two weeks to discuss health and safety at work and the pandemic. To support the building of relations among employees, online integration activities with the participation of management boards are conducted in many companies.

#### Accountability

employees in quarantine or isolation can count on their employer's contact and support, including for on-going needs. In 2021, PGE Group employees continued to support the GIS hotline, from January 22 to May 31, 2021. In total, during the pandemic, PGE employees received 6 850 calls and spent 14 322 minutes talking to people who were looking for the necessary information. In January 2021, PGE SA employees were involved in volunteering for senior citizens, where they delivered lunches to them every day.

### Concern for employees' health

#### GRI: 401-2, 403-3, 403-6

Pandemic-related restrictions are a difficult experience for many employees. PGE Group attaches great importance to developing initiatives related to improving the well-being and health of its employees. PGE Group employees are provided with private medical care, which also includes occupational medicine. Within the framework of agreements in place, they can undergo preliminary, check-ups and periodic examinations. PGE respects its employees' right to privacy; therefore information on health conditions is not used when making HR and employment decisions.

Many companies organise additional pro-health activities for their employees. PGE Baltica has a program in place: "Tool-Box – Occupational Health and Safety." These are weekly meetings held in the form of short QHSE (Quality, Health, Safety, Environment) training sessions. Topics related to the current and future activities of the company as well as topics related to the personal safety of employees (hazardous incidents, corrective measures) are discussed at the meetings.

Here was also a webinar promoting COVID-19 vaccinations, a series of webinars on COVID-19 challenges, stress reduction and relaxation techniques, as well as a week for fitness (two webinars on taking care of the spine while working



remotely and pain complaints) and a week for better health (home office menus and immunity – how to strengthen it). In 2022, a free antibody test was carried out for those who were interested. As part of the Development Academy, employees were offered emotion management training by qualified trainers.

An educational campaign devoted to oncological prophylaxis was carried out at PGE GiEK. Employees were provided with access to non-standard medical services, including oncologists specialising in the diagnosis and treatment of skin, lymph node, breast or gastrointestinal cancers. In the case of a suspected oncological disease, doctors performed procedures and referred patients for further treatment in clinics. A "Health Town" was also organised to promote a healthy lifestyle and cancer prevention. Employees had the opportunity to participate in consultations with specialist doctors, meetings with a dietician, dermatoscopic examinations and examinations in a mammobus. There was also an educational campaign devoted to healthy lifestyles, oncology prevention and the "Prevention 40+" program.

An element of caring for employees is taking care of their psychological wellbeing and counteracting harassment and discrimination. At PGE Group, we continuously monitor the implementation and effectiveness of processes and procedures aimed at counteracting these issues, and we constantly raise awareness in this area among all employees, including managers. We sensitise them, including through training, to issues related to counteracting harassment and discrimination and responding appropriately in the event of suspicion of their occurrence. We also monitor psychosocial risks related to daily work, covering not only harassment but inappropriate behaviour more broadly.

## Health and safety at work

#### GRI: 403-1

The safety and health of people working for PGE Group are a priority for the entire organisation. In 2020, PGE SA's Management Board adopted the Occupational Health and Safety Policy, which defines the organisation's framework for action and goal-setting regarding occupational health





and safety management and recognises this area as a key value for the organisation's development. The Policy also defines long-term strategic undertakings concerning OHS and the basic principles of their implementation. The document was developed in cooperation with representatives of all business segments and consulted with the entire PGE Group. Notes and comments from representatives of individual subsidiaries and the social side positively influenced its final shape. The policy's scope includes PGE Group companies. On this basis, the declarations of the management boards will be updated to take account of the specific nature of work in individual companies. PGE Group's Occupational Health and Safety Policy reflects the requirements specified in the latest standard for Occupational Health and Safety management systems: ISO 45001 and the guidelines included in the Labour Code. Proactive and reactive OHS objectives have been implemented for the top management of PGE Group subsidiaries.

The OHS situation is regularly discussed at PGE SA's Management Board meetings. As part of the update of the megaprocess map in 2021, a process was developed: "Occupational health and safety management." It will be implemented from 2022. OHS management and detailed solutions at PGE Group are currently embedded on a local level within the activities of individual companies. Occupational health and safety issues are a regular item in top management meetings (e.g. management board meetings, branch management meetings). Topics include discussion of occupational health and safety incidents, working conditions and other issues in the safety and health of employees and contractors working at the site / company. PGE Group intends to standardise the best solutions in the coming years. In order to ensure the exchange of experiences and mutual learning from incident analysis, an IT tool was implemented to collect information on health and safety incidents in the entire PGE Group, including accidents at work or near-miss incidents. The knowledge acquired in this way translates into additional actions in the area of occupational health and safety, which are taken throughout the Group by means of the Framework Plan for the Improvement of Occupational Health and Safety or in the form of alerts to organisations aimed at taking preventive measures in other locations.

In 2021, the companies' Framework Plan for the Improvement of Occupational Health included tasks in the following areas:

- Improving occupational health and safety in handling operations,
- Improving occupational health and safety when working at heights,
- Supervising the use of personal protective equipment when carrying out live work,
- Reducing the risk of objects falling from a height

PGE Group companies comply with legal requirements. Compliance is verified by organisational units dealing with audits, OHS, Compliance, etc. A majority of PGE Group companies have a certified OHS management system based on the PN-ISO 45001 standard.

PGE Group's ambition is to attain the goal of zero accidents. I know from experience that this is not easy, but achievable. Occupational health and safety is all about systematicity and detail, but you also have to consider



#### Dariusz Chmielewski

the processes as a whole.

PGE S.A. Management Board representative for Occupational Health and Safety Policy



#### 4GRI: 03-2

#### Occupational risk assessment

Occupational risk assessment for workplaces is the foundation of health and safety management at PGE Group. The process is adapted to hazards and the specific nature of work and is described in internal normative acts of individual companies. A documented occupational risk assessment is provided for all workplaces. Depending on the needs, various methods of occupational risk assessment are used, such as Risk Score, PN 18002, Chemical risk assessment, OWAS, KIM1, KIM2, Lehman method. To ensure the most accurate results, the process of hazard identification and risk assessment involves the occupational health and safety personnel, supervisors of the employees working on the assessed position and often also the employees themselves, social labour inspectors, other experts relevant to the risk or the members of the occupational health and safety committee.

The power equipment used in the companies and branches has operating instructions that contain, inter alia, information on identifying hazards to human health and life associated with the operation of the power equipment or group of equipment, and rules of conduct to eliminate the identified hazards. Where required, job-specific manuals and other instructions describing the safe performance of work specify the activities to be performed prior to commencement of work, the rules and methods of safe performance of work, activities to be performed after completion of the work, and the rules to be followed in emergency situations which pose a risk to the life or health of employees.

In the CHP plants and the power plant in Rybnik, risk assessments are additionally carried out for tasks within the order-to-work system. In 2021, more than 32 000 such assessments were carried out in this area.

#### Reporting of occupational health and safety issues

At PGE Group companies, employees have at their disposal various channels of information on occupational health and safety issues, e.g. through superiors, occupational health and safety personnel, social labour inspectors, publicly available physical boxes for paper notifications, emails, occupational health and safety committees or the IT application. Representatives of top management at PGE Group companies are expected to carry out regular visits to workplaces of employees assigned in the structure. A manual for conducting such managerial field visits was developed in 2021. In addition, within the Group, employees can report health and safety issues within the Compliance function.

## Right to stop work in the event of danger to health and safety

In accordance with the Labour Code, all employees have the right to refrain from performing work that endangers their life or health. This is connected with the occurrence of an external threat, when the work conditions do not comply with the regulations of occupational safety and health and constitute a direct threat to the health or life of an employee or when the work performed endangers other people. Employees are entitled to remuneration for the period when they refrain from work due to the hazard. In companies where there is work requiring special psychophysical fitness, records are kept of such work. Employees performing such work have the right, after prior notification to their supervisor, to refrain from such work if their mental and physical condition does not ensure the safe performance of work and poses a threat to others. They are then directed to perform other types of work.

#### Investigation of occupational health and safety incidents

Every occupational accident is investigated by a team consisting of an occupational health and safety officer and a social labour inspector or employee representative. If necessary, the team consults other specialists to the extent necessary to assess the type and consequences of the accident. Other OHS incidents or accidents are also investigated at PGE Group companies. Conclusions are drawn from these investigations to improve the OHS management system, and the teams share their experiences at Group level. Causes of incidents are analysed using various methods, including: cause tree analysis, TOL or the 5x why method.

#### 403-4

#### Consultation and participation of employees

PGE

Consultations with employees on health and safety issues are carried out at individual companies mainly through the established Health and Safety Committees. Efforts are made to have an equal number of employee and employer representatives and an occupational doctor. Committee meetings are held at least quarterly during working hours. Over 120 meetings were held in PGE Group companies in 2021. The task of the Occupational Health and Safety Committee is to consult on occupational health and safety issues, in particular: reviewing working conditions, periodic assessment of the state of occupational health and safety, issuing opinions on measures taken by the company to prevent accidents at work and occupational diseases, formulating conclusions on the improvement of working conditions and cooperating with the company in performing its obligations in the area of occupational health and safety. In connection with the performance of these tasks, the Committee may use the expertise or opinions of specialists from outside the workplace in cases agreed with the company and at the company's expense.

Sustainable investments

ESG - Foundation of Development

#### Occupational health and safety communication

OHS communication is carried out on many levels. The publication "Pod parasolem" addressed to all PGE Group employees covers issues such as the organisation of safe work with power equipment, the culture of health and safety or the role of visible leadership.

Various communication tools are used in individual Group companies, such as: incident information brochures, health and safety reports, animated films, instructional videos, webinars and discussion of health and safety issues in meetings with employees.

## Occupational health and safety training

#### GRI; 403–5, 403–7

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Direction PGE 2050

Prior to starting work, all employees receive initial health and safety training consisting of general and job-specific instruction. Where justified, an introductory OSH training for contractors is also carried out. Depending on their position, employees undergo periodic OSH training. The period ranges from 1 year for positions which are exposed to particular risks to 6 years for administrative and office positions. Detailed training programs are adapted to groups of positions. Employees performing work on power equipment undergo mandatory examinations which end in obtaining a certificate confirming their competence to perform specific work.





Maintenance, repair, assembly, inspection and measurement work on power equipment is carried out in accordance with operating manuals for power equipment or groups of power equipment, which describe, inter alia, the characteristics of the equipment, activities associated with its commissioning, operation and shutdown and the timing of inspections, tests and measurements. Additionally, work on power equipment is carried out in accordance with a manual for the organisation of safe work. This document describes how the work is to be organised, requirements for persons in charge, conditions for supervising the work and rules for the circulation of written orders. Individual PGE Group companies are responsible for the provision of these documents.

Operational work that creates the possibility of particular danger to human health or life is performed on the basis of a written order. The written order is also often used in situations where this formula is advisable for safety reasons, in particular when directing contractors' employees to work.

## **Employee development**

PGE

#### GRI: 404–2

The pandemic situation indicated the need to continue developing employees via hybrid solutions, as well as the need to develop competencies related to digital transformation – both specialised, concerning the operation of systems, and social and managerial competencies that enable effective relationship building and the achievement of business objectives. Employees also participated in open training in 2021, in line with business needs, and in training directly related to their areas of professional activity. Employees of the Human Resources Department, through workshops and training, prepared for the changes related to the introduction of the "Polish Deal," changes in labour legislation and in the HR and payroll system.

Periodically, Lunch&Learn meetings were organised for employees of all companies. These were one-hour online sessions during which PGE Group employees, who were experts and enthusiasts in a given field, shared their knowledge in the areas of security, compliance, business psychology, communication and social research related to the energy transition program, and new technologies.

Computer training was particularly popular among PGE SA employees. The Academy of Development was also active - a series of training courses developing interpersonal skills and building interdisciplinary knowledge in the field of assertiveness training, exerting influence, solving problems, designing new solutions, change management and energy management.

At PGE Obrót, online training sessions were conducted for all employees, focusing mainly on supporting the psychological condition of employees and coping with work in the times of change and crisis.

The "Academy of Efficiency" program was also launched to support the development of sales and service skills for

employees who are in daily contact with customers. Approx. 35% of the company's employees took part in it. Training to develop managerial skills was also introduced as part of a program for young managers.

The employees of PGE Baltica mainly developed soft and managerial competencies diagnosed in a training needs survey. The employees of PGE Ekoserwis took part in training organised by the Competence Development Centre in Bełchatów, including training for social labour inspectors.

In PGE Dystrybucja, employees mainly participated in mandatory training on the Anti-Corruption Policy, as well as in refresher training on Compliance and the Code of Ethics.

PGE Systemy employees, who are implementing strategic projects related to energy transition based on modern technologies, improved key specialist competences in order to respond to the business needs of internal customers and increase efficiency as a shared IT services centre. The company's employees participate in a dedicated program for the exchange of knowledge and experience in the IT area – Triebes.



Direction PGE 2050 Sustainable investments

ESG – Foundation of Development

PGE Synergy has focused mainly on the development of managerial competencies, therefore it has implemented the Leadership Academy, which aims to develop the competencies of managers and to build a management culture corresponding to the current and future challenges of the market. The following competences are developed at the Academy: building relations, motivating and building engagement, employee development and achieving results.

PGE GiEK employees mainly take advantage of various forms of educational co-financing. With this, they expand their specialist knowledge and already possessed skills during classes organised as part of higher education and postgraduate studies. Managers benefit from skills development as part of MBA studies.

At PGE Energia Odnawialna, wind farm employees participated in soft training aimed at improving cooperation and communication within the team. The company intends to continue this project in 2022.

PGE Energia Ciepła also implemented projects in the field of managerial skills development. The most important development activities included: development of soft skills of mid-level supervisory staff with short seniority and managerial experience (conflict resolution, managing a diverse team, delegating and enforcing tasks). For newly appointed managers: effective team management, delegation of tasks, coaching sessions, conscious authority building and team building. And for all team leaders – managing a distributed team in the new reality of remote working and the resulting challenges.

Other training included:

- Facilitator Academy providing training on how to increase team effectiveness and create a friendly environment for group collaboration,
- Developing critical thinking training aimed at learning the methods and tools of critical thinking, rational discussion, practising the principles of logical reasoning and the art of argumentation,
- Managing generational differences training on developing skills in managing younger generation employees.

PGE Energia Ciepła organised training for managers on energy transition in the climate context and analysis of changes facing the energy sector. During training, the objectives and scale of transition processes in Europe and worldwide as well as the development of green CHPs in European countries were presented.

## **Recognition of HR efforts**

For its activities in 2021, PGE was honoured for the second time in a row with the Friendly Workplace 2022 Special Award from markapracodawcy.pl – the organiser of the Friendly Workplace competition and one of the leading services dedicated to human resources management in Poland. The organisers appreciated the company's commitment to creating a pro-development and, at the same time, health-friendly work environment and the projects it has implemented, such as the Competence Development Centre or the "Leader Profile" survey.

PGE also received the Reliable Employer 2022 Award, which is given to businesses that demonstrate care for safety and working conditions as well as employee development. The Reliable Employer of the Year is an award for employers who promote the most interesting HR solutions in their operations and are characterised by an exemplary personnel policy.

The Competence Development Centre was established for the employees of the Bełchatów complex and the region's residents, constituting a response to the need for retraining employees connected with the conventional power industry and intended to be a place where all those interested will be able to acquire new skills and knowledge by participating in professional courses,



training and workshops. The centre's offering will be updated and adapted to the needs and expectations of employers and employees.

/ Magdalena Wyrzykowska-Glezner Director of the Human Capital Management Department at PGE S.A.



#### About the report

## Management of employee innovations

The innovations area plays an important role at PGE, especially when innovations are submitted by employees. At PGE Górnictwo i Energetyka Konwencjonalna, managing employee-submitted improvements has a long tradition. They report a number of solutions to improve daily work, which also makes it possible to increase work safety, optimise complex processes and, as a result, obtain tangible economic benefits.

Examples include a system implemented at the Turów mine that enables the automatic elimination of the source of a fire or its early detection on belt conveyors, or the use of a drone in the Bełchatów power plant to carry out inspections of energy boilers in which ground coal is burned. Proposals of solutions to improve the company's day-today operations emerge every year in all branches of PGE Górnictwo i Energetyka Konwencjonalna. They are reviewed from a substantive point of view and then considered and evaluated on the basis of expert opinions, a research report and expected economic effects.

Innovations submitted in 2021 include a profitable optimisation of the boiler start-up process at the Dolna Odra plant, of importance to the operations area and for profitability, modernisation of the technical property protection alarm service station at the Alarm Monitoring Centre or visualisation of operating states in operator cabins used in the development of the SRs 2000 excavator control system.

## Cooperation with trade unions

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As of December 31, 2021 there are altogether 127 different trade union organisations at PGE Group, including one trade union at PGE SA – Organizacja Międzyzakładowa nr 2987 NSZZ "Solidarność." Since January 1, 2016, cooperation with trade unions has been regulated by the Corporate Rules of Social Relations at PGE Group. In accordance with the Trade Union Act, the basic level of cooperation between social partners is a branch or company. Another level of cooperation is the forum of individual PGE Group companies, where topics common to all employers in a given area are discussed. Social dialogue at this level takes place between management boards of companies and trade union platforms, which bring together trade unions operating in workplaces and having convergent sectoral interests. The rules of cooperation at the level of key companies are usually regulated in a dedicated agreement or memorandum, to which employers and companies are also parties.

In matters of strategic importance for the entire PGE Group, social dialogue is conducted at the level of the Corporate Centre between the Management Board of PGE SA and representatives of the social side at PGE Group. In relations with trade unions, the principle of company dialogue prevails and talks are transferred to a higher level in the event that talks at the level of the employer or companies do not yield results.

PGE SA and certain other employers from PGE Group are participants in sectoral social dialogue, which is conducted, inter alia, on the forum of tripartite teams (Tripartite Team for the Lignite Industry and Tripartite Team for the Energy Industry).

#### Cooperation with social partners at PGE Group takes place on three levels:

#### Employer / branch

Social dialogue with trade unions is conducted by employers on an on-going basis.

#### Key company

Social dialogue with trade unions forming councils or committees is conducted by company management boards.

#### **Corporate Centre**

Social dialogue is conducted by the management board of PGE SA, with the participation of management board presidents from specific companies, with trade union representatives from PGE Group.

There are 13 trade union platforms in PGE Group, across five key companies. Their reach covers employers in a given operating area (including social councils at PGE Górnictwo i Energetyka Konwencjonalna).

Certain platforms feature trade unions that belong to only one nationwide trade union central organisation (e.g. Intercompany Coordination Committee at PGE Energia Ciepła includes organisations from NSSZ "Solidarność" only). Social dialogue is also conducted at the level of the energy industry as part of Tri-partite Teams: for the Energy Industry and for the Lignite Industry.

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## End of collective disputes

On December 29, 2021, an agreement was signed at the level of the Corporate Centre, ending collective disputes at PGE Group employers initiated at the turn of September and October 2020. The document was signed by representatives of the following companies and branches: PGE Dystrybucja, PGE Energia Ciepła, PGE Górnictwo i Energetyka Konwencjonalna and PGE Obrót, as well as representatives of the Protest and Strike Committee of PGE Group (which represented 64 trade unions), with the participation of the Management Board of PGE Polska Grupa Energetyczna SA as guarantor.

This guarantees, inter alia, the implementation of all the obligations arising from agreements signed to date and agreements ending collective disputes at the branch level, and expresses the will to continuously monitor, control and cooperate on the collective documents signed.

Moreover, in the agreements ending collective disputes that were executed at the company or branch level, the parties agreed on, among other things, issues relating to wage increases and full-time employment.

## Social dialogue during the pandemic

Sanitary restrictions related to the state of epidemic declared on the territory of Poland had a significant impact on the shape of relations of the social partners.

In 2021, PGE SA continued a series of meetings initiated in 2020 with the Trade Union Organisation and Workers' Council on the epidemic and measures to prevent the spread of coronavirus at the company. More than 20 of these meetings were held. In the current dialogue, emphasis was placed on enabling remote participation in meetings, and during direct talks, adequate distance and necessary protective measures were provided (including publicly available disinfectant fluids and disposable masks).

At PGE Group employers, the counteracting of the pandemic has become a regular topic of discussion with the social side. Concerned for the safety of participants, the hybrid formula of meetings has become a regularly used option.

## Energy transition – green change

Changes in PGE Group's business sector dictated by the climate and energy policy, which also influenced PGE Group's new strategy, were a topic widely discussed with trade unions in 2021.

In July 2021, the Ministry of State Assets initiated talks with the social side (represented in the Tripartite Team for the Lignite Sector and the Tripartite Team for the Energy Sector) on the energy-sector transition, including the spin-off of coal assets. This led to the establishment of three working groups, including a team for labour law and collective labour law, the activities of which were coordinated by PGE SA. The fundamental objective guiding the parties is to safeguard employee interests during the restructuring period.

## Description of the organisation's policies on trade unions

The organisation has a procedure concerning trade unions – Corporate Rules of Social Relations at PGE Group. This document defines the model and rules for social relations between the Corporate Centre, companies and employers. The main aim of the procedure is to support the implementation of PGE Group's strategy, the achievement of which depends on employees' involvement and acceptance of the social side, by conducting the process of social relations in PGE Group. The Corporate Centre, companies and employers are required not only to conduct social relations in accordance with the generally applicable legal regulations and the applicable acts of internal collective labour law but also with the procedure, which defines the tasks of organisational units for social dialogue at specific levels. In effect, PGE SA receives information on the number of trade unions, trade union costs as well as weekly reports on the activity of trade union organisations in PGE Group.

### **Diversity management**

Direction PGE 2050

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## In 2021, work was in progress on developing the rules for a diversity policy.

The policy is expected to be adopted in the first half of 2022. This is a document that will cover all PGE Group companies and will reflect the activities carried out in favour of diversity and respect for individual differences among employees as well as the fostering of a friendly working environment.

#### Declaration of diversity

We note that diversity may manifest itself in different areas and arise from different sources, both biological and social. Dimensions of diversity can especially include:

- race, nationality, ethnicity, gender, age, health status (including disability),
- religion or spirituality, culture, political beliefs, education, place of residence, place of origin, family status, socioeconomic status, abilities, views, personality, knowledge, gender identity,
- eniority, job position, organisational assignment, membership of social, professional or trade union organisations, form of employment, experience.

Our objective is to foster a work environment that is open to different viewpoints, multiculturalism and diversity of thinking, based on cooperation, mutual support, showing respect and ensuring fair and equal treatment of employees and others, including our business partners.

At PGE Group companies, we employ a diverse range of people and work for a wide range of customers. We are committed to building an inclusive culture that respects and maximises the contribution of all employees.

We believe that through diversity we can fully realise our values, follow our ethical principles and deliver business results in a fair and collaborative manner.

At PGE Group, we believe that every person is unique, so we respect and value the diversity and individuality of employees and others, including our business partners.

We believe that diversity enables us to share knowledge, views and perspectives, develop talents and complement each other's development areas, which leads us to effective synergies, including developing solutions that are born out of diversity.

Building market advantage and being a leader in sustainable transition are based on an efficient and effective organisation, built with diversity in mind, allowing us to achieve the results we are talking about above.



We are pursuing the objectives mentioned above particularly in the following areas:

- recruitment, selection and employment,
- access to professional development,
- the creation of a workplace free of bullying, discrimination and other inappropriate behaviour that is contrary to the Code of Ethics but does not amount to bullying or discrimination,
- · internships and apprenticeships,
- remuneration and job assessment,
- vertical and horizontal promotions,
- employee appraisal,
- problem and conflict resolution

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## **Cooperation with contractors**

GRI: 102-9, 308-1

Direction PGE 2050



## The PGE Group conducts its activities and commercial relations in a transparent manner, based on internal procedures and strictly defined rules of cooperation with its business partners.

Standards in the process of planning and conducting purchases and selection of contractors are defined in PGE Group's General Procurement Procedure, thanks to which the procurement process in the Group has been unified. All PGE Group companies that have adopted the PGE Group Code of Ethics are required to apply the procedure. Certain companies are also required to apply the public procurement regulations. Before a final decision is made on the selection of a contractor, documents are appropriately analysed and assessed to ensure that the supplier meets the requirements specified in a given tender procedure.

In 2021, changes were introduced to the PGE Group's General Procurement Procedure, which increased the competitiveness of procurement procedures conducted at PGE Group. Due to the pandemic situation in the country, negotiations with potential contractors were held remotely. To meet the needs of internal customers, the Purchasing Department of PGE Polska Grupa Energetyczna S.A. organised workshops for the units responsible for administration and human capital management in order to increase procurement efficiency. Due to the shortage of certain products and materials in the market, PGE Group decided to both extend the deadline for the submission of bids and extend the deadlines for the performance of contracts. As a result of these actions, the level of competitiveness and purchasing efficiency increased, and the attractiveness of bids increased.

### Provisions against money laundering have also been introduced into the internal regulations, as well as the evaluation of the contract performance.

In addition, regular online purchase planning meetings for the following year have been introduced with all PGE Group companies, during which guidelines related to the purchase plan are communicated and support is offered in the preparation and implementation of the purchase plan. In 2021, the Central Anti-Corruption Bureau carried out an audit of PGE Group concerning the disbursement of funds and making purchases and the control mechanisms in place. The external audit body found no violations.

## PGE's expectations towards its business partners

#### GRI: 102-9, 308-1

The principles governing cooperation with contractors are defined first of all in PGE Group's Code of Ethics, which is a set of values and principles applicable in the entire PGE Group. Among other things, it defines PGE's approach to building business partnerships.

In order to meet the expectations of contractors and business partners, PGE Group has developed the Good Procurement Practices in both Polish and English versions. This is a set of recommended attitudes and principles which should be followed by employees and potential business partners during tenders. The Good Procurement Practices also include the principle of "zero gifts" which covers the employees initiating the purchasing process (submitting a purchase application), members of committees and all persons participating in the process and persons executing contracts concluded as a result of the purchasing process.

PGE Group's expectations towards its business partners have been laid down in the Code of Conduct for Business Partners of PGE Group Companies. Messages outgoing from PGE Group's purchasing system to entities are bilingual and this is used as a form of communication. Innovative solutions are used in the bid evaluation rules, streamlining internal processes by automating them. Thus, paper and water consumption are reduced.

About the report

In the course of the purchasing process, contractors are informed of the need to familiarise themselves with the Purchasing System Regulations, which in 2021 was also published in English. The document defines the rules and procedures for using the purchasing system, the rules for submitting offers and other documents in purchase proceedings. Support for contractors is also provided:

a) Detailed Instructions for the use of PGE Group's Purchasing System,

b) Contractor guidebook for PGE Group's purchasing system,

available at <u>pge-group/tenders</u> in both Polish and English.

It is also important for PGE Group that contractors and subcontractors take measures to protect the environment, e.g. by specifying the carbon dioxide emissions (g/km) in the tender for passenger cars). As part of procurement procedures, PGE Group promotes social clauses, e.g. employment based on a full-time contract, in particular in the following areas: security services, cleaning services, and repair and construction services. In procurement procedures conducted by PGE Group, the following aspects are always taken into account: a contractor's lack of arrears in statutory payments (social insurance, taxes), possession of relevant insurance, permits, or certificates.

PGE Group's General Procurement Procedure allows companies to place a contractor who fails to meet its obligations or does not perform a contract or refuses to sign a contract on a list of suspended contractors. This results in temporary suspension of cooperation with the contractor.

The contracting procedure is currently being revised, with the aim of simplifying the contracting process and its subsequent control.

PGE's procurement processes are fully transparent and compliant with the rules of competition. We are committed to providing our potential partners with the best possible information on cooperation opportunities. We demonstrate this, for example, by holding workshops for potential contractors for our investments. We have recently held workshops for the areas of district heating, distribution and offshore. In this way, we want to secure the widest possible range of partners for PGE, while at the same time putting into practice the idea of "leading in green change," supporting local companies in their ability to participate in the energy transition. Meanwhile, since September PGE S.A.'s Purchasing Department has been running



an information campaign in social media about the Group's procurement potential, the purchasing system and, above all, the values that guide us in conducting procurement processes.

Adam Domański Director of Purchasing Department, PGE Polska Grupa Energetyczna



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## Meeting the needs of business partners

Direction PGE 2050

W In a pandemic situation, it is particularly important to communicate efficiently and openly with current and potential business partners; therefore, during the period of total lockdown, PGE Group had a remote work system for all employees of the procurement team in order to carry out tasks on an ongoing basis and have constant contact with business partners and ensure continuity of work. Thanks to the digitalisation of the process, it became possible to conclude contracts with contractors remotely. PGE Group has also increased the flow of information to its contractors. Essential information on PGE Group's cooperation with its business partners is posted on the company's website and on the websites of PGE Group companies.

In purchase procedures conducted in 2021 by the PGE Group, 6 115 individual contractors submitted offers in the purchase system. As a result of the procedures, contracts were signed with 4 428 individual contractors. Nearly 100% of payments were paid to contractors within contractual deadlines. Timely payments amounted to respectively:

	Company	% share of liabilities fully fulfilled on time towards all contractors
1	PGE SA	99.90%
2	PGE GIEK	99.99%
3	PGE Dystrybucja	99.60%
4	PGE Energia Odnawialna	96.79%
5	PGE Energia Ciepła	99.52%
6	PGE Obrót	99.95%
7	PGE Dom Maklerski	97.38%

This data proves that the PGE Group has a responsible approach to building business relations with its suppliers.

## Code of conduct for business partners of PGE Group companies

The Code of Conduct for Business Partners of PGE Group Companies is a tool for communicating requirements regarding operating standards to suppliers and contractors of the PGE Group companies. This document presents in a transparent way minimum expectations from business partners of the PGE Group companies in terms of ethics and compliance with the law. Business partners are familiarised with this document during registration in the database of potential contractors of PGE Group companies. References to the document are also part of procurement documentation, and relevant provisions are included in contractual clauses. As of 2021, the obligation to apply contractual clauses has been introduced to PGE Group by including it within the general procedure for counteracting corruption in PGE Group.

The Code of Conduct for Business Partners of PGE Group Companies was amended in 2021, ensuring in particular that its provisions are consistent with the new strategy of PGE Group, amended Code of Ethics, and amended anticorruption regulations.



Business activity Education

Customers

GRI: 102–6

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## Partner relations with customers are a vital element of the energy transition. To this end, PGE Group is developing professional energy services and integrated contact and sales channels.



PGE Obrót, which sells electricity within PGE Group, in 2021 provided services to nearly 5.5 million customers, who purchased over 37 TWh of electricity from the company. PGE Dystrybucja, a company licensed to distribute electricity and providing electricity supply services within PGE Group, supplied nearly 38 TWh of electricity in 2021 over an area of 122 400 km2 (nearly 40% of Poland's area), connecting to the grid nearly 83 000 customers and over 141 000 prosumer installations.

District heating is produced and supplied by PGE Energia Ciepła – Poland's largest producer of electricity and heat generated in a high-efficiency cogeneration process. PGE EC operates 16 cogeneration plants (with a heat capacity of 6.8 GWt and electrical capacity of 2.6 GWe) and 677 km of district heating networks. The company produces and supplies heat to large Polish cities, including: Kraków, Gdańsk, Gdynia, Wrocław, Rzeszów, Lublin, Bydgoszcz, Kielce and Szczecin. The company is also present in Toruń, Zielona Góra, Gorzów Wielkopolski, Zgierz, Siechnice and Gryfino, where it also distributes heat to end customers. It has an approx. 25% share in the domestic market for heat from cogeneration.

## Policies and standards

The high quality of customer service and services is defined in PGE Group's business strategy and in its consistently implemented policies and management standards, such as the Code of Good Practice for Distribution System Operators, Service Quality Guide and Customer Service Procedures. These documents precisely describe processes related to sales, after-sales service, electricity connections and other distribution issues.

Our customer service standards emphasise the speed, quality and comprehensiveness of service. All customer enquiries are processed within 14 days (in the case of additional analysis and investigation – up to 30 days), and each submission is analysed and used to improve service processes. Application of the adopted standards is systematically monitored and reported. For example, complaints submitted by customers are analysed. Conclusions from these analyses often constitute grounds for introducing changes in internal processes, thanks to which service standards are continuously improved. Marketing surveys are also carried out periodically, which allows for multidimensional monitoring of customer satisfaction.

Customer satisfaction is monitored by a marketing research system implemented since 2015, covering key areas and contact points for the company-customer relationship. Multidimensional monitoring of customer satisfaction makes it possible to verify the application of adopted standards. Conclusions from the surveys and analyses provide grounds for changes in internal processes, contributing to the continuous improvement of the service standards. One of the effects of the analyses was the introduction in 2021 of the possibility to report failures via a smartphone application.

## **Customer satisfaction indicators**

The two-year-long pandemic and issues related to electricity prices have had a major impact on the manner in which customers are served, and create ever new challenges for consultants and managers. Thanks to their joint efforts, competence and commitment, the Customer Satisfaction Index (CSI) for the work of PGE Obrót's customer service offices remained at a high level in 2021, both among G tariff and C1 tariff customers.

#### **Custromers G Tariff**





#### Custromers C1 Tariff

The Contact Centre, which performs remote service tasks, also maintained a high level of customer satisfaction. The CSI in customer surveys for 2021 was close to 91%. Thanks to its high service standards, **PGE Obrót has obtained the Customer Friendly Company certificate for the ninth time.** Its award is preceded by a quality inspection conducted by independent auditors. In this survey, in 2021 PGE Obrót achieved a score of 89%. Survey results for certification: Customer Friendly Company:

FPK index	89%
Willingness to recommend	91%
Approach to customers	88%
Overall satisfaction	92%
Customer Effort Score	84%
Quality of service	92%
Purchasing process	90%

The results of the independent survey confirm that the quality of customer service was maintained at a high level of approx. 90% to date. The final result was influenced by the Customer Effort Score (CES). Its result is related to service conditions during the pandemic, which independently of the company affected the service process (requirements to wear masks, customer limits at service points, etc.).

PGE Obrót also once again passed an audit carried out by the Association of Energy Trading with regard to customer service, in accordance with the Code of Good Practices.

#### Satisfaction with electricity supply services

The issue of how electricity is supplied is crucial for customer satisfaction levels. This is why PGE Dystrybucja has been monitoring customer satisfaction with its services for six years. This analysis covers the connection process and contact with the emergency call centre. PGE's customers declare high satisfaction rates with regard to contact with the 991 emergency number. The Consumer Satisfaction Index (CSI) reached almost 90%.

#### CSI (0-100)



#### Satisfaction with PGE Energia Ciepła customer service

In 2021, customer service satisfaction surveys were conducted at PGE Toruń and the Zielona Góra CHP. The surveys made it possible to identify customers' priority needs with regard to service, enabling improvements to be made in line with their expectations.

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### Customer service during the pandemic

The main challenge in 2021 was ensuring the continuity of customer service in a pandemic situation. Customer service at PGE Obrót's customer service points and PGE Dystrybucja's distribution customer service points was carried out in a sanitary regime, with the provision of screens separating employees from customers at service stations, disinfectant fluids, masks and gloves. Employees were additionally equipped with visors.

The development of customer contact channels is a key element of PGE Group's strategy. Their integration as well as the enhancement and unification of service standards will be the foundation for further development of the retail area, focusing on ensuring energy and heat comfort for customers. Further initiatives launched in this area will serve this purpose.

PGE Obrót introduced a number of customer service improvements in 2021.

#### Virtual Agent

A Virtual Agent robot technology was deployed in June 2021 for PGE Obrót's hotline, supporting the voice communication channel in the area of payments, which accounts for approx. 60% of all calls to the Contact Center. The development of the technology will translate into greater efficiency of service through the hotline.

#### Optimisation of prepayment code sales

The purchase of codes for prepayment meters was simplified in 2021. The process has been automated. It is currently performed through submissions in online customer service, e-forms available on thepge-obrot.pl website and automatically through the IVR system (Interactive Voice Response) on the PGE Obrót hotline.

#### Executing and rewriting the e-form contract

The e-form available on pge-obrot.pl has been expanded. It now allows all the necessary data and documents to be collected in order to prepare and submit the contract to the customer for signature, which shortened the time and formalities related to its conclusion.

#### **Electronic signatures**

In 2021, the popularisation of the previously implemented process of remote contract conclusion using a secure digital signature continued. To the previously promoted possibilities of signing documents using: trusted profile (free service made available through ePUAP), Qualified Signature (commercial service), eDO App for holders of ID cards with an electronic layer. The possibility to conclude a contract with the use of the Autenti signature has been added. This platform allows to display the content of the contract and sign it digitally. In order to sign the contract, the customer only needs to have an e-mail address and a mobile phone number.

Digital solutions reduce the circulation of traditional documents and costs associated with sending and archiving documents. They also fit in with customers' expectations of simplified service. At the end of 2021, around 80% of contracts in remote channels were concluded using digital signatures, including Autenti.

The benefits for customers of using electronic purchasing channels include time savings, the ability to place an order at any hour, and not having to wait for payments to be booked.

### Initiatives undertaken by PGE Dystrybucja

2021 also brought major changes to customer service at PGE Dystrybucja. A smartphone application was deployed (available for Android and IOS systems), allowing customers to report failures without having to call the 991 emergency number. The app also allows customers to view the status of failure removal. At the same time, if PGE Dystrybucja receives a report of a failure involving the customer's point of consumption, the application informs customers of this fact and of the lack of the need to call 991.

The process of connecting new electricity consumers to PGE Dystrybucja's grid is available through the New Customer Portal, thanks to which paper use has been significantly reduced, as almost all formalities are carried out electronically. The New Customer Portal was expanded in 2021 to handle new customer groups, applications for micro-installations and updating the data of an existing micro-installation.

Telephone service at PGE Dystrybucja has also changed. Instead of approx. 200 telephone numbers to individual divisions in Energy Regions, a single number was introduced to serve customers in a given branch. The current seven customer service numbers will eventually be combined into a single number handled by the future PGE Dystrybucja Contact Center. 1 \_ `

### Customer service in district heating

Thanks to IT systems developed over the years, district heating companies and branches belonging to PGE Energia Ciepła were able to remotely manage the operation of district heating networks, receive and record customer requests and provide comprehensive customer service remotely during the 2020 and 2021 pandemic.

An important system that is used to provide services to customers of PGE Toruń, Zielona Góra CHP and Gorzów Wielkopolski CHP is telemetry, which allows for the remote monitoring of the operation of nodes and receiving installations. The telemetry system also provides information on the location of disturbances in the operation of the network and nodes, so it is possible to react remotely and quickly, even before the disturbance is noticed by the customer.

2021 is the fourth year of operation and development at the Zielona Góra CHP of a system for remote supervision of alarm installations of pre-insulated networks. It allows efficient and fast identification of faults on new networks / connections. Data from alarm system readings is automatically sent to a server via GSM or LAN so that it is possible to monitor the condition of the heating network in real time and obtain information on the occurrence of an alarm. During the period of the system's operation, approx. 20 events related to damage to heating networks were located and removed. The RATMON system currently supports 129 devices located in chambers and rooms of heat substations. Since 2020, a similar system has also been gradually developed by PGE Toruń, where it covered 18 alarm loops by the end of 2021.

Given the fact that the systems are remote, CHP employees can access them from any place and any device (e.g. phone, tablet) with an Internet connection. With such technological solutions in the period of the pandemic, the unchanging and optimal operation of heat distribution networks was and is ensured on the one hand, high quality of customer service is maintained, and on the other hand the safety of employees is preserved.

### **Responsibility to customers**

Guided by responsibility to its customers, PGE Group draws attention to controversial and often dishonest practices of certain energy vendors who often impersonate proven and reliable brands such as PGE. In order to counteract these phenomena, PGE Group conducts numerous educational and information campaigns in traditional and social media. It also cooperates on an on-going basis with administrative authorities to uncover and eliminate such market practices.

Serving people with disabilities is one of PGE Group's priorities. Over ¾ of PGE Obrót's locations are equipped with ramps for wheelchairs or are located on the ground floor, which facilitates accessibility for customers. This is also supported by appropriate operating standards, including those concerning service priority. During the pandemic period, Quality Ambassadors (persons assisting customers at the customer service office with filling in and initial verification of documents), due to the smaller number of customer visits, supported the work of the Contact Center. The positions of Quality Ambassadors in customer service officers are being systematically restored. All customer service offices at PGE Obrót are also equipped with magnifying glasses for the elderly and visually impaired.

## Encouraging pro-social and proenvironmental activities

More than one million PGE Obrót customers have already opted for electronic invoices instead of paper ones. This is the result of the company's educational and information activities, which strengthen the conscious and ecological choices of consumers. Throughout 2021, the company undertook various activities to encourage the use of electronic invoices, including advertising spots: <u>"Tap the keyboard and take care of the environment"</u>.

In August 2021, PGE Obrót launched an additional charity action. For each customer who decides to switch to electronic invoices, the company will support – through the PGE Foundation – the activity of carers in the children's hospice run by the Gajusz Foundation. SMS campaigns were also implemented to inform about the possibility of changing the way of receiving invoices from paper to electronic. Recipients who opted for such a solution could count on special discounts in PGE's online store. PGE Obrót is continuously improving the process of switching to electronic invoicing. Aside from traditional methods, such as filling in a consent form or activating service during a visit to a customer service office, the company has also provided a special online form. The solution offered by PGE Obrót is an expression of concern for the natural environment by reducing paper.

It also increases the level of customer service comfort as the invoice is always available to the customer after logging in to PGE's online customer service site (ebok.gkpge.pl). PGE's electronic invoicing also saves time as the document is delivered to the customer the moment it is issued. Security is another important aspect. Electronic invoices in online systems are protected with a password set by the customer.

PGE Energia Ciepła supports the process of connecting customers to the municipal heating network and develops services to increase energy efficiency. Within the framework of the existing Agreement on Sustainability between PGE Energia Ciepła, OPEC Sp. z o.o. and the Municipality of Kosakowo near Gdynia, a workshop on energy efficiency was organised for the employees of the municipality office and teachers. The aim of the meeting was to present practical advice on how to save heat and electricity, how to deal with possible heat losses in homes, and what habits regarding the use of electricity can be beneficial to the household budget and the environment. 2021 saw the 6th seminar for administrators and managers of Gdynia's properties. This aims to raise awareness of environmentally friendly and safe heat from the district heating network. Similar meetings with property administrators and housing associations were also held in Toruń, Kraków, Zielona Góra and other branches of PGE Energia Ciepła.

On the occasion of Earth Day, tree seedlings were distributed among customers who visited Distribution Customer Service Points on April 22 and 23 to be planted in their gardens or on their land. Over two days, 5 000 seedlings were distributed.



1,015,740 customers receive electronic invoices from

PGE (as of December 31, 2021)



more than 350,000 customers selected electronic invoices from PGE instead of paper documents



## Photovoltaics with PGE

Photovoltaics with PGE is an offering for customers to switch to their own energy. PGE Obrót handles their investment comprehensively, from free valuation and technical audit, submitting an offer prepared by PGE Obrót experts and optimally adjusted to the customers' needs, to professional assembly of the photovoltaic installation. The Photovoltaics with PGE deal includes expert advice and service to customers at every stage of the investment. Providing customers with broad access to green energy is one of the main tasks in the retail area of PGE Group's strategy.

In order to take advantage of the Photovoltaics with PGE deal, the customer just needs to complete an electronic form and specify the energy needs and installation possibilities.

Sales managers then contact customers to carry out further formalities. The installations use best-in-class components and the operation of the installation does not require additional work.

Photovoltaics with PGE was on offer since the introduction of the pilot in the agency model, i.e. from May 2021 to February 15, 2022:

	Number of PV units covered by the offering	kWp
Retail customers	442	3,238.03
Businesses	60	1,414.82



### Heat pumps from PGE

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The "Heat Pumps from PGE" offering available already in 2022 expands its range of environmentally friendly PRO EKO products. In addition to PV installations, customers can now benefit from heat pumps.

The "Heat Pumps from PGE" offering is addressed to individual customers who are interested in installing a heat pump in their home and are planning such an investment. As part of the offering, customers receive a comprehensive package of services, such as advice on selecting the right device, sales and professional installation.

A major advantage of heat pumps is the savings that result from the low running costs of these units and their efficient use of energy.

The heat pumps offered by PGE are efficient and environmentally friendly. Thanks to the appropriate adjustment, the device is completely hustle-free. Heat pumps within the "Heat Pumps from PGE" offering use energy from the air to heat or cool rooms in the house, or to heat domestic hot water. They require electricity to operate. Combining them with a PV micro-installation not only reduces heating costs to a minimum but also increases the use of electricity produced by the PV installation for your own needs.

## Dynamic growth in the number of prosumers

The significant increase in interest in micro-installations is associated with increased workload at the Distribution Customer Service Points. In 2021, PGE Dystrybucja registered 157 000 micro-installations, including more than 99% of photovoltaic installations that were processed in the "based on notification" mode and did not require obtaining connection conditions. PGE Dystrybucja employees showed great commitment in serving a larger number of customers interested in prosumer installations than ever before. On many occasions they provided substantive advice on the capacity of the installed devices, verifying the customer's needs in accordance with the existing consumption.

In the Łódź branch, the "active prosumer" project is being carried out in cooperation with the Technical University of Łódź, Lublin University of Technology and Apator. A solution is being developed that will allow to increase the number of micro-installations in a specific area without disturbing grid operations. The project assumes that the results of the work of the project consortium will also influence the legislative processes concerning the prosumer market in Poland.

## **Community involvement**





PGE is a partner to local communities, listening to their needs and incorporating them in its plans for sustainable transition. PGE Group ensures that entrepreneurs and employees in the energy industry as well as residents of coal regions are part of the entire transition process and actively participate in it.

In 2021, PGE Group continued its activities supporting the fight against the coronavirus pandemic. Since the beginning of the pandemic, i.e. since March 2020, PGE and its companies and the PGE Foundation have allocated nearly PLN 9 million for this purpose, including over PLN 2 million in 2021. All of these actions were a response to the current needs of the healthcare system. These actions were coordinated with the Ministry of State Assets and the Ministry of Health.

PGE supported the construction of Covid wards and equipped them with medical equipment. The PGE Foundation also supported activities for children, young people and adults in the field of psychological assistance and covid rehabilitation. In addition, PGE Group made 10 cars available to hospitals and the Territorial Defence Forces, and supported the Institute of Senior Economy by donating over 100 litres of disinfectant fluids.



Donations from the PGE Foundation went to tens of hospitals, emergency stations and other medical facilities. They were earmarked for the purchase of necessary medical equipment for the treatment of patients suffering from COVID-19, equipment for automatic disinfection, and personal protective equipment.

## Volunteering in the era of Covid-19

PGE volunteers were involved in helping Warsaw Uprising and other veterans, senior citizens and retired PGE employees by offering assistance with shopping, running essential errands and providing meals. At its peak, 52 volunteers were active. They looked after 12 Warsaw Uprising veterans and senior citizen.

In 2021, PGE employees engaged in voluntary work for the wards of a nursing home in Białystok. With the seniors in mind, bibliotherapy classes were organised which lasted from October to December 2021. The program was implemented by the PGE Foundation in cooperation with the Zaczytani.org Foundation as part of the "Reading with PGE" project. As part of the volunteer work, 99 bibliotherapy meetings were held online. They were conducted by 20 employees of PGE Group. During conversations with seniors, the volunteers read excerpts from books and then led discussions on selected topics. The aim of the bibliotherapeutic meetings was to activate senior citizens and create space for conversation

and reflection. This volunteering campaign made it possible to establish intergenerational relations. Seniors received support from the volunteers and the volunteers gained new and unique competences.

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### Volunteering campaign "Bibliotherapy for seniors" in figures:

## WOLONTARIAT Biblioterapia dla seniorów

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- 2 information meetings for PGE volunteers interested in participating in the program,
- 33 PGE volunteers were trained in bibliotherapy,
- 3 training meetings for volunteers with a total duration of 12 hours,
- 1 integration and training meeting for volunteers.
- 99 meetings between PGE volunteers and senior citizens in the form of bibliotherapy.

Several other projects were jointly carried out under the common motto "Reading with PGE." These included a fairy tale writing competition for children entitled "The Tale of the Crooked Forest", a collection of books and creation of an Enchanted Library for seniors. Books were collected in 47 locations in PGE Group. More than 4 000 books were distributed to Enchanted Libraries located in hospital wards, children's homes, senior citizens' homes, centres for people in crisis of homelessness, social welfare homes, hospices and others.

In 2021, employees of PGE Group companies, as they do every year, were involved in fulfilling dreams of children from orphanages, children in foster care and community centres. This includes:

- PGE Baltica, for the benefit of orphanages in Ustka,
- PGE Górnictwo i Energetyka Konwencjonalna in all its locations as part of the campaign: "Santas to Dreamers,"
- PGE Dystrybucja for over a dozen care and educational institutions in its area of operation as part of the "For the Child's Smile" project,
- PGE Energia Ciepła within the framework of the "Gwiazdor" campaign. In addition, in cooperation with the City Social Welfare Centre in Gdynia, the company prepared Christmas parcels for senior citizens,
- PGE Energia Odnawialna for the benefit of pupils of the "Antares" Care and Education Centre in Sochaczew.

Employees of PGE Group companies support on an on-going basis educational and hospital care facilities in their areas of operations and take part in the "Noble Box" campaign. The organise donation and gift collection drives and prepare gift boxes for families in need.

## Social campaign "Polish – I'm buying it!"

PGE has also become involved in efforts promoting responsible consumer attitudes. It initiated



the nationwide social campaign "Polish – I'm buying it!" encouraging Poles to choose local producers and service providers and to make conscious consumer choices. The project was initiated by PGE Group employees and held under the patronage of the Ministry of State Assets.

In 2020, the blog "Polish – I'm buying it!" was launched in the internal media of PGE Group. And a dedicated website - polskiekupujeto.pl - was launched with a guide section, educational spots and posts encouraging people to choose Polish products. PGE Group companies from all over Poland were involved in creating content for the internal blog and the public website.

In developing the social campaign "Polish – I'm buying it!" PGE established cooperation with the creators of the Pola application, thanks to which it is possible to easily and quickly check whether a given product has been manufactured in Poland. Thanks to the cooperation with PGE, the application is being constantly developed, and the database of Polish products and companies is steadily expanding. PGE has also prepared an advertising spot and a tutorial showing how to use the Pola app and identify Polish products and brands both when shopping in stationary and online shops.

In the run-up to Christmas, PGE Polska Grupa Energetyczna launched a Christmas edition of the "Polish – I'm buying it!" campaign under the slogan "Let's Support Polish Entrepreneurs and Manufacturers. Not only for Christmas!". A guidebook was also prepared: "How to safely buy Polish products in online shops" available on polskiekupujeto. pl. It consists of articles focusing on the safety of online transactions and conscious consumer choices. It also contains information on how to use the Pola application when shopping online.

In mid-2021, PGE Polska Grupa Energetyczna conducted a survey asking Poles what influences their shopping decisions. The aim was to identify Poles' shopping attitudes as well as to obtain their opinions on what should be improved to make the choice of Polish products easier for them. The survey results show that providing consumers with easy identification of the product's origin at the time of shopping can have a real impact on the decision of what goes into their shopping basket. The survey was conducted as part of PGE's social campaign "Polish – I'm buying it!" The survey results are available at: <u>https://polskiekupujeto.pl/blog/pochodzenieproduktu-a-decyzje-zakupowe/</u>

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Direction PGE 2050

PGE Group also asked its employees to share their thoughts and approaches to everyday purchasing decisions. To this end, in December 2021 PGE conducted another survey of shopping preferences addressed this time to PGE Group employees. Almost 2,000 employees took part in the survey, which ended on January 14, 2022. The results show that internal educational activities as part of the "Polish – I'm buying it!" social campaign have a real impact on the purchasing decisions of PGE Group employees and their awareness of the need to support the Polish economy, especially during the pandemic.

The Jagiellonian Club, publisher of the Pola application, in cooperation with PGE Polska Grupa Energetyczna, published a report in November 2021: "Leaders of conscious consumption. The most scanned companies of the Pola app," which indicates the Polish products that most often find their way into the shopping basket of Poles.

The full report is available at: <u>https://polskiekupujeto.pl/blog/</u> aplikacja-pola-odzwierciedla-preferencje-zakupowe-polakow/

## PGE shares the heat

For many years, PGE Energia Ciepła has been running the "Let's Share the Heat" program, supporting the most inneed recipients in covering their heat and hot water bills.

"Let's Share the Heat" aims to support individuals and institutions by subsidising their heat and hot water bills. The program is addressed to the most in-need recipients, including public benefit organisations using district heating in towns where PGE Energia Ciepła has its CHP plants.



2GE

Sustainable investments

## Nurturing the national identity

Direction PGE 2050



PGE has been a strategic partner of the Warsaw Uprising Museum since July 2020, but has cooperated with the Museum since 2016, when it became its partner. In 2021, the Warsaw Uprising Museum prepared 225 stationary museum lessons and 433 online lessons. The stationary museum lessons were attended by 4 588 primary and secondary school students, while the number of views of the museum lessons online live within the framework of the Warsaw Uprising Museum Virtual Academy was 8,990.

The COVID-19 pandemic has forced new standards of visiting and contacting people interested in the Warsaw Rising Museum. In 2021 the museum was visited by 266,173 people stationary, and 1.2 million online.

In 2021, PGE continued and expanded its cooperation with the Warsaw Uprising Museum. As part of this relationship, PGE is the patron of the museum's original program: "Family meetings with history." The aim of the program is historical education and the conveying of testimony of the participants of the uprising through family visits to this unique place and participation in activities conducted by educators from the museum in the form of an interactive game.

Within the framework of expanding the cooperation with the Warsaw Uprising Museum, PGE has financed

the expansion of the audio-guide by adding more language versions, including German, French and Spanish. In recent years, the scope of cooperation has been expanding significantly and PGE has extended its patronage over multiple initiatives of the Museum. PGE also provides additional funding for purchasing valuable documents concerning the Warsaw Uprising. The documents supplement the priceless collection of archival materials. In 2021, with the support of the PGE Foundation, the Museum purchased a unique, previously unknown collection of German photographs of Warsaw from the period of the Warsaw Uprising.

In 2021, PGE once again joined the anniversary celebrations to mark the outbreak of the Warsaw Uprising. "Energy Workers in the Uprising" is a series of ceremonies that pay tribute to the energy engineers from the Warsaw power plant in Powiśle, who supplied electricity to the fighting capital city.

The ceremony on August 1, 2021 was specifically dedicated to the memory of Captain Stanisław Skibniewski "Cubryna," who commanded a unit of employees from the Powiśle plant. On this occasion, PGE organised the premiere screening of a documentary film: "Nom de Guerre Cubryna" and a concert by musicians from the National Philharmonic in Warsaw, who performed a repertoire specially prepared for the occasion.

#### "Cursed Soldiers"

PGE also commemorated other anniversaries and holidays important to Poland. On the National Cursed Soldiers Remembrance Day, PGE prepared an animation to the song "One Moment" performed by #KasiaMalejonek and #Maleo Reggae Rockers from the "Panny Wyklęte" project.

#### "Energy Independence"

On Independence Day, PGE prepared a film entitled "Energy Independence", which presents the development of the renewable energy sector in the reborn Poland.

#### Flag Day

On Flag Day of the Republic of Poland, which is May 2, the PGE Foundation prepared a patriotic animation, reminding of the role of the national colours in recent Polish history.

## **PGE** Foundation

Socially responsible activities are also carried out by the PGE Foundation, which is an important element of PGE Group's corporate social responsibility. The foundation's activity profile results from PGE Group's strategy, communication and marketing and brand strategy.

The Foundation supports historical, educational, environmental and social activities. It pursues its mission through its own and partner projects. It also makes charitable donations, projects in the field of cultivating historical memory and national identity, projects in the field of education, upbringing and sport. It supports health protection and promotion projects, projects related to environmental protection and ecology and many other. In 2021, the PGE Foundation received nearly 1 000 requests for donations. The Foundation made almost 500 donations for a total amount of over PLN 10 million.

#### Virtual Museum of the Polish Underground State

In 2021, the PGE Foundation became a patron of the Virtual Museum of the Polish Underground State, which is an original project of the Foundation for Great Stories. A unique museum commemorating the Polish Underground State is being created in virtual space.

## Wanda Modlibowska

On Women's Day, the PGE Foundation, the Foundation for Great Stories and the Virtual Museum of the Polish Underground State prepared an animation about Wanda Modlibowska, a Polish aviator, glider pilot and pioneer of domestic aviation.

The PGE Foundation, in cooperation with the Institute of National Remembrance and under the honorary patronage of the Minister of Culture, National Heritage and Sport, is carrying out a project entitled "Memory Plates." The idea behind the project is to supplement and promote information on historical facts of occupied Warsaw among the inhabitants of Warsaw and Polish and foreign tourists.

Karol Tchorek's plates are testimony to remembrance of the consistent plan of the Germans to exterminate the inhabitants of Warsaw during World War II. Through its activities, PGE promotes and increases the recognition of memorial sites and reaches foreign tourists with historical information. Within the framework of the project, next to each Karol Tchorek plate, PGE places a plate with information in Polish and English together with a QR code leading to a specially developed mobile application which enables the localisation of the existing plaques as well as learning about the history of each memorial site of German crimes. A website, tablicepamieci.pl has also been created, where

one can follow updates on the project. In the autumn of 2021, a concert entitled Warsaw – City of Heroes was held at Plac Piłsudskiego. It was a tribute to all inhabitants of the capital, whose heroism and courage during the German occupation is often forgotten. The concert and accompanying exhibition were prepared by the Society for Educational Projects in collaboration with the PGE Foundation as part of the "Memory Plates" project.



## Educational campaign "The Adventures of Ciepłosław the Cat"

In school year 2020/2021, the educational project "The Adventures of Ciepłosław the Cat" for children in primary school grades 1–3, prepared by PGE Energia Ciepła, was continued. Its aim is to raise environmental awareness in the youngest children, to convey knowledge about how heat is generated and where electricity comes from. The project takes into account the core curriculum of computer science lessons for children in grades 1–3, encouraging ecological attitudes, including saving heat and electricity and using system heat.

At the end of the school year, as part of the project

"The Adventures of Ciepłosław the Cat," PGE prepared an educational campaign for children entitled "Safe Holidays with Ciepłosław." As part of the campaign, posters with tips for children on what rules to follow in the summer were prepared. In school year

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2020/2021, 521 schools took part in the program.

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## Sponsorship activities



# PGE, Poland's largest energy company, has adopted a new sponsorship strategy in 2021. It streamlines PGE's sponsorship projects, creating more effective promotional conditions that are consistent with the vision and scale of PGE Group's business and supportive of partners and the PGE brand.

The key avenues of sponsorship involvement have been reformulated to better implement the objectives of the Group's current business strategy leading to the energy transition and PGE's becoming climate-neutral by 2050. A sponsorship strategy has been adopted that singles out sponsorship programs where specific activities in the area of sponsoring culture, sport and industry events will be implemented in the coming years.

### PGE's sponsoring activity in 2021 in numbers:



**79** sponsoring contracts signed in 2021



In 2021, we streamlined sponsorship projects to improve their effectiveness, increase support for local communities and engage in new areas like e-sports. As a result, the effectiveness of sponsorship contracts in 2021 reached 863%, which in practice means that every zloty spent by PGE on sponsorship returned almost nine times that amount. In 2021, we also reallocated some funding to



strengthen cultural sponsorship activities. In this way, we are consistently building PGE brand recognition over the long term.

### **Zbigniew Kajdanowski** Director of Marketing and Advertising Department, PGE Polska Grupa Energetyczna

Sponsorship programs	Projects/actions implemented under the programs	
MOCna Liga PGE	<ul> <li>PGE Narodowy</li> <li>Sports clubs: PGE Skra Bełchatów, PGE Spójnia Stargard, PGE FKS Stal Mielec, Stal Stalowa Wola, PGE Turów Zgorzelec</li> <li>PGE Ekstraliga</li> </ul>	
MOC e-mocji	<ul><li>PGE Polish Esport League</li><li>PGE Turów Zgorzelec (esport section)</li></ul>	
Sport winter with PGE	<ul> <li>PGE Narodowy in winter</li> <li>Polish Figure Skating Federation</li> <li>Polish Speed Skating Federation</li> </ul>	
Power of Wind	<ul><li>Polish Sailing Association</li><li>Zofia Klepacka</li></ul>	
PGE Junior	<ul> <li>Sports academies (e.g. GKS Bełchatów, KPR Gryfino, MKS Lublin), local sports event</li> </ul>	
PGE – a cultural energy group	<ul><li>Philharmonics</li><li>National museums,</li><li>Local and regional cultural events</li></ul>	
PGE Proud of History	<ul><li>Warsaw Uprising Museum</li><li>Local historical events</li></ul>	
PGE Leading in Green Change	Congresses and conferences	

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## **Cultural sponsorship**

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Support for Polish high culture is an important element of PGE's commitment to the promotion of Polish music and the preservation of Polish traditions. In 2021, PGE Group supported 14 philharmonics across Poland, making it one of the most recognisable patrons of high culture in the country. PGE supports the National Philharmonic in Warsaw, where it has been Patron of the Year since 2012.



- 1. National Philharmonic in Warsow
- 2. Polish Baltic F. Chopin Philharmonic in Gdańsk
- **3.** Opera Nova in Bydgoszcz
- 4. Gorzów Philharmonic
- 5. Oscar Kolberg Phinharmonic in Kielce
- 6. Henryk Wieniawski Philharmonic in Lublin
- 7. Artur Malawski Philharmonic in Rzeszów
- 8. Toruń Symphonic Orchestra
- 9. Witold Lutosławski Natonial Music Forum in Wrocław
- 10. Józef Elsner Philharmonic in Opole
- 11. Mieczysław Karłowicz Philharmonic in Szczecin
- 12. Karol Szymanowski Philharmonic in Krakow
- 13. Podlasie Opera and Philharmonic in Białystok
- 14. T. Baird Philharmonic in Zielona Góra
- 15. Silesia Philharmonic in Katowice

This year, together with the National Philharmonic, PGE began celebrating the 120th anniversary of the philharmonic. Within the framework of the anniversary artistic season the philharmonic offered its listeners many exceptional events, not only musical ones. One of them was the Polish Tour of the National Philharmonic Orchestra, in the framework of which the musicians visited philharmonics all over the country popularising Polish classical music. In 2021 PGE started cooperation with the Henryk Mikołaj Górecki Silesian Philharmonic in Katowice and the Podlasie Opera and Philharmonic – European Centre for the Arts in Białystok named after Stanisław Moniuszko.

#### PGE's culture sponsoring in 2021



**15** philharmonics supported



**1,2 million** audience in philharmonics



**3** museums supported

In 2021, PGE took patronage of the Grand Theatre in Łódź, which for 54 years has been one of the most prestigious and recognisable places on the cultural map of the Łódź Voivodeship.



PGE Energia Ciepła continued its cooperation with the Polish Baltic Philharmonic in Gdańsk, Karol Szymanowski Philharmonic in Kraków, the National Forum of Music in Wrocław, Toruń Symphony Orchestra, the Tadeusz Baird Philharmonic in Zielona Góra, Podkarpackie Philharmonic named after A. Malawski in Rzeszów, Gorzów Philharmonic – Centre for Artistic Education in Kielce, and the Henryk Wieniawski Philharmonic in Lublin. Malawski in Rzeszów, Gorzów Philharmonic – Centre for Artistic Education, Świętokrzyska Philharmonic in Kielce, and the Henryk Wieniawski Philharmonic in Lublin, while PGE Górnictwo i Energetyka Konwencjonalna supported the Mieczysław Karłowicz Philharmonic in Szczecin and the Opole Philharmonic.

Photo: Cezary Aszkiełowicz, Philharmony in Szczecin

In the spring of 2021, cultural institutions reopened to art lovers, and PGE prepared an image campaign under the slogan "Cultural Energy Group" to support philharmonics under PGE's patronage returning to normal operations.

In 2021, PGE became Patron of the 19th Century Art Gallery of the National Museum in Warsaw, which houses some of the most important works of Polish national heritage. With PGE's support, it was possible to rearrange the gallery. Currently, the exhibition features masterpieces of Polish painting (including Wyspiański's pastels, which have not been exhibited for a long time) and sculptures – around 300 objects in total, presented in a new colour and infographic setting.

PGE Polska Grupa Energetyczna has also become the Patron of Education of the Wawel Royal Castle and the New Crown Treasury, which has been one of the most important museums in Poland for over 90 years. Its collections include some of the most valuable monuments and testimonies of Polish history.

### Sports sponsorship

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Since 2015, PGE Polska Grupa Energetyczna has been the title partner of the PGE Narodowy stadium, which hosts the largest sport, cultural and business events. In 2021, the sponsorship of the facility was extended for a further five years. At the same time, the arena was named after legendary football coach Kazimierz Górski.

In 2021, the cooperation with clubs playing in the highest competition classes of the most popular disciplines: Stalowa Mielec (PKO BP Ekstraklasa) and Spójnia Stargard (Energa Basket Liga, basketball), was extended. Within the scope of signed agreements for titular sponsoring, these teams participate in matches under names containing the PGE brand – PGE FKS Stal Mielec and PGE Spójnia Stargard, similarly to one of the best volleyball teams in Poland – PGE Skra Bełchatów, with which PGE has cooperated since 2009.



#### PGE sports sponsorship in 2021





**16** sport academies with **2,500** young athletes



The brand of the largest energy company in Poland for the seventh time accompanied speedway racers competing in the best speedway league in the world – PGE Ekstralia. In the 2021 season the cooperation with the organiser of these competitions covered many pro-environmental CSR actions. Special video spots were prepared in which the speedway racers talked about ecological aspects of their profession, such as utilisation of used oil or composition of the track surface. The PGE Ekstraliga clubs also conducted educational campaigns for young speedway fans. A logo for "EKO PGE Ekstraliga" has been developed and it will be used for pro-ecological activities in subsequent seasons of the competition. They can also be followed on a special website <u>speedwayekstraliga.pl/eko</u>.



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professional PGE sport clubs

#### New area – esports

2021 was a breakthrough year for PGE's sponsoring activities due to a new sponsoring area – esports. The company gained its first experience in this field in 2020, when it became the sponsor of the e-sports section of PGE Turów Zgorzelec. In February 2021 the company's involvement in this dynamically developing sector was significantly expanded  PGE Polska Grupa Energetyczna became the title sponsor of the Champions Division of the Polish Esports League, becoming one of the most important sponsors of e-sports in Poland and opening up to modern ICT services and solutions in business, in line with its business strategy.

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## Individual sponsorship

In 2021, PGE also continued its cooperation with Zofia Klepacka, a leading Polish windsurfer who participated in the Tokyo 2021 Olympic Games. The athlete also participated in a social campaign organised together with the PGE Foundation, visiting Polish families in Ukraine and educational institutions, donating parcels from the PGE Foundation.

Support for sailing is also provided through an agreement with the Polish Sailing Association signed at the end of 2021, according to which PGE is the main sponsor of the association, including the PGE Sailing Team Poland, national competitions, e-sailing competitions and sailing education activities. This is a response to the Group's business objectives – investments in offshore wind farms. It will make it possible to consolidate the image of PGE as a company leading the green change.

The PGE brand was also promoted in 2021 on the basketball courts of the Suzuki 1 Men's League. The PGE Turów Zgorzelec team, supported by PGE since the season 2021/2022, plays in this league. PGE also established cooperation with Stalowa Wola, becoming a strategic sponsor of the club participating in the 3<sup>rd</sup> Football League.

## Supporting the sports passions of children and young people

PGE's aim is to support the sporting development of children and youth. This is realised by sponsoring children's sports clubs, mainly in regions where PGE does business.

In 2021, under the PGE Junior project, PGE supported 16 amateur clubs in various disciplines. The company continued its cooperation with the GKS Bełchatów Academy (football, wrestling), where approx. 350 young players are trained. Further sponsorship contracts were signed with PGE Turów Zgorzelec (basketball, e-sport), Akademia Widzewa Łódź (football), TS Legionovia (girls' volleyball), Młode Żubry Białystok (basketball) and MKS Avia Świdnik (football, boxing section). The support of young athletes continues to be an important element of the sponsorship agreements concluded with PGE Spójnia Stargard (basketball), PGE Stal Mielec (football) and PGE Skra Bełchatów (volleyball).

In 2021, PGE started cooperation with the Wilfredo Leon Academy (volleyball), founded by one of the most popular Polish national team players. In the autumn of 2021, PGE supported the activities of the ABRM Warszawa Academy (badminton), whose athletes join the Polish national team in all age categories and successfully compete for medals at international events. ABRM trains over 200 young students across five locations in Warsaw.




# Other children and youth teams supported by PGE in 2021 include:

- PGE Młode Perły Lublin (girls' football),
- PGE KPR Gryfino (handball),
- Stalowa Wola (football),
- MKS Lublin (girls' handball),
- GKS Glinik Gorlice (football),
- MKS Pruszków (basketball),
- KS Łomża (football)
- FC Lesznowola (football)

In total, over 2500 students train in children's and youth groups supported by PGE.

An exceptional event which has been supported by PGE for several years now is the "PGE Biggest PhysEd Lesson." The project is addressed to primary school pupils from all over Poland. The idea behind the event, which is organised by the Akademia Sportu Artur Siódmiak Association, is to give children and young people from all over the country the opportunity to participate in interdisciplinary sports competition. The long-term goal – to encourage the youngest to participate regularly in school PE classes and to improve their general fitness, to become interested in practising sports and being physically active. In 2021, a total of 4,000 participants appeared at the "PGE Biggest PhysEd Lesson" in rounds. The students were divided into a dozen or so groups, training in the form of station circuits, thanks to which everyone could try their hand at many competitions and prove themselves in various tasks. The proper course of the training was supervised by coaches and volunteers led by Artur Siódmiak, a former Polish handball representative.

# Support for the development of skating

PGE Polska Grupa Energetyczna has signed an agreement to support the first Winter PGE National tour in 2021. Project implementation commenced in 2022. The event, which has so far been hosted at PGE Narodowy, has been moved to 10 cities in Poland: Kielce, Gorzów Wielkopolski, Bydgoszcz, Toruń, Białystok, Szczecin, Gdańsk, Lublin, Rzeszów and Łódź. The goal of the "Winter PGE National Tour" is to promote health and sports activities among Poles. Winter attractions include "Mornings for Children with PGE", during which skating classes for the youngest are held. All classes are conducted under the supervision of professional trainers and in a sanitary regime. At the ice rinks, an information and awareness campaign #SzczepimySię, aimed at promoting vaccination against COVID-19, is conducted in parallel.

PGE extended its involvement in skating by signing cooperation agreements with the Polish Figure Skating Federation and the Polish Speed Skating Association. The agreements ensured the presence of the PGE brand at the majority of national and international figure and speed skating competitions and at anniversary events related to the 100th anniversary of the Figure Skating and Speed Skating Federations.

Together with the Polish Figure Skating Federation, PGE Energia Ciepła implemented the "Come on Skates" program for children and young people from primary schools.



# Sponsorship report 2021

Professional sport, amateur sport for children and youth, and high culture – these are the three pillars of PGE Group's Sponsorship Report 2021, published in May 2022. PGE streamlined its sponsorship projects to improve their effectiveness, increase support for local communities and engage in new areas like e-sports. As a result, the effectiveness of sponsorship contracts in 2021 reached 863%, which in practice means that every zloty spent by PGE on sponsorship returned almost nine times that amount.

See Sponshorship report here.

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# MANAGEMENT RULES [G]

# **Organisational culture**

GRI: 102–16, 103 (419)

# We are a big company, employing approx. 38 000 people. For such a large organisation, setting out shared values for an exceptionally diverse group of employees is a great challenge.

The main document in the area of ethics and compliance is the PGE Group Code of Ethics, which constitutes an overarching declaration and basis for other internal regulations and guidelines. The document describes basic ethical values and standards which the organisation expects from all employees and other persons performing work for PGE Group. The Code indicates and defines common key values and ethical principles of PGE Group, serving as a foundation for the organisation's operations and the achievement of strategic objectives at PGE Group.



### PARTNERSHIP

identification with PGE Group, effective and creative cooperation leading to synergies in every area of activity: for the benefit of customers owners, employees and business partners: building relations based on mutual respect.



## DEVELOPMENT

continuous improvement of organisation, processes and technologies seeking innovations and courage to introduce changes. A A

## RESPONSIBILITY

taking care of the country's energy security and development of Polish economy, sustainable development of the company, company as a good workolace, we act honestly.

## The 12 principles of the Code of Ethics fall into four thematic blocks:

### Our company

- We are here for our clients
- We care for the natural environment
- We care for the sustainable development of PG Group

### People at our company

- We strive for favourable working conditions
- We work on self-improvement and we are pro-active, we take the initiative
- Employee health and safety are our priorities

#### Fair external relations

- We care for good relations with our business partners
- We foster relations with local communities
- We build trust by duly informing about our business

### Integrity at our company

PGE

- We compete fairly
- We do not tolerate corruption or unfair practices
- We treat company information in a responsible manner

### In 2021, after five years, the Code was updated.

The changes took into account, among other things, its adaptation to the existing organisational changes, including supplementing it with PGE Group's activity in the field of heat generation and supply. The document also emphasises PGE's support for the idea of economic patriotism, i.e. the obligation to support the Polish economy and local suppliers, while preserving the transparency of procurement processes. The obligation of employees towards protected information has also been regulated, and information on PGE Group's system for reporting and explaining inconsistencies has been updated. Information on contact details, cooperation and tools used was also updated. **The values and ethical principles of PGE Group have remained unchanged**.

PGE Group is a place for those who value ethics rules and the law. We believe that ethics have much greater impact on the observance of law than the mere fact of legal regulations being in force. Even the best legal system is useless when confronted with a lack of an ethics culture in the organisation. Illegal activities may be explained by errors of individual employees, but the person breaking the rules had to have the opportunity to do it. A solid ethical culture may help companies in trouble caused by the actions of individual employees.

The work culture at PGE is based on three values: partnership, development and responsibility. We observe these every day. We make sure that these values are the pillars of our business. In line with PGE Group's new strategy, we want to be a leader of change in



the sector, and the Code of Ethics and our values should guide us in setting standards for the energy industry.

**Wojciech Dąbrowski** CEO, PGE Polska Grupa Energetyczna

We are certain that all values – even corporate ones – start and end with the human being. Corporate values thus also come from us – individual people, employees. Therefore, the observance of corporate values most importantly depends on the personal values of each one of us.

# Code of Ethics values and rules in everyday work

The Code specifies the attitudes and behaviours that are expected of all employees and managers. The Code streamlines and collects in one place rules that employees should follow inside and outside the organisation, in contacts with business partners or co-workers.

PGE Group reviews compliance with the Code of Ethics due to identifying eventual non-compliance. PGE Group periodically reviews the effectiveness of the Code.

### Awareness

To ensure that the Code is known, understood and respected, we were holding workshops across PGE Group for employees and management. First, we invited colleagues from inside the Group, who became internal trainers for the Code of Ethics. Training the trainers, numerous meetings and discussions to explain objectives, materials, exercises and all other doubts. Finally, the time and involvement of our internal trainers dedicated to best prepare and conduct training.

Every new employee within the Group undergoes individual adaptive training shortly after starting work at PGE Group companies, where he/she finds out about the existing Code, the law and the obligation for employees to react to any potential irregularities. New employees get a chance to learn the details of the Code at adaptive group training called "Turn on the power". These training sessions are conducted entirely by Group employees.

In 2021, refresh trainings of the PGE Group's Code of Ethics, which has been in force since 2015, were launched. Taking into account the feedback received after previous training sessions and wanting to ensure the greatest relevance of the content and form of training for the recipients, and thus the best possible effectiveness, the recurring training was planned based on the principle of individualization and personalization of both training materials and assumptions as to how to implement them.

Ensuring that employees and other persons performing work for and on behalf of PGE Group companies have access to information on PGE Group's Code of Ethics – its values and common principles – is an important element of the compliance system. The President of the Management Board of PGE SA, Wojciech Dąbrowski, is directly involved **Principles of cooperation with business partners** The rules governing cooperation with business partners are defined first of all in the <u>Code of Ethics of the PGE Capital</u> <u>Group</u>, which is a set of values and principles in force in the entire PGE Group. Among other things, it defines the PGE Group's approach to building business partnerships. For more on the rules of working with business partners, see *Cooperation with contractors* (p. 161).

in promoting and implementing the provisions of the Code of Ethics into the life of the organisation – as the person responsible on the side of the Management Board for the Compliance area. In 2021, activities aimed at building an organisational culture in PGE Group based on ethical values were intensified by operationalising the provisions of the Code of Ethics, i.e. translating the values and principles of the Code into the practical language of attitudes and behaviours in specific situations. In 2021, PGE Group companies carried out a number of activities, following PGE SA's guidelines, with regard to the practical implementation of the elements of the Code of Ethics in everyday life. Examples of appropriate behaviours and attitudes were introduced into internal regulations, training in various areas, communication of the Management Board and managers with employees, internal communications, instructions or the content of briefings.

### Communication

Communication on ethical issues is carried out on an ongoing basis. The text of the Code of Ethics (and the Code of Conduct for Business Partners of the PGE Capital Group companies) is available to employees and stakeholders on the websites of the PGE Group and the particular companies. We also maintain a page dedicated to the Code of Ethics in the Compliance section of the company intranet.

Communication on ethical issues is carried out on an ongoing basis. The contents of the Code of Ethics and the Code of Conduct for Business Partners of PGE Group companies are available to employees and stakeholders – in Polish and English – on the websites of PGE Group and individual companies. In each of the companies, posters and leaflets informing about the values and principles are available together with the information about communication channels to report noncompliance. In 2021, employees were reminded of the ethical principles through the available internal channels: in the public "Under the Umbrella" on PGE Group's Intranet, in PGE Group's newsletter, in the HR newsletter and the Health & safety newsletter as well as on screens in PGE SA's headquarters.

On the occasion of the 5th anniversary of the adoption of the Code of Ethics, a number of activities were carried out to draw attention to the benefits resulting from fair conduct. The campaign comprised competitions, including ones for the children of the employees of PGE Group companies, publications featuring comments from managers and executives, a video summarising the 5-year anniversary of PGE Group's Code of Ethics with a statement by the President of the Management Board of PGE SA.

In communications related to the Code of Ethics, employees' personal responsibility for their actions is emphasised in accordance with the Group's ethical values and rules expressed in the Code.

### **Counteracting violations**

Adopting the Code and clearly communicating the rules contained therein has a straightforward objective: support PGE Group's Strategy and minimise the risk of noncompliance, which could result in penalties or sanctions being imposed or reputation being lost as a result of a failure to adapt to regulations and standards that are stated in law or constitute best practices in this area.

In order to implement the principles of the Code of Ethics, almost 18 000 training hours were conducted in 22 PGE Group companies with compliance structures in 2021. 33 334 employees had been trained and percentage of employees trained amounted to 91%.

#### About the report

# Corporate governance

GRI: 102–5, 102–18, 102–22, 102–23, 102–24

Direction PGE 2050

The fundamental principles of management are the basis for the efficient functioning of an organisation and the achievement of its financial and non-financial objectives. They have a special dimension in such a complex Group as PGE.

# **General rules**

PGE Polska Grupa Energetyczna S.A. is a joint stock company. Pursuant to the Polish Commercial Companies Code, a joint stock company has the following corporate bodies:

- General meeting, which is where the company's shareholders (co-owners) meet;
- Supervisory board;
- Management board.

Competences of the governing bodies are specified in the company's statutes, the content of which is established by the company's general meeting.

The following diagram presents a simplified management structure:



The Management Board of PGE SA conducts the company's affairs and represents it in all activities in and out of court. Statements of will on behalf of the company must be made by two management board members or a management board member and a proxy. May consist of 1 to 7 members, including the president may consist of 1 to 7 members, including the president; the remaining members act as vice-presidents. Members are appointed board for a joint three-year term. The Management Board and particular members are appointed and dismissed by the supervisory board, following a competitive procedure intended to test and evaluate the candidates' qualifications and to select the best candidate for the position of Management Board member, with the stipulation that candidates for this post must meet the conditions specified in § 15 sec. 2, 3 and 4 of PGE's Statutes. In addition, each member of the Management Board may be recalled or suspended by the General Meeting or, for major reasons, suspended by the Supervisory Board. A resolution of the Supervisory Board on the suspension of a member of the Management Board must include a justification. The Supervisory Board may delegate members of the Supervisory Board to perform activities of the members of the Management Board on a temporary basis. A member of the Management Board submits his/her resignation in writing to the Supervisory Board at the address of the registered office of the Company.

At the date of publication of the report, the management board comprised six members (five appointed for a joint term in February 2020 and one appointed in September 2020) and the supervisory board comprised eight members (seven members elected by the shareholders at the General Meeting and one member appointed by the State Treasury by declaration). The Supervisory Board of the 12<sup>th</sup> term was appointed with effect from June 22, 2022.

PGE Polska Grupa Energetyczna S.A. is the dominant entity in the PGE Capital Group. Furthermore, it acts as the Corporate Centre that manages the Group. The Corporate Centre makes important decisions concerning the activity of particular business lines and the strategic directions of their development.

As part of these tasks, the Corporate Centre is responsible, among others, for:

- shaping PGE CG's Strategy;
- margin I management and planning of the optimal utilisation of production units;
- supervising and optimising PGE Group's operating and investing activities;
- regulatory management,
- risk management;
- risk management;
- direct ownership supervision over the Group's companies;
- building innovation strategies and supervising their implementation;
- building PGE's image and brand;
- developing the Group's human resources management strategy;
- finance and insurance management.

Companies managing business lines are responsible for:

- introduction of segment strategies compliant with the PGE Group's strategy;
- focusing on carrying out operating and investing activities;
- striving to improve the efficiency of operational processes;
- supporting decision-making processes at the Corporate Centre.

The company's governing bodies oversee the anti-corruption policy, which covers the types of corruption, including bribery, and a comprehensive set of anti-corruption rules.

# **General Meeting**

Detailed competences of the general meeting of PGE Polska Grupa Energetyczna S.A. include:

- review and approval of the report of the Management Board on the activities of the Company, financial statements and the consolidated financial statements for the past financial year;
- granting votes of approval to Members of the Supervisory Board and Members of the Management Board;
- decision on the allocation of profit or coverage of loss;
- appointment and recalls Members of the Supervisory Board and determines rules of remuneration for Members of the Supervisory Board;
- approval of the acquisition and lease of an undertaking or its organised part and placing a limited material right thereon;
- entering into credit, loan, surety or similar agreements with a member of the Management Board, Supervisory Board, proxy, liquidator or in the name of any such persons;
- increasing and reducing the share capital of the Company;
- mergers, transformations and de-mergers;
- share cancellations;
- amendments of the statutes and changes in economic activities;
- dissolution and liquidation of the Company.

Resolutions of the General Meeting are passed with an absolute majority of votes, subject to other provisions of the Code of Commercial Companies and the Company's statutes. One share entitles to one vote at the General Meeting.

Detailed rules for the General Meeting are specified in the Polish Commercial Companies Code and the Company's statutes. Additional issues related to General Meetings are regulated by the General Meeting Rules. The Company's statutes and the General Meeting Rules are available at:

- The Statutes of PGE Polska Grupa Energetyczna S.A.
- Regulations

Two PGE's General Meetings were held in 2021 and three PGE's General Meetings were held in the first half of 2022.



# Supervisory Board

The supervisory board of a public limited company is a control body in relation to the company's management board and exercises continuous supervision over the company's activities in all of its operating areas.

According to the statutes, PGE's Supervisory Board includes from five to nine members, who are selected by shareholders during a general meeting. In the case of PGE, the largest shareholder – State Treasury – holds additional authorisation to appoint one supervisory board member through a decision delivered to the Management Board.

## The Supervisory Board's competences include:

- appointing and dismissing Management Board members
- evaluating the Management Board report on the Company's activities and the Company's separate financial statements for the preceding financial year as regards their compliance with accounts, documents and actual state; this also pertains to the Management

Board report on the Group's activities and the Group's consolidated financial statements, if applicable,

- evaluating Management Board motions on profit allocation or loss coverage,
- selecting a statutory audit firm to audit or review separate financial statements and consolidated financial statements,
- approving the Company's annual and multi-year financial plans, including investment, marketing and sponsoring plans, as well as specifies their scope and deadlines for presenting them by the Management Board,
- approving the Company's growth strategy,
- establishing a consolidated text of the Company's statutes,
- setting remuneration and other terms of agreements and concludes agreements with the members of the Management Board (including the President of the Management Board), subject to competencies of the General Meeting resulting from the binding laws,
- providing opinions on all the motions for resolutions submitted by the Management Board to the General Meeting,

# Supervisory Board competences also include granting consent for the following:

- purchase or disposal by the Company of selected asset items valued at PLN 20 000 000 or more,
- subscription or acquisition/disposal of stock or shares of another company, with the value exceeding PLN 20 000 000,
- granting sureties and guarantees by the Company on behalf of entities other than direct and indirect subsidiaries (in the meaning of the Commercial Companies Code),
- incurring other liabilities by the Company worth PLN 400 000 000 or more, excluding agreements or liabilities related to transactions involving trade in electricity and gas, related products and rights as well as the purchase and sale of fuels and production commodities,
- investment undertakings related or connected to a production unit or cogeneration unit worth in excess of PLN 200 000 000 or a distribution grid worth in excess of PLN 20 000 000 in the meaning of the Energy Law, carried out or co-financed or secured by the Company or on the Company's assets,
- projects related or connected to prospecting and exploring mineral deposits or extraction of deposits worth in excess of PLN 200 000 000 in the meaning of the Geological and Mining Law, carried out or co-financed or secured by the Company or on the Company's assets.

# Composition of the supervisory board

### From January 1, 2021 till January 14, 2021 PGE's Supervisory Board had worked in following composition:

Name and surname	Position
Anna Kowalik	Chairman of the Supervisory Board
Artur Składanek	Vice-Chairman of the Supervisory Board – independent
Grzegorz Kuczyński	Secretary of the Supervisory Board – independent
Janina Goss	Supervisory Board Member – independent
Tomasz Hapunowicz	Supervisory Board Member – independent
Mieczysław Sawaryn	Supervisory Board Member – independent
Jerzy Sawicki	Supervisory Board Member – independent
Radosław Winiarski	Supervisory Board Member – independent

On January 14, 2021 the Company received the written statement of Minister of State Assets (representing the State Treasury) appointing Mr Marcin Kowalczyk to the Supervisory Board as from January 14, 2021.

### From January 14, 2021 till November 15, 2021 PGE's Supervisory Board had worked in following composition:

Name and surname	Position
Anna Kowalik	Chairman of the Supervisory Board
Artur Składanek	Vice-Chairman of the Supervisory Board – independent
Grzegorz Kuczyński	Secretary of the Supervisory Board – independent
Janina Goss	Supervisory Board Member – independent
Tomasz Hapunowicz	Supervisory Board Member – independent
Marcin Kowalczyk	Supervisory Board Member
Mieczysław Sawaryn	Supervisory Board Member – independent
Jerzy Sawicki	Supervisory Board Member – independent
Radosław Winiarski	Supervisory Board Member – independent

On November 15, 2021 the Extraordinary General Meeting dismissed Mr Jerzy Sawicki from the Supervisory Board, and then appointed Mr Zbigniew Gryglas to the Supervisory Board as from November 15, 2021.

### From November 15, 2021 till January 18, 2022 PGE's Supervisory Board had worked in following composition:

Name and surname	Position
Anna Kowalik	Chairman of the Supervisory Board
Artur Składanek	Vice-Chairman of the Supervisory Board – independent
Grzegorz Kuczyński	Secretary of the Supervisory Board – independent
Janina Goss	Supervisory Board Member – independent
Zbigniew Gryglas	Supervisory Board Member
Tomasz Hapunowicz	Supervisory Board Member – independent
Marcin Kowalczyk	Supervisory Board Member
Mieczysław Sawaryn	Supervisory Board Member – independent
Radosław Winiarski	Supervisory Board Member – independent

### From January 18, 2022 till June 22, 2022 PGE's Supervisory Board had worked in following composition:

Name and surname	Position	
Anna Kowalik	Chairman of the Supervisory Board	
Artur Składanek	Vice-Chairman of the Supervisory Board – independent	
Grzegorz Kuczyński	Secretary of the Supervisory Board – independent	
Janina Goss	Supervisory Board Member – independent	
Zbigniew Gryglas <sup>1</sup>	Supervisory Board Member	
Tomasz Hapunowicz	Supervisory Board Member – independent	
Marcin Kowalczyk	Supervisory Board Member	
Mieczysław Sawaryn	Supervisory Board Member – independent	
Radosław Winiarski	Supervisory Board Member – independent	

<sup>1</sup> On January 18, 2022, Zbigniew Gryglas submitted a statement regarding the independence criteria.

On June 22, 2022, the Company's Ordinary General Meeting adopted a resolution to dismiss Mr Zbigniew Gryglas as Member of PGE's Supervisory Board.

The General Meeting then adopted a resolution to appoint the following persons for a new term of the Superivisory Board:

- Ms Anna Kowalik,
- Mr Artur Składanek,
- Ms Janina Goss,
- Mr Tomasz Hapunowicz,
- Mr Mieczysław Sawaryn,
- Mr Marcin Kowalczyk,
- Mr Radosław Winiarski.

On July 12, 2022, through a declaration, the State Treasury appointed Mr Zbigniew Gryglas to the Supervisory Board.

### As at the publication date of this report, the Supervisory Board works in following composition:

Name and surname	Position
Anna Kowalik Chairman of the Supervisory Board	
Artur Składanek	Vice-Chairman of the Supervisory Board – independent
Radosław Winiarski Secretary of the Supervisory Board	
Janina Goss Supervisory Board Member – independent	
Zbigniew Gryglas	Supervisory Board Member
Tomasz Hapunowicz	Supervisory Board Member – independent
Marcin Kowalczyk	Supervisory Board Member
Mieczysław Sawaryn	Supervisory Board Member – independent

Name and surname	Function	Bio
Anna Kowalik	Chairperson of the Supervisory Board Audit Committee, Nomination and Remuneration Committee, Strategy and Development Committee, Corporate Governance Committee.	Legal counsel. Currently employed at the Ministry of State Assets, previously had been with the State Treasury and Ministry of Energy for many years. Extensive experience in supervising the operations of companies with State Treasury shareholdings. Lecturer in the field of commercial and civil law.
Janina Goss	Member of the Supervisory Board, Audit Committee, Nomination and Remuneration Committee.	Legal counsel. From 2012, member of the management board of Srebrna Sp. z o.o. In years 2009–2010 she was a Supervisory Board member in Polskie Radio S.A. In years 2006–2009 she was a Supervisory Board member in TVP S.A., including approx. 2 years at the position of the Chairman of the Supervisory Board.
Mieczysław Sawaryn	Member of the Supervisory Board Audit Committee, Nomination and Remuneration Committee, Strategy and Development Committee, Corporate Governance Committee.	Since 2014, mayor of the town and municipality of Gryfino. In years 2011–2014 and 1999–2007 he ran his own law firm. In 2006–2011 Mr. Mieczysław Sawaryn was employed at ZEDO S.A., at first as CEO and then as Director of Human Resources and Law, being responsible for consolidation of ZEDO S.A. within PGE Group.
Tomasz Hapunowicz	Member of the Supervisory Board, Strategy and Development Committee, Corporate Governance Committee.	Mayor of Zbuczyn municipality since 2010. From November 2016, member of Torpol S.A.'s supervisory board. Prior to that, he managed a culture institution and worked as expert on funds. He has experience in implementing investments co-funded by the EU. Author and coordinator of tens of projects co-funded by the EU.
Zbigniew Gryglas	Member of the Supervisory Board	Graduate of the National School of Public Administration, ART Olsztyn and the Warsaw School of Economics. He has over a dozen years of experience in the ownership supervision over companies with State Treasury shareholding, gained at the Ministry of the Treasury (1996–2006) and the Ministry of State Assets (2019–2021). One of the co-authors of the Power Sector Restructuring Programme of 2006 establishing the currently existing four Energy Groups (PGE, TAURON, ENEA, ENERGA).
Artur Składanek	Deputy Chairperson of the Supervisory Board, Strategy and Development Committee, Audit Committee.	Engineer. Director for Production at Finpol Rohr sp. z o.o. since January 2008 (with the company since June 2007, initially as production specialist). Ran his own business (AWI – Przedsiębiorstwo Wielobranżowe) between 1994 and 2007.
Radosław Winiarski	Secretary of the Supervisory Board; Strategy and Development Committee, Corporate Governance Committee.	PhD in Economics. Employee of the Ministry of State Assets, previously he had worked at the Ministry of Energy as a Head of the Section within the Department of Supervision and Ownership Policy. In years 2007–2016 he was employed in the Ministry of State Treasury. Since 2001 he has been working as a researcher at the Faculty of Management at the University of Warsaw.
	Member of the Supervisory	Graduate of the Faculty of Law and Administration at the University of Warmia and Mazury in Olsztyn. He completed post-graduate studies at the National Defense University in Warsaw. He holds an MBA from the Warsaw Management University. He was also the deputy president of the Military Property Agency and sat on the Supervisory Board of the Military Property Agency.
Marcin Kowalczyk	Committee, Nomination and Remuneration Committee	He worked in a managerial position at PGE Energia Odnawialna S.A. In 2018–2020 he was the vice-president of Wojskowe Przedsiębiorstwo Handlowe Sp. z o.o. From May 2020, he had been associated with PGE Dystrybucja S.A., first as the Vice-President of the Management Board, and from September 2020 as the President of the Management Board. Currently, he is the Head of the Political Cabinet of the Minister of State Assets

ESG – Foundation of Development

### Supervisory Board diversity



### Supervisory Board experience



# Independence criteria

PGE fulfiled the rule of Best Practices for WSE-Listed Companies, pursuant to which at least two Supervisory Board members should meet the independence criteria – in our case, the number of members who declared compliance with independence criteria was six.

### Supervisory Board members' independence

• DPSN 2021

According to Best Practices for WSE-Listed Companies (DPSN), a person who is an employee of a company, subsidiary or affiliate, as well as a person associated with such entities with a similar agreement, cannot be deemed as meeting the criteria of independence. Association with a shareholder excluding the attribute of independence of a supervisory board's member within the meaning of the DPSN rule is also understood as actual and essential relations with a shareholder with at least 5% of the total number of votes in the company

# Act of May 11, 2017 on statutory auditors, auditing companies and public supervision (Polish Journal of Laws; Dz. U. of 2017, item 1089), ("Statutory Auditors Act")

In terms of the criteria of independence of the supervisory board's audit committee members, Article 129 paragraph 3 of the Statutory Auditors Act applies, stating that most audit committee members, including the chairman, is independent of the given public interest entity (in this case, the issuer of securities).

# **Supervisory Board committees**

PGE's Supervisory Board has the following permanent committees: Audit Committee, Strategy and Development Committee, Nomination and Remuneration Committee, Corporate Governance Committee.

A detailed scope of competences for each of the Supervisory Board's permanent committees is presented in the Supervisory Board Regulations, available at Regulations.

## Audit Committee

The task of the Audit Committee is assessment of the correctness and effectiveness of internal control at PGE S.A. and PGE Group and cooperation with the statutory auditors of the Company. The Audit Committee's tasks include in particular defining the rules for selecting an audit firm to audit the Company's financial statements and monitoring the Company's financial reporting. The Committee held 11 meetings in 2021.3 members of the Audit Committee (Janina Goss, Grzegorz Kuczyński, Artur Składanek) met the criterion of independence according to the requirement resulting from the Act on statutory auditors, auditing companies and public supervision (Polish Journal of Laws; Dz. U. of 2017, item 1089).

## **Corporate Governance Committee**

**PGE** 

The Corporate Governance Committee evaluates implementation of corporate governance principles at the Company and presents the Supervisory Board with initiatives in this area, provides opinions on normative acts and other documents of the Company presented to the Supervisory Board, which considerably affect the corporate governance, initiates and prepares proposals of changes in normative acts of the Supervisory Board. The Committee did not hold meetings in 2021.

### Strategy and Development Committee

The Strategy and Development Committee provides opinions and recommendations to the Supervisory Board regarding planned investments that considerably affect the Company's assets. In particular, the tasks of the committee include providing opinions on strategy and strategic plans submitted to the Supervisory Board by the Management Board. The Committee held 2 meetings in 2021.

### Nomination and Remuneration Committee

The Nomination and Remuneration Committee is responsible for facilitating achievement of strategic goals of the Company by presenting the Supervisory Board with opinions and motions on the development of the management structure, including remuneration system and selection of properly qualified personnel.The Committee held 5 meetings in 2021.

## On December 31, 2021 the committees worked in following compositions:

Name and surname of the member of the Supervisory Board	Audit Committee	Corporate Governance Committee	Strategy and Development Committee	Appointment and Remuneration Committee
Janina Goss	Member			Member
Zbigniew Gryglas		Member	Member	
Tomasz Hapunowicz		Chairman	Member	
Marcin Kowalczyk			Member	
Anna Kowalik	Member		Member	Member
Grzegorz Kuczyński	Chairman	Member		
Mieczysław Sawaryn			Member	Chairman
Artur Składanek	Member		Chairman	
Radosław Winiarski	Member		Member	

### As at the publication date of this report, the the committees work in following composition:

Name and surname of the member of the Supervisory Board	Audit Committee	Corporate Governance Committee	Strategy and Development Committee	Appointment and Remuneration Committee
Janina Goss	Member			Member
Tomasz Hapunowicz		Member	Member	
Anna Kowalik	Member	Member	Member	Member
Mieczysław Sawaryn	Member	Member	Member	Member
Artur Składanek	Member		Member	
Radosław Winiarski	Member		Member	
Marcin Kowalczyk			Member	Member
Zbigniew Gryglas		Member	Member	

# **Management Board**

Currently, at the date on which this report is published (August 2022), the Management Board of PGE Polska Grupa Energetyczna S.A. consists of 6 members.

## Wojciech Dąbrowski,

# President of the Management Board

Mr. Wojciech Dąbrowski has been working as a manager in the energy sector for ten years. From November 2017 to February 2020, he was the President of the Management

Board of the PGE Energia Ciepła S.A., where he completed the process of Polish heat industry asset integration, acquired by PGE Polska Grupa Energetyczna S.A. from the French company EDF. He created a strong business line within the PGE S.A. Capital Group. In 2019, he completed the process of heat assets integration, which was a part of a broader business initiative by the PGE Capital Group. From January 2016 to November 2017, he was President of the Management Board of the PGNiG Termika S.A., where he completed the process of acquisition in PEC Jastrzębie and SEJ Jastrzębie, strengthening the market position of PGNiG Termika. Between 2011 and 2016, he was Vice-President of the Municipal Heat Energy Company in Wołomin Ltd.

He graduated from the Faculty of Law and Administration at the University of Warsaw, where he was awarded a Master of Law degree. He later completed postgraduate studies at the Warsaw University of Technology, in the Faculty of Power and Aeronautical Engineering, in the area of steam exploitation, gas and steam-gas power plants, combined heat and power plants. Moreover, he is a graduate of the Leon Kozminski Academy of Entrepreneurship and Management, and he can boast a further degree from the University of Warsaw, in Management in Public Administration.

Mr. Wojciech Dąbrowski has many years of experience in management, both in central and local governments. His main area of focus was investment and legal consultation in the area of obtaining funds from the EU. He also led expert teams in the realization of investments. He supervised modernization and investment projects in the M&A area, as well as restructuring and development schemes in companies striving to improve their operations and profitability.

In 2019, he was appointed President of the PTEZ (Polish Association of Professional Heat and Power Plants) by the National Assembly of PTEZ Members. He is a member of the Management Board of the Polish Electricity Association (PKEE) and Regulating Committee (Komitet Sterujący) for scientific research and development in the sphere of security and national defense at the National Center for Research and Development.

He participates in public debates which are chiefly concerned with development within the energy sector, environment protection, waste management and energy security. He has advocated active cooperation with local governments and local heating distributors, which has contributed to the development of the local heat markets and consequently improved the cleanliness of the natural environment and quality of life in local communities. He has supported and promoted cogeneration technology as the most effective and environmentally-friendly means of producing electricity and heat. He has also taken part in a program for the development of support scheme for cogeneration.



# Paweł Cioch,

## Vice-President for Corporate Affairs

Doctor of Law, specializes in providing legal services to commercial law companies and public finance sector entities. For many years, he provided legal services to capital companies in

the manufacturing, transport and construction industries, as well as local government units and organizational units of the State Treasury. Mr Cioch has experience in the implementation of corporate governance in capital companies. Since 2007, the owner of the Law Firm of Attorney-at-Law – dr Paweł Cioch, and since 2016 the Managing Partner of the law firm Cioch & Partnerzy. At the same time, since 2018 he has been the Legal Advisor of the Marshal of the Lublin Province. In addition, he is the Chairman of the Regional Development Council.

In 2007–2015, assistant professor at the Department of Civil Procedure at the John Paul II Catholic University of Lublin (KUL). He was also a lecturer at the College of Finance and Banking in Radom and the College of Entrepreneurship and Administration in Lublin in the field of securities law. From 2013, lecturer at the Bar Association of Attorneys-at-Law in Lublin in the field of civil proceedings. A graduate of the Faculty of Law, Canon Law and Administration of the Catholic University of Lublin in 2003. In 2006 he completed a judicial apprenticeship completed with a judicial exam at the Court of Appeal in Rzeszów, as well as obtained a PhD in legal sciences at KUL and was registered on the roll of attorneys-at-law.

He is the author of several dozen scientific publications in the field of civil procedure law and commercial law, including monographs, articles, some comments to the Code of Civil Procedure and encyclopedic entries.



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## Lechosław Rojewski, Vice-President for Finance

Mr. Lechosław Rojewski is a graduate of Gdynia Maritime University, AGH University of Science and Technology in Kraków and doctoral studies at the Institute of Economics at the Polish

Academy of Sciences in Warsaw.He completed numerous training and courses in accounting, taxes, controlling, IAS, IFRS and finances. Entitled to provide services consisting in maintenance of accounting ledgers. Was a member of Controlling and Management Accounting Academy. Certified European Fund advisor. Worked as an assistant professor in Kotarbiński University of Information Technology and Management in Olsztyn. He collaborated with WSB University (Wyższa Szkoła Bankowa) in Gdańsk and Gdynia as well as with the University of Business and Administration in Gdynia.

In the years 2019–2021 he was the Vice-President of the Management Board for finance at Węglokoks S.A. From 2016 to 2019, he was associated with Port Gdański Eksploatacja S.A., where he first served as the Vice-President of the Management Board for finance, and then the President of the Management Board. Moreover, he gained experience while working in production, service and commercial companies and on the positions of an expert, coordinator and moderator of EU projects concerning the implementation of strategic planning in a company and the introduction of innovative technical and organisational solutions ensuring effective competitiveness in the national and foreign markets. He has broad experience in restructuring of companies, optimisation of financial and accounting processes, planning and budgeting, management of financial flows and mitigation of foreign exchange risk. He also implemented integrated IT systems (ERPs).



## Paweł Śliwa, Vice-President for Innovations

Mr. Paweł Śliwa graduated from Law and Administration Faculty at the Maria Curie-Skłodowska University in Lublin, branch in Rzeszów. He completed PhD studies on the Cardinal

Stefan Wyszyński University in Warsaw. Completed attorney apprenticeship in Regional Bar Council in Rzeszów.

Mr. Paweł Śliwa has held the position of the Vice-President of the Management Board of PGE since March 2016. From March 1, 2016 till March 22, 2016 he held a position of the Supervisory Board member of PGE. From 2002 till March 2016 Mr. Paweł Śliwa ran a Law Firm in Gorlice. Since October 2010 a councilor in the legislative assembly of Małopolskie voivodship. In years 2005–2012 ran a Solicitor's Partnership in Gorlice. In years 2006–2007 he held the position of the Vice-Chairman of the Supervisory Board of Ruch S.A.



## Ryszard Wasiłek, Vice-President for Operations

Mr. Ryszard Wasiłek graduated from the Faculty of Mechanical Engineering at the Szczecin University of Technology, and completed postgraduate studies District Heating

and Heating of the Warsaw University of Technology, Faculty of Environmental Engineering.

Mr. Ryszard Wasiłek has held the position in the Management Board of PGE since March 2016 – first as the Vice-President fo Development, and since February 2017 as Vice-President for Operations. Earlier, he had been the President of the Management Board of a district heating company Przedsiębiorstwo Energetyki Cieplnej Sp. z o.o. in Stargard (2003–2016). In years 1994–2003 worked at KielArt Sp. z o.o. in Szczecin as CEO – Chairman and in years 1990–1994 Mr. Ryszard Wasiłek served as the Deputy President of Stargard, responsible for economic policy.

Since 2016 Mr. Ryszard Wasiłek has been sitting on the Board of Chamber of Commerce of Energy and Environmental Protection. Earlier he used to be a Member of the Council of the Stargard Chamber of Commerce (2004–2016), a Member of the Regional Council of the Polish Chamber of District Heating – North-Western Region (2010–2016), a Member of the National Council of the Polish Chamber of District Heating (2014–2016). In years 1993–1994 Ryszard Wasiłek was also the President of the Western Pomerania Municipal Community "Euroregion Pomerania".

### Wanda Buk,

### Vice-President for Regulatory Affairs

Ms. Wanda Buk holds the title of attorney, she graduated from the Faculty of Law and Administration at the University of Łódź, as well as the Faculty of French Business Law at

the Université de Poitiers in France. She also graduated International Military Relations at the War Studies Academy, European Academy of Diplomacy, postgraduate studies at the Warsaw School of Economics and the prestigious Leadership Academy for Poland programme organised by the Center for Leadership in cooperation with Harvard University. She started doctoral studies at the War Studies Academy.

Ms. Wanda Buk has held position of the Undersecretary of State at the Ministry of Digital Affairs since July 2018.

She has been managing Telecommunications Department, Legal Department, International Policy Department and Office of the Minister (in the scope of matters resulting from the reporting relationship of the Digital Poland Projects Centre with the Minister). At the same time she has been a member of the Committee for European Union, the Standing Committee of the Council of Ministers and the Joint Central Government and Local Government Committee.

From January 2016, Wanda Buk was the director of the Digital Poland Project Centre. She managed the institution responsible for implementation of European funds earmarked for the digitisation of the country. She was responsible for the implementation of EU-funded projects with a total value of PLN 10 billion, including: building IT and telecommunications infrastructure providing access to fast broadband, development of high availability and quality electronic services, digitisation in public administration and culture, building digital skills on a national scale with particular emphasis on coding, as well as promoting basic computer science knowledge in various social groups.



Management Board diversity

Management Board experience



The management board of a public limited company conducts the company's affairs and represents it in all activities in and out of court. The management board is responsible for managing the company's on-going business, e.g. making economic decisions, representing the company before administrative or government authorities and signing agreements with other entities. The activities of the management board and the achievement of objectives are monitored by the supervisory board, and the company's annual ordinary general meeting adopts resolutions on votes of approval – an evaluation of the work performed by management board members in the most recent financial year.

At PGE Polska Grupa Energetyczna S.A., the Management Board's competences include all matters related to conducting the Company's affairs such as are not reserved by law or the statutes for the General Meeting or the Supervisory Board.

The modus operandi of the Management Board and internal division of competence among Management Board members as regards managing the Company's affairs are specified in regulations of the Management Board available at the <u>Company's website</u>.

Management Board resolutions are required in the following instances:

- the Company's acquisition or disposal of the following components of assets: real property, perpetual usufruct, interest in real property or perpetual usufruct, shares, interests or other participation rights,
- incurring credits and loans,
- granting sureties and guarantees by the Company and issuance of promissory notes,
- making donations and releasing from debts,
- concluding agreements not related to the Company's business activities specified in § 3 sec. 1 of the articles of association,
- appointing commercial proxies,

- appointing Company proxies authorised to incur liabilities with a value exceeding PLN 400 000, excluding:
  - the powers of attorney to conclude agreements or incur liabilities related to trade in electricity and gas, related products and rights related thereto, and related to the purchase and sale of fuels and raw materials,
  - powers of attorney ad litem,
- adopting the Regulations of the Management Board,
- approving the Company's Organisational Regulations,
- forming other companies,
- adopting the Company's annual and multi-year financial plans, including investment, marketing and sponsoring plans,
- approving rules for conducting sponsorship activity, adopting the Company's growth strategy,
- determining the method of exercising the voting right at general meetings or general meetings of the companies in which the Company holds shares or interests,
- approving the materials submitted by the Management Board to the Supervisory Board.

Irrespective of the above-mentioned matters, resolutions of the Management Board are required for any matter referred by the Management Board to the Supervisory Board or the General Meeting.

# Management Board composition in 2020 and 2021

From January 1, 2021 till March 31, 2021 the Management Board worked in following composition:

Name and surname of the Management Board	Posi	tion
Wojciech Dąbrowski	President of the Management Board	from February 20, 2020
Wanda Buk	Vice-President for Regulatory Affairs	from September 1, 2020
Paweł Cioch	Vice-President for Corporate Affairs	from February 24, 2020
Paweł Strączyński	Vice-President for Finance	from February 24, 2020
Paweł Śliwa	Vice-President for Innovations	from February 20, 2020
Ryszard Wasiłek	Vice-President for Operations	from February 20, 2020

On March 31, 2021 Mr Paweł Strączyński – Vice-President for Finance – submitted his decision to resign from the position. The resignation took effect on April 1, 2021.

After a competitive procedure, on June 8, 2021 the Supervisory Board adopted resolution no. 396/XI/2021 on appointing Mr Lechosław Rojewski to the Management Board of PGE Polska Grupa Energetyczna S.A. entrusting him the position of the Vice-President for Finance as from June 9, 2021.

### As at December 31, 2021 and at the publication date of this report, the Management Board has worked in following composition:

Name and surname of the Management Board		Position	
Wojciech Dąbrowski	President of the Management Board	from February 20, 2020	
Wanda Buk	Vice-President for Regulatory Affairs	from September 1, 2020	
Paweł Cioch	Vice-President for Corporate Affairs	from February 24, 2020	
Lechosław Rojewski	Vice-President for Finance	from June 9, 2021	
Paweł Śliwa	Vice-President for Innovations	from February 20, 2020	
Ryszard Wasiłek	Vice-President for Operations	from February 20, 2020	

The following diagram presents the organisational structure and responsibility of each member of the Management Board as at the date on which this report was published.

	Name and surname of the Management Board	Responsibility				
	<b>Wojciech Dąbrowski</b> President of the Board	Security	Mergers & acquisitions	Compliance	Corporate Communication & Marketing	
		Internal supervision	Legal & Corporate Governance	Company bodies support	Audit	
	<b>Paweł Cioch</b> VP – corporate affairs	Human Resources	Administration	Procurement	Health & Safety	
	<b>Ryszard Wasiłek</b> VP – COO	Operational Management & Investments	Trading	Raw Materials Supply	Social Dialogue	Conventional Energy Trading
	<b>Lechosław Rojewski</b> VP – CFO	Controlling	Reporting and Tax	Risk & Insurance	Treasury	IT Strategy
	<b>Paweł Śliwa</b> VP – Innovations	Development and Innovation	Integration & Internal advisory	Offshore energy	Circular Economy	
	<b>Wanda Buk</b> VP – Regulations	Regulations	International cooperation	Market analyses	Support schemes	

# **Investment Committee**

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The PGE Group operates in the energy industry, where long-term planning is extremely important, especially in terms of investments in generation sources, the construction of which may take several years, and the lifetime of such assets is counted in dozens of years. Therefore, an Investment Committee operates at PGE – an opinion-giving body that acts as a decision-making support for the Management Board of PGE S.A. and management boards of PGE Group companies. The main task of the Committee is to provide opinions on investments, assuming that the investment eligibility criteria for consideration are met.

The Investment Committee consists of more than ten people. These are members of the Management Board, directors of divisions, directors of organizational units of PGE S.A., as well as members of the management board from subsidiaries directly responsible for individual investments. The work of the Committee is managed by the Vice President of the Management Board of PGE responsible for the investment area.

As part of its work, the Committee:

- as a result of the analyzes, gives opinions on the economic and technical advisability of the investment and recommends it to the Management Board of PGE S.A. and management boards of PGE Group companies

   investments with the highest efficiency ratios, with particular emphasis on the compliance of the planned investment with the PGE Group's Strategy, the current possibilities of financing the investment by the PGE Group and the degree of economic efficiency of the investment,
- issues recommendations on the transition of investments to the next phases of the investment life cycle,
- gives opinions on the consolidated investment plan,
- monitors the so-called mega-investments, i.e. strategic investments with the value of investment outlays exceeding PLN 1 billion or other investment tasks of particular importance for the PGE Group.

# **Best Practices**

As a company listed on the Warsaw Stock Exchange, we apply the corporate governance rules specified in Best Practices for WSE-Listed Companies (DPSN).

More on corporate governance rules and best practices on the website https://www.gpw.pl/best-practice2021.

In 2021 Best Practices 2021 were introduced – the next version of the set of corporate governance rules that have been in force for companies from July 1, 2021. The new Best Practices reflect current trends and follow European regulations in the area of corporate governance. The changes made take into account the current legal status and the latest trends in the area of corporate governance, as well as respond to the demands of market participants interested in better corporate governance in listed companies.

In line with market expectations, new good practices include ESG issues, including climate protection, sustainable development, diversity in the composition of company bodies and equal remuneration. The updated rules also cover such topics as: the expected profit distribution, issue of shares with the exclusion of pre-emptive rights or buy-back. Also new are more precise rules for submitting draft resolutions for the general meeting and proposing candidates for the supervisory board.

As a result of the work consisting in identifying the current status of the application of Best Practices 2021, at the end of July 2021, a report on the application of the best practice principles by PGE was prepared and published. The report is available at available at the following web address.

Aside from the rules specified in Best Practices, PGE tries to maintain the best possible communications with capital market participants by publishing materials that respond to investor needs, such as:

- Presentation of 2030 strategy along with one pager containing summary of strategic objectives
- <u>Multiple-year file with the Group's quarterly data, available in</u> <u>the analyst section</u>
- Analyst tool kit with a release for investors after each earnings publication and key financial data for the period, e.g. after Q1 2022 results

The Company also publishes estimated financial and operating data for each reporting period in the form of current reports.

We also publish other materials in the analytics' zone – in response to the increasing interest in the solution of the capacity market, we published 4 presentations concerning the main capacity market auctions for 2021, 2022, 2023 and 2024. Following the announcement of the offshore programme execution, we published a presentation concerning the Offshore Wind Farm Construction Programme in the Baltic Sea.

# Approach to managing ESG issues

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The adoption of PGE Group's strategy until 2030 with an outlook to 2050, which defines the directions of the energy transition, decarbonisation of generation and the path towards climate neutrality, was the first step to implement a systematic management of the ESG area in the Group (E – environment, S – social, G – governance).

PGE Group is fully aware that reporting on ESG factors is the first step in managing the area of sustainable development in the company. The next step is to define ESG goals and implement them effectively. This is a current challenge for PGE Group. Incorporating ESG issues into the framework of the organisation's operations requires remodelling the management system. To this end, on December 21, 2021, the Management Board of PGE Polska Grupa Energetyczna S.A., by way of a resolution, appointed the Management Board's proxy for ESG, as well as the Sustainable Development Committee – headed by Wojciech Dąbrowski, President, and Lechosław Rojewski, Vice-President for Finance.

# Sustainable Development Committee

The Committee's task is to ensure the integrity of the area of sustainable development at PGE Group by supervising the implementation of processes in the ESG area. The wide range of tasks to be implemented in the Group requires the involvement of many organisational structures, which is reflected in the composition of the Committee, the members of which are directors of organisational units of key importance to the ESG area. The challenges faced by the Group, stakeholder expectations, good market practices as well as on-going and planned ESG initiatives are discussed at these meetings.

The ESG process is operationally coordinated by the investor relations and sustainability team, which is also responsible for ESG communications, stakeholder dialogue and non-- -!-1

Oversight	PGE CEO PG vice-president for finance		financial reporting.		
Coordination level	Communication area (Management Board Proxy for ESG)	Definition of stakeholder and regulatory expectations	External communication of ESG information	Management of feedback from stakeholders	Coordination of ESG tasks and collected information
Operating and task level	Organisational cells	Management of specific ESG tasks		Definition and drafting of area policies	Collection of information in the area
	Sustainability Council				

The development of PGE Group's ESG system is based on the continuous identification of key expectations of stakeholders and ongoing implementation of regulatory requirements in the area. This encompasses setting short-term and long-term goals consistent with the Group's strategy. To ensure the achievement of objectives for the entire Group, in the case of new expectations it is necessary to develop detailed management rules, primarily encompassing cooperation between Group companies.



We believe that a sustainable company is one that not only complies with standards itself, but also deliberately chooses its suppliers – entities that operate ethically and monitor their carbon footprint. We view dialogue with institutions as communication with partners who can support us in our business. Our objective is not only





Management Board representative for ESG, PGE Polska Grupa Energetyczna



### Reporting of non-financial information

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The basis for development of PGE Group's ESG area is experience in communication with stakeholders through reporting of non-financial information. In this field, PGE Group already has nearly 10 years of experience and meets the growing expectations of stakeholders on an ongoing basis. PGE Group's first social report was developed for the years 2013–2014 and was based on the Global Reporting Initiative (GRI) international reporting standard at the CORE level. The following year, PGE began publishing cyclical integrated reports, also keeping in mind the expectations of investors and other financial institutions. Since 2016, i.e. one year before the Non-financial Reporting Directive (NFRD) came into force, PGE Group has published information in accordance with its requirements. Continuously since 2011, PGE has been present first in the "Respect Index" and then in the WIG-ESG index, which consists of companies with mature ESG management practices. Participation in the Responsible Companies Ranking earned PGE the title of industry leader in responsible business for three years in a row.

### Disclosure Insight Action

Our actions are underscored by transparency. Responding to the call of our shareholders in 2021, we decided to participate for the first time in surveys of the renowned environmental reporting standard, Disclosure Insight Action, in two areas: "Climate change" and "Water Security."

The first survey allowed us to identify our limitations in the disclosure of greenhouse gas – and water-related data. We also gained a better understanding of stakeholder expectations. This experience will make it possible for us to align our management and reporting systems with these expectations and contribute to further reducing the environmental impact of our organisation. We believe that streamlining processes will allow us to systematically improve our ratings.

Due to the complexity of these issues, we formed a team with representatives from the areas of investor relations, CSR, controlling, strategy, international relations, risk, operations and corporate governance. We also directly involved our subsidiaries.

We took part in both surveys again in 2022, and the results will be announced at the end of the year, following analysis by CDP.

# **Executive remuneration system**

Direction PGE 2050

# Rules with respect to the determination of remuneration for the Management Board Members of PGE S.A.

On September 9, 2016, the Act of June 9, 2016 on the principles of determining the amount of remuneration for persons managing certain companies – so called new Public Sector Salary Cap Act – came into force. The new Public Sector Salary Cap Act determines, inter alia, principles for determining remuneration in companies with a stake of the State Treasury (for example PGE), in particular determines the way in which the remuneration of the members of the Management Board and Supervisory Board is set (rules for determining remuneration of the Management Board and Supervisory Board are adopted by the General Meeting and the Supervisory Board adopts resolutions on specific conditions of the management board remuneration).The act also determines select provisions of management services agreements executed with management board members.

On December 14, 2016, the Company's Extraordinary General Meeting, convened at the request of the Minister of Energy representing the State Treasury, adopted resolution 4 on determining the rules for remuneration for members of the Management Board of PGE S.A., subsequently changed through resolution 37 of the Company's Ordinary General Meeting of June 27, 2017. According to this resolution, remuneration for Management Board members consists of a fixed component in the form of a monthly base salary, and a variable component constituting supplementary pay for the Company's financial year, depended on progress in achieving management objectives. Remuneration and benefits received in 2021 by the Members of the Management Board of PGE S.A. from PGE S.A.

Name and surname of the Management Board member	Remuneration and benefits achieved by the Management Board members in PGE S.A. in 2021 (PLN)
Wojciech Dąbrowski	1,147,723.79 <sup>1</sup>
Wanda Buk	881,336.14 <sup>1</sup>
Paweł Cioch	1,067,788.15 <sup>2</sup>
Lechosław Rojewski	415,129.72
Paweł Strączyński	512,979.43 <sup>1</sup>
Paweł Śliwa	1,124,549.26 <sup>2</sup>
Ryszard Wasiłek	1,124,549.26 <sup>2</sup>

The total remuneration achieved by the Management Board members in 2021 amounted to PLN 6.27 million (according to PIT11). In cost perspective (including mark-ups and provisions), in 2021 the remuneration of all persons who acted as Management Board members of PGE S.A., amounted to PLN 5.87 million (the lower total remuneration figure results from the reversal of provision for bonuses for 2015 paid in 2021).

<sup>1</sup> Item includes remuneration for the period of service at the Management Board i.e. basic and variable remuneration for 2020 and reimbursement of overpaid social security contributions.

<sup>2</sup> Item includes remuneration for the period of service at the Management Board i.e. basic and variable remuneration for 2020.

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# Rules with respect to the determination of remuneration for the supervisory board members of PGE S.A.

The amounts of remuneration of the Supervisory Board Members of PGE S.A. were determined by the resolution no. 5 of the Extraordinary General Meeting of December 14, 2016 concerning the principles of determining the amount of remuneration for members of the Supervisory Board of PGE S.A., pursuant to which the monthly remuneration of members of the Supervisory Board was set as a product of the average remuneration in the business sector exclusive of profit-based bonuses in the fourth quarter of the previous year as announced by the President of the Central Statistical Office of Poland and the following factor: 1.7 (for the chairperson of the Supervisory Board), 1.5 (for the other members of the Supervisory Board). The remuneration paid to members of the Supervisory Board of PGE complied with the rules set out in the new Public Sector Salary Cap Act.

# Remuneration received by the Supervisory Board Members of PGE S.A. who in 2021 performed their functions in PGE S.A.

Name and surname of the Supervisory Board member	Remuneration achieved by the Supervisory Board members in PGE S.A. in 2021 (PLN)
Janina Goss	81,099.58 <sup>1</sup>
Zbigniew Gryglas	10,128.69
Tomasz Hapunowicz	79,268.04
Marcin Kowalczyk	78,330.90 <sup>1</sup>
Anna Kowalik	91,993.14 <sup>1</sup>
Grzegorz Kuczyński	79,268.04
Mieczysław Sawaryn	80,646.55 <sup>1</sup>
Jerzy Sawicki	70,829.15 <sup>1</sup>
Artur Składanek	81,805.85 <sup>1</sup>
Radosław Winiarski	80.708.65 <sup>1</sup>

<sup>1</sup> 1 This item includes remuneration for the period of fulfilling the duties of a member of the Supervisory Board, i.e. the basic salary and reimbursement of overpaid social security contributions.

Total remuneration earned in 2021 by the members of the Supervisory Board in PGE S.A. amounted to PLN 734 thousand. In cost perspective (including mark-ups), the remuneration of all persons who acted as Supervisory Board members amounted to PLN 8170 thousand in 2021.

# **Remuneration policy**

Pursuant to the requirement of Art. 90d section 1 of the Act of July 29, 2005 on Public Offering, Conditions Governing the Introduction of Financial Instruments to Organized Trading, and Public Companies, the Ordinary General Meeting of PGE S.A. on June 26, 2020, adopted the "Remuneration Policy for Members of the Management Board and Supervisory Board of PGE Polska Grupa Energetyczna S.A."On June 22, 2022, the Ordinary General Meeting, by Resolution. 11, adopted the amended wording of the Remuneration Policy. The new wording of the Remuneration Policy takes into account the changes resulting from Resolution 5 of the Extraordinary General Meeting of PGE S.A. of March 7, 2022 on the principles of shaping the remuneration of the Members of the Management Board, which modified the amount of compensation for non-competition after termination of the function of a Member of the Management Board, from the previous amount which could not exceed 50% of the Fixed Remuneration to an amount not exceeding 100% of the Fixed Remuneration.

In addition, in accordance with the requirements of the abovementioned Act, the Supervisory Board of the company prepares, and the General Meeting of the company gives an opinion on the remuneration report. The first such report was prepared for the years 2019–2020. It was assessed by a certified auditor and presented to the Annual General Meeting of PGE in 2021. On June 29, 2021 the Ordinary General Meeting of the company in the resolution no. 7 provided a positive opinion on "The report on the remuneration of the Members of the Management Board and the Supervisory Board of PGE Polska Grupa Energetyczna S.A. for the years 2019–2020". The subsequent remuneration report covered the year 2021 and was reviewed by the auditor and subsequently given a favourable opinion by the company's Ordinary General Meeting on June 22, 2022.

The remuneration policy sets out, among other things, the components of remuneration for members of the Management Board (fixed and variable remuneration and the amount and proportions of the remuneration components), the catalogue of general Management Objectives, the principles of non-competition agreements or the method of remuneration for members of the Supervisory Board.

The full content of the Remuneration Policy and the above mentioned report along with the Independent auditor's reports regarding the assessment of the remuneration report are available on the company's website "<u>Remuneration policy</u>". Direction PGE 2050

# Structure of PGE Capital Group

GRI: 102–10

We are the biggest vertically-integrated producer and supplier of electricity and heat in Poland. The size of the entire organisation, internally introduced organisation and restructuring changes make the management of such a developed structure to be a big responsibility.

The Group's current structure was shaped in 2010 as a result of the contribution by the State Treasury of 85% of shares in PGE Energia and PGE Górnictwo i Energetyka to PGE S.A. in exchange for new-issue shares in the Company's increased share capital and the acquisition of EDF's Polish assets in 2017. Given its size, internal organisational changes and acquisitions, PGE Group is in a continuous process of simplifying structures and integration. PGE Group as of the end of 2021 consisted of the parent company (PGE S.A) and 77 subsidiaries that employ over 38 thousand employees. All of PGE Group's companies were organised in five main operating segments, i.e. Conventional Generation, District Heating, Renewables, Distribution, Supply, Circular Economy as well as other operations.



# Structure of PGE Capital Group in 2021\*

From January, 2021, a new operating segment – Circular Economy – has been established within the Group's structure.

The transfer of district heating assets from PGE GiEK (CHP Szczecin, CHP Pomorzany, district heating network in Gryfino) to PGE Energia Ciepła structures was completed in July 2021.

Also in 2021, PGE S.A. sold to the State Treasury all its shares (70%) in PGE EJ 1, the company previously involved in the preparation of the nuclear power plant project in Poland.

\* Simplified structure – includes key entities.



The government's plan for the electricity sector transition in Poland, announced in May 2021 and approved by the Council of Ministers on March 1, 2022, presents the concept of spinning off assets related to electricity generation in conventional coal-based units from the groups of individual power companies – including PGE. Among other things, the assumptions envisage the integration of coal assets into a single entity, i.e. PGE Górnictwo i Energetyka Konwencjonalna S.A. – currently a subsidiary of PGE, which will ultimately operate under the name of the National Energy Security Agency ("NABE"). NABE's role will be to ensure the necessary balance in the power system. NABE will focus on maintenance and modernisation investments necessary to maintain the efficiency of the coal units in operation, including those aimed at reducing the carbon intensity of these units.

July 23, 2021 PGE S.A., ENEA S.A., TAURON Polska Energia S.A. and ENERGA S.A. concluded an agreement with the State Treasury regarding cooperation in the process of separating off coal energy assets and their integration into NABE. The sale of assets to NABE is planned for the fourth quarter of 2022.

# Organisation of the parent company

## PGE Polska Grupa Energetyczna S.A

is a joint stock company. The majority shareholder is the State Treasury, which – after taking up a portion of Series E shares already issued in 2022 – holds 60.86% of PGE S.A.'s share capital. 38.14% of the company's shares remain freely traded on the stock exchange.

# Management rules in PGE Group

PGE Polska Grupa Energetyczna S.A. is the dominant entity in the PGE Capital Group. Furthermore, it acts as the Corporate Centre that manages the Group. The Corporate Centre makes important decisions concerning the activity of particular business lines and the strategic directions of their development.

## As part of these tasks, the Corporate Centre is responsible, among others, for:

- shaping PGE CG's Strategy,
- margin I management and planning of the optimal utilisation of production units,
- supervising and optimising PGE Group's operating and investing activities,
- regulatory management,
- risk management;
- direct ownership supervision over the Group's companies,
- building innovation strategies and supervising their implementation,
- building PGE's image and brand,
- developing the Group's human resources management strategy,
- finance and insurance management.

### Companies managing business lines are responsible for:

- implementing segment strategies compliant with the PGE Group's strategy,
- · focusing on carrying out operating and investing activitie,
- striving to improve the efficiency of operational processes,
- supporting decision-making processes at the Corporate Centre.

A Holding Council was set up at PGE Group. Its purpose is to increase the efficiency of the Group's operations. The Holding Council performs advisory functions, defines potential risks and recommends solutions as a result of exchange of relevant information and experience on the Council's forum. Its task is also to supervise the implementation of the Group's strategy. The Holding Council is composed of: The President of the Management Board of PGE SA, as the Chairperson of the Council, the other members of PGE's Management Board, the Chairpersons of the Supervisory Boards and the Presidents of the Management Boards of key Group companies, the Directors of the Divisions in PGE Polska Grupa Energetyczna, as well as the Director of the Corporate Communication and Marketing Department and the Director of the Legal and Corporate Management Department in PGE Polska Grupa Energetyczna.

The Holding Council is also empowered to establish working groups to analyse specific issues related to the operations of PGE Group companies.

# Compliance

Direction PGE 2050

GRI: 102–12, 103 (419), 103 (419), 205–2, 102–25, 102–17

# Literally translated, "compliance" means being in accordance with the letter of the law. Acting in line with the law is expected of every employee, and rules of ethics and responsibility for actions towards co-operators, clients or business partners are in effect equally for everyone.

The compliance management system in place at PGE Group supports the implementation of all of the company's strategic objectives, in particular with respect to building an efficient and effective organisation and carrying out a sustainable energy transition.

The Compliance area focuses on:

- promoting fair business principles at PGE Group, including the application of the provisions of PGE Group's Code of Ethics.
- carrying out preventive anti-fraud actions, in particular with regard to combating corruption, money laundering and financing of terrorism.
- supporting the organisation in terms of:
  - fostering good employer-employee relations,
  - managing conflicts of interest,
  - ensuring the transparency of processes, in particular as regards projects and investments, trading in energy (electricity, heat and gas) and related products, and procurement,
  - ensuring the protection of competition and consumers, environmental protection and IT security.

PGE Group's compliance management system is based on the guidelines of ISO 19600 Compliance Management Systems (CMS), which was replaced in April 2021 by the new ISO 37301:2021 Compliance Management Systems certifiable standard with a number of requirements. Work is currently under-way to prepare for a system review and adapt to the detailed requirements described in the new standard. The system is also consistent with the standards set by the Warsaw Stock Exchange: "Recommended standards for a compliance management system with respect to counteracting corruption and a whistleblower protection system in companies listed on the markets organised by the Warsaw Stock Exchange", as well as with the Universal Declaration of Human Rights, the standards of the International Labour Organisation and the obligations of the United Nations Global Compact.

The PGE Group has an organizational structure dedicated to the performance of Compliance tasks. In PGE SA, it is the Compliance Department, whose director reports directly to the Audit Committee of the PGE Supervisory Board. The companies and branches of the PGE Group appoint Compliance Coordinators who report to the head of the Compliance Department in PGE SA with respect to the performance of their tasks. These persons are also provided with an appropriate direct reporting path to the Management Board of a given company. Currently, there are 52 Compliance Coordinators in the PGE Group.

The Compliance Management System in the PGE Group comprises the Corporate Centre and 21 direct subsidiaries of PGE SA, actively conducting business activities.

In indirect subsidiaries, the Compliance system is implemented through their supervisory companies. The implemented solutions apply to all employees of the PGE Capital Group and other persons performing work for the Group, regardless of their positions.

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# Anti-corruption

## GRI: 205–2, 103 (419)

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The implementation and continuous improvement of anti-corruption solutions and mechanisms is an element of strengthening the efficient and effective organisation of PGE Group, maintaining compliance with anti-corruption regulations, following the Warsaw Stock Exchange's standards in the area of anti-corruption, meeting and promoting the highest ethical standards and transparency in business.



# Since April 2021, two anti-corruption regulations are in force in PGE Group:

- revised the Anti-Corruption Policy, also addressed to external stakeholders, indicating, inter alia, the commitment to prevent corruption, key anti-corruption principles, responsibilities regarding their observance and how to respond to suspected irregularities in this regard; and
- new General Procedure Counteracting Corruption in PGE Group, replacing the previous Anti-Corruption Policy, binding on employees and persons acting for and on behalf of PGE Group companies, specifying in detail the tasks, roles and responsibilities with respect to counteracting corruption in the Group.

# The main changes to the anti-corruption regulations introduced in 2021 are as follows:

• anti-corruption regulation addressed and communicated to external stakeholders, thus implementing the recommendations from the "Recommended Standards for a Compliance Management System for Anti-corruption

and a System for the Protection of Whistleblowers in Companies Listed on Markets Organised by the Warsaw Stock Exchange",

- clarifying the responsibilities of individual organisational units,
- reference to the WSE's anti-corruption standards and the CBA's anti-corruption guidelines (in the latter case, to the extent relevant to the company),
- requirement to ensure that reviews, including, inter alia, analyses of transactions and financial flows, potential errors and deviations, are carried out at least once a year to verify that no corrupt funds are operating within the companies' structures,
- clarifying the rules of cooperation with business partners (e.g. exercising due diligence in verifying information on possible proceedings and/or convictions, considering, depending on the situation of termination of cooperation, additional supervisory measures, caution in meetings with these partners, good practice in documenting meetings),
- inclusion of 'ethics clauses' and rules for their application in the appendix to the General Procedure – Counteracting Corruption at PGE Group
- consistency of approach to training validity for three years for all staff, plus in-depth/dedicated training for selected groups – depending on needs and specificities,
- amendments concerning the avoidance of conflicts of interest.

# Raising awareness among employees most exposed to corruption risk

Preventive actions and education of groups working in areas most exposed to risks significant to the organisation are an element of building a safe, transparent and businessefficient working environment. Such activities allow these people to avoid dangerous situations and react appropriately in the event of their occurrence, thus positively influencing the performance of the company and PGE Group.

As part of the implementation, the Internal Supervision Department has identified groups of PGE SA employees particularly exposed to the risk of corruption.

In the Compliance Assessment, most companies of PGE Group declare that they have also identified groups particularly exposed to the risk of corruption, mainly

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including persons from the areas for which extended anticorruption training was dedicated in the previous version of the anti-corruption regulations and/or the areas specified in the Procedure, i.e. primarily in the following areas: purchasing, trade, supply of raw production materials, retail sales, investor relations, communication, administration, human resources management, accounting and bookkeeping, as well as persons from other areas, maintaining business relations with business partners as part of their tasks. Most companies in the Compliance Assessment also declare that measures have been taken to inform these persons that they belong to a group with a higher risk of corruption.



## Application of rules for giving and receiving business gifts

The implementation of business gift rules serves the purpose of transparency of decision-making processes in relations with business partners, as well as reducing the risks of irregularities and/or abuses within these relations, in particular the risks of actions contrary to the provisions of generally applicable laws. This action also follows the guidelines of the "Recommended Standards for a Compliance Management System for Anti-Corruption and Whistleblower Protection in Companies Listed on Markets Organised by the Warsaw Stock Exchange SA, 2018." It is recommended that the company develops and applies an internal policy or regulation that sets out the general standards and rules for the provision and acceptance of occasional gifts (including invitations), including those of a marketing nature. It is also recommended that the company designates in the Anti-Corruption Code rules for the creation of a detailed register of all gifts, including invitations, given or received by company employees.

In December 2020, an amendment to the rules for giving and receiving gifts was implemented in PGE Group, under which the following changes were introduced:

- it was established that gifts received are recorded only when their value exceeds PLN 200 gross, i.e. when they are one of the types of conditionally permissible gifts. The rules for keeping records of gifts given remained unchanged,
- the responsibility of gift recipients is clarified,
- records of gifts received are kept by the company's compliance department or another designated organisational unit, ensuring that the information is accessible to Compliance on an on-going basis. records of gifts given may be kept by another designated organisational unit within the company, also with access for Compliance,
- a prohibition is introduced on giving gifts to persons exercising public functions in situations that could give the impression of a corrupt transfer of a financial advantage,
- between the companies of PGE Group, only the exchange of gifts of symbolic value and participation in traditional, jubilee or industry celebrations, such as "Barbórka", and during important holidays is permitted, subject to gifts presented at such events.
- The amended rules on gifts have been implemented in all companies. Companies report gifts received and given to the Compliance function on a quarterly basis, indicating the information or lack of gifts to be recorded in the period.

Everything we do in the field of anti-corruption is not just about adopting rules but about actually implementing them through specific organisational solutions. This is the result of a shared effort by the entire organisation supported by Compliance. Constantly raising employee awareness and building an organisational culture

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based on integrity are an important element at every stage of this process.

Andrzej Lesiak Director of the Compliance Department, PGE Polska Grupa Energetyczna S.A.

# Improving the process of avoiding conflicts of interest

GRI: 102–25

The prevention of conflicts of interest serves to ensure that decisions in PGE Group companies are made on the basis of merit criteria, in a transparent manner and in accordance with the best interests of PGE Group.

# Regulating the approach to conflicts of interest is required under:

- guidelines of the "Recommended standards for a compliance management system concerning anticorruption and protection of whistleblowers in companies listed on the markets organised by the Warsaw Stock Exchange.",
- "Best Practices of Companies Listed on the WSE 2021",
- additionally, to the extent relevant to PGE SA, the "CBA Anti-Corruption Guidelines for Public Administration" apply.



# The avoidance of conflicts of interest in PGE Group results from the following internal regulations:

- PGE Group's Code of Ethics of the principle "We do not tolerate corruption and dishonest behaviour",
- PGE Group's Anti-Corruption Policy,
- General Procedure Counteracting Corruption at PGE Group,
- work regulations applicable to some of the employers operating within PGE Group (e.g. PGE SA).

The requirement to implement and apply principles of avoidance of conflict of interest applies to all PGE Group companies covered by the Compliance system. The obligation to avoid conflicts of interest is implemented in PGE Group through:

- the submission of declarations of interest (in accordance with the applicable model) by employees and other persons (except when another formal solution of identical or broader scope is applied (e.g. a provision in the contract),
- in the case of new employees, the statement is forwarded to the Human Capital Management Department for signature.
   Signature of the declaration is expected within the first 3 months of employment. quarterly training sessions are held for staff where the issue of conflict of interest is discussed,
- placing the statement in the employee's personnel file, next to the contract, and in companies using SAP HCM, also marking in a dedicated field in SAP HCM, in order to better monitor the status of the statements made,
- the use of additional contractual clauses regarding the avoidance of conflicts of interest in contracts for consultancy and legal services.

In order to implement a uniform standard of conduct in Group companies, guidelines for prevention of conflict of interest were developed for implementation in the companies. The guidelines include, among others, the recommendation to implement solutions concerning the avoidance of a conflict of interest in the situation of a change of employer within PGE Group, changes in employees' work and pay conditions, and in civil law contracts, with particular consideration given to contracts for services which are particularly exposed to the risk of a conflict of interest.

To promote awareness of the issue of conflicts of interest, as well as an increasing understanding of the purpose and approach to avoiding it, the following activities were carried out in 2021:

- internal communication to employees (publications in: company magazine, PGE Group newsletter, Lunch and Learn workshops),
- keeping up-to-date records of enquiries, replies and actions taken,
- on-going support to companies from the Compliance Department of PGE SA with regard to queries and doubts received.

### Individual communication activities in companies. Task completed in 2021

Continued the process of collecting declarations of interest, implemented reporting in this regard

Developed and implemented guidelines and improvement measures regarding behaviour in the area of avoiding and managing a conflict of interest for PGE Group companies

Revised and clarified the rules on avoidance of conflict of interest in the General Procedure – Anti-corruption and revised the content of declaration of absence of conflict of interest.

Amended the form "Application for change of conditions of employment" by adding a provision confirming that the employee's declaration of no conflict of interest is up to date, in order to ensure that in the event of a change of position and/or organisational unit, the declaration of no conflict of interest previously submitted to the employee's personal file remains valid. This reduces the risk that a conflict of interest could arise after a change in the terms and conditions of employment and that the obligation to notify the employee of such a situation would not be fulfilled

Applied additional conflict of interest clauses to consultancy and legal services contracts

Consideration of provisions in civil law contracts

## Information security management

PGE Group takes a responsible and comprehensive approach to the security and protection of personal data. PGE Polska Grupa Energetyczna SA as a corporate centre provides:

- functioning of a coherent organisation of the personal data protection area in PGE Group,
- continuous development of the data protection standard,
- minimising the risk of data protection violations while maintaining the required quality standards and the interests of PGE Group,
- compliance with personal data protection regulations, including first of all separateness and independence of particular companies in PGE Group as personal data controllers.

PGE SA took steps towards an effective and standardised organisation of the data protection area already in 2017 by establishing a program aimed at implementing new EU regulations and developing principles for their operationalisation in PGE Group companies. All companies participated in the program as independent personal data controllers. As part of the work, the legal and organisational requirements for effective organisation of the data protection area were collected, taking into account the diversity of individual entities in the Group, the characteristics of individual business segments and the security measures applied in data protection. In effect, all companies received model data protection documentation in order to adapt it to the business and organisational conditions of a given company and implement it for use. As part of the program, a number of trainings and workshops were organised, and tools were developed to facilitate the management of the personal data protection area and to meet the accountability principle expressed in GDPR.



The data protection management strategy adopted in 2017 is still in place. The main objectives in managing data protection in PGE Group are as follows:

- ensuring the robustness of personal data protection through identification of strategic areas for personal data protection management in PGE Group companies and their proper management,
- taking measures to optimise the protection of personal data,
- organising the work of companies in carrying out their duties as controllers or processors,
- standardisation of internal regulations in the area of personal data protection in PGE Group, taking into account the specificity of operation of individual companies and guaranteeing transparency of the data protection process,
- raising awareness in the area of personal data at PGE Group level using internal communication tools (IPK, newsletters, legal alerts, joint training actions at PGE Group level),
- close cooperation between Personal Data Protection
   Officers (DPO) in individual companies in the form of PGE
   Group DPO Forum.



# Mechanisms for obtaining advice on ethical issues

GRI: 102–17

The structure of PGE Group's compliance management system includes Compliance coordinators at PGE SA and PGE Group companies. One of their roles is to consult ethical concerns related to compliance with internal regulations such as Code of Ethics, Code of Procedure for PGE Group Companies' Business Partners, anti-corruption regulations.

Employees and other stakeholders have the right and duty to report alleged incidents of non-compliance, including suspected or occurring irregularities. Everybody can be a whistleblower, in particular an employee, consultant, contractor, subcontractor or supplier. This is a person who reports irregularities, information on suspicion or occurrence of a non-compliance incident, the consequences of which may be detrimental to PGE Group companies. Report may relate to criminal and corrupt activities, violations of employee rights or conflicts of interest.

# Incidents may be reported in several ways, including a notification sent to:

- the immediate superior,
- the relevant compliance unit,
- the email address: uczciwybiznespge@gkpge.pl,
- using the hotline at + (48) 22 340 12 02,
- and by post to the Director of the Compliance Department at the following address: ul. Mysia 2, 00–496 Warsaw, with an envelope marked as "for the attention of Compliance Officer", including anonymously,

- and through a staff notification form in the "Compliance" section of the internal Intranet site.
- in special cases to the Supervisory Board of PGE SA by sending an email to: rada\_nadzorcza\_PGESA@gkpge.pl

Individuals who report non-compliance are granted the whistleblower status and are protected. A whistleblower may not face retaliation from employees, other persons or the employer for reporting a non-compliance event.

The organisational units, managing the documentation concerning reported persons, containing personal data collected in the framework of non-compliance incident reports, process such documentation with particular care, in a way that complies with the provisions on personal data protection and relevant internal regulations, including guaranteeing personal data security and only authorised access to them.

The register of cases is maintained internally in the Compliance Department. In 2021, approximately 37% of reports on suspected irregularities at PGE Group companies concerned the area of human rights, broadly defined. These reports concerned, for example, the form of communication between employees or between employees and their superiors, team atmosphere, work culture, conflicts in teams. Some of the reports may have resulted from the situation related to the pandemic and its impact on mutual relations at work. Sustainable investments ES

# Human rights

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PGE Group's Code of Ethics and the Code of Conduct for Business Partners of PGE Group companies refer to issues related to human rights, including child labour. Risks related to compliance with human rights, such as discrimination in employment, mobbing and harassment, employment of children, "black market" employment, employment in dangerous conditions, are eliminated by using a permanent employment contract as the basic form of employment, ensuring the highest standards of organising a safe working environment, objective and non-discriminatory criteria of hiring and promoting employees. Respect for diversity is understood in terms of race, gender, sexual orientation, age, culture, marital status, as well as religious and political beliefs, freedom of membership in social and professional organisations. PGE also fulfils all obligations related to the protection of health and life in the workplace.

The same standards of observing human rights are expected of business partners of PGE Group companies; therefore, contracts with business partners include ethical clauses regulating this issue, and business partners declare that they have familiarised themselves with the principles described in the Code of Conduct for Business Partners of PGE Group Companies.

The Code of Conduct for Business Partners prohibits partners from using child labour in any form. Where minors are legally employed, they may only perform light work that does not endanger their life, health or development and does not impede the fulfilment of compulsory schooling. The content of the Code of Conduct for Business Partners, updated in 2021, additionally strengthened the provisions on the prohibition of forced labour by business partners of PGE Group companies and their subcontractors.

# **Compliance training**

Compliance training is a continuous and important part of the compliance process. The training ensures that employees and other persons are properly informed about applicable regulations and practical examples of their application. Training sessions are conducted by designated employees on the basis of materials consistent for PGE Group, including hands-on examples. In spite the pandemic situation, training sessions are continued in formulas which take into account the current restrictions. Training sessions are documented.

# In 2021, compliance training at PGE Group included: Adaptive training

This training is mandatory for all new employees in companies where the compliance management system is implemented. The scope of the training covers basic compliance issues necessary in the first days of starting work or cooperation with a PGE Group company. It is conducted once for each person.



## Training on PGE Group's Code of Ethics

This training is mandatory for all new employees in companies where the compliance management system is implemented. The training takes place within 3 months of commencing work or cooperation with a PGE Group company. As a rule, it is conducted in-class (i.e. directly), in the form of interactive workshops (during the pandemic with the use of available means of communication, i.e. remotely). E-learning courses are also used. The validity of the training is 3 years. After this period, it is repeated as refresher training. After the first training session, participants submit a declaration confirming that they have read and understand the content provided and that they undertake to observe it. The training program on the Code of Ethics includes, inter alia, a discussion of the application of the values and principles adopted by PGE Group and the observance of human rights, attitudes and behaviours expected of everyone working for PGE Group. The effect of their application is visible in the process of achieving the Group's established strategic goals.

## Training on anti-corruption regulations at PGE Group

Training on the anti-corruption regulations in place at PGE Group, just as training on PGE Group's Code of Ethics, is mandatory for all new hires in companies where the compliance management system is implemented. This training is also conducted within 3 months of commencing work or cooperation with a PGE Group company. The validity of this training is 3 years, after which it is repeated as refresher training. After the first training session, the participants submit a declaration confirming that they have familiarised themselves with the contents provided and undertake to observe them.

The training program comprehensively covers anti-corruption issues, especially: its legal definition, forms of corruption including: bribery or conflict of interest, as well as detailed anti-corruption rules in force at PGE Group. The training also encompasses examples of practical application of these principles in everyday work. In addition, depending on the needs, knowledge on anticorruption may be supplemented with dedicated, in-depth anti-corruption training, taking into account the specifics of the area and the scope of risks and responsibilities in the field of anti-corruption, specific to individual positions and/or areas. In 2021, as part of such dedicated training, a training course was held: "Problems in implementing IT projects, including public procurement," the aim of which was to build a culture of security in procurement procedures. The training was conducted by representatives of the Central Anti-Corruption Bureau. The course was attended by employees from the area of purchases and IT from the PGE Group.



# Implementation of the Compliance program in 2021

### GRI: 103 (419)

- The main tasks approved in the 2021 Compliance Program for PGE Group companies included:
- Approving and implementing amendments to the documents on counteracting corruption in at PGE Group (i.e. Anti-Corruption Policy and General Procedure for Counteracting Corruption);
- Conducting a series of refresher training sessions on the Code of Ethics and anti-corruption;
- Carrying out educational activities on avoiding and managing conflicts of interest (guidelines, articles, L&L);
- Cooperating in the preparation of a legal guide with the Department of Law and Corporate Management (on a monthly basis);
- Preparing for the entry into force of Directive (EU) 2019/1937 of the European Parliament and of the Council on the protection of persons who report breaches of Union law (Whistleblower Protection Directive);
- Implementing an AML Procedure for PGE Group and conducting monitoring at PGE Synergia sp. z o. o. and PGE Energia Ciepła S.A. in this area;
- Developing a group regulation (Policy) against harassment and discrimination.

### Most of the above tasks have been completed in full.

PGE S.A. had 10 main tasks planned in the Compliance Program for 2021, comprising 65 sub-tasks. 92% of the planned tasks were completed in 2021, including all tasks from the following objectives:

- carrying out the Compliance Management process;
- Compliance Academy for training;
- organisation and resources of the compliance management system;
- practical implementation of the elements of the Code of Ethics into the functioning / implementation of business processes of PGE Group companies (operationalisation of the Code of Ethics);
- anti-fraud measures (other than corruption);
- countering corruption and conflicts of interest (training activities included in the Compliance Academy);
- Compliance monitoring.

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Business activity Education

# **Risk management**

GRI: 102–11, Own indicator (Implementation of the strategy), 103 (419), 103 (305), 103 (Own indicator: Climate awareness), 103 (303), 102–15, 201–2, 103 (307), 103 (306)

# Skilful identification of risks and implementation of preventive mechanisms are the foundations of an organisation's longevity. Responsible development of PGE requires a multi-dimensional and multi-level risk management system.

PGE Group companies, like other entities from the energy sector, are exposed to risks and threats resulting from the specific nature of their operations and presence in specific market and regulatory & legal surroundings.

PGE S.A., as the Corporate Centre managing the Group, creates and implements integrated risk management architecture at PGE Group. In particular, it shapes PGE Group's risk management policies, standards and practices, designs and develops internal IT tools to support these processes, specifies global risk appetite and adequate limits as well as monitors their levels.

In PGE Group risk management process is pursued based on the GRC (Governance – Risk – Compliance) model. It allows adaptation and integration of each of the operational areas at all levels of management.



**Governance** – having established a Risk Committee at top executive level, which directly reports to the Management Board, supervision over the effectiveness of risk management processes is ensured across the entire Group.

**Risk** – defining risk management functions within the Risk and Insurance Department makes it possible to independently analyse specific risks (ERM – Enterprise Risk Management, market, financial) and their impact on PGE Group.

**Compliance** – establishing a compliance function guarantees that PGE Group operates in line with legal conditions and ensures the observance of internal norms, strengthens monitoring of the regulatory environment, whilst increasing successful identification of potential gaps.

Risk management also takes into account the three defence lines model, in which the risk counteracting process features the participation of risk owners at the operating level, Department of Risk and Insurance, Risk Committee and Department of Audit through independent periodical evaluations of key risk management system elements.

The PGE Capital Group has consequently developed a comprehensive risk management system. The Group measures and assesses risks in the key companies of the Group. Mechanism allowing identification of areas exposed to risk and risk level measurement methods are constantly verified and developed. Thanks to that, the significant risks concerning various areas of operations are identified and kept within the assumed limits by reducing negative effects of such risks and by taking preventive or corrective measures. All identified and assessed risks relating to the Group's current activities are recorded in the risk register (risk books) maintained by the Risk and Insurance Department in PGE S.A. Risk books reflect changes in the value of particular risk parameters along with information on implemented mitigating activities (reducing the probability of occurrence and minimising negative consequences of a risk).





year 2022.

report as period events. The assessment of the described risks

takes into account the impact of the COVID-19 pandemic that

The main risks and threats of PGE S.A. and the PGE Group are

presented below along with their assessment and outlook for

# **Risk factors and mitigation measures**

The table below presents the most significant risks identified in the PGE Capital Group together with their assessment in 2022 EOY perspective. A risk level indicates a risk's potential financial impact on the Group's results, and a risk prospect (trend) indicates the probable direction of risk development. Potential events determining risk assessments in the previous report are now partially described in other sections of this

### **Risk level**



Risk does not pose a threat and may be tolerated

Risk which needs preparation of the proper reaction based on analysis of costs and benefits medium

high

Intolerable risk, which needs immediate and active reaction, leading simultaneously to limitation of possible consequences and of probability of occurrence thereof



is not analysed as a separate risk.

## Risks

### Market and product risks

Related to prices and volumes of offered products and services Gross margin on electricity from the production assets of the PGE Capital Group and on trading in related products – its amount results from the uncertainty as to the future levels and volatility of market prices (electricity prices and the prices of key energy products – CO<sub>2</sub>, fuels, including in particular hard coal, gas and the prices of certificates).

### Electricity sales volumes

 this risk derives from uncertainty related to the development of macroeconomic indicators affecting the demand for electricity and energy goods, including in the context of the impact of the COVID-19 epidemic and the remedial actions taken. Risk level and risk outlook in the next period



# Mitigating actions and main tools used for the management of the risk

### Most important actions:

- Optimization of generation assets definition of production scenarios for updated market parameters of electricity, CO<sub>2</sub> and fuels.
- Margin-based approach to market risk limits rather than volume-based.
- Using consistent guidance in respect of process organisation in the context of commercial strategy and mid-term planning (strategy for hedging key exposures in the area of electricity and related product trading that correspond to the adopted risk appetite in the mid-term).
- Establishing position hedging levels with consideration given to the results of analysing pricing risk in respect of electricity and related products, VaR-based. Target hedging levels are specified taking into consideration the Group's financial standing, including in particular its strategic objectives.
- Monitoring exposures for individual areas in relation to the set limits and hedging strategies defined by the Risk Committee or the Management Board of PGE S.A. through operational reports prepared by the Department of Risk and Insurance
- Research, monitoring and analysing the electricity markets and sector trends in order to optimally use generation and selling capacities.



Risks		Risk level and risk outlook in the next period	Mitigating actions and main tools used for the management of the risk
	<b>Tariffs (regulated</b> <b>prices)</b> – resulting from the requirement to approve rates for distribution services and electricity and heat prices for particular groups of entities.	<ul> <li>Using the administrative appeal path provided for in the Energy Law and the Code of Civil Procedure.</li> <li>Acquiring new customers – diversification of channels to reach final off-takers and diversification of target groups by maintaining an extensive product portfolio and adapting offering to market.</li> <li>Current clients retention – a diversified portfolio</li> </ul>	
The Capacity Market – resulting from uncertainties related to withholding of payments from the Capacity Market and threats related to 1 compliance with the capacity obligations of Capacity Market Units.		<ul> <li>of customer loyalty schemes and special offers dedicated to former clients who moved over to the competitors.</li> <li>Care for a high level of customer service by developing employees' competences and building relations with business and retail clients.</li> <li>Use of tools to supporting customer relations processes allows the Group better sales planning and organisation of sales.</li> <li>Ensuring the expected level of operational readiness of the individual capacity market units.</li> </ul>	
<b>Property</b> <b>risks</b> Related to development and maintenance of the assets	<b>Failures and damage to</b> <b>property</b> – connected with the operation and degradation over time of energy equipment and facilities and protection of energy equipment and facilities against destructive factors ( including fire, effects of weather phenomena, intentional damage).	2	<ul> <li>Most important actions:</li> <li>Diversification of the current structure of the production sources, Introducing a technology reducing the negative impact of atmospheric factors.</li> <li>Active pursuing of a strategy for building up and modernization of the production capacities.</li> <li>Performing maintenance repairs in line with the highest sector standards.</li> <li>Insurance of the most important production assets in the event of breakdown and property damage. Assets are insured based on an analysis of insurance costs, capabilities of insurance markets for specified risks or for particular types of assets, costs related to asset replacement and potential lost revenue.</li> <li>The reliability of the power supply to the end users has been systematically improved through modernization of the distribution grid.</li> <li>Continuous monitoring of environmental laws and regulations regarding environmental protection, and the energy policy.</li> </ul>
	<b>Investment and development</b> – connected with strategic plans for expanding the generation, distribution and sales potential as well as on-going investments.		

<sup>1</sup> The comments concern only those risks that saw a change of level or trend in comparison to the previous presentation. The change in the level of risk results from a lower threat stemming from the complaint against the Polish capacity market. A decision by the CJEU (ruling issued on October 6, 2021 in the case of Tempus Energy Germany and T Energy Sweden, rejecting the charges and upholding the EC's decision approving the Polish capacity market) legitimised the functioning of the capacity market.

<sup>2</sup> The change in risk outlook results from, inter alia, growing personnel and material costs and the availability of these resources for repairs of machinery and equipment damaged due to breakdowns and failures.

Risks		Risk level and risk outlook in the next period	Mitigating actions and main tools used for the management of the risk
Operational risksElectricity and heat production - connected with production planning and negative impact of the factors that determine production capacities.IIIIProcessesFuel management - 	Electricity and heat production – connected with production planning and negative impact of the factors that determine production capacities.		<ul> <li>Most important actions:</li> <li>Optimisation of equipment lifecycles and the availability of key assets.</li> <li>Timely inspections, repairs and modernisation of the existing assets.</li> <li>Optimisation of costs inter alia through monitoring of fuel prices and reserves and securing supply through long-term contracts with suppliers and through price fixing formulas.</li> <li>Monitoring of legal changes and changes in technical standards in the field of by-products.</li> <li>Investments in improving the efficiency of the combustion process.</li> <li>Constant monitoring of service availability.</li> </ul>
	Fuel management – connected with uncertainty regarding the costs, quality, timeliness and volumes of fuel supply (mainly coal) and production raw material as well as the effectiveness of inventory management processes.	4 5	
	<ul> <li>Creating Business Continuity Plans for critical systems, developing and testing emergency procedures.</li> <li>Ongoing monitoring of changes in legal regulations.</li> </ul>		
	1	<ul> <li>and terrorist financing.</li> <li>Requirement to read Best Procurement Practices and the Code of Conduct for Business Partners of PGE Group companies.</li> <li>The approval path and internal regulations concerning the purchasing process.</li> </ul>	
	Procurement – related to the ineffectiveness and uncorrectness of the purchasing process.	$\square \bigcirc$	<ul> <li>Control of the work environment.</li> <li>Training of employees in the field of occupational health and safety.</li> <li>Informing about threats, restrictions and rules related to the COVID-19 (dedicated tab on the Intranet).</li> <li>Conducting an intensive and effective dialogue in order to avoid escalation of potential disputes with the social partners and to work out the most favourable solutions with regard to employment and employmen costs within PGE Capital Group connected therewith.</li> <li>PGE Group's active participation in internship programmes and cooperation with educational institutions in order to secure a pipeline of qualified personnel.</li> <li>Assessment and training of personnel in order to make optimal use of it within the Group's structures.</li> </ul>
	<b>Employee safety</b> – related to lack of ensuring safe working conditions.		
	Human Resources – pertaining to difficulties in provision of personnel with the relevant experience, competences and ability to perform specific tasks.		
	Social dialogue – related to the failure to reach an agreement between the Group's management and the social partners, which could lead to strikes / collective disputes.	1	

<sup>3</sup> The change in risk outlook is due to, inter alia, the market situation in production fuels. Threats result from limited supplies and rising costs of purchase.

<sup>4</sup> The change in risk level derives from risks related to the ability to maintain inventories of fuel and raw materials at an appropriate level, the impact of this on production capacity and potential penalties that may be imposed on the company by the President of the Energy Regulatory Office for this reason.

<sup>5</sup> Aside from the aforementioned market situation (limited supply of fuels and production raw materials), risk outlook is influenced by an adverse situation in the area of transport services and unfavourable delivery terms being imposed.

<sup>6</sup> Change in outlook to stable resulting from continued attention to high standards of workplace safety, including compliance with applicable regulations.
Risks		Risk level and risk outlook in the next period	Mitigating actions and main tools used for the management of the risk
Regulatory and legal risks Related to compliance with external and internal legal provisions	Legal changes in support systems – connected with uncertainty as to the future shape of the support system for production of energy	$\square \bigcirc$	<ul> <li>Most important actions:</li> <li>Monitoring of the changes being introduced or proposed provides that our operations in key business segments are carried in compliance with the law and that PGE Capital Group has solutions which the proposed provides the table set of the second is</li> </ul>
	Environmental protection – resulting from industry regulations specifying which "environmental" requirements energy installations should meet and what are the principles		<ul> <li>Which take into account potential changes in the legal environment.</li> <li>Social dialogue.</li> <li>Exercising operational supervision of planned and ongoing investment and modernisation measures with respect to their compliance with environmental requirements.</li> </ul>
	for using the natural environment. Climate – commitments on the EU and national level and under strategic objectives	7	<ul> <li>Improvement of activities aimed at protecting and improving the state of the environment by implementing technological and organisational solutions ensuring efficient and effective management in this area.</li> <li>Reduction in the emission intensity of PGE Group's generating assets, development of low – and zero-</li> </ul>
	arising from the EU's climate and energy policy. Concessions – resulting from the statutory		<ul> <li>Adaptation of internal regulations and practices to make sure that the activities are in compliance with the power sector regulations and binding law.</li> </ul>
	requirement to hold concessions with regard to conducted operations (Risk level and outlook based on KWB Turów's current		<ul> <li>Monitoring and analysing PGE Group's legal environment at an international level, together with risk assessment.</li> <li>Assessing the impact on PGE Group of proposed regulatory changes at an international level.</li> </ul>
	Taxes – related to uncertainty surrounding		<ul> <li>Issuing opinions and influencing changes with regard to the legal environment at an international level in a strategic dimension.</li> <li>Managing cooperation and contacts with</li> </ul>
	regulations and their interpretation.		<ul> <li>stakeholders as regards international regulations, including through the activities of PGE S.A.'s office in Brussels.</li> <li>Managing PGE Group companies' memberships in industry organisations, including as part of Eurelectric (via the Polish Electricity Association), COGEN Europe.</li> </ul>
			<ul> <li>Eurogas, WindEurope and others, and cooperating with Europal trade organisations.</li> <li>Effective raising of external financing and public aid for implementing low – and zero-carbon investments by PGE Group.</li> </ul>
			<ul> <li>Effective raising of external financing and state aid for the development of planned low – and zero- carbon investments by PGE Group.</li> </ul>



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Risks		Risk level and risk outlook in the next period	Mitigating actions and main tools used for the management of the risk
Financial risks Related to finance management	<b>Credit risk</b> – connected with the counterparty default, partial and/or late payment of receivables or a different type of breach of contractual conditions (for example failure to deliver/collect goods or failure to pay for any associated damages or contractual penalties).		<ul> <li>Most important actions:</li> <li>Prior to executing a transaction, a counterparty assessment is carried out and forms a base for applying credit limits, that are regularly updated and monitored. Exposures that exceed established limits are hedged in accordance with the Group's credit risk management policy. The level of utilisation of limits is monitored on a regular basis, payment of receivables is monitored on an ongoing basis and early recovery procedures are in place.</li> </ul>
	Liquidity risk – connected with the possibility of losing the ability to meet current liabilities and obtaining financing sources for	8	<ul> <li>Applying a central financing model, which assumes – as a rule – that external capital is raised by PGE S.A. PGE Group subsidiaries use a variety of intra-group financing sources and liquidity risk is monitored using periodic planning for operating, investing and financing activities.</li> </ul>
	Interest rate risk – resulting from the negative impact of changes in market interest rates on PGE Group's cash flows.	9	<ul> <li>As regards currency risk and interest rate risk, PGE Group has implemented internal management procedures. PGE Group companies execute derivative transactions involving interest rate – and/or currency- based instruments (IRS, CCIRS, FX Forward) only in order to hedge identified risk exposures. Regulations in force at the PGE Group do not allow, with regard</li> </ul>
	Foreign exchange risk – resulting from negative impact of exchange rate movements on PGE Group's cash flows denominated in currencies other than domestic currency.		to derivative transactions based on interest rates and currencies, to enter into speculative transactions, i.e. transactions which would be aimed at generating additional gains resulting from changes in the level of interest rates and changes in exchange rates, while exposing the Group to the risk of incurring a potential loss on this account.

<sup>7</sup> The change in risk outlook results from, inter alia, credit exposure, rising costs of electricity and heat purchases, posing a threat to timely payments by counterparties, as well as an elevated risk of insolvency.

<sup>8</sup> The change in risk outlook derives from rising costs of electricity and heat generation, which reduce margins in the District Heating segment and Conventional Generation segments, which in turn impacts financial liquidity of the company.

<sup>9</sup> The change in risk outlook is correlated with rising interest rates.

<sup>10</sup> The change in risk outlook is due to a higher exposure to changes in currency exchange rates caused by the geopolitical situation and swings in international markets, which directly impact the cost of CO<sub>2</sub> emission allowances, among other things.

### Medium-term outlook – investment risks

The description of risks, threats and limitations in the medium term concerns the most important investment initiatives implemented in the PGE Group, which have a significant impact on the direction of the Group's development. The main obstacles to their implementation and the potential effects of delays are identified. The time horizon of undertakings varies, depending on the specific task. It ranges from approx. 2 years for PV projects to approx. 5 years for offshore wind farms.

## Long-term outlook

The purpose of the assessment is determined by the challenges and threats that will arise for the PGE Group in the next decade. Each of the long-term risks is assessed in terms of its impact on the achievement of business goals, the company's image and business continuity. The presented result is the dominant (value most often appearing in the results) of these three aspects.

#### Geopolitics

Risk stemming from changes in geopolitical factors and trends (e.g. EU politics, diverging interests, war in Ukraine), causing limited access to raw material supply for PGE Group.

#### Macroeconomics

Risk resulting from changes in economic situation, causing swings in macroeconomic indicators and commodity and fuels prices that have impact on PGE Group's activities (economic changes that may affect the deterioration of the financial ratios of PGE Group companies).

#### Climate change<sup>1</sup>

Risk deriving from physical hazards related to the occurrence of extreme weather events and an increase in their frequency, as a result of which the PGE Group's assets may be damaged, as well as climate changes affecting the demand for electricity and heat.

#### Energy generation sources

Risk associated with failure to develop generation resources from new energy sources at the expected volume (energy and heat).

#### Access to capital

Risk associated with failure by PGE Group to raise capital for planned investments.

Risk associated with changes in the legal system and regulatory uncertainty, including unexpected changes such as the future shape of support systems, regulatory burdens resulting from environmental requirements having an impact on PGE Group.

#### **Technological revolution**

Risk arising from technological development, which has a considerable impact on the direction of changes on the energy market, including as to the ways of generating energy.

#### Social preferences

Risks resulting from an expected further evolution of social preferences towards care for the environment, sustainability and social responsibility, in terms of mass customer expectations, assessment of employer attractiveness and public opinion, which may affect PGE Group.

#### Security

Risk associated with a negative impact of the geopolitical situation on both physical security and cybersecurity to PGE Group's business, including intentional disruption of the correct functioning of information processing and exchange space created by IT systems in place at PGE Group (interference in any element of PGE Group's infrastructure resulting in disruption of work of ICT (Information and Communication Technologies) and OT (Operational Technology) infrastructure and as a consequence – disruption of work of a process supported by this infrastructure).

#### Competition

Risk resulting from structural changes in the energy sector, affecting the competitive environment of PGE Group (e.g. building competitive advantage through distributed sources, development of the prosumer market, development of competitors' product offerings and their structural strengthening on the energy market).

<sup>1</sup> It concerns only physical phenomena, it does not take into account the EU climate policy. The context of climate risks is described in the next section

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Contrary to the risks of current operations, The assessment of long-term risks was performed in scenario taking into account the spin-off of coal assets from the PGE Capital Group, assuming the foundation of NABE. The location on the map based on the assessment (significance level) shows the impact of a given risk for the PGE Capital Group in three different aspects, successively affecting the achievement of business goals, the company's image and business continuity.

The map of long-term risks was prepared based on the elements dominating in the responses, according to the subjective perception of the development of these risks in the assessments of the top management of the PGE Capital Group (Management Board Members and Division Directors).

#### **Climate risks**

#### GRI: 201-2, 103 (307), 103 (306)

At PGE Group, climate risk is analysed both in the context of the impact of climate change on business as well as the impact of business on climate change. Impact on climate is managed and minimised by identifying and analysing climaterelated risks and continuously improving pre-environmental solutions and control tools, while ensuring financial performance for PGE Group. The solutions developed by PGE Group are aimed at its development and sustainable transition in line with climate requirements and with concern for all stakeholders.

Climate risk issues are subject to rigours and guidelines originating from the corporate risk management process. The President of the Management Board of PGE Polska Grupa Energetyczna, Wojciech Dąbrowski, is responsible for oversight of issues related to the reduction of PGE Group's impact on climate. The Risk Committee is responsible for supervising the risk management process at PGE Group with regard to financial and non-financial risks (including climate risk). Having a Risk Committee at the highest management level that reports directly to the Management Board ensures supervision over the effectiveness of risk management processes across the entire Group. Defining this function as part of the enterprise risk management framework allows for an independent assessment of individual risks, their impact on PGE Group and the mitigation and control of material risks using dedicated instruments.

The approach to the issue of climate risks is inspired by the recommendations of the Task Force on Climate-related

Financial Disclosures (TCFD), however, the adopted method of inventory and risk assessment, and the assumptions adopted, are an internal PGE concept.

PGE Group defines climate risk across five areas:

- raising support funds and investment incentives in national regulations – related to the growing impact of climate requirements relevant to the granting of aid funds and investment incentives in national regulations,
- **international regulations** related to EU legislation as regards energy and climate policy, in particular the Fit for 55 package,
- CO<sub>2</sub> emissions related to the rising costs of emission allowances, which could adversely affect the profitability of generating assets or bring these assets to a halt,
- **operations** related to extreme weather events or changes in climate conditions, which could negatively influence PGE Group's assets and operating activities,
- **investments** concerning a failure by PGE Group to fulfill investment commitments aimed at the green transition, at the EU and domestic level and for own strategic purposes, which could adversely influence PGE Group's operational capacity, financial standing and reputation.

Each of these areas of climate risk is assessed in:

- the short term (year 2022),
- medium term (2022–2026) and
- long term (2022–2030).

For all terms, the climate risk was assessed as high.

Risks arising from the possibility of non-compliance with environmental requirements at companies: PGE Energia Ciepła, PGE Górnictwo i Energetyka Konwencjonalna and PGE Energia Odnawialna, were assessed in 2021 as the most material across the Group and entered the stage of in-depth analysis.

#### Strategic opportunities

PGE focuses not only on the negative aspects of the risks analysed, rather treating them as challenges and taking advantage of the opportunities presented by the dynamically changing conditions in which PGE Group operates. Such an approach allows us to build and develop our position on the market. Effective implementation of solutions developed in the Group translates into more efficient management of the Group's resources across the entire value chain and enhances the quality of energy services provided. Thanks to dedicated investment support aimed at developing specific production sources (such as RES or co-generation), PGE can effectively change electricity or heat energy production technologies, in terms of investment expenses, and thus reduce the level of exposure to such factors as prices of emission allowances or fuel.

We consider energy transformation not only as a risk, but as a development opportunity for the organisation. The main identified opportunities are:

#### Offshore wind farm project

PGE Group will be a pioneer in the development and operation of offshore wind assets in Poland. The delivery of these investments will unlock stable revenues thanks to a dedicated support system and the build-up of the Group's generating potential. The development of offshore wind farms will contribute to a significant increase in the capacity generated from renewable energy sources in the Polish energy mix. This will accelerate Poland's energy transition towards climate neutrality and increase its independence from energy imports and the raw materials necessary for energy production. Energy generated by PGE's offshore wind farms will be sufficient to power around 4 million households annually. The investment will create new jobs at the following stages: development (development phase), construction and operation of the Baltica 2 and Baltica 3 farms. As part of communication with the local community, we support initiatives within the municipality where the connection



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point of the offshore wind farms to the National Power System is located (SE Choczewo). This Project will contribute to the economic development of the coastal areas, e.g. through the construction of an installation port to support the construction phase of Polish offshore projects and the development of a dedicated service and operation port for the maintenance of the Project during its operation phase. The local content indicator is expected to be maximised in the course of building up the supply chain for these offshore wind farms, which is aimed at involving Polish entities as much as possible in terms of participation in the supply and installation of offshore wind farm elements. The Baltica 2+3 Project is the first offshore wind project on the Polish market, being developed in parallel with other projects that received support in the form of a contract for difference under Phase I of the Offshore Wind Farm Support Act. The delivery of offshore wind farm projects will be the most important step towards achieving the strategic goal of zero-carbon by 2050 and 100% green energy for PGE customers.

#### Photovoltaic development program

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PGE Group is pursuing an ambitious photovoltaic development program, aspiring to deploy 1,200 MW of PV capacity by 2024 and >3.0 GW of new capacity by 2030. Development will take place on the basis of a support system and long-term contracts, which will make it possible to secure an expected rate of return and revenues from electricity sales over the long term. It will also enable the Group to develop and diversify its generating portfolio. Photovoltaics is one of the fastest growing segments of the energy industry in Poland. By the end of May 2022, the capacity of photovoltaic installations exceeded 10.2 GW, an increase of 100% in a single year. The assumptions of PGE Group's strategy are not just on paper, but are being actively implemented, inter alia, through the dynamic development of PV projects. Using the support mechanism, 19 projects with a total capacity of approx. 18 MW will be implemented, which won the 2021 auction for the sale of electricity in renewable energy installations up to 1 MW. The investments will be built in the Zachodniopomorskie, Wielkopolskie, Lubuskie, Łódzkie, Lubelskie and Mazowieckie voivodeships. In December 2021. PGE Energia Odnawialna received a permit for the construction of one of the largest PV farms in Poland with a total capacity of 100 MW. The project, consisting of two installations – PV Jeziórko 1 and PV Jeziórko 2 – will be put into service by the end of 2023 in the Grębów municipality in the Tarnobrzeg district of Podkarpacie. In June 2022, PGE

Energia Odnawialna signed agreements for the construction of four more photovoltaic farms. PV installations of five, six and eight megawatts will be built in the Mazowsze and Podlasie regions. The PV farms will be put into operation in the first quarter of 2023 on private land leased by the company in the Grajewski and Łosicki districts. In the first case, the PV Gutki 1 and PV Gutki 2 farms will each have six megawatts of power. PV Huszlew 1 and PV Huszlew 2 will have five and eight megawatts of power respectively. The total output of all of them could exceed 20 GWh, which is the amount consumed by an average of 8,000 households. To date, PGE Energia Odnawialna has secured approx. 3,000 hectares of land on which photovoltaic farms with a capacity of more than 2,000 MW can be built. In addition, in 2021 the company obtained planning permission for new projects with a total capacity of nearly 200 MW. This process will further accelerate in the coming years, allowing PGE to tender for 300–400 megawatts of solar PV each year.



#### Distribution grid development

The energy transition towards distributed sources, including prosumer sources, and dynamisation in the energy market requires additional investments in distribution grids, including smart infrastructure. Investments made under the tariff model should allow PGE to increase the share of regulated revenues, which is desirable given the need to raise capital for growth and build a financially stable organisation. In 2022, PGE conducted a series E share issue raising approx. PLN 3.2 billion. A portion of these funds will be earmarked for the "Distribution of the Future" project. The objectives of this project are:

## 1. Increasing the share of cable lines in PGE Group's MV grid (funds from share issue – PLN 0.61 billion)

The process of gradually increasing the share of underground cable lines in the structure of the MV network will allow

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the SAIDI indicator to be reduced, thus improving the quality of distributed energy. This will result in the reduction of operating costs and optimisation of operations (minimisation of lost benefits from undelivered energy, decrease in costs incurred for network operation, reduction of network loss costs)

## 2. Development of remote reading meters (funds from share issue – PLN 0.74 billion)

The program assumes faster implementation of remote reading meters than regulatory requirements. Accelerating the timetable allows benefits to be realised more quickly for both the company and customers. Benefits of remote reading metres development for PGE Group:

- The program provides for the replacement of end-user meters and the reconstruction of MV/LV substations in this area
- Reduction of OPEX
- Adopting a more ambitious implementation timetable will allow the level of meter replacement to be set in the long term
- Reinvestment bonus
- Providing a better standard of service will have a positive impact on customer perception

### 3. Increasing the efficiency of connection processes (new customers and new sources) (funds from share issue – PLN 0.26 billion)

Energy transition requires new connection capacities. The program envisages the modernisation of the grid to reduce congestion, increase connection capacities and speed up connection processes. With the funds raised from the share issue, it will be possible to build an additional 1,200 km of connections and 800 MW of additional connection capacity for RES sources by 2023. From the perspective of the customer and the dynamically growing number of micro-installations, this will mean an additional 18 000 connections and a reduction in the average time to connect a new customer to **<200** days in 2023 (compared to the previously expected 257 days).

Other opportunities include:

#### Development of offshore wind farms

1 GW of new capacity by 2030, including through acquisitions. A faster delivery of this target will be possible in particular if current regulations (the so-called 10H Act) are relaxed. In 2022, PGE increased its onshore wind portfolio with the acquisition of three wind farms with a capacity of over 84 MW.

Commercial Hybrid Electricity Storage System in Żarnowiec This project is intended to combine the existing 716 MW Żarnowiec pumped-storage plant with a battery electricity storage system of no less than 200 MW and a capacity of over 820 MWh. The resulting innovative hybrid installation with a power rating of at least 921 MW and a capacity of more than 4.6 GWh, equivalent to the capacity of the largest conventional units in Poland, will be able to provide a full range of regulatory system services and serve to restore the energy system. The electricity storage facility will avoid emissions of approx. 1 million tCO<sub>2</sub>e in absolute terms, but will also contribute to increasing the flexibility of the NPS and improving the energy security of the country, especially the northern region of Poland. It will also ensure the integration, optimisation and flexibility of the operation of ESP Żarnowiec. Development of the PRO EKO product line Expanding the product portfolio to include products that are

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aligned with low-carbon heating systems, PV sales, heat pump sales and activities to promote and support the development of these systems (PV insurance). This initiative is dictated by the changing market, the observation of European trends, the energy transition, the reorientation of customers towards eco products and by preparations for the RED II directive. The product portfolio and contract/product documentation have been adapted to changing regulations and the evolving needs of customers and business partners. For PGE Obrót customers, we are implementing offerings promoting low-emission heating systems (sale of heat pumps – "Heat pumps with PGE", sale of photovoltaics – "Photovoltaics with PGE"). Future solutions also include energy storage facilities and energy cooperatives.





## Dialogue with stakeholders

GRI: 102–40, 102–43, 102–44, 102–47, 102–13



As a large-scale organisation with an impact on its surroundings, PGE Group is a natural partner for dialogue with a wide array of stakeholders. PGE Group's key stakeholders are: central and local government, regulators and market supervisors, shareholders, investors, customers, employees, banks and financing institutions, insurers, suppliers and subcontractors, industry, pro-social and environmental organisations, the media, CSR/ESG analysts, academia, local communities and competitors.

#### Regulator and market oversight



Diagram PGE Group's key stakeholders. Materiality analysis carried out in 2022 by key management and members of working groups at PGE Group, working for the Sustainability and ESG Initiatives Committee.

Successful transition depends on good understanding of the transition by all PGE stakeholder groups and their active contribution to the change process. PGE makes every effort to ensure that the energy transition is fair and transparent and is carried out in accordance with agreements reached in the dialogue process.

### PGE's key stakeholders, relations with whom we manage in a comprehensive manner



#### Government administration

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Given the scale, scope and nature of our operations – we are heavily involved in cooperation with public authorities. PGE's importance to the Polish economy makes us a natural dialogue partner for a wide range of government institutions.

#### Shareholders and investors

PGE's investor relations team coordinates all the efforts necessary to initiate and foster good relations with our existing and potential shareholders and investors. This means comprehensive and timely communication with the market and the observance of the highest standards in reporting.

#### Regulators and market oversight

The Energy Regulatory Office (URE) is a central state administrative authority in Poland under the Energy Law and is responsible for regulating the energy sector as well as promoting competition. The President of the URE regulates the activities of energy companies seeking to balance the interests of energy companies and customers. The Group's activities are also subject to other regulators, such as the Office of Competition and Consumer Protection, the Office of Technical Inspection and the Financial Supervision Authority.

#### Banks/financing institutions

We remain in an open dialogue with financial institutions, taking care of their communication needs and providing all the necessary information. As a borrower, PGE is a trusted business partner, paying its financial obligations within the set deadlines.

#### Employees

It is critical for us to create safe working conditions and stable employment for our employees. We nurture their professional development by providing them with interesting professional challenges and opportunities to implement unique projects. We treat open and regular social dialogue as an integral part of our business.

#### Customers

We ensure high standards of cooperation with our customers by meeting their needs. PGE's diverse offering is tailored to the individual needs of end users. We reach out to customers through various forms of contact. In order to better understand our customers' needs, we regularly carry out satisfaction surveys. This helps us to continuously improve the quality of our services and build positive customer relationships.

#### Insurers

PGE S.A.'s Risk and Insurance Department is a direct business partner for current and future insurers. We seek the most favourable solutions with the aim of providing the best possible financial cover for potential risks. Dialogue enables us to tailor insurance products precisely to our needs.

#### Media

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This is one of our key channels of communication with stakeholders, one through which we communicate our plans, performance and achievements to the public. We place great emphasis on a careful and proactive approach to media relations, bearing in mind the importance of access to full and timely information about our company. Direction PGE 2050 Sustainable investments



#### Local government

The scale and scope of our activities requires direct and regular dialogue with local administration units. We build our relations on mutual respect and cooperation for the development of local communities.

#### CSR/ESG analysts

As leader of green change, we are open to dialogue with CSR/ ESG analysts – we communicate openly, respond to their needs and strive to incorporate sustainability rules into PGE Group's business operations on a continuous basis. The ratings we receive in individual assessments or ESG reports serve us to further develop our organisation responsibly and with future generations in mind.

#### **Energy industry organisations**

As a member of the Polish Electricity Committee (PKEE), we are part of EURELECTRIC, where we represent the interests of the European energy industry. As part of the Polish Committee of the World Energy Council, we play a role in shaping the policy of this organisation and guiding its activities. Through our presence in industry organisations, we implement important strategic partnerships. On our initiative, the Polish Association of Combined Heat and Power Plants (PTEZ) has produced a handbook for calculating carbon footprint, which will allow comparison of data within the sector in Poland.

#### **Environmental organisations**

We are engaged in the activities of numerous national and international environmental organisations, learning from them how to manage environmental protection, often also supporting their statutory activities. Our Group companies actively cooperate with pro-environmental associations and organisations at local level.

#### Suppliers and subcontractors

What we buy and from whom we buy is of significance to us. PGE Group's Procurement Policy as well as the Code of Conduct for Business Partners of PGE Group Companies emphasise the observance of high ethical, social and environmental standards by current and potential suppliers.

#### Local communities

PGE Group's investment processes are preceded by dialogue with the local community in order to provide full information regarding our operations and to learn about and meet public expectations. We spare no effort to be a good neighbour to the communities living in the vicinity of our assets – developing them according to their needs and looking after their well-being.

#### Scientific community

As transition leader, PGE is responsible for investing in new technologies and co-developing new sectors of the economy, such as offshore wind energy. Cooperation with scientific institutions, including those educating potential future employees, is exceptionally important to us.

#### Competitors

We engage in dialogue with our competitors within the framework of the industry organisations that we are part of. In our dialogue, we are guided by respect for the rules of fair competition, in line with PGE Group's Code.

#### **Pro-social organisations**

We actively engage in activities that have a positive impact on communities. We are a trusted partner.

### Forms of dialogue with PGE Group's stakeholders

#### GRI: 102-40, 102-43, 102-44, 102-47

In order to grow in a sustainable manner, it is important for us to study and take into account the needs of our stakeholders. We are committed to building relationships based on dialogue and partnership.

#### 1. Dialogue sessions

Information on what our key stakeholders expect from the Group during cyclical meetings. The last stakeholder panel was held online on June 13 and 14, 2022. Around 80 people shared their opinions on the company's activities, including:

- 50 people in the Polish-language session,
- almost 30 people in the English-language session, which was attended mainly by representatives of international institutions.

The dialogue sessions were conducted according to the AA 1000 corporate social responsibility standard, with the participation of independent external moderators from KPMG. The discussion among stakeholders, who were divided into smaller groups, was preceded by an anonymous survey.

The meetings were primarily intended to gather information on what the expectations of key stakeholders are towards our Group, including in the ESG (environmental, social and corporate governance) area, as well as collecting opinions on which of PGE Group's activities are most valuable and what activities should be additionally initiated. The dialogue sessions also resulted in a list of the most important topics and issues identified by stakeholders that should be addressed in this 2021 integrated report. More information on the results of the sessions is available in the section "About the report".

PGE Group's stakeholder panels are mutually beneficial and include:

- the opportunity to directly convey expectations regarding the environmental and social responsibility of PGE Group;
- influence the future directions of PGE Group's strategic development in the ESG area;
- co-create PGE Group's plans and activities responding to the needs of a wide array of stakeholders;
- the opportunity to present one's opinion on PGE Group's activities, as well as to learn about PGE Group's expectations and possibilities;
- identify ESG areas and topics relevant for presentation in PGE Group's integrated report.

#### 2. Public affairs

PGE Group operates in an exceptionally complex and volatile regulatory environment. On-going monitoring of legislative processes and active participation in dialogue with groups responsible for law-making are an essential element for conducting effective economic activity and fulfilling our stakeholders' expectations. This activity directly translates into building the Group's value.

PGE aims to raise public awareness of the problems and challenges of the power sector. We are a natural partner for discussions with legislators as well as central and local administration. PGE's experts analyse the consequences of regulatory and political decisions in the energy area. PGE Group shares its observations and analyses within existing frameworks for dialogue with the administration and lawmakers. PGE also takes an active part in the work of institutions trying to draw attention to issues important to the company and the entire energy industry.

The basis for PGE Group's sustainable development is the maintenance of partner relations with institutions supervising the functioning of the markets in which we operate on an on-going basis. We emphasise constructive and transparent dialogue with independent market regulators and market supervisory agencies. PGE is a member of a number of energy-industry organisations, which is another channel through which we present our opinions. This ensures that positions are balanced and take into account the viewpoints of all organisation members.

The issues of PGE Group companies' membership in industry organisations are regulated by the "Good practices in cooperation with domestic and international industry organisations", which are annexed to the internal General Procedure for Regulatory Management. Industry organisations are recognised as organisations, associations or chambers of commerce which have the energy sector in their scope of activity.

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Direction PGE 2050 Sustainable investments

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## As Poland's largest energy group, PGE naturally acts as an ambassador for the country's energy sector and Polish energy consumers in the EU forum. Dialogue at this level, including within national and international industry organisations, uscrues the Group's real participation in the process of shaping the rules of the energy transition. Adm Tywoniuk Director of the Regulatory Division, C2 Polska Grupa Energetyczna

## PGE Group companies are members of organisations such as: 102–13

no.	Key national and international industry organisations of which PGE Group companies are members (as of December 31, 2021)	Type of organisation	Membership of PGE Group company	Representation on the organisation's governing bodies
1.	Polish Committee for Electricity (PKEE)	national	PGE SA	Number of members: 5 Functions performed: President of the Governing Board of the PKEE Vice President of the Governing Board of the PKEE Member of the PKEE Governing Board Member of the PKEE Governing Board Member and Secretary of the PKEE Governing Council
2.	Eurelectric – indirect membership via Polish Committee for Electricity (PKEE)	international	PGE SA	Number of members: 1 Functions performed: Eurelectric Board of Directors Member
3.	Association of Polish Electricians (SEP)	national	PGE SA, PGE GIEK oraz PGE Dystrybucja	Lack of PGE Group representatives in the authorities of the organisation
4.	Energy Trading Association (TOE)	national	PGE SA and PGE Obrót	Number of members: 2 Vice-President of the TOE Management Board Member of the TOE
5.	Polish Association of Listed Companies (SEG)	national	PGE SA oraz ZEW KOGENERACJA SA.	Lack of PGE Group representatives in the authorities of the organisation
6.	Union of Entrepreneurs and Employers (ZPP)	national	PGE S.A.	Lack of PGE Group representatives in the authorities of the organisation

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NO.	Key national and international industry organisations of which PGE Group companies are members (as of December 31, 2021)	Type of organisation	Membership of PGE Group company	Representation on the organisation's governing bodies
7.	Union of Polish Energy Employers (ZPPE)	national	PGE SA, PGE GIEK, PGE Dystrybucja PGE Energia Odnawialna oraz PGE Energia Ciepła	Number of members: 1 Functions performed: President of the Management Board of ZPEP
8.	European Energy Forum (EEF)	international	PGE SA	Lack of PGE Group representatives in the authorities of the organisation
9.	Eurogas	international	PGE SA	Lack of PGE Group representatives in the authorities of the organisation
10.	Hydrogen Europe (HE)	international	PGE SA (wystąpienie 31.12.2021 roku)	Lack of PGE Group representatives in the authorities of the organisation
11.	Economic Society of Polish Power Plants (TGPE)	national	PGE GIEK	Number of members: 3 Functions performed: President of the Management Board of TGPE Vice-President of the Management Board of TGPE (since November 2021) Member of the Management Board of TGPE
12.	Polish Society of Professional Heat and Power Plants (PTEZ)	national	PGE GIEK, PGE Energia Ciepła, ZEW KOGENERACJA oraz EC Zielona Góra	Number of members: 3 Functions performed: PTEZ Board President PTEZ Board Member PTEZ Board Member
13.	The Union of Employers: Association of Lignite Miners (ZP PPWB)	national	PGE GIEK	Number of members: 2 Functions performed: Chairman of the Board of the PPWB and Member of the Covenant Council Chairman of the Covenant Council
14.	European Association of Coal and Lignite (EURACOAL) indirect membership through ZP PPWB	international	PGE GIEK	Number of members: 1 Functions performed: Vice President of EURACOAL since February 2022
15.	Polish District Heating Chamber of Commerce (IGCP)	national	PGE GIEK (exit as of December 31, 2021), PGE Energia Ciepła, ZEW KOGENERACJA, PGE Toruń and EC Zielona Góra	Number of members: 2 Functions performed: Chairperson IGCP Board Member IGCP Board
16.	Polish Society for Transmission and Distribution of Electricity (PTPiREE)	national	PGE Dystrybucja	Number of members: 2 Functions performed: Member of the PTPiREE Board Member of the PTPiREE Board
17.	European Distribution System Operators (E.DSO)	international	PGE Dystrybucja	Number of members: 1 Functions performed: Member of the Board of Directors E.DSO

по.	Key national and international industry organisations of which PGE Group companies are members (as of December 31, 2021)	Type of organisation	Membership of PGE Group company	Representation on the organisation's governing bodies
18.	EU DSO Entity	international	PGE Dystrybucja	Number of members: 1 Functions performed: Member of the Board of Directors of the EU DSO
19.	Cogen Europe	international	PGE Energia Ciepła	Lack of PGE Group representatives in the authorities of the organisation
20.	Polish Offshore Wind Energy Society (PTMEW)	national	PGE Baltica	Lack of PGE Group representatives in the authorities of the organisation
21.	Polish Wind Energy Association (PSEW)	national	PGE Baltica oraz PGE Energia Odnawialna	Lack of PGE Group representatives in the authorities of the organisation
22.	WindEurope (WE)	international	PGE Baltica	Lack of PGE Group representatives in the authorities of the organisation
23.	Hydropower Plant Society (TEW)	national	PGE Energia Odnawialna	Lack of PGE Group representatives in the authorities of the organisation

As the largest energy company in Poland, PGE is aware of the importance of decisions concerning the future of energy which are taken at the European level. PGE Group is present on the international forum, actively contributing to institutional dialogue and aiming at the mutual understanding of the arguments of the various parties. Constructive exchange of arguments and views leads to compromise. A significant part of its activities is carried out within PGE's membership in the Polish Electricity Association (PKEE), which brings together representatives of the industry in Poland. The President of PGE's Management Board, Wojciech Dąbrowski, is also the President of the PKEE Governing Council. Moreover, through the PKEE, PGE actively participates in the works of the international organisation EURELECTRIC, representing the interests of the power sector at the European level. President Wojciech Dąbrowski, as the PKEE representative, sits on the EURELECTRIC Board of Directors.

The growing need for direct dialogue with the European community led PGE to open its own office in Brussels in April 2019, remaining a member of PKEE. The organisation is a leading actor in Brussels in the area of representing the voice of the entire Polish electricity industry.

In the area of dialogue with external stakeholders, PGE Group companies organise, inter alia, energy forums with representatives of local authorities and conduct social consultations accompanying investment projects. They also hold meetings with potential contractors or workshops for contractors from the power and energy sector.

#### 3. Dialogue with shareholders

The main objectives of PGE's information policy are transparency and cooperation based on mutual trust. Effective communication with investors and transparency are in the Company's best interest and contribute to building value for its stockholders. The activities taken up by us in terms of investor relations are more than regulation requirements. These regulations oblige the Company to meet information duties in terms of periodical and on-going reporting with special consideration of inside information. In order to satisfy demanding stockholders and investors, we launched a series of additional tools, the aim of which is to eliminate the information asymmetry between the Company and the capital market. These tools are available on the Company's website, in the Investor Relations' section and include:

- presentation of "PGE Group's strategy 2030 with 2050 perspective", along with an one pager with summary of strategic objectives,
- dedicated investor presentations,
- quarterly files in xls format with operational and financial details for the reporting period,
- an editable xls-format file with financial and operational data, presented as a time series from the first quarter of 2011 until the last reporting period,

- preliminary estimated results, at dates prior to quarterly reporting. These publications contain the key financial values, operating volumes and information on significant one-off events,
- a summary of the quarter for capital market analysts,
- for investors sensitive to social and environmental issues. looking for the link between business. finance and PGE's commitment to its environment, since 2015 PGE has been publishing PGE Group's Integrated Report online.

#### 4. Dialogue with stakeholders by companies

In the area of dialogue with external stakeholders, PGE Group companies organise, inter alia, energy forums with representatives of local authorities and conduct social consultations accompanying investment projects. They also hold meetings with potential contractors or workshops for contractors from the power and energy sector.

#### • Energy forums

Local governments, i.e. municipalities and counties, are a natural partner for PGE Dystrybucja during investments or grid modernisations. Therefore, every two years energy forums for local governments are organised in each of the company's branches. These meetings are often attended not only by representatives of communes, towns, districts, voivodeship offices or marshal offices, but also by other guests. In the Łódź branch, these are representatives of county and voivodeship crisis management centres or the local special economic zone. The meeting formula creates an opportunity for the company to dialogue with local authorities on topics important to both parties. In 2021, due to the epidemic situation, 14 meetings were held at PGE Dystrybucja's branches and attended by nearly 800 representatives of local authorities. Discussed topics included cooperation between the company and local governments in planning investments, expansion and modernization of the grid, procedures to be followed in the event of mass grid failures (emphasising the role of close cooperation of power engineers with Provincial and County Crisis Management Centres) and issues related to renewable energy sources.

In addition to the Energy Forums held every two years in all branches of PGE Dystrybucja and the central office, dialogue is conducted with representatives of local authorities and technical services of municipalities on current activities.

Such discussions are held both at the branch level and in individual energy regions. They concern both planned and ongoing works in the field. In 2021, over a thousand such meetings were held.

#### • Cooperation between PGE Energia Ciepła and local authorities

District heating has a major impact on the fight against low-scale emissions in Polish cities. For years, PGE Energia Ciepła's CHPs have been supporting local governments in the fight for clean air. The company's branches, together with local governments, engage in information and education campaigns on connecting to the district heating network.

The Zielona Góra CHP supports the city in the fight against smog by implementing investments within the Integrated Territorial Investment Strategy – developed by the Mayor for the Urban Functioning Area of Zielona Góra. The CHP cooperates with the city on eco-friendly electric public transport.

PGE Energia Ciepła's Kraków branch is working with the city on the preparation of "Assumptions for the plan for supplying the municipality of Kraków with heat, electricity and gas fuels for 2023–2038." The first Heat Map in Poland has been developed. This is a tool necessary both for the heat distributor (to plan necessary network investments) and for the heat producers (to plan investments and modernisations). PGE Energia Ciepła is also implementing the Energy Lab project, which allows to take a closer look at the energy needs of public utility buildings belonging to the Municipality of Kraków.

In Siechnice, as part of preparations for the start of construction of a new gas-fired CHP, PGE Energia Ciepła has developed a communication plan for the project, including a survey among the residents and information meetings for both residents and councillors and village leaders.

The Gorzów branch of PGE Energia Ciepła has been working with the local government for many years. In 2021, the company's management board signed a letter of intent with the Mayor of Gorzów Wielkopolski on the construction of a waste-to-energy incinerator. Pursuant to this agreement, both parties undertake to cooperate and mutually support the implementation of the investment.

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In the course of the on-going dispute around the Turów mine, PGE has undertaken a range of activities aimed at resolving the situation and taking care to provide reliable information to stakeholder groups, which include:

Sustainable investments

ESG - Foundation of Development

- Development of a website dedicated to the Turów complex containing information on the on-going and planned activities there.
- On-going publication of information materials on the extraction and production activities of the Turów complex, including pro-environmental activities in terms of water, land, air as well as social responsibility initiatives.
- Conducting an opinion poll. Between July and August 2021, at PGE's request, an opinion poll was conducted among the inhabitants of the Bogatynia municipality, the Czech region of Hradek nad Nisou and the German region of Olbersdorf. The survey showed that the residents of the region were very much interested in a quick end of the dispute and in a compromise. Tensions have a negative impact on the neighbourly balance of the tri-border area and thus on cross-border trade, which has for years been an important pillar of development in the region. This was the opinion of 76% of those surveyed.
- Organisation of a debate entitled "A common future for mining regions located in the PL-CZ-DE tri-border area. Economy, Society, Environment" aimed at defining the challenges facing local governments, the need for cross-border cooperation and the creation of a new vision for the region and its residents. Its participants – local government officials and energy experts – discussed

the challenges and opportunities for the region, which is closely associated with the energy and mining industry, encompassing three neighbouring countries with a total of 10 lignite mines. Five on the Czech side, four on the German side and one on the Polish side in Turów. They provide jobs for 50 000 people. For the energy transition to be just, it must be carried out in a coordinated manner. It cannot be a wild transition. The process of modernising the energy sector and the climate policy should not be decoupled from the people, so long-term planning based on specific investment projects and social programs with financing provided by the Just Transition Fund is essential.

- Organisation of a visit of Polish state authorities to the Turów complex and meeting with employees of the Turów mine and power plant.
- Transparency of the on-going process related to the continuation of lignite mining at the Turów mine.
   PGE Group has made available the contents of the Decision on Environmental Conditions, which was issued in January 2020 after the completion of extensive cross-border consultations with the Czech Republic and Germany and after fulfilling a number of conditions stipulated by Polish and European law. The document confirms that the Turów mine engages in mining operations in accordance with the provisions of Polish and European law. The company has carried out all the necessary activities to continue the operations of the Turów complex and ensure that the processes run smoothly while providing energy security for millions of Polish families.
- Cooperation with local authorities.
- Dialogue with EU institutions.



#### 6. Information workshops

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Information workshops are another form of dialogue with external stakeholders. In 2021, PGE Polska Grupa Energetyczna organised two of these workshops for potential suppliers of products and services for the construction of offshore wind farms in the Baltic Sea. The first one. entitled "Offshore Workshop," was held online on June 18, while a panel entitled "Let's build Baltica 2+3 together: How to get involved in the PGE and Ørsted investment" was held on August 30 during the PWEA conference in Serock. The workshop was attended by representatives of PGE, PGE Baltica and Denmark-based Ørsted. During these meetings the participants could learn about the schedule of PGE's investments in offshore wind farms, the scope of work in progress or plans for the development of port infrastructure. PGE's procurement portal was also presented in order to facilitate the participation of potential contractors in tenders organised by PGE. There was also the possibility to register in PGE's database of potential suppliers.

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PGE Energia Ciepła organised a workshop for contractors from the energy industry and associated industries where it presented its planned investments and rules for the proper preparation of tender procedures based on the public procurement law. Close to 150 participants from all over Poland took part in the first of a series of PGE Obrót's webinars for local governments and other entities purchasing electricity pursuant to the public procurement law. Participants included representatives of local government units, public administration entities, universities and hospitals. At the meeting, experts from PGE Obrót responded to questions related to the functioning of the electricity market. Most of these questions concerned renewable energy sources, with particular emphasis on photovoltaics, the possibility of using it and details on prosumer billing.

Similar online meetings were organised by PGE Energia Odnawialna. They were addressed to companies operating in the field of wind energy and to representatives of the photovoltaics sector. Workshop participants had the opportunity to learn about the company's investment plans and areas of potential cooperation. Also presented at the meetings were the most important regulations and procedures defining the area of cooperation with contractors. Each of the webinars consisted of a series of expert panels and Q&A sessions.

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## Shareholders and investors

GRI: 102–10

PGE S.A. is a stock exchange listed company from 2009. PGE S.A. shares are listed in the main market of the Warsaw Stock Exchange, in the continuous trading system. PGE has the biggest market capitalisation among the Polish power companies in the Warsaw Stock Exchange. PGE's stock liquidity provides investors with the opportunity to freely buy and sell our securities.

### **Ownership structure**

The PGE Group's capital is divided into 1 869 760 829 stocks. An issue of 373,952,165 E shares was carried out in 2022, following which the number of shares is 2,243,712,994.

Our main shareholder is the State Treasury represented by the Minister of State Assets. The State Treasury at yearend 2021 held 1 072 984 098 of the Company's common stocks, representing 57.39% of the Company's share capital and entitling to exercise the same number of votes at the General Meeting. Following the acquisition of part of the new issue shares, the State Treasury currently holds 1 365 601 493 shares representing 60.86% of the share capital.

The other part, i.e. 878 111 501 of shares, constituting 39,14% of ownership, is specified as shares in free float.

Pension Funds	Number of shares (ths)	Share %
AEGON	28,792	1.54%
ALLIANZ	20,782	1.11%
AVIVA	77,219	4.13%
BANKOWY	15,179	0.81%
GENERALI	13,115	0.70%
METLIFE	33,120	1.77%
NN	71,227	3.81%
POCZTYLION	5,967	0.32%
PZU	54,950	2.94%
UNIQA	21,521	1.15%
Total	341,871	18.3%



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## Series E share issue

On 18 January 2022, PGE's Management Board passed a resolution on commencing the company's recapitalisation in connection with planned investment projects in the area of renewable energy, decarbonisation and distribution.

The issue proceeds are intended to support PGE Group's investments in three areas:

- development of renewable energy sources,
- decarbonisation through development of lowcarbon sources,
- development of distribution

The Extraordinary General Meeting on March 7, 2022 did not adopt a resolution due to the break in the proceeding announced until April 6, 2022. After resuming the proceedings on April 6, 2022 the resolution was adopted.

The resolution provided for a proposal to the Extraordinary General Meeting of the Company to adopt a resolution on lowering the share capital by way of reducing the par value of shares (from PLN 10.25 to PLN 8.55) and simultaneously increasing the share capital by way of issuing series E shares under the private subscription procedure, depriving the existing shareholders entirely of the pre-emptive right to all series E shares, applying for admission and introduction of series E shares or rights to series E shares to trading on the regulated market of Giełda Papierów Wartościowych w Warszawie S.A. [Warsaw Stock Exchange], dematerialising series E shares or rights to series E shares, as well as amending the Company Statutes. The shares were to be offered to qualified investors holding over 0.1% company shares.

After the resolution was adopted by the general meeting, PGE S.A. started the book-building process, during which investors expressed their willingness to acquire all offered shares. As part of the process, an issue price of PLN 8.55 was determiden, what allowed for the total value of the issue of series E shares to reached the level of PLN 3.2 billion.

April 22, 2022 The Management Board of PGE S.A. adopted a resolution on the allocation of all series E shares to investors participating in the subscription process. The State Treasury, which is PGE's majority shareholder, acquired shares with an issue value of approximately PLN 2.5bn. Open pension funds took up shares with an issue value of approx. PLN 450 million, and other investors were allocated shares with an issue value of approx. PLN 250 million. The court registered the share capital increase on May 18, 2022.

Currently, the share capital of the Company amounts to PLN 19 183 746 098.70 and is divided into 2 243 712 994 shares with a par value of PLN 8.55, including:

- 1. 1,470,576,500 series "A" bearer shares,
- 2. 259,513,500 series "B" bearer shares,
- **3.** 73,228,888 series "C" bearer shares,
- **4.** 66,441,941 series "D" bearer shares,
- 5. 373,952,165 series "E" bearer shares.

Thanks to the funds obtained from the issue of shares, PGE plans to accelerate the transformation in three main areas: distribution grid (approx. PLN 1.61 billion), renewable sources (approx. PLN 0.47 billion) and decarbonisation by building low-emission sources (approx. PLN 1.11 billion). In the case of the network it is, inter alia, o increasing the share of cable lines, accelerating the process of introducing smart meters and increasing the efficiency of connection processes for new consumers and energy sources. PGE plans to accelerate the photovoltaic capacity development program and obtain funds for the acquisition of onshore wind farm projects and PV farms. In the area of decarbonisation, PGE plans to raise money to finance the gas-steam unit project in Rybnik, which would be commissioned in 2026, and decarbonisation of the district heating segment by building gas-fired CHP plants in Zgierz, Kielce and Bydgoszcz.

### Strategic Investor

According to an ordinance of the Prime Minister (document: Dziennik Ustaw of 2017 pos. 95), PGE Polska Grupa Energetyczna S.A. is included in the list of enterprises of special significance to the national economy. According to the act on rules for managing state property as of December 16, 2016 (document: Dziennik Ustaw of 2016 pos. 2259), PGE shares may not be sold by the State Treasury. This is a stabilising factor for the shareholding structure. The State Treasury is a shareholding with special control rights. The Company's articles of association provide special rights for the State Treasury in the following scope:

- motion to convene a General Meeting,
- influence over the General Meeting agenda,
- appointment of a Supervisory Board member through a written statement, with no General Meeting resolution needed.

## PGE S.A. share price in 2021



In 2021 PGE shares quotation were in range PLN 6.30– 10.75. Average market capitalisation (value of all shares of the Company) in 2021 amounted to PLN 16.1 billion. Average trading volume amounted to 2.5 million shares per session and average trading amount reached approx. PLN 21.3 million.

## Free float

According to the laws in Poland (Act on trade as of July 29, 2005: Dziennik Ustaw of 2005 no. 183 pos. 1538), shareholder identities are publicly disclosed when the 5% threshold is exceeded. If a shareholder has less than a 5% stake, there is no requirement to disclose identity.

This means that precise identification of the shareholding structure is not possible. Participation in General Meetings is voluntary, whilst dividends are paid out through the National Depository of Securities and brokerage firms. In practice, as a listed company, we treat every investor as a potential shareholder. According to regulations and best practices, we ensure that all investors have equal access to information.

Open pension funds (OFE) are considered, as a rule of thumb, long-term investors – as a part of shareholder ID research, we identified OFE in PGE's shareholding (as at the data for 2020) – details are presented on the diagram above. On December 31, 2021, open-ended pension funds held a total of 341.8 million shares of PGE (i.e. 18.3%). According to data from December, Aviva OFE had the largest stake, with approx. 4.1% %, followed by NN OFE with approx. 3.8%.

In aggregate, domestic pension funds and the State Treasury held approximately 75% of shares. Thus, the remaining 24% was divided between retail investors (presumably mostly domestic) and institutional investors – – TFI investment funds and their foreign equivalents (mutual funds). Shares of PGE Polska Grupa Energetyczna are included in stock market indexes, such as WIG20 – which is why PGE Group's shareholding structure also includes ETF funds, which replicate the index composition in their portfolios. Moreover, continuously since 2011, PGE S.A.'s shares were also listed in the RESPECT Index – index including Polish companies operating in compliance with best corporate governance, information governance and investors relations standards. As of January 1, 2020, the WSE stopped calculating and publishing the RESPECT Index. On September 3, 2019, the WSE started to publish the WIG-ESG (Environment, Social, Governance) index which includes companies from WIG20 and mWIG40 indices, who carry out socially responsible activities. Companies are assessed in terms of managing ESG (environmental, social, governance) factors, i.e. environmental factors, social responsibility and corporate governance, information governance and investors relations.

We take ESG issues very seriously because we know how their importance in investment decisions is growing. We are expanding our disclosures – in 2021 we took part in the CDP's climate change and water surveys, and we are taking part in the CDP's surveys again this year. In the 2021 report, we calculated the group's carbon footprint for the first time. In December 2021, we established



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a sustainability council headed by PGE's CEO Wojciech Dąbrowski, which underlines the council's importance. I can assure you that our approach will not change on our way to achieving climate neutrality in 2050. Lechosław Rojewski

Vice-President of the Management Board in charge of finance

### Transparency and trust

The main objectives of PGE's information policy are transparency and cooperation based on mutual trust.

Effective communication with investors and transparency are in the Company's best interest and contribute to building value for its stockholders. The activities taken up by us in terms of investor relations are more than regulation requirements. These regulations oblige the Company to meet information duties in terms of periodical and on-going reporting with special consideration of inside information. In order to satisfy demanding stockholders and investors, we launched a series of additional tools, the aim of which is to eliminate the information asymmetry between the Company and the capital market. These tools are available on the Company's website, in the Investor Relations' section in Analyst's zone <u>www.gkpge.pl/en/for-investors/shares/</u> <u>analyst-s-zone:</u>

- Presentation of "PGE Group's strategy 2030 with 2050 perspective", along with an one pager with summary of strategic objectives – it is a determinant of the directions of the group's development for the next decades;
- Investor presentation updated periodically as market needs and expectations arise;
- Presentation of the "Program for the Construction of Offshore Wind Farms in the Baltic" – PGE Group's flagship investment project;
- Presentation from the WallStreet retail investor conference;
- The Company has also prepared an editable xls file, which includes financial and operating data presented in the form of time series starting from the first quarter of 2011 until the latest reporting period.

- In addition, the Company publishes preliminary estimated results in periods preceding quarterly reporting. These publications include key financial values, operating volumes and information on important one-offs.
- For investors sensitive to social and environmental issues, who seek interactions between business, finances and the Company's engagement for the benefit of its surroundings, we are publishing an online integrated report of PGE Capital Group from 2015 and this year, an online version of the non-financial report was additionally published sprawozdanieniefinansowe2020.gkpge.pl/en

After the pandemic, we are gradually returning to participating in investor conferences in Poland and Europe. In May 2022, we took part for the first time as a company in the WallStreet conference organised by the Association of Individual Investors, participating in the debate "National champions in the face of price shocks and major economic turbulence. Will they come out stronger or weaker?" and presented PGE Group during the "Shareholder Forum." The WallStreet conference was also an opportunity to talk to individual investors, exchange experiences in the area of investor relations and ESG with other listed companies, stock market educators, as well as financial journalists.

### Long distance

Investors act based on various strategies and investment horizons and the capital market, in most cases, is functioning in a rhythm of quarterly results. But energy is an industry which is characterised by long-term planning. This is why the Management Board's point of view is naturally aligned with long-term shareholders' perspective.

Of course, in order to implement long-term plans, day-today care for the company's finances is required, which is reflected in quarterly results. Quarterly results publications are an opportunity to monitor the company's situation and progress in its development.

Over the next few years, PGE also intends to publish information on the progress in the implementation of particular elements of the multi-annual strategy. Assumed PGE Group's objective is to balance all aspects of the business, maximizing the added value for stakeholders.

### **Best practices**

As a company listed on the Warsaw Stock Exchange, we apply the rules of corporate governance as set out in the Best Practices for WSE-Listed Companies.

PGE Polska Grupa Energetyczna S.A., as a listed company, is obliged to obey the corporate governance rules set in Best Practices of WSE Listed Companies. You will find more information about corporate governance rules on Warsaw Stock Exchange website: Best Practices of WSE Listed Companies

Best Practices for WSE-Listed Companies 2021 – the latest version of the Corporate Governance Rules, which applies to companies from July 1, 2021 – came into force. The new Best Practices reflect the current trends and follow European regulations in the area of corporate governance. The changes made take into account the current state of the law and the latest trends in the area of corporate governance, as well as responding to the demands of market participants interested in increasingly better corporate governance by listed companies.

In line with market expectations, ESG issues, including climate protection, sustainability, board diversity and equal pay, are addressed in the new best practices. The updated rules also cover topics such as the expected method of profit distribution, share issues with exclusion of pre-emptive rights or share buybacks. Also new are more precise rules for the submission of draft general meeting resolutions and candidates for the supervisory board. As a result of the work to identify the current status of the application of the Best Practices for WSE-Listed Companies 2021, a report on the status of PGE's application of the rules in best practices was prepared and published at the end of July 2021, which can be found at this address https://www.gkpge.pl/dla-inwestorow/lad-korporacyjny

During the company's Ordinary General Meeting in June 2022, information on the status of PGE S.A.'s application of the Best Practices for WSE-Listed Companies 2021 was presented to shareholders, with emphasis on the rules whose compliance by the company also depends on the decisions or actions of the General Meeting or individual shareholders.

Aside from applying the rules set out in the Best Practices for WSE-Listed Companies 2021, PGE strives to carry on the best possible communication with capital market participants by publishing materials that meet the needs of investors, such as the earnings presentations made available each time after the publication of interim reports or the accompanying analyst toolbox with investor messaging and the most relevant financial data of the period. The Company also publishes financial and operating estimates for each reporting period in the form of current reports, and the Management Board's earnings conferences are broadcast live online.

## WIG-ESG index

As a responsible corporate citizen, we continuously strive for the best possible management of the group, apply corporate governance and the highest standards of conduct in our operations, and responsibly manage environmental, social and ethical factors.

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As of September 3, 2019, the Warsaw Stock Exchange has started publishing the WIG-ESG index. This index is published on the basis of the value of the share portfolio of companies considered to be socially responsible, i.e. those that adhere to the rules of socially responsible business, particularly with respect to environmental, social, economic and corporate governance issues. The weights of companies in the WIG-ESG index are determined on the basis of the number of freefloating shares taking into account the ESG Ranking (ESG coefficient) and the assessment of compliance with the Code of Best Practice (Code of Best Practice coefficient). PGE shares are included in the WIG-ESG index and their weight in the portfolio is approx. 1.8%.

The ESG ranking of companies, which is one of the criteria for determining the index weights, is created on the basis

of Sustainalytics reports. Sustainalytics, an international firm specialising in providing services in the ESG area, determines companies' scores on the basis of publicly available information published by companies. Data such as annual reports, reports on non-financial data and information provided on websites is analysed. The Sustainalytics methodology assesses ESG risks, measuring an industry's exposure to specific risks related to ESG criteria and assesses how a company manages these risks.

The weights of companies in the index will also depend on the level of application of the corporate governance rules contained in "Best Practices for WSE-Listed Companies." Based on the companies' published statements in this regard, the WSE assigns weights to companies depending on the number of rules applied and the quality of the published statements.

on three elements: responsible economic growth, inclusive

As PGE Group, we are taking action in each of the 17 SDG

areas. PGE Group's new strategy names four of them that are

society and environmental protection.

of special importance to us. These are:

## Supporting Sustainable Development Goals

## Business and its activities play an increasingly important role in how we achieve our sustainable development goals from a global perspective.

The importance of the participation of companies in this process is emphasized by The United Nations, which together with its member states in 2015 announced 17 key themes (SDG) necessary to be completed by 2030 so that we can recognize that our planet is developing in a sustainable way, i.e. safe for us and future generations. These goals focus





### Examples of activities:

- Offshore wind farms
- Onshore wind farms

**Examples of activities:** 

• Concern for air quality

• Just Transformation

 Photovoltaics development program





RESPONSIBLE

SUMPTION

AND PRODUCT

#### **Examples of activities:**

- Circular economy
- Education programs for children
- A responsible approach to water resources management



- Reducing environmental impacts
- PGE Group's carbon footprint
- Decarbonisation of district heating

High culture sponsorship

of Belchatow and Turow



# BUSINESS ACTIVITY

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## Sustainable finance

The balance that we follow in our activities also guides us in the financial sphere. Our priority is to maintain a stable level of debt while implementing an ambitious transformation plan.

## Assumptions for financing the investment program

- Implementation of investments together with partners
- Maximizing the utilisation of domestic and EU aid funds for the energy transition
- Using the potential of green debt financing
- Limited leverage increase while maintaining the rating
- Investments in the project finance formula

The goal of the PGE Group is a **full** use of dedicated financing options for green investments and off balance sheet financing



### **Treasury rules**

PGE Group's existing financing model takes into account the use of funds from its core activities, debt financing in the form of commercial bank credit facilities and bond programmes, credit facilities from Bank Gospodarstwa Krajowego ("BGK"), credit facilities from multilateral institutions such as the European Investment Bank ("EIB") or the European Bank for Reconstruction and Development ("EBRD") as well as in the form of preferential financing. In order to effectively manage liquidity, within the Group we have introduced a cash-pooling system, with participation of 34 Group companies.

## Eurobonds issues Banks/investors Externam mid-and long-term financing Loans Rellocation of funds Subsidiary 1 Subsidiary 2 Subsidiary...

#### Financing model in the PGE Group



An ambitious investment programme of approx. PLN 75 billion scheduled for 2021–2030 will require long-term planning and securing external financing.

Currently, the most important available external financing sources for PGE Group are as follows:

- Domestic bond programme of PLN 5 billion.
- Euro Medium Term Note (EMTN) bond programme of up to EUR 2 billion.
- 2 credit facilities from BGK as part of the "Inwestycje polskie" ("Polish investments") programme, amounting to PLN 1.5 billion in total.
- Syndicated loan term facility of PLN 3.6 billion.
- PLN 1.99 billion credit facilities from the EIB PLN 1.5 billion will be used for projects related to distribution network modernisation and expansion, while PLN 0.49 billion for financing and re-financing of the construction of cogeneration units.
- Green facility loan of PLN 272.5 million from EIB for financing of "green projects".
- PLN 500 million credit facility from the EBRD to support implementation of a long-term programme for distribution network development and modernisation.

- Syndicated revolving loan of PLN 4.1 billion intended for financing of the ongoing operations, financing of the investment and capital expenses and refinancing of the financial liabilities.
- Current-account overdraft facilities

PGE Group's financing policy features diverse maturities for specific financial instruments, which along with the diversification of financing sources, helps the Group to optimise its financing costs. The Group aspires to implement a responsible financial policy, which entails maintaining its net debt to EBITDA ratios at a level that makes it possible to retain investment-grade ratings.

The recently observed dynamic changes on an unprecedented scale in the fuel and energy markets show the importance of the stability and liquidity of energy companies. PGE Group today provides this credibility. But we are still working to further strengthen the Group's finances when we will operate in a new business model after the coal asset spin-off. This is a prerequisite for delivering investments amounting to tens

> of billions of zlotys, which will transform not only PGE Group but the entire energy sector in Poland.

Piotr Sudoł
 Finance Division,
 PGE Polska Grupa Energetyczna

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#### Effective use of available funding sources

Direction PGE 2050

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The ongoing transformation of the Polish energy sector, including PGE, will be an extremely capital-intensive undertaking. The PGE Group's capital expenditures by 2030 will reach even PLN 75 billion. Therefore, skilful use of financing sources will be very important in this process – funds available for Poland from funds under the Cohesion Policy, the Recovery and Resilience Facility, the Just Transition Fund, React EU or the Modernization Fund may exceed EUR 45 billion, and the funds available directly from the European Commission (guarantees from Invest EU, Innovation Fund, Horizon Europe, CEF) is another EUR 120 billion.

Sustainable investments

In the case of the power sector, financing can be obtained in areas such as:

- Renewable energy sources
- District and individual heating
- Energy and heating infrastructure
- Energetic efficiency
- Employees training

The PGE Group intends to use the available sources of financing from the assistance funds available to Poland in the field of energy transformation. PGE's ambition is that the share of obtained financing should cover at least 25%. the Group's investment needs. In addition, we will consider other external sources of financing that may support PGE's transformation towards achieving climate neutrality in 2050 – such as "green" bonds or ESG financing.

Limiting exposure to market changes and a stable return on investments based on dedicated support mechanisms, as well as the use of off-balance sheet financing will have a positive impact on the company's risk profile and will support building shareholder value.

#### **Debt Structure**

ESG – Foundation of Development

PGE Group finances its expenditures mainly with funds from on-going operations, i.e. revenue from sales, with a relatively stable structure. We are currently implementing a capital-intensive investment programme, which also requires external financing. Our aim is to build and maintain a diverse debt structure allowing us to flexibly manage financing costs.

Our debt structure is presented below, by type of financing, maturity, currency and type of interest as well as changes in gross and net debt in successive periods.





#### Debt and available financing by type of financing (guaranteed funds) as at 31 December 2021, in PLN million



#### PGE Group's debt maturities as at 31 December 2021, in PLN million



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#### Currency profile of drawn debt

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(including hedging transactions) as at 31 December 2021

#### Debt with fixed and variable interest

(including hedging transactions) as at 31 December 2021



#### Gross debt and net debt (PLN million)



## **Rating PGE**

PGE S.A. has ratings assigned by two rating agencies: Fitch Ratings Ltd. ("Fitch") and Moody's Investors Service Limited ("Moody's").

Description	Moody's	Fitch Ratings
PGE's long-term rating	Baa1	BBB+
Rating outlook	stable	stable
Rating date	September 2, 2009	September 2, 2009
Last rating confirmation date	June 30, 2021	January 28, 2022
Poland's long-term rating	A2	A-
Rating outlook	stable	stable



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In 2021 and at the beginning of 2022 rating agencies: Moody's and Fitch affirmed long-term rating of PGE S.A. at investment grade respectively at Baa1 and BBB+, both with stable outlook. Both agencies underline affirmation results from strong market position of PGE in the Polish electricity sector.

In its latest release of Janaury 2022, Fitch indicates that rating reflects PGE's business profile as the largest Polish integrated electric utility with large electricity generation and distribution businesses, and moderate financial leverage. The key positive factors include PGE Group's Strategy, intending transition of the Group's profile towards renewables and low-emission sources, stable revenues from regulated businesses like distribution and Capacity Market. In addition, the divestment of PGE's coal assets to National Agency for Energy Security, would likely be positive for PGE's credit profile. The potential risk include margin levels in supply segment and a temporary increase in debt related to a high level of investment expenditures.

Moreover, Fitch positively assessed the planned new issue of shares, from which the proceeds are to be spent on development in distribution, renewables and lowemission sources. Moody's analytics affirmed rating for PGE S.A. at Baa1 and its stable outlook in June 2021. According to the opinion issued by this institution, the rating affirmation reflects PGE's currently strong financial risk profile, which provides the Company with some flexibility to absorb a large investment program and withstand potential changes in Poland's electricity market.

According to Moody's, the Polish government's plan to transform the domestic utility sector will be supportive of PGE's credit risk profile. A spin-off of the coal assets would strengthen the company's business risk profile since PGE Group would be able to implement its corporate strategy, focused on increasing already high share of regulated earnings from distribution grid operations and district heating and growth of generation from renewable energy sources.

Moreover, in Janaury 2022 Moody's positively assessed the planned new issue of shares, stating in a comment that this would be to the benefit of the company's credit profile.

Ratings assigned by both agencies confirm PGE's long-term credibility on the capital and credit market.

#### PGE's rating vs other Polish utilities:

Spółka	Rating Fitch	Rating Moody's	Rating S&P
PGE	BBB+ stable	Baa1 stable	n/a
PKN Orlen	BBB-Rating watch, positive	Baa1 positive	n/a
Enea	BBB stable	n/a	n/a
Energa	BBB-Lista Rating watch, positive	Baa2 stable	n/a
Tauron	BBB – stable	n/a	n/a
PGNiG	BBB stable	Baa2 stable	n/a
Polska	A – stable	A2 stable	A – stable

### **Insurance policy**

As a power consortium, we possess a series of high-value assets and our activities feature a very broad spectrum of operations. As a company that is aware of the risk of accidents, natural disasters, as well as failures, destruction or theft, we try to address these risks. For this purpose, we established an insurance management procedure within the Group. Its introduction served to create a coherent insurance management system in the Group, which takes place in a manner organised by the PGE's Corporate Centre, i.e. PGE Polska Grupa Energetyczna S.A. Thanks to these activities, we possess a standardised, uniform rules, forms and procedures related to obtaining protection and settlement of damages, we also reinforced the PGE Group's position in the insurance market.

The crucial insurance areas in the PGE Group include insurances of the most important assets in terms of risk related to natural disasters and failures as well as the resulting loss of revenue. Furthermore, we insure the Group's civil liability on the executed activity and possessed property.

From 2016, PGE is part of the PZUW Mutual Insurance Company (TUW PZUW). TUW is an alternative to classic insurance companies that act as joint-stock companies and their purpose is to achieve profit. TUWs are associations of persons or entities that have the same objective and interest, identifying not through capital relations (like a joint-stock company), but through affiliation and common purpose – instead of profit, the main objective of a TUW is to satisfy the needs of its members in terms of insurance coverage. By joining the TUW PZUW as a member, we guaranteed an alternative method of transferring risk based on the reciprocity rule as part of our own PGE CG Reciprocity Association (hereinafter referred to as the Association) and the ability to build lasting relations with the insurance and reinsurance markets. This form of risk transfer is based on a cost transparency, which allows for optimising the insurance programme, costs of a possible insurance and reinsurance brokerage, and in consequence – the premiums paid. The system of premium settlement as part of the Association allows for achieving returns or lowering the premium at a low ratio of damages. Any surcharges are only projected in the case of the Association's negative result and can amount to max. 50% of the assigned premium. The Association does not take part in covering the TUW PZUW losses or in covering the losses of other functioning associations. According to Article 103 of the Act of 11 September 2015 on insurance and reinsurance activity, the regulations on public procurements do not apply to insurance agreements concluded with a mutual insurance company by entities constituting members of the given company, which mainly allows to negotiate the price and makes the agreement conclusion process much more flexible and shorter.

It is however necessary to note that the membership in the TUW PZUW does not mean that we do not use other insurance methods – depending on the needs and estimated costs, we co-operate in a broad scope with insurance and reinsurance companies and use the services of insurance and reinsurance brokers.

## **Business segments**

Direction PGE 2050

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We are Poland's largest vertically integrated producer and supplier of electricity and largest producer of heat. We operate across the entire value chain: we produce electricity and heat at our conventional and CHP plants, then we sell and supply these to our customers throughout Poland, including households, businesses, institutions and local governments.





	Conventional Generation	District Heating	Renewables	Distribution	Supply
Key assets of the segment	5 conventional power plants	16 CHP plants	17 wind farms, 5 photovoltaic power plants, 29 run-of-river hydro power plants, 4 pumped- storage power plants, including 2 with natural flow	297,029 kms of distribution lines	-
Installed capacity electricity/ heat	12,852 MWe / 844 MWt	2,608 MWe / 6 842 MWt	2,331 Mwe	-	-
Electricity volumes	Net electricity generation 57.42 TWh	Net electricity generation 8.76 TWh	Net electricity generation 2.59 TWh	Electricity distribution volume 37.74 TWh	Sales to final off-takers 37.48 TWh
Heat volumes	Heat production (net) 5.13 PJ	Heat production (net) 51.64 PJ	-	_	-
Market position	PGE Group is the leader of lignite mining in Poland (91%)	-	PGE Group is the largest electricity producer from RES with market share of approx. 10% (excluding	Second domestic electricity distributor with regard	Leader in wholesale and retail
	PGE Group is also a national leader in electricity and district heat generation		co-combustion of biomass and bio-gas	to number of customers	Poland

## **Conventional Generation**

This segment includes lignite mining and generation of electricity in conventional sources.



\* Managerial perspective.



The main source of revenue in the Conventional Generation segment is revenue from the sale of electricity on the wholesale market, based on electricity prices that are shaped by supply and demand mechanisms, taking into account the variable costs of generation.

At the same time, the segment's key cost items, given their size and volatility, and thus their impact on operating results, are the cost of production fuels, mainly hard coal and fees for CO, emissions. Lignite-based production, which is of key significance for the Group, is based on own mines, therefore its cost is relatively stable and reflected mainly in fixed-cost items, i.e. personnel costs, third-party services and depreciation.

Revenue from the Capacity Market, a mechanism introduced to prevent electricity shortages in the NPS, constitutes a significant item in the segment's revenue in 2021. PGE GiEK S.A.'s power plants receive fees for performing the capacity obligation (a Capacity Market entity being on standby to supply electricity to the system and the obligation to supply specified capacity to the system when the system is under threat).

Capacity Market revenue compensated for revenue from ancillary services. The cold intervention reserve and operational capacity reserve services were discontinued, while revenue from capacity reallocation remained.

#### Assets

In the segment of Conventional Generation of PGE Group operates the company PGE GiEK S.A. based in Bełchatów. In the reporting period, i.e. as at December 31, 2021, the company consisted of 7 branches located on the area of five voivodships.

Conventional Generation segment consists of: 2 lignite mines (Bełchatów and Turów), 5 conventional power plants (Bełchatów, Turów, Opole, Rybnik, Dolna Odra complex). Conventional Generation is the leader of lignite mining (its share in the extraction market of this raw material accounting for approx. 90% of domestic extraction), it is also the largest generator of electricity as it generates approx. 40% of domestic gross electricity production.

#### Main assets of the Conventional Power segment

The Conventional Power segment includes: 2 lignite mines and 5 conventional power plants. Production is based on lignite coal, extracted from its own mines, and hard coal.



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Main fuel types	Annual electricity generation (TWh)		Annual heat generation (PJ)		Installed capacity (MWe)	Installed capacity (MWt)
	2021	2020 <sup>1</sup>	2021	2020	2021	2021
Hard coal	20.17	16.69	1.69	2.39	5 696	251
Lignite	37.12	29.72	2.82	2.66	7 156	593
Biomass	0.13	0.33	0.62	0.36	-	-
Total	57.42	46.74	5.13	5.41	12,852	844

#### Installed capacity and production in Conventional Generation segment

<sup>1</sup> The data for 2020 have been adjusted to the current division of production into the indicated categories.

## Lignite mining

In the table below are presented lignite resources data as at the end of 2021 and lignite output in 2021.

#### Table: Lignite resources data as at the end of 2021 and lignite output in 2021.

Deposit	Resources – as at the end of	Output in 2021 (Mg million)	
Bełchatów – Field Bełchatów	Industrial	14.07	2.78
Bełchatów – Field Szczerców	Industrial	552.10	35.60
Τυτόw	Industrial	270.81	8.80
Total	Industrial	836.98	47.18

#### Key financial results

[PLN million]	2021	2020
Sales revenues	28,722	25,251
EBIT	1,998	-647
EBITDA	4,078	1,725
Capital expenditures	1,759	2,372
# Key factors affecting segment performance

Direction PGE 2050

Key factors affecting the EBITDA result of Conventional Generation segment on y/y basis included:

- Higher net electricity production volume in PGE GiEK by 10.7 TWh due to increased degree of use of units by PSE S.A. resulting from high demand and significantly lower net import (see p. 4.2 of this report).
- **Decrease in electricity prices** due to falling energy prices on forward market (much of the contracting for 2021 took place in 2020, when prices were in decline due to the escalating pandemic).
- Lower result on optimisation of electricity portfolio due to decreased volume of electricity trading by 20.2 TWh in view of the high demand resulting in a high load factor on the generating units, with lower margin realized on electricity trading.
- **Capacity Market**, a mechanism, which was not present in the base period.
- Lower result on sale of CO<sub>2</sub>, mainly as an effect of sale of allowances granted free of charge for Opole and Rybnik power plants in the comparable period.
- Lower revenues from ancillary control services, mainly as a result of lack of revenues from the Operational Capacity Reserve.

- Higher fuel consumption costs mainly hard coal, due to increased generation based on this fuel (see p. 4.2 of this report). Lower costs of biomass consumption result from the inclusion of the Szczecin CHP Plant in the District Heating segment's structures from July 1, 2021. Main changes on different types of fuel are presented in the chart below.
- Higher CO<sub>2</sub> costs as a result of higher CO<sub>2</sub> emissions volume by 10.0 million tons due to generation higher by 10.7 TWh and higher average cost of CO<sub>2</sub> by PLN 15.6/t. Main changes are shown in the chart below.
- Lower personnel expenses due to ongoing optimisation process.
- The decrease in the item 'other' is mainly caused by the lack of capitalisation of costs at mines due to a lower amount of overburden removed in relation to coal extracted and a lower level of cost capitalisation for inhouse implementation of investments due to the smaller scope of tasks performed. In addition, due to the higher volume of electricity generation, the costs of production materials, environmental charges and combustion byproduct management services increased.

#### **Capital expenditures**

Capital expenditures incurred in Conventional Generation segment in 2021 and 2020.

mln PLN	2021 <sup>1</sup>	2020	% change
Investments in generating capacities, including:	1,678	2,114	-21%
• Development	588	796	-26%
Modernisation and replacement	1,090	1,318	-17%
Other	81	113	-28%
Total	1,759	2,227	-21%
Capitalised costs of overburden removal in mines	0	145	_
Total with capitalized costs of overburden removal	1,759	2,372	-26%

<sup>1</sup> The data for 2021 does not include the value of capital expenditure on the project to build two gas and steam units at the Dolna Odra Power Plant and a low-emission unit at the Rybnik Power Plant, which are shown in the Other Operations segment.

# **District Heating**

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Core business of the District Heating segment includes production of electricity and heat from cogeneration sources as well as distribution of heat.

# District Heating

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Main revenue items	PLN m				Main cost items	PLN m
Sale of heat* including contracted	2,555	Heat generation	<b>51.64</b> PJ	Π	Cost of production fuels used	2,126
capacity and neat distribution Sale of electricity*	2 110	Electricity generation	8.76 TWh		CO <sub>2</sub> cost*	1,069
Sucorcicettery	2,110	]			Depreciation and amort liquidation, write-offs	tisation, 701
Capacity Market	281	Main result items	PLN m		Personnel expenses	486
		EBIT	104		<b>F</b>	454
		EBITDA	805		External services	451

\* Managerial perspective

As in the case of Conventional Generation, this segment's significant revenues are revenues from electricity sales, however, they are usually directly related to generation of heat which in turn depends on demand that is highly seasonal and depends on external temperatures.

Revenues from the sale and distribution of heat are regulated revenues. Energy companies independently set tariffs and present them to the President of the Energy Regulatory Office (the "ERO President") for approval. Heat production at PGE Group takes place in cogeneration units, which tariffs for heat are calculated using a simplified approach (compared to tariffs based on a full cost structure), based on reference prices, conditioned on average sales prices for heat generated in units with specific fuel other than cogeneration units. They are published each year by the ERO President.

Due to the fact that the income on heat sales for CHP plant are tariffed as part of the so-called simplified method, they are characterised by a relative delay in the transfer of costs (annual or two-year). They are based on the year-to-year dynamics of average costs (including fuels used) incurred by entities that are not co-generation entities for the year preceding the time of tariff setting.

The cost approach is applied in the case of tariffs for heat distribution, which allows to cover justified costs (mainly the costs of heat losses and property tax) and a return on





invested capital, in line with guidelines from the ERO President. Distribution tariffs for heat are in place at branches in Gorzów and Zgierz, as well as by Kogeneracja S.A., PGE Toruń and Zielona Góra CHP.

Generation of heat and electricity is directly related to key variable costs of the segment, i.e. the cost of production fuel used (in particular, hard coal and gas) and the cost of fees for CO<sub>2</sub> emissions.

Electricity production in high-efficiency cogeneration is additionally remunerated. Until 2018, CHPs generated revenue from the sale of energy origin certificates, i.e. cogeneration certificates (yellow and red). From 2019, due to a change in support model, they receive support at a level covering increased operating costs related to production. The support

mechanism in the form of certificates is in place also for biomass-fired generating assets.

### Assets

District Heating within PGE Capital Group combines CHP plants separated from the EDF Polska assets acquired on November 14, 2017 and CHP plants separated from PGE GiEK. Since January 2, 2019 the following companies has been included in the segment.: PGE EC S.A., KOGENERACJA S.A., Elektrociepłownia Zielona Góra S.A., PGE Toruń S.A., PGE Gaz Toruń sp. z o.o., PEC Zgierz sp. z o.o. oraz MEGAZEC sp. z o.o. In addition, from July 1, 2021, Szczecin CHP, Pomorzany CHP and the district heating network in Gryfino, recognised until June 30, 2021 as part of the Conventional Generation segment, were included in the structures of the District Heating segment.

District Heating segment is the largest heat producer in Poland with market share of over 20%. Generation is based mainly on hard coal and gas.



installed capacity and	production in District	Heating segment
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Main fuel types	Annual e generati	Annual electricity generation (TWh)		al heat tion (PJ)	Annual heat generation (MWe)	Installed capacity (MWt)	
	2021	2020	2021	2020	2021	2021	
Hard coal	4.17	3.51	39.47	33.82	1,580	5,003	
Liginite	0.08	0.08	0.46	0.45	44	69	
Gas	4.22	5.05	9.99	9.66	891	1,286	
Biomass	0.26	0.05	1.34	0.48	83	176	
Other	0.04	0.04	0.38	0.29	9	300	
TOTAL	8.76	8.42	51.64	44.70	2,608	6,842	

# Key financial results

[PLN million]	2021	2020
Sales revenues	6,239	4,899
EBIT	104	304
EBITDA	805	947
Capital expenditures	610	671

# Key factors for the results of the segment

Key factors affecting the EBITDA result of District Heating segment on y/y basis included:

- Higher volume of net heat production in 2021 y/y is a result of lower outside temperatures compared to 2020. The average temperatures were by 1.80 C lower, what translated into increased heat production (by 6.9 PJ).
- Increase of heat sale price is a result of increased tariffs for heat for the CHP plants following the publication by the ERO of new reference prices for heat production in units not being co-generation units.
- Lower net electricity production volume in the segment as a result of lower electricity generation from gas, due to significantly higher gas prices on the wholesale market.
- Decrease of electricity sale prices due to lower forward contracts with 2021 delivery as compared to the contracts with 2020 delivery.

- Capacity Market, a mechanism, which was not present in the base period.
- Higher fuel consumption costs wjich are caused by increased volume of hard coal consumption and higher gas prices. Additionally, due to the inclusion of CHP Pomorzany in the structures of the District Heating segment, the consumption of biomass increased. The details are shown in the chart below.
- Higher CO, costs are mainly a result of higher price of allowances and lower allocation of allowances granted free of charge. The details are shown in the chart below.
- Lower personnel expenses result mainly from decreased employment y/y.

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#### Capital expenditures

Capital expenditures incurred in District Heating segment in 2021 and 2020

PLN m	2021	2020	% change
Investments in generating capacities, including:	552	616	-10%
• Development	289	253	14%
Modernisation and replacement	263	363	-28%
Other	58	55	5%
Total	610	671	-9%

# Renewables

This segment is involved in the generation of electricity from renewable sources and in pumped storage power plant.

Main revenue items	PLN m		Ren	<u>∟</u> ewables		Main cost items	PLN m
Sale	1,137					Use of energy	331
of electricity		$\sum$	Electricity	2.59 TWh	$\square$	incl. energy to pump water at pumped-storage plants	328
Capacity market	305		generation		$\square$	Depreciation and	330
Sale of energy	224		l			amortisation	
origin certificates			Main result	PLN m		External services	152
Regulatory system services	13		items			Employee wages	113
			EBIT	686		Taylor and fees	71
			EBITDA	1,016		incl. real estate tax	66

\* Managerial perspective

The Renewables segment is based mainly on revenues from the sale of electricity, however contrary to production at industrial plants within the Conventional Generation segment, this revenue is subject to a larger degree to changes in weather conditions and prices on the spot market due to the renewables sales model in place. Additionally, some of the generating units receive revenue from the sale of energy certificates of origin (green certificates) obtained from the production of renewable energy. In addition, some generating units receive revenue from the sale of energy certificates of origin (green certificates) obtained for the renewable energy produced.

Revenue from the Capacity Market, a mechanism introduced to prevent electricity shortages in the National Power System, constitutes a significant item in the segment's revenue, starting from 2021. Selected power plants in the Renewables segment receive fees for performing the capacity obligation (a Capacity Market Entity being on standby to supply electricity to the system and the obligation to supply specified capacity to the system when the system is under threat).

Installed capacity and production in power plants of Renewables segment.

On the cost side, the most important items include: depreciation of segment assets, use of energy to pump water at pumped-storage plants and third-party services, mainly the repair services. Property tax and employee wages also constitute a significant cost item in this segment.



ESG – Foundation of Development

# Assets

The PGE Capital Group's operations in renewable energy are managed by the PGE Energia Odnawialna S.A. Due to the profile of operations, the segment includes PGE Baltica sp. z o.o. This company is responsible for all activities related to off-shore wind farms.

Assets in the segment include:

- 17 wind farms,
- 5 photovoltaic power plants,
- 29 run-of-river hydro power plants,
- 4 pumped-storage power plants, including 2 with natural flow







#### Installed capacity and production in power plants of Renewables segment.

Types of power plants	Annual energy	generation (GWh)	Installed capacity (MWe)
	2021	2020	2021
Run-of-river hydro power plants	290.32	261.14	95.76
Pumped-storage power plants	674.82	748.30	1,256.00
Pumped-storage power plants with natural flow <sup>1</sup>	171.67	161.32	286.64
Wind farms	1,448.27	1,489.07	688.16
PV	4.67	1.04	4.70

<sup>1</sup> Including generation from pump-storage cycle of 16.2 GWh and generation from natural flow of 155.4 GWh. Total generation from pumpstorage cycle in 2021 amounted to 691.0 GWh, and generation from water totalled 445.7 GWh.

# Key financial results

[PLN million]	2021	2020	
Sales revenues	1,672	1,091	
EBIT	686	405	
EBITDA	1,016	597	
Capital expenditures	189	715	

# Key factors for the results of the segment

Key factors affecting the y/y results of Renewables included:

- Increase in revenues from electricity sales results from: higher average electricity sale price by PLN 210/MWh y/y, what translated into increase of revenues by approx. PLN 567 million; lower sales volume by 138 GWh, what caused revenues decrease of approx. PLN 29 million.
- Decreased revenues from sales of certificates resulting mainly from lower generation volume due to end of support for 12 small hydro power plants as from the end of September 2020.
- Lower sales revenues from ancillary services result mainly from change in agreement for provision of services and withdrawal in 2021 of Readiness Interventional Reserve among others.
- Capacity Market, a mechanism, which was not present in the base period.



# Distribution

In 2021, we connected nearly 1 GW of RES capacity to the PGE Dystrybucja grid and doubled the number of our prosumers. Continued dynamic development of green energy requires



an absolute modernisation of the transmission grid, for which the Company has secured massive financial resources for the coming years.

Jarosław Kwasek President of the Management Board, PGE Dystrybucja We are the second largest energy distributor in terms of the number of customers, with approx. 25 percent. share in the Polish energy distribution market. Our distribution area covers almost 40 percent. area of Poland. With the use of over 290 thousand. km of the power grid, we supply electricity to over 5.5 million customers.

Core business of the segment includes supply of electricity to final off-takers through the grid and HV, MV and LV infrastructure.

Main revenue items	PLN m		Distr	ibution		Main cost items	PLN m
Sale of distribution services	6,155	$\Box$	Volume of distributed energy	37.74 TWh	Π	Depreciation and amortisation, liquidation, write-offs	1,222 2
Connection fees	120	$\sum$			$\langle \langle \rangle$	incl. capitalised depreciation	
			Customers	<b>5.59</b> mln		Personnel expenses	1,209
			2			Transmission services	1,156
						Network loss*	560
			Main result items	PLN m		Taxes and fees	504 449
			EBIT	1,559		indirect estate tax	
* Managerial perspective.			EBITDA	2,779			

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### Segment revenue is based on a tariff for electricity

**distribution services,** which is approved by the ERO President every year at company request and is regulated.

The tariff allow costs related to the distribution system operator's on-going activities to be transferred. These are both justified operating costs, depreciation, as well as costs related to the necessity to cover grid losses on electricity distribution or the purchase of transmission services from the TSO. At the same time, the tariff reflects the costs transferred in fees such as the RES fee, the transition fee, the co-generation fee and – from 2021 – the capacity fee.

The key element shaping the Distribution segment's result is return on company's invested capital. This is based on

the Regulatory Asset Base ("RAB"), which is established on the basis of completed investments and taking into account asset depreciation. The Regulatory Asset Base serves as the basis for calculating return on capital, using weighted average cost of capital, which is published by the ERO President in accordance with a set formula and using as the risk free rate the average yield on 10-year State Treasury bonds with the longest maturity during the 36-month period preceding the tariff application submission, quoted on the Treasury BondSpot market. In addition, return on capital depends on the achievement of individual quality targets set by the ERO President for performance indicators including: interruption time, interruption frequency, connection time and (not yet included) time to provide metering and settlement data.



#### About the report

Key financial results		
[mln PLN]	2021	2020
Sales revenues	6,492	6,396
EBIT	1,559	1,093
EBITDA	2,779	2,306
Capital expenditures	1,354	1,680



# Volume, customers and operating data

PGE Dystrybucja S.A. operates in the area of 129 829 sq. km and delivers electricity to approximately 5.5 million customers.



### Volume of distributed energy and number of customers in 2021 and 2020

Tariff	Volume	e (TWh)	Number o according to po	of customers wer take-off points
	2021	2020	2021	2020
A tariff group	5.40	5.16	118	111
B tariff group	14.96	13.99	13,029	12,504
C+R tariff groups	6.84	6.50	488,553	486,272
G tariff group	10.54	10.02	5,089,033	5,030,101
Total	37.74	35.67	5,590,733	5,528,988



Education

#### Key operational data

Operational data	Unit	2021	2020	2019	2018	2017
Number of stations, including:	pieces	95,987	95,603	95,014	94,203	93,488
number of transformer stations	pieces	95,455	94,955	94,326	93,684	93,031
MVA power	MVA	32,956	32,663	32,347	31,696	31,096
Total length of power lines	km	297,029	295,613	293,825	291,002	287,992
HV lines	km	10,383	10,336	10,317	10,284	10,281
MV lines	km	115,049	114,539	113,856	112,418	111,568
LV lines	km	171,597	170,738	169,652	168,300	166,143
Grid loss ratio	%	4.7	5.2	4.8	5.1	5.4
SAIDI, including:	minutes	368	251	261	299	557
Planned	minutes	33	40	58	87	95
Unplanned with catastrophic	minutes	334	211	203	212	462
SAIFI, including:	per cus- tomer	4.28	3.67	3.88	3.92	5.48
Planned	per cus- tomer	0.19	0.24	0.31	0.47	0.48
Unplanned with catastrophic	per cus- tomer	4.09	3.43	3.57	3.45	5.00
Connection time	days	267	206	199	211	215

### Key factors for the results of the segment

Key factors affecting results of Distribution segment y/y included:

- Increased volume of distributed energy by 2.1 TWh resulting mainly from higher demand.
- Decrease in rates in tariff for 2021 by PLN 9.6/MWh compared to the tariff for the previous year, that translated into an decrease in revenues from the sale of distribution services.
- Lower costs of electricity purchases to cover network losses mainly as a result of a decrease in the electricity purchase price to cover the losses.
- Increase of costs of tax on real estate in connection with an increase of: grid assets value as a result of investments; tax rates on land and buildings.
- Decrease in personnel expenses due to ongoing process to optimise costs.



# Capital expenditures

Capital expenditures incurred in Distribution segment in 2021 and 2020

PLN m	2021	<b>2020</b> <sup>1</sup>	% change
Development investments	665	791	-16%
Modernisation and replacement investments	692	874	-21%
Other	1	15	-93%
Total	1,358	1,680	-19%

<sup>1</sup> Data for 2020 have been adjusted to the current division of capital expenditures into the indicated categories.

# Supply

Supply segment activities include Group's wholesale and retail trading of electricity.

Wholesale trading includes mainly electricity trading on behalf of and for Conventional Generation segment, District Heating segment and Renewables segment.



\* Dane dotyczą spółki PGE Obrót S.A.

As part of retail-market activities, the key source of segment's revenue is sale of electricity to final customers. This is sale to business and institutional clients.

Electricity sales are matched by the costs to purchase electricity on the wholesale market and costs to redeem certificates

as part of the support system for renewable sources and energy efficiency.

The Supply segment also incurs costs related to the Group's corporate centre.

Key financial results [PLN million]	2021	2020	
Sales revenues	38,223	29,017	
EBIT	794	609	
EBITDA	827	644	
Capital expenditures	8	15	

### Wolumeny, klienci i dane operacyjne

Direction PGE 2050

Volume of electricity sales to final off-takers and number of customers in 2021 and 2020

Tariff	Volume (TWh)1		Number of customer according to power ta	s ake-off points¹
	2021	2020	2021	2020
A tariff group	7.29	9.35	139	142
B tariff group	13.68	14.79	11,877	12,575
C+R tariff groups	6.31	6.75	421,164	446,253
G tariff group	10.04	9.75	5,021,702	4,954,863
Total	37.32	40.64	5,454,882	5,413,833

<sup>1</sup> Data for PGE Obrót Obrót S.A.

# Key factors for the results of the segment

Key factors affecting EBITDA of Supply segment y/y included:

- Higher result on electricity, due to lowered base in the sale of tariffed products in previous year – the ERO President set the prices for households at a level which did not cover actual costs of electricity purchase. The last year's low base was also an effect of lower demand due to COVID-19, what resulted in re-selling certain volumes on the spot market below purchase prices in forward transactions.
- Increase of revenues from services performed within the Group resulting mainly from higher revenues from the Agreement for Commercial Management of Generation Capacities as a consequence of increased trading value of electricity under management.
- Lower result on gas sales, as a result of higher portfolio balancing costs in connection with a significant increase in prices on the wholesale market.

- Higher personel expenses as a result of organisational changes and due to ongoing proces of salaries optimisation.
- Negative impact of balance of provisions for onerous contracts and potential claims from customers resulting from reversal of provision for onerous contracts in 2020, that mainly related to lack of coverage of part of justified operating costs in the tariff for households approved by the ERO President. In turn, in 2021 a provision was created for potential claims from customers in connection with the termination of unfavorable contracts for the supply of electricity and natural gas.



# **Circural economy**

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From the beginning of 2021, PGE Group reports a new operating segment – Circular Economy, which includes the following companies: PGE Ekoserwis S.A., EPORE S.A., ZOWER sp. z o.o. The management of combustion byproducts at PGE Group turns waste into high-value substances that are used in other branches of economy (cement industry, construction, road-building, mining) and thus reduces the volume of ultimate waste generated. The activities of the segment include the provision of comprehensive services in the field of management of combustion by-products ("UPS"), provision of services in auxiliary areas for electricity and heat producers and the supply of materials based on UPS.



Main revenue items	mln PLN		Circular Eco	onomy		Main cost items	PLN m
Revenue from the economic use of combustion byproducts Revenue from other services	209 102	$\left \right\rangle$	Volume of combustion by-products received from suppliers	<b>3,283</b> Mgt	$\langle \rangle$	Personnel expenses External services Amortisation and deprecia	99 78 ation 9
			Main result items	PLN m			
			EBIT	36			
			EBITDA	45			

1.1

The main revenue source in the Circular Economy segment is **revenue from the economic use of combustion byproducts**, which includes revenue from the sale of products manufactured on the basis of combustion by-products in internal production processes and the sale of services related to the management of combustion by-products. The level of revenue depends on multiple factors, including commercial potential for selling combustion by-products, in processed and unprocessed form, seasonality of industries purchasing combustion by-products, seasonality of suppliers of combustion by-products (power plants, combined heat-and-power plants), volumes collected, efficiency of production infrastructure, capabilities for storing combustion by-products as materials inventories intended for production, as well as market conditions. At PGE Ekoserwis, we have over 200 specialised products and technologies based on the use of combustion by-products, the use of which brings significant environmental benefits through reducing CO2 emissions, saving natural resources or minimising landfill. Our product portfolio is an attractive and competitive offering for many sectors, and our products are safe for people and the environment. We are currently focusing on the development and designation of pro-environmental, efficient and costeffective solutions towards the recovery of raw materials from

decommissioned installations, such as photovoltaic panels, energy storage or wind turbines.



Paweł Wieczorek

Director of Development and Marketing at PGE Ekoserwis

Key financial results		
[PLN m]	2021	2020
Sales revenues	311	_
EBIT	36	_
EBITDA	45	_
Capital expenditures	9	_



Key factors affecting EBITDA of Circular Economy segment included:

- Revenue from sale of combustion by-products: ash, slag, gypsum obtained in the process of hard coal and lignite combustion.
- Revenue from sale of services, concerning services in the field of coal storage site operations and heavy equipment rentals, mainly to PGE Group companies.
- **Personnel costs** necessary for the proper functioning of the segment.
- **Third-party service costs**, mainly concerning services in the field of transporting waste from production units.
- Others, including material and energy costs.

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# **Financial results**

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2021 was a period of strong economic recovery after the economy froze in 2020 due to the Covid-19 pandemic. GDP growth of 5.7% and industrial production growth of 14.9% translated into demand for electricity and, together with increased foreign demand, drove a surge in energy production in Poland.

PGE Group's increased power generation is responsible for a 15% y/y increase in sales revenue in 2021. Reported EBITDA amounted to PLN 9.5 billion and grew by 60% y/y due to higher power generation and distribution volumes, revenues from the Capacity Market and higher energy prices on the spot market. The result was also significantly improved by one-off events, the balance of which amounted to PLN 1.4 billion. Recurring EBITDA amounted to PLN 8.1 billion.





### Consolidated statement of profit and loss

Direction PGE 2050

Net profit generated in 2021 amounted to PLN 3.95 billion. Net profit was significantly impacted by non-recurring events in the form of the release of a reclamation provision and also asset impairment losses. The one-off events were of a noncash nature and did not affect cash flow from operating activities, which amounted to PLN 7.46 billion.



[PLN million]	As at December 31, 2021	As at December 31, 2020
NON-CURRENT ASSETS		
Property, plant and equipment	60,817	61,741
Investment property	39	41
Intangible assets	682	646
Right-of-use assets	1,257	1,309
Financial receivables	204	191
Derivatives and other assets measured at fair value through profit or loss	364	132
Shares and other equity instruments	117	57
Shares accounted for using the equity method	156	152
Other non-current assets	873	839
CO <sub>2</sub> emission allowances for captive use	797	39
Deferred income tax assets	933	1,351
66,239	66,498	66,239





[PLN million]	As at December 31, 2021	As at December 31, 2020
CURRENT ASSETS		
Inventories	2,189	3,123
CO <sub>2</sub> emission allowances for captive use	4,106	1,735
Income tax receivables	144	8
Derivatives and other assets measured at fair value through profit or loss	575	423
Trade and other financial receivables	7,727	4,812
Other current assets	1,240	799
Cash and cash equivalents	6,733	4,189
	15,089	839
ASSETS CLASSIFIED AS HELD FOR SALE	13	7
TOTAL ASSETS	88,966	81,594
	66 498	66 239
EQUITY		
Share capital	19,165	19,165
Reserve capital	20,154	18,410
Hedging reserve	609	-13
Foreign exchange differences from translation	2	5
Retained earnings	7,564	4,951
EQUITY ATTRIBUTABLE TO EQUITY HOLDERS OF THE PARENT	47,494	42,518
Equity attributable to non-controlling interests	797	983
TOTAL EQUITY	48,291	43,501

[PLN million]	As at December 31, 2021	As at December 31, 2020
Non-current provisions	8,559	11,207
Loans, borrowings, bonds and lease	8,666	10,025
Derivatives	1	385
Deferred income tax liabilities	402	345
Deferred income and government grants	600	600
Other financial liabilities	517	448
Other non-financial liabilities	133	65
Pozostałe zobowiązania niefinansowe	133	65
	23,075	839
CURRENT LIABILITIES		
Current provisions	12,600	7,311
Loans, borrowings, bonds and leases	2,160	1,384
Derivatives	82	63
Trade and other financial liabilities	4,601	3,504
Income tax liabilities	20	476
Deferred income and government grants	76	77
Other non-financial liabilities	2,258	2,203
	21,797	15,018
TOTAL LIABILITIES	40,675	38,093
TOTAL EQUITY AND LIABILITIES	88,966	81,594

#### Balance of non-recurring events (EBITDA level)

Non-recurring events in 2021 had a positive impact on the reported result (opposite to the previous year). The balance of events amounted to PLN 1,406 million and consisted mainly of the release of a reclamation provision totalling PLN 1,463 million.

# Reported EBITDA by segment

In 2021, all operating segments with the exception of the District Heating segment recorded an increase in reported EBITDA. In the Conventional Generation segment, results were positively impacted by higher generation volumes and revenues from the Capacity Market. In the Distribution segment, results were supported by higher volumes of distributed energy. In the Supply segment, there was an increase in margins on energy sales against a low 2020 base. In the District Heating segment, results declined under the impact of rising costs of CO<sub>2</sub> emission allowances and natural gas.

# Reported EBIT by segment

## Development of EBITDA by mayor value drivers



# One-off items and recurring EBIT

[PLNm]	2021	2020	у/у
One-off items – EBITDA level	1,406	-218	-
Impairment losses on property, plant and equipment, intangible assets and right-of-use assets (gross) <sup>1</sup>	-216	-948	_
One-off items – EBIT level	1,190	-1,166	-
Recurring EBIT	3,933	2,574	53%

<sup>1</sup> Impairment losses on property, plant and equipment, intangible assets and right-of-use assets.

# Consolidated balance sheet (key categories)

The increase in the balance sheet total is the result of growth in current assets, including CO<sub>2</sub> inventories and a higher cash balance. The company's operations were mainly financed by funds generated from operating activities (+PLN 7.5 billion).

During the period, there was a significant decrease in net debt from PLN 7.3 billion at the end of 2020 to PLN 4.2 billion at the end of 2021. The decrease in debt was due to lower capital expenditure and the optimisation of operating costs of PGE Group companies. 1 n Ì

Education

# **Operating results**

2021 saw a strong increase in demand for electricity. Domestic energy consumption jumped by 5.4% as a result of the economic recovery from the covid-19 pandemic slump. In addition, in the second half of 2021, energy commodity prices increased significantly, which translated into higher energy prices on European markets and caused Poland to become a net energy exporter from an energy importer in the last quarter of 2021.





PGE Group produced more than half of the energy resulting from the increase in demand in 2021. Especially, dispatchable conventional generation based on lignite grew by 25% y/y and based on hard coal by 20%.

TWh	2021	2020	у/у
Total production, including:	68,77	58,13	18%
Lignite	37,19	29,79	25%
Hard coal	24,34	20,20	20%
Natural gas	4,22	5,05	-16%
Pumped-storage	0,69	0,76	-9%
Нуdго	0,45	0,41	10%
Wind	1,45	1,49	-3%
Biomass	0,39	0,39	0%
Municipal waste	0,04	0,04	0%

We measure generation volumes in two ways. By type of fuel and by generating unit. Some of our units are multi-fuel (e.g. small amounts of biomass are co-fired as supplementary fuel in coal-fired power plants).

Total production from renewable energy sources at PGE Group amounted to 2.33 TWh and was at a similar level yearon-year. The volume of electricity production from renewable sources is calculated as the sum of production from wind, hydro and biomass (including co-firing in conventional power plants). The comparable volume was accounted for by higher production from hydroelectric power plants and lower production from wind power plants, which was mainly determined by weather conditions. Electricity produced by pumped storage units (ESP) is not classified as RES production (it is in fact storage).

# **Electricity distribution**

Last year, our grids supplied 37.74 TWh of electricity to more than 5.5 million consumption points. When economic activity and GDP picked up after the freezing of the economy as a result of the covid-19 pandemic, there was a surge in energy demand, which was 6% year-on-year in PGE's distribution area. Long-term demand growth and stricter quality targets in electricity distribution require systematic investment in the grid to meet the needs of consumers and the growing economy.

TWh	2021	2020	у/у
Distribution of electricity	37.74	35.67	6%

Volume of electricity distributed in 2014–2021



\* CAGR (compound annual growth rate).

### Lignite mining

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In 2021, output was 47.2 million tonnes (an increase of 18% year-on-year). The volume of lignite extraction is closely linked to the volume of electricity production in power plants, for which the mines are a natural supplier.

mln ton	2021	2020	у/у
Extraction of lignite, including:	47,18	39,94	18%
Bełchatów – field Bełchatów	2,78	2,39	16%
Bełchatów – field Szczerców	35,60	32,51	10%
Тиго́м	8,80	5,04	75%

# Sale of heat

In 2021, the volume of PGE Group's heat sales grew significantly in relation to 2020. The increase in heat sales by 6.5 petajoules, or 13%, was mainly the result of lower average outdoor temperatures during the heating season.

Key figures	2021	2020	у/у
Sale of heat [PJ]	55,07	48,6	13%

# **EDUCATION**

# **Energy market scheme**

# Merit order

## Organisation of the electricity market

The electricity market is organised in such a way that units with a lower variable cost have priority over units with higher costs. This rule is called "Merit order". During the demand peak ("PEAK"), a larger number of generating units is involved in satisfying demand than in off-peak hours ("OFF-PEAK"), when electricity is generated only in the most economical units. Electricity in the peak is more expensive than outside

### High RES generation (normal demand)



Low RES generation (normal demand)



- Renewable installations (RES) with almost zero variable cost, come first with guaranteed offtake, supported with RES certificates or in auction system
- Combined heat and power plants treated as "must-run", generating heat, electricity is an additional product
- Autoproducers "must run" CHPs generating for industrial purposes with ability to deliver surplus of electricity

the peak, but with the rapid development of photovoltaic sources in the summer, the price difference has decreased significantly. Conventional power plants can adapt their production to demand and market conditions as part of their technical capabilities. On the other hand, the supply of electricity from renewable sources depends only on atmospheric conditions.

#### High RES generation (high demand)



Low RES generation (high demand)



- Lignite power plants
- Hard coal power plants

PGE

- Pumped-storage units working according to TSO needs, separately remunerated
- Gas-fired units working in condensation, their place in the merit order depends on the relation of gas prices to coal prices

#### What makes up the cost of electricity?

The cost of electricity is made up of the following:

- cost of investment, i.e. construction of the power plant. This cost is amortised over the plant's lifecycle.
- **fixed costs**, i.e. on-going maintenance: employee wages, repairs, equipment, etc. These costs are incurred regardless of whether the plant is producing electricity or not. From 2021, some power plants and combined heat and power plants receive revenues from the capacity market in return for the unit being ready to supply electricity to the system. These revenues help to compensate for the fixed costs incurred.
- variable costs, i.e. how much it costs to generate each additional MWh of energy. The level of variable costs directly depends on the level of production. The main component of variable costs is the cost of fuel and cost of CO<sub>2</sub> emission.

For different types of power plants, the relation between these costs varies. For example, for wind farms or photovoltaics, the cost of investment and its share in total costs are high. However, operating, fixed and variable costs are relatively low. In the case of conventional plants, variable and fixed costs are more balanced, largely depending on the cost of fuel and cost of CO<sub>2</sub> emission.

Due to the rising prices of CO<sub>2</sub> allowances and the decline in the prices of RES installations, the standardized cost of energy generation per 1 MWh (the so-called LCOE) is higher in Polish power plants for conventional energy than for renewable energy.

# The mechanisim shaping prices on the wholesale market – How it works?

The price on the wholesale market is driven by variable costs, and more precisely – by the marginal cost to produce 1 MWh of electricity. Based on the level of these costs, from the lowest to the highest, a supply curve (merit order) is created. The point where the demand curve crosses the supply curve is the current market price of energy.

Fixed costs are incurred regardless of whether a given plant operates or not. Therefore, they have no present impact on the price of electricity.

High costs of investing in renewable sources (i.e. sources with low variable cost) are financed outside the electricity market, from subsidies that all consumers pay for.

#### Why do energy prices changes throught the day?

Not all capacities are always available on the market. Therefore, the price is driven by their availability and by demand for electricity – lower at night, higher during the day, and seasonally shifting – higher in the winter, lower in the summer.

In Poland, we have limited water resources and limited capability of using solar energy, which translates into a limited number of plants fuelled by these forces of nature. This is why the most important renewable source is wind energy. It is wind conditions that largely determine the level of available capacity.

The most important factor in capacity availability is thus the weather. Therefore, the level of the availability of renewable capacities is variable, and there must always be an appropriate conventional capacity reserve, ready for immediate use whenever weather conditions make it impossible to generate energy from wind.

# Where are specific generation sources placed on the supply curve?

It is because variable costs have an impact on the price of electricity. For conventional plants, the main costs are: cost of fuel and cost of CO<sub>2</sub> emission allowances.

Wind farms, hydro plants and photovoltaic units do not incur these costs. Therefore, they are always first in the merit order. CHP plants are similar – their primary role is to produce heat, while electricity is generated in addition to that. Given the cost of fuel (coal, gas) and CO<sub>2</sub> allowances, conventional plants are further out in the merit order. The variable production cost in conventional plants, of course, depends on the efficiency of fuel processing at the plant. Therefore, new units will offer cheaper electricity than existing ones.

# What if market does not fully cover plants's operating costs?

The mechanism for setting prices based on variable costs was effective in a free market situation, undistorted by the subsidising of select technologies.

Subsidising the costs of investing in renewables has distorted the energy market, worsening the economics of conventional unit operations because these cannot operate at full capacity. In many markets, the operation of permanently or temporarily unprofitable assets is being limited. This may not be allowed on the market for electricity, which is one of the basic human needs. In disadvantageous weather conditions (e.g. no wind), there would not be enough energy, which would cause a blackout. This is destructive for the economy and for the regular life of people.

This is where the concept of capacity market comes in – as a market supplementary to the electricity market. Generating units receive additional funds from the capacity market in return for the unit being ready to supply electricity to the system. Thanks to the capacity market, available generation sources may receive a partial compensation resulting from the decline in wholesale prices, which previously covered variable costs and fixed costs. This allows for the ongoing maintenance and modernization of the power plant in order to ensure uninterrupted and reliable energy supplies.

# The capacity market and the electricity market

The capacity market is a market separate from the electricity wholesale market and only indirectly influences electricity prices by ensuring stable power supply and a safe reserve.

Without the capacity market, **the price on the wholesale market would have to increase** (ceteris paribus) by reducing supply. Thanks to the revenues from the capacity market, units that would otherwise have to be shut own, reducing supply could remain in the merit order.



# **Retail market**

It is a market where **electricity sellers compete with end users.** 

- Retail market price includes:
- electricity price from the wholesale market,
- electricity distribution costs,
- additional taxes and fees (directed to support RES or cogeneration)

From 2021, a **capacity fee** is collected – to finance the capacity market

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2GE

Direction PGE 2050

Business activity Education

# Heat without secrets

GRI: 102-14



What is the difference between small-scale emissions and smog? Why is waste used as a fuel to produce heat? How do I read my heat invoice? What technological advancements are being introduced in the heating industry? Listen to the Heat without Secrets podcast and find out the answers to the most important questions in the heating industry.

District heating is the best and most eco-friendly solution. The company wants to significantly increase the share of "green"



Przemysław Kołodziejak
President of the Management Board,
PGE Energia Ciepła

Ecology is becoming increasingly important for the people of Europe, Poland notwithstanding. Consumers using energy services are keen on choosing planet-friendly suppliers. This trend and the climate policy of the European Union are causing energy companies to implement strategies shifting away from fossil fuels to "green" energy. These changes are also affecting the district heating industry, which has been working "full steam" again since the autumn.

## Episode 1: Heat without secrets

What is the difference between MW and thermal MW, and what is GW and when do we apply these units of measurement? What is cogeneration and what makes it different from trigeneration? How is heat transported over tens of kilometres? These questions are tackled by experts in the first episode of the podcast "Heat without Secrets," of which PGE Energia Ciepła is a partner.

#### Episode 2: Everyone may care about clean air

Why are small-scale emissions bad and low carbon sources desirable? Are small-scale emissions the same as smog? Can waste incineration be green? Why are there low-carbon boilers in a combined heat and power plant? Questions such as these will be answered by experts in the second episode of the podcast "Heat without Secrets."

### Episode 3: Can waste incineration be ecological?

In the third episode of the podcast series "Heat without secrets," experts from PGE Group's PGE Energia Ciepła address the topic of small-scale emissions, also discussing the operation of waste-to-energy incinerators. PGE Energia Ciepła is a partner of the series.

Episode 4: Environmentally friendly heat-and-power plants

How does a Wet Flue Gas Desulphurisation System work? What is in the plume of white smoke rising from the huge chimneys? Why does water circulate in a closed circuit at a CHP? Is gypsum produced in the "heat factory"? Such questions will be answered by experts in the fourth episode of the podcast "Heat without Secrets," of which PGE Energia Ciepła is a partner.

## Episode 5: What sort of heating system for a home?

Which heating system should you choose for your home? Who can benefit from district heating and hot water? How do you secure funding to change your heating and how do you ensure energy efficiency? These and other questions will be answered by experts in the next episode of the podcast "Heat without Secrets," of which PGE Energia Ciepła is a partner.

#### Episode 6: CHPs – certain heat supplies all year round

Do combined heat and power plants only work when it's cold or also when it's hot? What can we do to use heat all year round? How much will our bills go up if we use district heating all year round? Who decides whether the radiators in the house are heating? What is the "weathervane" in district heating? These are the questions that experts will answer in the sixth episode of the podcast "Heat without Secrets."

## Episode 7: Bills without secrets

Is closing radiator valves completely a way to save money? How can we ourselves influence the amount of our heat bills? In the next episode of the "Heat without Secrets" podcast, experts from PGE Toruń, which is part of PGE Energia Ciepła, explain how heat is billed and reveal what to do to pay as little as possible for it.

# Episode 8: District heating system without secrets, part 1 – generation

The district heating industry is introducing more and more innovations, using aircraft turbines, for example! Moreover, it turns out that in some CHP plants it is possible to convert heat into cold, which is an alternative to air conditioning. What secrets does the district heating system hold?



# Episode 9: District heating system without secrets, part 2 – distribution

What is a district heating system and how is it that we all, regardless of the distance from the CHP plant, have water at a similar temperature in our homes? What happens in the event of a network failure? And what does green water on tap mean?

#### Episode 10: The secrets of the energy professional

Interesting classes, scholarship opportunities, a well-paid, secure job in the profession... There are many benefits to be had from studying to become a power plant technician. Are young people interested in working at a CHP plant? And how are they being prepared for this?



# Learn about offshore wind farms

# See on Youtube:

- Why is PGE focusing on offshore wind?
- How will offshore wind farms work?
- How do we study the strength of wind in the Baltic Sea?



# Glossary

Entry	Definition
Achievable capacity	The maximum sustained capacity of a generating unit or generator, maintained continuously by a thermal generator for at least 15 hours or by a hydroelectric generator for at least five hours, at standardized operating conditions, as confirmed by tests
Ancillary control services (pol. RUS)	Services provided to the transmission system operator, which are indispensable for the proper functioning of the National Power System and ensure the keeping of required reliability and quality standards
ARA	USD hard coal price index in EU. Loco in harbours Amsterdam-Rotterdam-Antwerp
Balancing market	A technical platform for balancing electricity supply and demand on the market. The differences between the planned (announced supply schedules) and the actually delivered/off-taken volumes of electricity are settled here. The purpose of the balancing market is to balance transactions concluded between individual market participants and actual electricity demand. The participants of the balancing market can be the generators, customers for electricity understood as entities connected to a network located in the balancing market area (including off-takers and network customers), trading companies, electricity exchanges and PSE S.A. as the balancing company.
Base, baseload	Standard product on the electricity market: a constant hourly power supply per day in a given period, for example week, month, quarter or year
BAT	Best Available Technology
Best practices	The document "Best Practices for WSE-Listed Companies 2016," adopted by the WSE Council on October 13, 2015, and in effect from January 1, 2016
Biomass	Solid or liquid substances of plant or animal origin, subject to biodegradation, 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
ССБТ	Combined Cycle Gas Turbine
CHP/ CHP plant	Combined Heat and Power plant
Circular economy	system that minimises 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



Entry	Definition
Co-combustion	the generation of electricity or heat based on a process of combined, simultaneous combustion in one device of biomass or biogas together with other fuels; part of the energy thus generated can be deemed to be energy generated with the use of renewable sources.
Co-generation	The simultaneous generation of heat and electricity or mechanical energy in the course of one and the same technological process
Co-generation certificates	A certificate confirming generation of energy in highly-efficient co-generation, issued by the ERO President – so called red certificates (for electricity produced in co-generation with heat) and yellow certificates (for energy generated in gas-fired power plants and CCGT power plants)
Co-generation fee	Element of the electricity bill charged to finance the new support mechanism for highly- efficient cogeneration (auction system from 2019)
CSR	Corporate Social Responsibility
CVC fund	Corporate Venture Capital; in the CVC model, portfolio companies, aside from financial support, receive the opportunity to verify their ideas in a corporate setting
Diffuse source energy	Generation of electricity, heat or cold, solid, liquid and gas fuels by smaller units or production facilities for local use
Distribution	Transport of energy through distribution grid of high (110 kV), medium (15kV) and low (400V) voltage in order to supply it to customers
DSO	Distribution System Operator – a power 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
EBIT	operating profit (loss)
EBITDA	EBIT + depreciation, amortisation, disposal and impairment losses (PPE, IA, goodwill) that are recognised in profit or loss



Entry	Definition
Energy cluster	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, within the operational area of the given cluster, not exceeding the area of one district (powiat) in the meaning of the act on district authorities) or 5 municipalities (gmina) 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
ERO	Energy Regulatory Office
ESCO	(Energy Saving Company or Energy Service Company) is a formula for implementing energy saving measures in cooperation with a company specializing in energy services.
ESG	Environment, Social, Governance – non-financial factors of the issuer's assessment regarding the environmental risk (Environment), broadly understood issues of relations with the environment and stakeholders (Social) as well as managerial criteria and corporate governance (Governance)
EUA	European Union Allowances: transferable $\rm CO_2$ emission allowances; one EUA allows an operator to release one tonne of $\rm CO_2$
EU ETS	European Union Greenhouse Gas Emission Trading Scheme) EU emission trading scheme. Its operating rules are set out in the ETS Directive, amended by the Directive 2009/29/EC of the European Parliament and of the Council of April 23, 2009 (OJ EU L. of 2009, No. 140, p. 63—87)
European Green Deal	Action plan for the sustainable economy of the European Union assuming the achievement of climate neutrality by 2050. Achieving this goal will require a socio-economic transformation in Europe: cost-effective, equitable and socially sustainable. The new program consists of initiatives in a number of closely related areas, such as climate, environment, energy, transport, industrial, agricultural and sustainable finance. The EU will also provide financial support and technical assistance to the people, businesses and regions most affected by the transition to the green economy. This will be achieved through the Just Transition Mechanism, under which the most affected regions are to receive EUR 150 billion in the period 2021–2027.
EW	Hydro power plant
FW	Wind Farm
Generating unit	Technically and commercially defined set of equipment belonging to a power company and used to generate electricity or heat and to transmit power
CJ	Gigajoule, a unit of work/heat in the SI system, 1 GJ = 1 000/3.6 kWh = approximately 278 kWh





Entry	Definition
Green certificate	A certificate confirming generation of energy from renewable energy sources, issued by the ERO President
GW	Gigawatt, a unit of capacity in the SI system, 1 GW = 109 W
GWe	One gigawatt of electric capacity
High Voltage Network (HV)	A network with a nominal voltage of 110 kV
IED	Industrial Emissions Directive
IGCC	Integrated Gasification Combined Cycle
Installed capacity	The formal value of active power recorded in the design documentation of a generating system as being the maximum achievable capacity of that system, confirmed by the acceptance protocols of that system (a historical value, it does not change over time)
IRZ	Cold Intervention Reserve Service – service consisting of maintaining power units ready for energy production. Energy is produced on request of PSE S.A
Just Transition Fund	Just Transition Fund is the first pillar of the Just Transition Mechanism. The fund, as proposed by the European Commission, will have the task of supporting regions whose economy is largely based on activities that generate high carbon dioxide emissions. According to the proposal of the European Commission of 28 May 2020, the fund will have a budget of EUR 40 billion – EUR 10 billion is to come from the EU budget, while the remaining funds up to EUR 40 billion in the years 2021–2024 are external revenues allocated for a specific purpose from the European Facility for Reconstruction. To unlock funding from the Just Transition Fund, EU countries will have to allocate 1.5 to 3 euros from their European Regional Development Fund (ERDF) for every 1 euro they receive from the part of the fund financed from the EU budget (10 billion euro) and European Social Fund Plus (ESF +). This expenditure from the EU budget will be complemented by national co-financing in line with the principles of cohesion policy. Thus, the total financing capacity from the Just Transition Fund exceeds EUR 89 billion and may amount to EUR 107 billion.
Just Transition Mechanism	The Just Transition Mechanism is a key tool to ensure that the transition to a climate neutral economy (European Green Deal) is carried out fairly. The mechanism provides targeted support in regions most affected by the negative socio-economic effects of the transition. The Just Transition Mechanism contributes to mitigating the social and economic impacts of transition by focusing on the industries and workers most affected, and by mobilizing at least € 150 billion for investments between 2021 and 2027 through three pillars: the Just Transition Fund, a dedicated system under InvestEU and the new European Investment Bank loan facility.
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





Entry	Definition
Low Voltage Network (LV)	A network with a nominal voltage not exceeding 1 kV.
Medium-voltage network (MV)	A network with a nominal voltage higher than 1 kV but lower than 110 kV.
MSR	Market Stability Reserve (relating to CO <sub>2</sub> )
MW	Unit of capacity in the SI system, 1 MW = 106 W)
MWe	One megawatt of electric power
MWt	One megawatt of thermal power
NABE	National Energy Security Agency
NOx	Nitrogen oxides
NPS	The National Power System, a set of equipment for the distribution, transmission and generation of electricity, forming a system to allow the supply of electricity in the territory of Poland
ORM	Operational capacity reserve; generation capacities of Active Scheduling Generation Units (JGWa) being in operation or at stand-by, constituting excess capacity available to PSE S.A. over demand for electricity that is covered by Energy Sale Agreements and on the Balancing Market under voluntary generation
Peak, peakload	Standard product on the electricity market; a constant power supply from Monday to Friday, each hour between 7:00 a.m. and 10:00 p.m. (15-hour standard for the Polish market) or between 8:00 a.m. and 8:00 p.m. (12-hour standard for the German market) in a given period, for example week, month, quarter or year.
PJ	Petajoule, a unit of work/heat in the SI system, 1 PJ = approx. 278 GWh
Photovoltaics	The processing of sunlight into electricity
PMI	Purchasing Managers Index, a composite indicator developed by Markit Economics to show the standing of the industrial sector; indicator value above 50 points means an improvement in the sector
Property rights	negotiable exchange-traded rights under green and co-generation certificates

Entry	Definition
Prosumer	end 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
PSCMI1	Polish Steam Coal Market Index 1 – average level of prices of coal dust sold to industrial-scale power plants in Poland
Pumped storage plant	Special type of hydro-power plant allowing for electricity storage. It uses the upper reservoir, to which water is pumped from the lower reservoir using electricity (usually excessive in system). The pumped storage facilities provide ancillary control services for the national power system. In periods of increased demand for electricity, water from the upper reservoir is released through the turbine. This way, electricity is produced.
PV	Photovoltaics
RAB	Regulatory Asset Base.
Regulator	The President of ERO, 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.
RES	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
RES fee	The Renewable Energy Source fee serves to ensure the availability of energy from renewable sources in the national power system. The RES fee is allocated solely to cover the negative balance due to settlements of energy from renewable sources between producers of this energy and sellers of electricity generated from renewable energy sources, and operating costs of Zarządca Rozliczeń S.A. (renewable energy fee holder).
RIG	Readiness Interventional Reserve – the power plant's readiness to provide the active power generation service or its consumption at the request of PSE.
SAIDI	System Average Interruption Duration Index – index of average system interruption time (long, very long and disastrous), expressed in minutes per customer per year, which is the sum of the interruption duration multiplied by the number of consumers exposed to the effects of this interruption during the year, divided by the total number of off-takers. SAIDI does not include interruptions lasting less than three minutes and is determined separately for planned and unplanned interruptions. It applies to breakdowns in the low (LV), medium (MV) and high voltage (HV), wherein SAIDI in quality tariff does not include interruptions.



Entry	Definition
SAIFI	System Average Interruption Frequency Index – index of average system amount of interruptions (long, very long and disastrous), determined as number of off-takers exposed to the effects of all such interruptions during the year divided by the total number of off-takers. SAIFI does not include interruptions lasting less than three minutes and is determined separately for planned and unplanned interruptions. It applies to breakdowns in the low (LV), medium (MV) and high voltage (HV), wherein SAIFI in quality tariff does not include interruptions.
SCR	Selective catalytic reduction
Smog	Toxic and unnatural atmospheric event created as a result of air mixing with smoke and exhaust fumes. Smog is derived from two English words: smoke and fog. Smog appears over cities and industrial areas. The main reason for smog in many Polish cities is small-scale emissions, i.e. pollution that is generated in household furnaces, local boiler rooms and car use
SNCR	Selective non-catalytic reduction
SO <sub>2</sub>	Sulphur dioxide
SPOT market	The market on which transactions are carried out no later than on the second business day from the time they were ordered.
Start-up	Early-stage company established in order to build new products or services and characterised 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.
Tariff	The 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.
Tariff group	a group of customers off-taking electricity or heat or using services related to electricity or heat supply to whom a single set of prices or charges and terms are applied
TGE	Towarowa Giełda Energii S.A. (Polish Power Exchange), a commodity exchange on which trading can take place in electricity, liquid or gas fuels, extraction gas, emission allowances and property rights whose price depends directly or indirectly on electric energy, liquid or gas fuels and emission allowances, admitted to commodity exchange trading.
TPA, TPA rule	Third Party Access, the owner or operator of the network infrastructure to third parties in order to supply goods/services to third party customers.
Transmission	transport of electricity through high voltage (220 and 400 kV) transmission network from generators to distributors



Entry	Definition
TWh	Terawatt hour, a multiple unit for measuring of electricity unit in the system SI. 1 TWh is 109 kWh.
Ultra-high-voltage network (UHV)	an energy network with a voltage equal to 220 kV or higher.
V (volt)	Electrical potential unit, electric voltage and electromotive force in the International System of Units (SI), 1 V= $1J/1C = (1 \text{ kg x m}2) / (A \text{ x s}3)$ .
W (watt)	Aa unit of power in the International Systems of Units (SI), $1 \text{ W} = 1 \text{ J}/1\text{ s} = 1 \text{ kg x m} 2 \text{ x s} - 3$


ABOUT THE REPORT

# Information about the report

GRI: 102-44, 102-45, 102-46, 102-47, 102-48, 102-49, 102-50, 102-51, 102-52, 102-54, 102-53

# The integrated report of PGE Polska Grupa Energetyczna S.A. and PGE Group is prepared in accordance with the guidelines of the International Integrated Reporting Council (IIRC).

The financial data in PGE Group's Integrated Report 2021 is consistent with the information published in PGE Group's consolidated financial statements for the year ended December 31, 2021, which is prepared in accordance with the requirements of International Financial Reporting Standards ("IFRS"), as adopted by the European Union. Nonfinancial information and data are prepared in accordance with the requirements of the amendment to the Accounting Act implementing Directive 2014/95/EU into Polish law. Information on the application of corporate governance rules is based on the recommendations and principles contained in the "Good Practices of WSE-Listed Companies 2021." PGE's integrated report for 2021 has been prepared in accordance with the Global Reporting Initiative's international reporting standard, in the Core option. Additionally, the report includes its own indicators, references to the 10 UN Global Compact Principles as well as to the Sustainable Development Goals (SDGs).

The report covers information for the period from January 1 to December 31, 2021 and includes consolidated data for PGE Group and for the parent company, PGE Polska Grupa Energetyczna S.A. As at December 31, 2021, PGE Group comprised 77 companies in which PGE Polska Grupa Energetyczna S.A. directly or indirectly held more than 50% of the share capital. The report covered 37 companies in which employment was reported.

PGE Group's previous integrated report, published in 2021 and covering 2020, is available HERE.

# Process for defining the reporting content

PGE Group's integrated report responds to the information needs and expectations of almost 80 of PGE's key stakeholder representatives, which were raised during dialogue sessions organised in mid-June 2022. You can read more about these dialogue panels HERE.

These were workshop-type meetings, conducted with the use of general forum discussions, subgroup discussions, individual work with the use of an online questionnaire, which fostered the involvement of the participants and provided an opportunity to put forward one's own proposals of issues and exchange thoughts on the topics being discussed. PGE stakeholders present at the meetings were asked to become acquainted with 39 aspects of the company's operations, assigned to four areas: business, environment, employee and social.

As a result of this dialogue, PGE Group's key stakeholders identified the eight topics most relevant to them that should be included in the 2021 Integrated Report. These topics have been incorporated into the report in line with the GRI standard. An appropriate indicator was assigned to each of them:

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Important topics	Index	Place in the report
1. Strategy and its implementation	Own indicator – implementation of the strategy	<ul> <li>Strategy implementation (p. 8)</li> <li>Direction: climate neutrality (p. 6)</li> <li>Risk management (p. 213)</li> </ul>
<ol> <li>Preventing non-compliance with laws and regulations (including those relating to the supply and use of products and services)</li> </ol>	GRI 419–1 – Non-compliance with laws and regulations in the social and economic area	There were no significant penalties or sanctions during the reporting period (2021)
3. Greenhouse gas emissions and ways of reducing them	305–1 Direct greenhouse gas emissions (Scope 1)	<ul> <li>Leading the green transition (p. 86)</li> <li>Environmental protection process management (p. 102)</li> <li>PGE Group's carbon footprint (p. 93)</li> <li>Risk management (p. 213)</li> </ul>
	305–2 Energy indirect (Scope 2) GHG emissions	• PGE Group's carbon footprint (p. 93)
	305–3 Other indirect (Scope 3) GHG emissions	• PGE Group's carbon footprint (p. 93)
<ol> <li>Company's impact on climate and actions against climate change</li> </ol>	Own indicator – Climate awareness	<ul><li>Climate awareness (p. 87)</li><li>Direction: climate neutrality (p. 6)</li></ul>
	201–2 Financial implications and other risks and opportunities due to climate change	<ul><li>Risk management (p. 213)</li><li>Climate awareness (p. 87)</li></ul>
5. Energy consumption and ways of reducing it	301–3 Materials used by weight or volume	<ul> <li>A responsible approach to water resources management (p. 106)</li> </ul>
<ol> <li>Compliance with environmental regulations, prevention of abuse, breaches of environmental laws and regulations</li> </ol>	307–1 Non-compliance with environmental laws and regulations	<ul> <li>Environmental protection process management (p. 102)</li> <li>Risk management (p. 213)</li> </ul>
7. Consumption and ways of reducing water consumption	303–1 Interactions with water as a shared resource	<ul> <li>A responsible approach to water resources management (p. 106)</li> </ul>
	303–2 Water management	<ul> <li>A responsible approach to water resources management (p. 106)</li> </ul>
	303–3 Water withdrawal by source	• Significant indices (p. 300)
	GRI 303–5 Water consumption	<ul> <li>A responsible approach to water resources management (p. 106)</li> </ul>
8. Waste minimisation and recycling	GRI 306–1 Waste generation and significant waste-related impacts	<ul> <li>A responsible approach to water resources management (p. 106)</li> <li>Circular Economy (p. 113)</li> <li>Waste (p. 118)</li> <li>Environmental protection process management (p. 102)</li> <li>Risk management (p. 213)</li> </ul>
	GRI 306–2 Management of significant waste-related impacts	• Waste (p. 118)
	306–3 Total weight of waste by type of waste and disposal method	• Significant indices (p. 300)



# Assessment of materiality of topics from a stakeholder perspective

Below is the materiality rating on a scale. When you hover over an area, the average of the stakeholder ratings is displayed.

## Scale: low (0 - 3,69)

- 2.90 Employee retirement plans
- 2.95 Tax management, taxes paid
- 3.07 Standard entry level wage compared to local minimum wage
- **3.09** Minimum notice periods regarding operational changes
- **3.15** Employee initiatives and volunteering
- **3.17** Employees hired from the local community
- **3.22** Employment management: number of new employees, salaries, employee rotation, benefits
- **3.44** Sponsoring and charity work
- **3.49** Purchases from local suppliers
- **3.50** Maintaining confidentiality in customer relations; activities preventing data loss.
- **3.62** Human rights assessment of company's operations, employee training on human rights policies
- **3.62** Human rights assessment of company's operations, employee training on human rights policies
- **3.63** Lobbying activities, public affairs

### Scale: medium (3,7 – 4,09)

- **3.72** Human rights assessment of company's operations, employee training on human rights policies
- **3.72** Prevention of anti-competitive behaviour
- **3.74** Prevention of violations of workers' rights of freedom of association and collective bargaining
- 3.77 Diversity, equal opportunities and access to senior positions, equal pay for men and women
- **3.80** Employee education and training, career development support
- **3.90** Indirect economic impact, infrastructure investments, local market development.
- **3.90** Company's activities benefiting local communities
- **3.93** Ethical marketing and marketing communication
- **3.94** Prevention of discrimination
- **3.95** Description of the business model and its evolution
- **3.95** Broader information on the Group's business activities
- 3.97 Zdrowie i bezpieczeństwo klientów użytkujących produkty lub korzystających z usług
- **3.97** Company's impact on biodiversity
- **3.97** Resources and materials used by the company
- **3.98** Prevention of corruption (training, identification and resolution of possible incidents).
- **4.05** Occupational health and safety
- 4.08 Assessment of the environmental impacts of company's suppliers

## Scale: high (4,1 – 5)

- **4.17** Compliance with laws and regulations (including those regarding the supply and use of products and services).
- 4.30 Water consumption and methods of reduction of water consumption
- **4.40** Compliance with environmental regulations, prevention of violations of the law
- **4.50** Energy consumption and methods of reduction of energy consumption
- 4.60 Strategy and its implementation
- **4.65** The company's impact on climate and measures to prevent climate change
- **4.67** Greenhouse gas emissions and methods of reduction of emissions



#### The key new elements in the 2021 Integrated Report are as follows:

- inclusion of the Group's transition-related changes in the value creation model,
- expansion of reporting to include priority areas identified by stakeholders in dialogue sessions,
- description of the strategy in terms of achieving key strategic objectives,
- incorporation of the EU environmental taxonomy,
- PGE Group's carbon footprint in three scopes,
- management structure of the ESG area,
- management of the Circular Economy area,

- development of a climate risk management approach,
- approaches to anti-corruption and conflict of interest management,
- tab with educational material

There was no need for adjustments in the 2021 integrated report to the data and information contained in the 2020 report.

### Contact:

www.gkpge.pl/en/for-investors/contact



# **GRI Standards Index**

GRI 102-55

	Index	Global Compact principles	Place in the report	Page
Profile disclosu	ıres			
GRI 102-1	Name of the organisation		Business model evolution	12
GRI 102-2	Activities, brands, products and services		Business model evolution	12
GRI 102-3	Location of headquarters		• Poland, Warsaw	
GRI 102-4	Location of operations		• PGE Group operates mainly in Poland	
GRI 102-5	The form of ownership and the legal structure of the organization		Corporate governance	185
GRI 102-6	Obsługiwane rynki		Customers	164
GRI 102-7	Scale of the organisation		<ul><li>Organisational capitals</li><li>Business model evolution</li></ul>	16 12
GRI 102-8	Information on employees and other workers	GC-6	Significant indices	300
GRI 102-9	Supply chain description		Cooperation with contractors	161
GRI 102-10	Significant changes to the organization and its supply chain		<ul><li>Structure of PGE Capital Group</li><li>Shareholders and investors</li></ul>	203 235
GRI 102-11	Risk management in the organization		Risk management	213
GRI 102-12	Economic, environmental and social declarations, principles and other external initiatives adopted or supported by the organization	GC-1 GC-7 GC-8 GC-9	<ul><li>Community involvement</li><li>Compliance</li></ul>	171 205
GRI 102-13	Membership in associations and organizations		Dialogue with stakeholders	225
GRI 102-14	Statement from senior decision maker	GC-7 GC-8 GC-9	<ul><li>Letter of the CEO</li><li>Heat without secrets</li></ul>	2 279
GRI 102-15	Key impacts, risks, and opportunities		Risk management	213
GRI 102-16	Values, principles, standards and norms of behaviour such as a code of conduct or a code of ethics	GC-10	Organisational culture	182
GRI 102-17	Mechanisms for advice and concerns about ethics and legal issues and matters related to the integrity of the organization		Compliance	205
GRI 102-18	The governance structure of the organization, including committees reporting to the highest governance body		Corporate governance	185

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GRI 102-22	Composition of the highest governance body and its committees		Corporate governance	185
GRI 102-23	Chair of the highest governance body		Corporate governance	185
GRI 102-24	Nominating and selecting the highest governance body		Corporate governance	185
GRI 102-25	Conflicts of interest		Compliance	205
GRI 102-32	Highest governance body's role in sustainability reporting		Approach to managing ESG issues	199
GRI 102-40	List of stakeholder groups		Dialogue with stakeholders	225
GRI 102-41	Collective bargaining agreements	GC-3	Significant indices	300
GRI 102-43	Approach to stakeholder engagement including frequency of engagement by type and stakeholder group		Dialogue with stakeholders	225
GRI 102-44	Key topics and concerns raised by stakeholders in stakeholder engagement processes		Dialogue with stakeholders	225
GRI 102-45	Entities included in the consolidated financial statements with the distinction of main departments, subsidiaries and related entities and joint-ventures		Information about the report	290
GRI 102-46	Defining report content		Information about the report	290
GRI 102-47	List of material topics		Dialogue with stakeholders	225
GRI 102-48	Restatements of information		Information about the report	290
GRI 102-49	Changes in reporting		Information about the report	290
GRI 102-50	Reporting period		1.01.2021 - 31.12.2021	
GRI 102-51	Date of most recent report		March 2021 raportzintegrowany2020.gkpge.pl/en/	
GRI 102-52	Reporting cycle		<ul><li>annual</li><li>Information about the report</li></ul>	290
GRI 102-53	Contact		Information about the report	290
GRI 102-54	Claims of reporting in accordance with the GRI Standards		Information about the report	290
GRI 102-55	GRI content index		GRI Standards Index	294



Business activity Education

	Index	Global Compact principles	Place in the report	Page
Important topic	cs identified by key stakeholders during PGE d	lialogue sessi	ons	
103	Management approach – Strategy and implementation	-	<ul> <li>Direction: climate neutrality</li> <li>Strategy implementation</li> <li>Risk management</li> </ul>	6 8 213
Own indicator	Implementation of the strategy		<ul> <li>Photovoitaics development program</li> <li>Building low-carbon capacity</li> <li>Decarbonisation of district heating</li> <li>Energy storage</li> <li>Circular Economy</li> </ul>	68 70 72 80 113
103 (419)	Management approach – Preventing non-compliance with laws and regulations (including those relating to the supply and use of products and services)		<ul><li>Compliance</li><li>Organisational culture</li><li>Risk management</li></ul>	205 182 213
GRI 419-1	Non-compliance with laws and regulations in the social and economic area		There were no significant penalties or sanctions during the reporting period (2021)	
103 (305)	Management approach – Greenhouse gas emissions and how to reduce them		<ul> <li>Leading the green transition</li> <li>Environmental protection process management</li> <li>PGE Group's carbon footprint</li> <li>Risk management</li> </ul>	86 102 93 213
GRI 305-1	Direct greenhouse gas emissions		Significant indices	300
GRI 305-2	Energy indirect (Scope 2) GHG emissions		PGE Group's carbon footprint	93
GRI 305-3	Other indirect (Scope 3) GHG emissions		PGE Group's carbon footprint	93
103	Management approach – The company's impact on the climate and actions to prevent climate change		Environmental protection process management	102
Own indicator	Climate awareness		<ul> <li>Climate awareness</li> <li>Environmental protection process management</li> <li>Risk management</li> </ul>	87 102 213
GRI 201-2	Financial implications and other risks and opportunities due to climate change		<ul><li>Risk management</li><li>Climate awareness</li></ul>	213 87
103	Management approach – Consumption and ways to reduce energy consumption		Circular Economy	113
GRI 301-3	Materials used by weight or volume			
103	Management approach – Compliance with environmental regulations, prevention of abuse, violation of environmental laws and regulations		Environmental protection process     management	102
GRI 307-1	Non-compliance with environmental laws and regulations	GC-8	<ul> <li>Significant indices</li> </ul>	300
GRI 303-1 (2018)	Interactions with water as a shared resource	GC-8 GC-9	<ul> <li>A responsible approach to water resources management</li> </ul>	106
GRI 303-2 (2018)	Water management	GC-8 GC-9	<ul> <li>A responsible approach to water resources management</li> </ul>	106



	Index	Global Compact principles	Place in the report	Page
GRI 303-3 (2018)	Water withdrawal by source		Significant indices	300
GRI 303-5	Water consumption		<ul> <li>A responsible approach to water resources management</li> </ul>	106
103	Management approach – Waste minimization and recycling		• A responsible approach to water resources	106
GRI 306-1 (2020)	Waste generation and significant waste- related impacts		management	106
GRI 306-2	Management of significant waste-related impacts		• Waste	118
GRI 306-3	Total weight of waste by type of waste and disposal method		Significant indices	300
Economic perfo	ormance			
GRI 201-1	Direct economic value, generated and distributed		<ul><li>Business model evolution</li><li>Growth impulse</li></ul>	12 141
GRI 203-1	Contribution to the development of infrastructure and the provision of services to society through commercial activities, the transfer of goods and pro bono activities		<ul><li>Just transition</li><li>Community involvement</li></ul>	131 171
Anti-corruption	issues			
GRI 205-1	Total number and percentage of business units analyzed for risks related to corruption	GC-10	Significant indices	300
GRI 205-2	Communication and training about anti- corruption policies and procedures	GC-10	<ul><li>Significant indices</li><li>Compliance</li></ul>	300 205
GRI 205-3	Confirmed cases of corruption and actions taken in response to them	GC-10	• 0 cases	

Environmental issues				
	Approach to the natural environment	GC-7 GC-8 GC-9	<ul> <li>Environmental protection process management</li> </ul>	102
GRI 302-1	Reclaimed products		Significant indices	300
GRI 303-4 (2018)	Total volume of wastewater by quality and destination		Significant indices	300
GRI 304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	GC-8	• Biodiversity	124

Business activity Education

	Index	Global Compact principles	Place in the report	Page
GRI 304-2	Significant impact of activities, products and services on biodiversity		Biodiversity	124
GRI 304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations		Biodiversity	124
GRI 305-7	Emission of NOx, SO <sub>2</sub> and other significant compounds emitted to the air		Significant indices	300
GRI 306-4	Waste diverted from disposal		Significant indices	300
GRI 306-5	Waste directed to disposal		Significant indices	300
	Application and dissemination of environmentally friendly technologies.	GC-9	Climate awareness	87
GRI 308-1	New suppliers that have been verified using environmental criteria		Cooperation with contractors	161
GRI -EU5	Alokacja uprawnień do emisji dwutlenku węgla bądź jego ekwiwalentu według podziału na systemy handlu emisjami		Significant indices	300

## Employee issues

	Human rights	GC-2 GC-4 GC-5 GC-6	• Compliance	205
	Freedom of association and the right to collective bargaining	GC-3	• Employees	146
GRI 401-1	The total number of newly hired employees, departures, and the rate of hiring and fluctuation of employees by age group, gender, broken down by company	GC-6	Significant indices	300
GRI 401-2	Benefits provided to full-time employees that are not provided to temporary or part- time employees, by major operating units		• Employees	146
GRI 403-1 (2018)	Occupational health and safety management system		• Employees	146
GRI 403-2 (2018)	Hazard identification, risk assessment and accident investigation		• Employees	146
GRI 403-3 (2018)	Occupational health and safety services		• Employees	146
GRI 403-4 (2018)	Employee participation, consultation and communication on occupational health and safety		• Employees	146
GRI 403-5 (2018)	Employee training in occupational health and safety		• Employees	146
GRI 403-6 (2018)	Health promotion programmes for employees		• Employees	146
GRI 403-7 (2018)	Prevention and mitigation of impacts on health and safety in the workplace		• Employees	146

	Index	Global Compact principles	Place in the report	Page
GRI 403-9 (2018)	Type and rate of work-related injuries by gender		Significant indices	300
GRI 404-1	Average hours of training per year per employee by employment category and gender	UNGC-6	Significant indices	300
GRI 404-2	Programmes for upgrading employee skills and transition assistance programmes, which support the continuity of employment of employees and facilitate the management of the end of their professional career		• Employees	146
GRI 404-3	The percentage of employees undergoing regular work performance assessments and career development reviews broken down by gender	UNGC-6	Significant indices	300
GRI 405-1	Composition of management, supervisory and employee bodies by gender, age, minority membership and other diversity indicators	UNGC-6	Significant indices	300
GRI -EU15	Percentage of employees who will become entitled to retire in 5 and 10 years, broken down by type of work		Significant indices	300
Human rights i	ssues			
GRI 406-1	Total number of incidents of discrimination and corrective actions taken in 2021	UNGC-2 UNGC-6	Significant indices	300
GRI 408-1	Operations and suppliers where child labor may occur		This is forbidden by PGE Group regulations	
GRI 409-1	Operations and suppliers among which cases of forced labor may occur		This is forbidden by PGE Group regulations	
GRI 412-2	Total number of employee training hours on human rights policies and percentage of employees trained	UNGC-2	Significant indices	300
Social issues				
GRI 414-1	Percentage of new suppliers that have been assessed according to social criteria		100%	
GRI 418-1	Total number of legitimate complaints about breach of customer privacy and data loss		Significant indices	300
GRI-EU28	SAIFI		Significant indices	300
GRI-EU29	SAIDI		Significant indices	300



# **Significant indices**

Direction PGE 2050

GRI: 302–1, 305–1, EU-5, 305–7, 303–3 (2018), 303–4, 306–3, 306–4, 306–5, 307–1, 102–8, 102–41, 401–1, 404–1, 404–3, 405–1, EU15, 403–9, EU-28, EU-29, 418–1, 406–1, 412–2, 205–1, 205–2

# Selected indices relating to environmental issues In the PGE Group

#### Energy

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Energy consumption in the organization

GRI: 302–1

Total energy consumption in the organization	2021
Electricity (kWh)	11,152,880,829.00
Heat (GJ)	2,501,120.11
Volumes sold:	2021
Electricity (kWh)	107,633,043,564
Heat (GJ)	53,675,235.06
Cooling (GJ)	0
Steam (GJ)	1,398,948.94

## $CO_2$ emissions

 $CO_2$  emissions from the Group's main plants and allocation of free  $CO_2$  emission allowances for 2021.

GRI: 305-1, EU-5

	CO <sub>2</sub> emissions in 2021*	Allocation of allowances for CO <sub>2</sub> emissions in 2021**	CO <sub>2</sub> emissions in 2020*	CO <sub>2</sub> emissions in 2019	CO <sub>2</sub> emissions in 2019
Total for power plants and CHP plants of PGE Capital Group	70,746,383	638,274	59,518,765	60,663,255	70,186,803

\* The volume of CO<sub>2</sub> emissions indicated above relates to all installations of the PGE Capital Group that operate under the EU ETS system.

\* The volume of CO<sub>2</sub> emissions is calculated on the basis of and in accordance with the legal regulations applicable to the ETS system, in particular with decisions of competent authorities allowing the emission of greenhouse gases from installations.



0.02

#### Other emissions

Emission of  $NO_{x^{\prime}}SO_{2}$  and other relevant compounds emitted to atmosphere in 2021.

GRI: 305-7

Total (PGE GiEK+ PGE EC)

Particulate matter

Weight of relevant air emissions [tonnes]	2021
NO <sub>x</sub>	62,931
SO <sub>2</sub>	52,818
Particulate matter	2,033

# Emission of NO<sub>x</sub>, SO<sub>2</sub> and other relevant compounds emitted to atmosphere by PGE GiEK and PGE EC in 2021.

		PGE GIEK			PGE EC	
Weight of relevant air emissions [tonnes]	2021	2020	2019	2021	2020	2019
NOx	62,931	36,278	37,179	8,206	7,298	12,120
SO <sub>2</sub>	52,818	39,012	36,831	8,688	7,997	9,689
Particulate matter	2,033	1,268	1,324	539	560	821
Emissions for net power produced from all generation capacities [kg/MWh]:						
NO <sub>x</sub>	0.76	0.78	0.86	0.36	0.35	0.47
SO <sub>2</sub>	0.92	0.83	0.85	0.38	0.38	0.38
Particulate matter	0.03	0.03	0.03	0.02	0.03	0.03
Emissions for gross power produced from all generation capacities [kg/MWh]:						
NO <sub>x</sub>	0.69			0.34		
SO <sub>2</sub>	0.84			0.36		

0.02

## Water and wastewater management

## Water withdrawal for production purposes by source in 2021.

GRI: 303-3 (2018)

		PGE GIEK	
	2021	2020	2019
Total volume of water withdrawn for production purposes from the following sources	1,276,103,871	1,242,021,026*	823,248,035
surface water, including water from wetlands, rivers and lakes	1,275,221,316	1,239,164,139	821,829,162
groundwater	758,401	2,530,558	1,204,452
rainwater directly collected and stored by the organisation	0	0	0
wastewater from another organisation	0	39,704	2,297
municipal water supply and supply from other water companies	124,154	286,625*	212,124

#### \* data updated

		PGE EC	
	2021*	2020	2019
Total volume of water withdrawn for production purposes from the following sources	123,400,179	46,191,007	588,941,446
surface water, including water from wetlands, rivers and lakes	119,912,532	42,809,425	578,765,341
groundwater	2,027,597	1,814,720	8,417,680
rainwater directly collected and stored by the organisation	0	0	16,867
wastewater from another organisation	1,800	0	1,744
municipal water supply and supply from other water companies	1,458,250	1,566,862	1,739,814

\* dane dotyczą oddziałów PGE Energii Ciepła i spółek zależnych

Education

	PGE EO		
	2021*	2020**	2019
Total volume of water withdrawn for production purposes from the following sources	25,129,615,394	10,161,924,065	9,569,414,678
surface water, including water from wetlands, rivers and lakes	25,129,600,614	10,161,910,826	9,569,400,094
groundwater	5,943	4,810	5,228
rainwater directly collected and stored by the organisation	0	0	0
wastewater from another organisation	0	0	0
municipal water supply and supply from other water companies	8,837	8,429	9,356

\* the non-financial statements for previous years included data on large hydropower plants, run-off and run-of-flow reservoirs – located in PGE Energia Odnawialna branches and three large run-of-river power plants, such as: EW Dębe, Nielisz and Smardzewice. So far, the flows in small run-of-river power plants (MEW Dychów) have not been taken into account

\*\* data updated

#### Total volume of wastewater by quality and destination in 2021.

GRI: 303-4

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		PGE GIEK	
	2021	2020*	2019
Factual total wastewater volume	25,110,513	23,864,603	21,856,562
Volume of wastewater broken down by:			
• rivers	23,294,196	20,639,905	21,838,460
• lakes	1,809,788	3,211,910	-
• soil		0	-
municipal companies – sewerage system	6,529	12,788	18,102
Water from mine drainage / mine water – treatment	199,056,878	200,947,318	213,285,383
Cooling water from the open cooling circuit that does not require treatment	1,138,299,971	1,120,985,988	706,037,989

\* dane zostały zaktualizowane

		PGE EC	
	2021	2020	2019
Factual total wastewater volume	6,984,362	4,899,580	13,856,612
Volume of wastewater broken down by:			
• rivers	5,638,663	3,705,975	7,570,498
• lakes	_	112,949	1,107,433
• soil	_	_	_
municipal companies – sewerage system	1,345,699	1,080,656	1,356,110
Water from mine drainage / mine water – treatment	n/a	n/a	n/a
Cooling water from the open cooling circuit that does not require treatment	107,291,008	33,194,176	542,577,388
		PGE EO	
	2021	PGE EO 2020	2019
Factual total wastewater volume	2021 80,890	PGE EO 2020 90,563	2019 107,699
<b>Factual total wastewater volume</b> Volume of wastewater broken down by:	2021 80,890	PGE EO 2020 90,563	2019 107,699
Factual total wastewater volume         Volume of wastewater broken down by:         • rivers	<b>2021</b> <b>80,890</b> 70,272	PGE EO 2020 90,563 83,793	<b>2019</b> <b>107,699</b> 99,636
Factual total wastewater volume         Volume of wastewater broken down by:         • rivers         • lakes	<b>2021</b> <b>80,890</b> 70,272 –	PGE EO 2020 90,563 83,793 -	<b>2019</b> <b>107,699</b> 99,636 –
Factual total wastewater volume         Volume of wastewater broken down by:         • rivers         • lakes         • soil	<b>2021</b> <b>80,890</b> 70,272 – –	PGE EO 2020 90,563 83,793	<b>2019</b> <b>107,699</b> 99,636 – –
Factual total wastewater volume         Volume of wastewater broken down by:         • rivers         • lakes         • soil         municipal companies – sewerage system	2021 80,890 70,272 - - 9,698	PGE EO 2020 90,563 83,793 6,769	2019 107,699 99,636 - - 8,063
Factual total wastewater volume         Volume of wastewater broken down by:         • rivers         • lakes         • soil         municipal companies – sewerage system         Water from mine drainage / mine water – treatment	2021 80,890 70,272 – – 9,698 n/a	PGE EO 2020 90,563 83,793  - 6,769 n/a	2019 107,699 99,636 – – – 8,063 n/a

	PGE Dystrybucja		
	2021	2020	2019
Factual total wastewater volume	3,905*	684	617
Volume of wastewater broken down by:			
• rivers	3,201	72	52
• lakes	-	_	_
• soil	704	612	565
municipal companies – sewerage system		_	_
Water from mine drainage / mine water – treatment	n/a	n/a	n/a
Cooling water from the open cooling circuit that does not require treatment	n/a	n/a	n/a

\* The reason for the increase in the amount of wastewater is mainly due to the change in the water permit, according to which, from 2021, the sum of rainwater and wastewater in the Rzeszów branch is included as wastewater, because they are discharged through one collector and from the intake of wastewater from GPZ Rożki 220/110 kV on in the Skarżysko-Kamienna branch.





### Waste management

## Total weight of waste broken down by waste type and disposal method in 2021.

GRI: 306-3, 306-4, 306-5

		PGE GIEK	
	2021	2020	2019
Volume of hazardous waste broken down by disposal method:	1,003	1,188	1,385
Recovery (including energy recovery)	760	859	523
Recycling	285	270	304
Mass burn		_	_
Neutralisation	130	133	188
Storage at landfills		_	38
On-site storage and warehousing	113	173	323
Other (e.g. transfer to authorised recipients)	_	_	_
Volume of non-hazardous waste broken down by disposal method:	5,785,030	4,843,940	5,665,324
Recovery (including energy recovery)	1,941,937	1,256,648	1,714,784
Recycling	5,140	7,061	20,700
Mass burn	_	_	_
Neutralisation	3,320	13,913	9,558
Storage at landfills	3,819,945	3,537,658	3,938,929
On-site storage and warehousing	10,462	30,605	1,951
Other (e.g. transfer to authorised recipients)	_	_	_



		PGE EC	
	2021	2020	2019
Volume of hazardous waste broken down by disposal method:	5,095	4,669	4,691
Recovery (including energy recovery)	70	290	4,430
Recycling	306	57	36
Mass burn	-	_	-
Neutralisation	1	37	725
Storage at landfills	-	-	1
On-site storage and warehousing	4,718	4,285	1.3
Other (e.g. transfer to authorised recipients)	-	-	0.2
Volume of non-hazardous waste broken down by disposal method:	408,638	432,622	366,606
Recovery (including energy recovery)	312,845	161,558	481,603
Recycling	10,766	194,833	4,718
Mass burn	-	-	85,459
Neutralisation	4	27,744	7,376
Storage at landfills	46,364	2,256	12,772
On-site storage and warehousing	35,500	47,157	231
Other (e.g. transfer to authorised recipients)	3,158	25	219

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	PGE EO		
	2021	2020	2019
Volume of hazardous waste broken down by disposal method:	70	285	11
Recovery (including energy recovery)	0	_	1
Recycling	0	_	-
Mass burn	0	_	-
Neutralisation	47.9	39	3
Storage at landfills	20.4	21.5	1.5
On-site storage and warehousing	1.5	220	3.5
Other (e.g. transfer to authorised recipients)	0	4.7	2
Volume of non-hazardous waste broken down by disposal method:	1,182	218	213
Recovery (including energy recovery)	0	_	-
Recycling	0	_	-
Mass burn	0	-	2
Neutralisation	3	171	3
Storage at landfills	38	10	12
On-site storage and warehousing	750	297	164
Other (e.g. transfer to authorised recipients)	391	47	32



	PGE Dystrybucja		
	2021	2020	2019
Volume of hazardous waste broken down by disposal method:	815	1,969	2,253
Recovery (including energy recovery)	-	-	_
Recycling	_	_	_
Mass burn	_	_	_
Neutralisation	-	_	_
Storage at landfills	_	_	_
On-site storage and warehousing	-	_	_
Other (e.g. transfer to authorised recipients)	815	1,969	2,253
Volume of non-hazardous waste broken down by disposal method:	2,659	4,561	4,821
Recovery (including energy recovery)	_	_	_
Recycling	_	_	_
Mass burn	-	_	_
Neutralisation	_	_	_
Storage at landfills	_	_	_
On-site storage and warehousing	-	_	_
Other (e.g. transfer to authorised recipients)	2,659	4,561	4,821

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Monetary value of penalties and total number of non-financial sanctions for non-compliance with environmental laws and regulations in companies with the highest environmental impact [PLN].

GRI: 307-1

PGE EC	2021	comment
Value of fines not yet imposed but assessed for non-compliance with environmental laws and regulations	PLN 52,179	I. The fine imposed by the Provincial Inspector for Environmental Protection (WIOŚ) in December 2021 in the amount of PLN 43 009 related to exceeding the parameters of wastewater from IMOS at EC Wrocław, in particular with regard to the COD parameter from periodic measurements and related to 2018.
		An application was submitted to the Provincial Inspectorate of Environmental Protection in order to include a fine towards the modernization of the IMOS installation.
		II. Penalty imposed by VIEP on KOGENERACJA / Czechnica Branch in the amount of PLN 9,170 for exceeding noise emissions in 2021. The company appealed to the Chief Inspectorate of Environmental Protection on the matter – administrative proceedings are pending.
Value of fines reduced (remitted) in a given year for non-compliance with environmental laws and regulations	PLN 13,052	On January 12, 2021, two applications were submitted to VIEP to reduce fines and include them in the funds incurred for the implementation of projects for the Lublin EC Branch.
		The penalties concerned:
		1) a penalty for 2018 in the amount of PLN 7,999 for exceeding the permissible amount of 48-hour average dust exceeding 110% of the permissible value specified in the PZ.
		2) a fine for 2019 in the amount of PLN 5,053 for exceeding the dust emission standard in terms of the average monthly concentration in October 2019.
		On February 8, 2021, the Provincial Inspectorate of Environmental Protection issued two decisions reducing the administrative fines imposed for the years 2018 and 2019 to zero.
Value of fines not yet imposed but assessed for non-compliance with	lue of fines not yet imposed but PLN 8,456 sessed for non-compliance with vironmental laws and regulations	For the EC Wybrzeże branch, fines were estimated for 2021 in the amount of PLN 8,456 for:
environmental laws and regulations		1) PLN 8,436 – for the daily average SO <sub>2</sub> standards and for dust on the E2 emitter – for EC Wybrzeże. The SO <sub>2</sub> exceedances were related to the higher sulfur content in coal and the failure of the belt feeding the coal to peak boilers. The dust exceedances resulted from the optimization of the modernized electrostatic precipitator in connection with the adaptation to the BAT conclusions.
		2) PLN 20 for the excesses of cadmium and mercury in sewage – these occurred in connection with the optimization of the IMOS treatment plant operation with the use of a new preparation.
		If WIOŚ initiates proceedings in this respect and penalties are charged, the Wybrzeże branch plans to apply for a reduction in fines and include them in the funds incurred for the implementation of investment projects.
PGE GIEK	2021	comment
Value of fines imposed in a given year for non-compliance with environmental laws and regulations	PLN 4,170	Increased fee in the amount of PLN 4,170 imposed by the decision of the Lower Silesian Voivodship Inspector for Environmental Protection of June 25, 2021 for the Turów Brown Coal Mine Division for the discharge of sewage from a mechanical and biological sewage treatment plant in 2019, exceeding the conditions of using the environment.
	PLN 27,540	A fine of PLN 27,540 imposed by the decision of the Lower Silesian Voivodship Inspector for Environmental Protection of March 9, 2021 for the Turów Power Plant Branch for exceeding the permissible mercury emissions from power units 5 and 6 in 2019.
	PLN 36,152	A fine in the amount of PLN 36,152 imposed by the decision of the Lower Silesian Voivodship Inspector for Environmental Protection of March 9, 2021 for the Turów Power Plant Branch for exceeding the permissible mercury emission from power unit 5 in 2018.

PGE GIEK	2021	comment
Value of financial penalties for which	PLN 4,170.00	Turów Brown Coal Mine
the authorities conduct proceedings or issued a decision to postpone the payment deadline of penalties in a given year for non-compliance with environmental laws and regulations		By letter of June 29, 2021, an application was submitted to reduce the increased fee, established by the decision of the Lower Silesian Environmental Protection Inspector of June 25, 2021 for the discharge of wastewater from a mechanical and biological wastewater treatment plant (OSA-2) in 2019, exceeding the conditions for using the environment. The proceedings are in progress. The authority indicated the date of the case until August 31, 2022 and informed that the application could not be considered on time due to the need to confirm the proper functioning of the installation, i.e. to submit reports on the results of the tests from the full assessment period – from June 2021 to August 19, 2022
	PLN 3,523	Turów Lignite Mine
		By the decision of the Lower Silesian Environmental Protection Inspector of March 4, 2021, the deadline for the payment of a fine of PLN 3,523 was postponed, established by the decision of the Lower Silesian Environmental Protection Inspector of December 24, 2020 for the discharge of sewage from a mechanical and biological sewage treatment plant (OSA-2) in 2017, exceeding conditions for using the environment. The penalty may be remitted after the correct functioning of the installation is confirmed, i.e. the reports on the test results from the full evaluation period are presented – from June 2021 to August 19, 2022.
	PLN 27,540	Turów Power Plant
		By the decision of the Lower Silesian Environmental Protection Inspector of April 29, 2021, the deadline for the payment of a fine in the amount of PLN 27 540 was postponed, determined by the decision of the Lower Silesian Environmental Protection Inspector of March 9, 2020, provided that the investment project is carried out on time. The deadline was set for November 30, 2021. On November 23, 2021, the Contractor of the Bromine salt dosing unit informed the Employer about the impossibility of completing the investment on time. On December 22, 2021, the company's Management Board signed an annex with the Contractor, extending the investment completion date. Due to the expiry of the deadline for submitting an application for amending decisions deferring the payment of penalties, the Branch applied to DWIOŚ with a request to restore the deadline for submitted to change the investment completion date until December 31, 2022.
	PLN 36,152	Turów Power Plant
		By the decision of the Lower Silesian Environmental Protection Inspector of April 29, 2021, the deadline for the payment of a fine in the amount of PLN 36 152 was postponed, determined by the decision of the Lower Silesian Environmental Protection Inspector of March 9, 2020, provided that the investment project was carried out on time. The deadline was set for November 30, 2021. On November 23, 2021, the Contractor of the Bromine salt dosing unit informed the Employer about the impossibility of completing the investment on time. On December 22, the Management Board of the Company signed an annex with the Contractor, extending the term of the investment. Due to the expiry of the deadline for submitting an application for amending decisions deferring the payment of penalties, the Branch applied to DWIOŚ with a request to restore the deadline for submitting an application for changing the deferment decisions. An application was submitted to change the investment completion date until December 31, 2022
	PLN 5,100	Turów Power Plant
		By the decision of the Lower Silesian Environmental Protection Inspector of February 26, 2021, the deadline for the payment of a fine in the amount of PLN 5,100.00, determined by the decision of the Lower Silesian Environmental Protection Inspector of December 17, 2020, was postponed, provided that the investment project is implemented on time. The deadline was set for November 30, 2021. On November 23, 2021, the Contractor of the Bromine salt dosing unit informed the Employer about the impossibility of completing the investment on time. On December 22, 2021, the Management Board of the Company signed an annex with the Contractor, extending the term of the investment. Due to the expiry of the deadline for submitting an application for amending decisions deferring the payment of penalties, the Branch applied to DWIOŚ with a request to restore the deadline for submitting an application for changing the deferment decisions. An application was submitted to change the investment completion date until December 31, 2022



Direction PGE 2050

Education

PGE GIEK	2021	comment
Value of fines paid / to be paid in a given year for non-compliance with environmental laws and regulations	PLN 7,260	By the decision of the Łódź Environmental Protection Inspector of February 15, 2021, the authority reduced the fine imposed in 2020 for exceeding the permissible noise levels in Kamień 35. The decision was a consequence of the purchase of the Kamień 35 real estate by the Branch in 2018, which eliminated the reason for the penalty
Value of fines not yet imposed but assessed for non-compliance with environmental laws and regulations	PLN 346,705.39	<ul> <li>In the case of materialization of penalties related to noise propagation in 2021, the following estimated costs should be taken into account in the following areas:</li> <li>Kamień 35 - fine for 2018 PLN 29,475.60;</li> <li>Kamień 36 - penalty PLN 24,212.10 (for 2018), PLN 62,156.58 (for 2019), 63,138.80 (for 2020), 64,599.53 (for 2021);</li> <li>Janówka 57 - fine of 28,955.80 (for 2020), 70,216.88 (for 2021);</li> <li>Chabielice Kol penalty for exceeding the permissible noise standard by 3.5 dB at night, on the basis of the test report carried out on November 16, 2021 (in accordance with the environmental decision). The amount for 44 days of 2021 may be approximately PLN 3,950.10</li> </ul>
	PLN 222,000	Estimated amount of the fine for exceeding the average annual mercury emission level on the emitter of unit 14 (cooling tower) at the Bełchatów Power Plant.
	PLN 609,000	<ul> <li>Estimated amount of the fine for exceeding the average annual emission level of carbon monoxide on the emitter of unit 7 (cooling tower) at the Turów Power Plant. Due to the fact that the exceeded value has been specified in the integrated permit as an indicative level, in this case the authority may not take actions related to the imposition of a penalty. In the event of issuing a decision imposing a fine, the Company will use the path provided for in the procedural and administrative regulations.</li> </ul>

# Selected indices relating to environmental issues in PGE SA

The indices below present the Company's approach to managing its environmental impact in terms of energy, water and paper consumption at the headquarters of PGE SA.

#### Annual electricity consumption at the PGE SA headquarters

	2021	2020	2019
Energy for administrative purposes (MWh)	1,716	1,594	1,698
Energy for administrative and technical purposes (server rooms) (MWh)	914	909	1,084

The consumption of energy for administrative purposes slightly increased compared to the previous year. This could have been influenced by the return of employees to the company after working remotely due to COVID-19.

#### Annual thermal energy consumption at the PGE SA headquarters

	2021	2020	2019
Annual consumption of thermal energy (in GJ)	8,460	6,980	6,675
Annual consumption of thermal energy (in GJ/m3)	0.08	0.06	0.06

The annual consumption of thermal energy slightly increased year on year due to the earlier heating season.

#### Annual consumption of sheets of paper at the PGE SA headquarters

	2021	2020	2019
Office Printing Paper (translated into A4-size sheets)	841,958	873,085	1,139,950
Paper consumption for office printing (A4 sheets/person)	1,201	1,317	1,768

The consumption of paper per one employee of PGE SA is regularly decreasing. This may be influenced by trainings on the principles of a green office.

#### Annual water consumption and sewage disposal at the PGE SA headquarters

	2021	2020	2019
Annual water consumption and sewage disposal (m <sup>3</sup> )	4,711	4,152	7,391
Annual water consumption and sewage disposal (m³/person)	6.7	6.3	11.5

The return of employees to the company after working remotely, as well as the responsible attitude of employees in following the recommendations related to the prevention of the spread of COVID-19 and frequent washing of hands, could have contributed to the increase in water consumption and discharged sewage.

#### Annual consumption of toner cartridges at the PGE SA headquarters

	2021	2020	2019
Annual consumption of toner (cartridges)	130	183	173
Annual consumption of toner (cartridge/person)	0.18	0.27	0.26

#### Energy-saving LED fixtures at the PGE SA headquarters

	2021	2020	2019
LED fixtures (percent)	71	66	65

Due to the pandemic period, renovation works were suspended, and therefore the luminaires were slightly replaced.



# Selected indices relating to employee issues in the PGE Group and PGE SA

The number of employees broken down by type of employment, type of employment contract and gender (in persons). As at December 31.

GRI: 102-8

PGE Group	D	Data for 2021 Data for 2020			Data for 2020			ata for 201	9
	Women	Men	Total	Women	Men	Total	Women	Men	Total
Total number of employees	7,735	30,564	38,299	8,173	32,271	40,444	8,704	33,576	42,280
Number of employees employed on a full-time basis	7,667	30,485	38,152	8,083	32,170	40,253	8,613	33,462	42,075
Number of employees employed on a part-time basis	68	79	147	90	101	191	91	114	205
Number of employees with employment contracts for an indefinite period	6,960	28,679	35,639	7,318	30,099	37,417	7,590	30,835	38,425
Number of employees with employment contracts for a definite period	775	1,885	2,660	855	2,172	3,027	1,114	2,741	3,855
Employees with contracts of mandate (A)	225	532	757	157	483	640	283	504	787
Employees with contracts for specific work (B)	5	7	12	0	6	6	0	3	3
Number of self-employed workers	5	12	17	3	7	10	0	22	22
Ratio of self-employed workers to all employees	0.065%	0.039%	0.044%	0.037%	0.022%	0.025%	0.000%	0.066%	0.052%

PGE SA	Da	Data for 2021   Data for 2020   Data for 2019			Data for 2020			9	
	Women	Men	Total	Women	Men	Total	Women	Men	Total
Total number of employees	356	345	701	311	307	618	331	336	667
Number of employees employed on a full-time basis	350	340	690	302	300	602	322	327	649
Number of employees employed on a part-time basis	6	5	11	9	7	16	9	9	18
Number of employees with employment contracts for an indefinite period	338	323	661	295	290	585	311	308	619
Number of employees with employment contracts for a definite period	18	22	40	16	17	33	20	28	48
Employees with contracts of mandate (A)	0	6	6	1	1	2	4	3	7
Employees with contracts for specific work (B)	0	1	1		1	1	0	2	2
Number of self-employed workers	0	0	0			0			0
Ratio of self-employed workers to all employees	0	0	0	0	0	0	0	0	0



## The number of employees covered by collective bargaining agreements. As at December 31.

GRI: 102–41

PGE Group	Data for 2021	Data for 2020	Data for 2019
Number of employees	38,299	40,444	42,283
Number of employees covered by collective bargaining agreements	29,486	30,861	32,339
Percentage of employees covered by collective bargaining agreements (in relation to all employees)	77.0%	76.3%	76.5%
PGE SA	Data for 2021	Data for 2020	Data for 2019
PGE SA Number of employees	<b>Data for 2021</b> 701	<b>Data for 2020</b> 618	<b>Data for 2019</b> 667
PGE SA         Number of employees         Number of employees covered by collective bargaining agreements	Data for 2021           701           0	<b>Data for 2020</b> 618 1	<b>Data for 2019</b> 667 1





Total number of newly hired employees, employees who left the workforce and employee turnover broken down by age and gender (in persons). As at December 31. GRI: 401-1

PGE Group	Data for 2021	Data for 2020	Data for 2019
Total number of employees	38,299	40,444	42,283
Total number of newly hired employees in the reporting period, including:	1,973	1,927	3,040
• Women	659	579	1,065
• Men	1,314	1,348	2,935
<ul> <li>Osoby poniżej 30 roku życia</li> </ul>	537	568	1,274
• Osoby między 30 a 50 rokiem życia	1,222	1,076	2,221
<ul> <li>Osoby powyżej 50 roku życia</li> </ul>	214	283	465
Percentage of newly hired employees in the reporting period, including:	5%	5%	7%
• Women	2%	1%	3%
• Men	3%	3%	7%
Persons aged below 30	1%	1%	3%
• Persons aged between 30 and 50	3%	3%	5%
• Persons aged over 50	1%	1%	1%
Total number of employees who left the workforce during the reporting period, including:	4,232	3,695	2,711
• Women	1,053	1,031	698
• Men	3,179	2,664	2,080
Persons aged below 30	420	394	398
• Persons aged between 30 and 50	1,356	1,078	887
Persons aged over 50	2,456	2,223	1,493
Percentage of employees who left the workforce during the reporting period, including:	11%	9%	6%
• Women	3%	3%	2%
• Men	8%	7%	5%
Persons aged below 30	1%	1%	1%
• Persons aged between 30 and 50	4%	3%	2%
Persons aged over 50	6%	5%	4%



Education

PGE SA	Data for 2021	Data for 2020	Data for 2019
Total number of employees	701	618	667
<ul> <li>Total number of newly hired employees in the reporting period, including:</li> </ul>	201	83	77
• Women	90	33	36
• Men	111	50	41
• Persons aged below 30	32	11	31
• Persons aged between 30 and 50	153	61	43
Persons aged over 50	16	11	3
<ul> <li>Percentage of newly hired employees in the reporting period, including:</li> </ul>	29%	13%	12%
• Women	13%	5%	5%
• Men	16%	8%	6%
• Persons aged below 30	5%	2%	5%
• Persons aged between 30 and 50	22%	10%	6%
• Persons aged over 50	2%	2%	0%
Total number of employees who left the workforce during the reporting period, including:	114	132	40
• Women	47	53	16
• Men	67	79	24
• Persons aged below 30	14	19	9
• Persons aged between 30 and 50	73	77	24
• Persons aged over 50	27	36	7
Percentage of employees who left the workforce during the reporting period, including:	16%	21%	6%
• Women	7%	9%	2%
• Men	10%	13%	4%
• Persons aged below 30	2%	3%	1%
• Persons aged between 30 and 50	10%	12%	4%
• Persons aged over 50	4%	6%	1%



The average annual number of training days per employee broken down by gender and employment structure (in persons). As at December 31.

GRI: 401–1

PGE Group	Data for 2021	Data for 2020	Data for 2019
Total number of training days (total in given year)	50,034.28	42,105.00	48,487.75
Total number of employees	38,299	40,444	42,280
Average number of training days per employee in the reporting period – total	1.31	1.04	1.15
Average number of training days per employee during the reporting period, including:	1.85	3.62	2.25
• Women	1.52	1.38	1.14
• Men	1.23	0.96	1.15
<ul> <li>Top management (Management Board and directors)</li> </ul>	2.96	3.38	7.08
Managerial positions	2.09	1.90	2.37
Other employees	1.21	0.95	1.00

### Average hours of training per year per employee broken down by employment category and gender.

#### GRI: 401–1

PGE SA	Data for 2021	Data for 2020	Data for 2019
Total number of training days (total in given year)	333.00	492.00	2 481.25
Total number of employees	701	618	667
Average number of training days per employee in the reporting period – total	0.48	0.80	3.72
Average number of training days per employee during the reporting period, including:	0.48	0.70	3.84
• Women	0.64	1.18	3.36
• Men	0.65	0.82	4.07
<ul> <li>Top management (Management Board and directors)</li> </ul>	0.96	1.57	6.62
Managerial positions	0.75	1.25	4.03
Other employees	0.57	0.97	3.35

The percentage of employees undergoing regular work performance assessments and career development reviews broken down by gender. As at December 31.

GRI: 404-3

PGE Group	Data for 2021	Data for 2020	Data for 2019
Percentage of employees undergoing regular work performance assessments broken down by gender:	16.4%	15.4%	23.5%
<ul> <li>Number of employees receiving regular work performance assessments</li> </ul>	6,286	6,228	9,923
<ul> <li>Number of women receiving regular work performance assessments</li> </ul>	2,472	2,396	2,899
Number of men receiving regular work performance     assessments	3,814	3,832	7,024
<ul> <li>Number of managers/directors (managerial positions, names may vary from company to company)</li> </ul>	1,034	1,119	1,256
Percentage of employees receiving regular work performance assessments (women and men together – percentage of total number of all employees)			
• Women (percentage of all women)	32.0%	29.3%	33.3%
• Men (percentage of men out of all men)	12.5%	11.9%	20.9%
• Directors, managers	35.9%	38.3%	43.7%
PGE SA	Data for 2021	Data for 2020	Data for 2019
PGE SA Percentage of employees undergoing regular work performance assessments broken down by gender:	Data for 2021 100%	Data for 2020 100%	Data for 2019 100%
PGE SA         Percentage of employees undergoing regular work performance assessments broken down by gender:         • Number of employees receiving regular work performance assessments	<b>Data for 2021</b> <b>100%</b> 701	<b>Data for 2020</b> 100% 618	<b>Data for 2019</b> 100% 667
PGE SA         Percentage of employees undergoing regular work performance assessments broken down by gender:         • Number of employees receiving regular work performance assessments         • Number of women receiving regular work performance assessments	Data for 2021           100%           701           356	Data for 2020           100%           618           311	Data for 2019           100%           667           331
PGE SA         Percentage of employees undergoing regular work performance assessments broken down by gender:         • Number of employees receiving regular work performance assessments         • Number of women receiving regular work performance assessments         • Number of women receiving regular work performance assessments         • Number of men receiving regular work performance assessments	Data for 2021           100%           701           356           345	Data for 2020           100%           618           311           307	Data for 2019         100%         667         331         336
PGE SA         Percentage of employees undergoing regular work performance assessments broken down by gender:         • Number of employees receiving regular work performance assessments         • Number of women receiving regular work performance assessments         • Number of women receiving regular work performance assessments         • Number of men receiving regular work performance assessments         • Number of men receiving regular work performance assessments         • Number of men receiving regular work performance assessments         • Number of managers/directors (managerial positions, names may vary from company to company)	Data for 2021         100%         701         356         345         159	Data for 2020         100%         618         311         307         151	Data for 2019         100%         667         331         336         156
PGE SAPercentage of employees undergoing regular work performance assessments broken down by gender:• Number of employees receiving regular work performance assessments• Number of women receiving regular work performance assessments• Number of men receiving regular work performance assessments• Number of men receiving regular work performance assessments• Number of men receiving regular work performance assessments• Number of managers/directors (managerial positions, names may vary from company to company)Percentage of employees receiving regular work performance assessments (women and men together – percentage of total number of all employees)	Data for 2021         100%         701         356         345         159	Data for 2020         100%         618         311         307         151	Data for 2019         100%         667         331         336         156
PGE SAPercentage of employees undergoing regular work performance assessments broken down by gender:• Number of employees receiving regular work performance assessments• Number of women receiving regular work performance assessments• Number of men receiving regular work performance assessments• Number of men receiving regular work performance assessments• Number of men receiving regular work performance assessments• Number of managers/directors (managerial positions, names may vary from company to company)Percentage of employees receiving regular work performance assessments (women and men together - percentage of total number of all employees)• Women (percentage of all women)	Data for 2021         100%         701         356         345         159         100%	Data for 2020         100%         618         311         307         151         100%	Data for 2019         100%         667         331         336         156         100%
PGE SAPercentage of employees undergoing regular work performance assessments broken down by gender:• Number of employees receiving regular work performance assessments• Number of women receiving regular work performance assessments• Number of men receiving regular work performance assessments• Number of men receiving regular work performance assessments• Number of managers/directors (managerial positions, names may vary from company to company)Percentage of employees receiving regular work performance assessments (women and men together - percentage of total number of all employees)• Women (percentage of all women)• Men (percentage of men out of all men)	Data for 2021         100%         701         356         345         159         100%         100%	Data for 2020         100%         618         311         307         151         100%         100%         100%	Data for 2019         100%         667         331         336         156         100%         100%



# The composition of governing and supervising bodies, as well as the personnel broken down by gender and age. As at December 31.

GRI: 405–1

PGE Group	Data for 2021	Data for 2020	Data for 2019
Number of members of the Management Board	81	89	95
Number of members of the Management Board, including:			
• Women	8	9	8
• Men	73	80	87
• age: under 30	1	0	0
• age: 30–50	49	62	55
• age: over 50	31	27	38
Number of members of the Supervisory Board	191	197	190
Number of members of the Supervisory Board, including:			
• Women	52	54	57
• Men	139	143	133
• age: under 30	1	2	3
• age: 30–50	130	137	128
• age: over 50	60	58	57
Total number of employees	38,299	40,444	42,281
Number of employees in each of the following categories:			
• Women	7,735	8,173	8,706
• Men	30,564	32,271	33,575
• age: under 30	2,864	3,059	3,457
• age: 30–50	18,261	19,550	20,641
• age: over 50	17,174	17,835	18,183
<ul> <li>Percentage of members of the Management Board, including:</li> </ul>			
• Women	9.9%	10.1%	8.4%
• Men	90.1%	89.9%	91.6%
• age: under 30	1.2%	0.0%	0.0%
• age: 30–50	60.5%	69.7%	57.9%
• age: over 50	38.3%	30.3%	40.0%

Business activity Education About the report

PGE Group	Data for 2021	Data for 2020	Data for 2019
Percentage of members of the Supervisory Board, including:			
• Women	27.2%	27.4%	30.0%
• Men	72.8%	72.6%	70.0%
• age: under 30	0.5%	1.0%	1.6%
• age: 30–50	68.1%	69.5%	67.4%
• age: over 50	31.4%	29.4%	30.0%
Percentage of employees, including:			
• Women	20.2%	20.2%	20.6%
• Men	79.8%	79.8%	79.4%
• age: under 30	7.5%	7.6%	8.2%
• age: 30–50	47.7%	48.3%	48.8%
• age: over 50	44.8%	44.1%	43.0%
PGE SA	Data for 2021	Data for 2020	Data for 2019
Number of members of the Management Board	6	6	6
Number of members of the Management Board, including:			
• Women	1	1	
• Men	5	5	6
• age: under 30	1		
• age: 30–50	3	5	2
• age: over 50	2	1	4
Number of members of the Supervisory Board	9	8	8
Number of members of the Supervisory Board, including:			
• Women	2	2	2
• Men	7	6	6
• age: under 30			
• age: 30–50	4	4	4
• age: over 50	5	4	4
Total number of employees	701	618	667



PGE SA	Data for 2021	Data for 2020	Data for 2019
Number of employees in each of the following categories:			
Women	356	311	331
Men	345	307	336
• age: under 30	68	54	78
• age: 30–50	548	480	499
• age: over 50	85	84	90
Percentage of members of the Management Board, including:			
• Women	16.7%	16.7%	0%
• Men	83.3%	83.3%	100%
• age: under 30	16.7%	0.0%	0.0%
• age: 30–50	50.0%	83.3%	33.3%
• age: over 50	33.3%	16.7%	66.7%
Percentage of members of the Supervisory Board, including:			
• Women	22.2%	25.0%	25.0%
• Men	77.8%	75.0%	75.0%
• age: under 30	0.0%	0.0%	0.0%
• age: 30–50	44.4%	50.0%	50.0%
• age: over 50	55.6%	50.0%	50.0%
Percentage of employees, including:			
• Women	50.8%	50.3%	49.6%
• Men	49.2%	49.7%	50.4%
• age: under 30	9.7%	8.7%	11.7%
• age: 30–50	78.2%	77.7%	74.8%
• age: over 50	12.1%	13.6%	13.5%



# Percentage of employees who will become entitled to retire in 5 and 10 years, broken down by type of work. As of December 31.

GRI: EU15

PGE Group	Data for 2021
Number of employees entitled to retirement within 5 years	5,905
• Directors	136
• Managers	555
• Experts	302
Office positions	1,019
Operating positions	3,445
• Others	448
Percentage of employees entitled to retirement within 5 years	
• Directors	22%
• Managers	24%
• Experts	15%
Office positions	18%
Operating positions	14%
• Others	16%
Number of employees entitled to retirement within 10 years (cumulative data)	12,402
• Directors	189
• Managers	790
• Experts	533
Office positions	1,643
Operating positions	8,397
• Others	850
Percentage of employees entitled to retirement within 10 years	
• Directors	31%
• Managers	35%
• Experts	27%
Office positions	29%
Operating positions	34%
• Others	31%


## Percentage of employees who will become entitled to retire in 5 and 10 years, broken down by type of work. As of December 31.

PGE SA	Data for 2021
Number of employees entitled to retirement within 5 years	17
• Directors	1
• Managers	2
• Experts	10
Office positions	4
Operating positions	
• Others	
Percentage of employees entitled to retirement within 5 years	
• Directors	1%
• Managers	3%
• Experts	3%
Office positions	2%
Operating positions	0%
• Others	0%
Number of employees entitled to retirement within 10 years (cumulative data)	34
• Directors	б
• Managers	4
• Experts	16
Office positions	8
Operating positions	
• Others	
Percentage of employees entitled to retirement within 10 years	
• Directors	8%
• Managers	5%
• Experts	5%
Office positions	4%
Operating positions	0%
• Others	0%

Implementation of the Voluntary Leave Programme (VLP) (persons).

PGE Group	Data for 2021	PGE SA	Data for 2021
VLP in 2021	52	VLP in 2021	52
VLP in 2020	135	VLP in 2020	22
VLP in 2019	26	VLP in 2019	0

Type and rate of injuries, occupational diseases, lost days and absenteeism, as well as the total number of work-related fatal accidents broken down by gender.

GRI:	403–9

PGE Group	Data for 2021	Data for 2020	Data for 2019
Total number of all accidents at work, including:	160	176	171
• Women [number of injured]	13	13	15
• Men [number of injured]	147	164	158
Number of fatal accidents	0	3	1
• Women [number of injured]	0	0	0
• Men [number of injured]	0	3	1
Number of collective accidents	2	1	2
• Women [number of injured]	0	0	0
• Men [number of injured]	4	2	4
Number of serious accidents	1	2	2
• Women [number of injured]	0	0	0
• Men [number of injured]	1	2	2
Number of light accidents	155	170	166
• Women [number of injured]	13	12	15
• Men [number of injured]	142	158	151
Accident frequency index*	4.17	4.35	4.04
Accident severity index**	64.63	68.68	74.97
Absenteeism index***	10,340	11,675	12,445
• Women	568	582	1,556
• Men	9,772	11,093	10,889

\* Accident frequency index calculated according to the following formula = number of accidents per year/number of employees (as at the end of the year) x1000

\*\* Accident severity index calculated according to the following formula = total number of days of work incapacity of victims of accidents at work/number of victims

\*\*\* Absenteeism index is the total number of days of absence due to work accidents (calendar days) – with respect to PGE Group companies





Business activity Education About the report

PGE SA	Data for 2021	Data for 2020	Data for 2019
Total number of all accidents at work, including:	1	0	0
• Women [number of injured]	1	0	0
• Men [number of injured]	0	0	0
Number of fatal accidents	0	0	0
• Women [number of injured]	0	0	0
• Men [number of injured]	0	0	0
Number of collective accidents	0	0	0
• Women [number of injured]	0	0	0
• Men [number of injured]	0	0	0
Number of serious accidents	0	0	0
• Women [number of injured]	0	0	0
• Men [number of injured]	0	0	0
Number of light accidents	1	0	0
• Women [number of injured]	1	0	0
• Men [number of injured]	0	0	0
Accident frequency index	1.43	0	0
Accident severity index	14	0	0
Absenteeism index	14	0	0
• Kobiety	14	0	0
• Mężczyźni	0	0	0

In 2021, the accident frequency rate decreased by approx. 6% compared to 2020. The vast majority of accidents were related to falls related to pedestrian movement and to minor cuts and injuries related to manual handling of objects.

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

GRI: EU-28, EU-29

Operational data	Data for 2021	Data for 2020	Data for 2019
SAIDI index [minutes] (average duration of electricity supply interruptions), including:	367	251	261
• Planned	33	40	58
Unplanned with catastrophic	334	211	203
SAIFI index [units] (average frequency of electricity supply interruptions), including:	4.28	3.67	3.88
• Planned	0.2	0.24	0.31
Unplanned with catastrophic	4.08	3.43	3.57

PGE cares about increasing the reliability of deliveries and lowering SAIDI and SAIFI ratios. The increase in SAIDI and SAIFI in 2021 is due to weather conditions. PGE Dystrybucja makes many efforts to reduce the nuisance associated with interruptions in electricity supply. For this purpose, more and more work is carried out under voltage. Mobile cable lines were also purchased, which allow for emergency power supply to recipients in the event of damage to the distribution network. The result of these activities is the reduction of the time of scheduled breaks related to service works by nearly 18% compared to 2020.

### Total number of legitimate complaints about breach of customer privacy and data loss GRI: 418-1

#### PGE SA

Complaints received from external institutions and recognized by the organization	0
Complaints received from the regulator	0
Total number of identified leaks, theft or loss of customer data	0
PGE Dystrybucja*	
Complaints received from external institutions and recognized by the organization	0
Complaints received from the regulator	0
Total number of identified leaks, theft or loss of customer data	7

\* PGE Dystrybucja provides electricity distribution services to 5 590 733 customers (as at December 31, 2021). The 7 violations of personal data protection reported to the company constitute approx. 0.0001 percent in proportion to the number of customers.



#### PGE Obrót\*\*

Complaints received from external institutions a	and recognized by the organization	0
Complaints received from the regulator		3
	986, including:	
Total number of identified leaks, theft or loss of customer data	41 – number of notifications classified as violations with notific the Office for Personal Data Protection (UODO)	ation to
	945 – number of reports classified as infringements without notification to UODO	
** 986 personal data breaches reported to PGE Obrót ac	count for approx. 0.017% in proportion to the number of customers.	

#### PGE Energia Ciepła

Complaints received from external institutions and recognized by the organization	0
Complaints received from the regulator	0
Total number of identified leaks, theft or loss of customer data	0

Pursuant to Art. 33 paragraph 1 GDPR: "In the event of a breach of personal data protection, the controller shall, without undue delay – if possible, no later than 72 hours after finding the breach – notify the competent supervisory authority pursuant to Art. 55, unless it is unlikely that the violation would result in a risk of violating the rights or freedoms of natural persons." Notification to the Personal Data Protection Office takes place when the analysis of the notification of a personal data breach indicates that the disclosed data may be used by an unauthorized third party and may cause material or non-material damage to the person whose data has been disclosed.

In 2021, 7 violations of personal data protection were reported at PGE Dystrybucja, and in the case of PGE Obrót – 41. In order to minimize the risk of data protection violations, the companies take appropriate remedial measures, adjusted to the severity and scope of the incident or violation.



#### At PGE Dystrybucja, such measures include:

- At PGE Obrót, such measures include:
- interviews with employees resembling the rules of personal data protection and the applicable information security procedures.
- reminders about the principles of personal data security in messages addressed to employees via corporate mail and publications on the intranet. The Data Protection Officer (DPO) provides, inter alia, recommendations on the rules and measures for the protection of personal data in the company.
- training reminding activities,
- training materials in March 2021, managers of HR and human resources departments of PGE Dystrybucja were provided with training materials on the principles and measures of personal data protection developed by the DPO,
- updates of the applicable procedures and regulations in the field of personal data protection.
- constant contact with the Data Protection Officer for both employees, clients and contractors of the company.

#### At PGE Obrót, such measures include:

- encryption of documentation containing the PESEL number, which is sent electronically,
- limiting the scope of personal data sent in electronic and paper correspondence (electronic requests for payment, traditional correspondence related to the change in the method of settlement – prosumer)
- maximizing the sending of correspondence to customers by electronic means, especially with sensitive data (contracts),
- updating customer data,
- contact with the postal operator regarding the exercise of due diligence during the performance of official tasks by the operator's employees,
- periodic training for the company's employees in the field of personal data protection.

PGE Group's personal indicators in the area of social issues were presented in the "Social" chapter.

## Selected indices relating to human rights and anti-corruption issues in the PGE Group and PGE SA

As at December 31, 2021, compliance structures functioned in 22 companies belonging to the PGE Group: PGE SA, PGE GiEK, PGE Energia Ciepła, PGE Energia Odnawialna, PGE Dystrybucja, PGE Obrót, PGE Synergia, PGE Systemy, PGE Ventures, PGE Baltica, PGE Dom Maklerski, Bestgum, Betrans, Elbest Security, Elbis, Elbest, Elmen, Eltur Serwis, MegaSerwis, Megazec, Ramb and PGE Ekoserwis. Each of them conducted dedicated employee training on human rights policies and procedures taking into account human rights aspects. The companies were also assessed, among other things, with respect to the risk of corruption.

Due to the fact that the total number of people working in these companies represents 96.1% of all employees of the Group, the following indexes are presented as aggregated data (for the PGE Group).

**Total number of incidents of discrimination and corrective actions taken in 2021. As of December 31.** GRI: 406–1

PGE Group	Data for 2021
Total number of incidents of discrimination	0*
PGE SA	Data for 2021
Total number of incidents of discrimination	0*

\* Among the cases reported by Whistleblowers, none concerned discrimination. Counteracting unfair and biased differentiation of people is the subject of employee education in the form of internal training and the subject of internal communication



# Training of employees of PGE Group companies in the field of human rights policies and procedures taking into account human rights aspects.

GRI: 412–2

PGE Group	2021	
Total number of hours of training	17,789*	
Number of employees trained	33,334	
Percentage of employees trained	91%	
Number of employees with valid Code of Ethics training as of December 31, 2021	34,767	
Percentage of employees with valid training on the Code of Ethics as at December 31, 2021	95%	
PGE SA	2021	
PGE SA Total number of hours of training	<b>2021</b> 110*	
PGE SA       Total number of hours of training       Number of employees trained	<b>2021</b> 110* 212	
PGE SA         Total number of hours of training         Number of employees trained         Percentage of employees trained	<b>2021</b> 110* 212 31%	
PGE SA         Total number of hours of training         Number of employees trained         Percentage of employees trained         Number of employees with valid Code of Ethics training as of December 31, 2021	<b>2021</b> 110* 212 31% 657	

<sup>\*</sup> For the purposes of this statement, when calculating the total number of training hours, it was assumed that e-learning training is calculated as the product of the number of people who have completed the training and the duration of the training 1h, and stationary or online training is the product of the number of training sessions and time duration of the training 1.5 h. Other forms of training are the product of the number of training sessions and the duration of the training 0.5 h.

Trainings on the PGE Capital Group's Code of Ethics, containing issues related to respect for human rights, are obligatory for every employee and other persons acting on behalf and for the benefit of PGE Group companies. They are repeated cyclically every three years. Each of the training participants who successfully pass the exam receives a certificate. The given number of employees trained is the number of employees who have training valid as of December 31, 2021.

#### The total number and percentage of companies assessed for corruption.

205-1

	2021
Number of companies assessed for corruption risk	22
Percentage of companies assessed for corruption risk	100%

1 \_ ]

In the area of counteracting corruption, PGE Group companies are bound by the provisions of the Code of Ethics, the Anticorruption Policy and the General Procedure – Anticorruption in the PGE Capital Group. They apply to the vast majority of PGE Group companies (this does not apply to financial entities that perform these tasks based on separate legal requirements). Companies are obliged to familiarize and train all employees and other persons acting on behalf of and for the benefit of the companies of the principles contained in the regulations. After the training on both the Code of Ethics and anti-corruption regulations, participants sign declarations on participation in the training and reading and undertaking to comply with the regulations discussed therein. Confirmation of training activities is reported on a quarterly basis. In addition, internal regulations include provisions aimed at mitigating the risk of corruption. This applies to areas that are particularly exposed to it, such as purchasing or sponsorship activities. All business partners confirm that they have read the Code of Conduct for Business Partners of the PGE Capital Group Companies (KPPB) in the SWPP2 system used to conduct procurement procedures. Agreements with business partners include ethical clauses referring to the principles described in the KPPB, including the principles related to counteracting corruption.

The Code of Conduct for Business Partners and the PGE Group's Anti-Corruption Policy are available in two language versions – Polish and English.

Communication and training on the organisation's anti-corruption policies and procedures 205–2

PGE Group	2021
Number of Management Board and Supervisory Board members who were trained in anti-corruption measures	159
Percentage of Management Board and Supervisory Board members who were trained in anti- corruption measures	84%
Number of employees in managerial positions who were trained in anti-corruption measures	2,443
Percentage of employees in managerial positions who were trained in anti-corruption measures	93%
Number of employees who were trained in anti-corruption measures	32,363
Percentage of employees who were trained in anti-corruption measures	95%
PGE SA	2021
PGE SA Number of Management Board and Supervisory Board members who were trained in anti-corruption measures	<b>2021</b> 15
PGE SA         Number of Management Board and Supervisory Board members who were trained in anti-corruption measures         Percentage of Management Board and Supervisory Board members who were trained in anti-corruption measures	<b>2021</b> 15 100%
PGE SA         Number of Management Board and Supervisory Board members who were trained in anti-corruption measures         Percentage of Management Board and Supervisory Board members who were trained in anti-corruption measures         Number of employees in managerial positions who were trained in anti-corruption measures	2021 15 100% 163
PGE SA         Number of Management Board and Supervisory Board members who were trained in anti-corruption measures         Percentage of Management Board and Supervisory Board members who were trained in anti-corruption measures         Number of employees in managerial positions who were trained in anti-corruption measures         Percentage of employees in managerial positions who were trained in anti-corruption measures	2021 15 100% 163 93%
PGE SANumber of Management Board and Supervisory Board members who were trained in anti-corruption measuresPercentage of Management Board and Supervisory Board members who were trained in anti- corruption measuresNumber of employees in managerial positions who were trained in anti-corruption measuresPercentage of employees in managerial positions who were trained in anti-corruption measuresNumber of employees who were trained in anti-corruption measuresNumber of employees who were trained in anti-corruption measures	2021 15 100% 163 93% 486

