

Management Board's report on activities of the Capital Group of PGE Polska Grupa Energetyczna S.A. for the 3-month period

ended March 31, 2019



Polska Grupa Energetyczna

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# **KEY FINANCIAL RESULTS OF THE PGE CAPITAL GROUP**

Ken finencial data	1114	Period ended	Period ended	%
Key financial data	Unit	March 31, 2019	March 31, 2018	change
Sales revenues*	PLN million	9 561	7 137	34%
EBIT	PLN million	950	1 315	-28%
EBITDA	PLN million	1 889	2 214	-15%
EBITDA margin*	%	20%	31%	-
Net profit	PLN million	612	986	-38%
Capital expenditures	PLN million	1 008	855	18%
Net cash from operating activities	PLN million	727	1 681	-57%
Net cash from investing activities	PLN million	-1 873	-1 818	3%
Net cash from financial activities	PLN million	1 103	-60	-

Key financial data		As at March 31, 2019	As at March 31, 2019	% change
Working capital	PLN million	-2 829	-3 395	-17%
Net debt/ LTM EBITDA**	x	1.97	1.51	

\* With regard to introduction of 100% power exchange obligation (the obligation to publicly sell electricity), the lower share of trading was realised bilaterally within the Capital Group than in the first quarter of 2018. This change significantly attributed to the growth of sales and purchase of electricity (see p. 3.2 of this report) and thus level of consolidated revenues and costs. It had limited impact on actual profitability of PGE Capital Group.

\* LTM EBITDA - Last Twelve Months EBITDA.



# 1. PGE Capital Group

# 1.1. Characteristics of activities

Capital Group of PGE Polska Grupa Energetyczna S.A. ("PGE Capital Group", the "Capital Group", "PGE Group", the "Group") is the largest vertically integrated producer of electricity and heat in Poland. With a mix of own fuel sources, generation assets and distribution network, PGE Group provides a safe and reliable supply of electricity to more than five million households, businesses and institutions.

The parent company of PGE Capital Group is PGE Polska Grupa Energetyczna S.A. (also "PGE S.A.", "PGE", the "Company", the "Issuer"). PGE Group organized its activities in six business segments:

# CONVENTIONAL GENERATION



Core business of the segment includes extraction of lignite, production of electricity and heat from conventional sources.

Rybnik power plant, formally being part of PGE Energia Ciepła S.A. holding, due to character of its operations, has been included in Conventional Generation.

# DISTRICT HEATING



Core business of the segment includes production of electricity and heat from conventional sources as well as transmission and distribution of heat.

## RENEWABLES



Core business of the segment includes electricity generation from renewable sources and in pumped-storage power plants and provision of ancillary services.

# SUPPLY



Core business of the segment includes wholesale trading of electricity on domestic and international market, sale of electricity to final off-takers, trading of  $CO_2$  allowances and energy certificates and fuels and provision of services of the Corporate Centre to companies from the PGE Group.

# DISTRIBUTION

Core business of the segment includes supply of electricity to final off-takers through the grid and HV, MV and LV infrastructure.

# **OTHER OPERATIONS**

Other operations include provision of services, through the subsidiaries, to PGE Group, which include organisation of capital raising in form of Eurobonds, provision of IT, payroll and HR services and transportation services. Its activities also include subsidiaries formed to prepare and implement a project to build a nuclear power plant, to manage investment funds and to invest in start-ups.

The composition of the Capital Group is presented in note 1.3 to the consolidated financial statements.



# 2. Electricity market and regulatory and business environment

# 2.1. Macroeconomic environment

PGE Group's main operating area is Poland, and the domestic macroeconomic backdrop has a substantial impact on Group's results. At the same time, the condition of Poland's economy remains largely tied to the situation across the European Union and in global markets. The Group's financial results are affected by both the situation in specific segments of the economy and the financial markets, which affect the terms of PGE Group's debt financing.

As a rule of thumb, there is a historical correlation between change in electricity demand and change in the rate of economic growth in Poland. Considering PGE Group's position on the Polish power generation market, as well as its substantial share in the electricity sales and distribution market, changes in power and heat demand may have a significant impact on the Group's results.

In the first quarter of 2019, gross electricity consumption went down by 1.4% y/y. In the analogical period of previous year the electricity consumption increased by 2.8% y/y. The decrease was due to higher temperatures recorded in the first quarter of 2019. In the first quarter of the average daily temperature reached 2.4°C and was by 3.1°C higher than in the analogical period of the previous year. The decrease in consumption in the first quarter of 2019 was of a one-off nature. In next quarters of 2019 a growth in electricity consumption is forecasted.

Economic trends in the first quarter of 2019 remained positive in general. According to initial estimates by the Central Statistical Office of Poland gross domestic product (not seasonally adjusted) in the first quarter of 2019 grew by approx. 4.6% y/y vs 5.2% in the analogical period of 2018.

Diagram: Seasonally adjusted GDP change vs. change in domestic gross electricity consumption.



------Seasonally adjusted GDP -----Gross electricity consumption

Source: Central Statistical Office of Poland, PSE S.A.

In the first quarter of 2019, the average Purchasing Managers' Index ("PMI") reading for the industry was 48.2 points (52.1 points in 2018), thus remained below the 50 points mark, above which the managers surveyed expect the situation in the sector to improve. A drop below the 50-point threshold indicates contraction of the Polish industry sector. Production and total volume of new orders have decreased, and export orders shrunk at the fastest pace since June 2009. According to estimates by the Central Statistical Office of Poland the average employment level in the enterprise sector grew by 3% y/y in the first quarter of 2019. PMI rose in March 2019 as compared to February 2019 (47.6 points), which may suggest that the economic downturn in the industry is expected to finish. The Eurozone PMI was 49.1 points in the first quarter of 2019 and averaged 55.0 points in 2018.



Diagram: Manufacturing PMI in Poland and Eurozone (in points).



Source: Markit Economics

Development in the Polish economy is reflected by inter alia dynamics in overall industrial production. In the first quarter of 2019 it went up by 6.1% y/y, compared to 5.6% in the first quarter of 2018. The change resulted from increase in mining segment by 6.5% y/y in the first quarter of 2019 versus decrease by 1.7% in 2018. Production in the whole energy sector increased by 2.7% y/y in the first quarter of 2019 vs 9.2% in 2018. The value of industrial manufacturing depends on volumes of goods produced and prices. PPI in the first quarter of 2019 amounted to 2.5%. CPI reading in the first quarter of 2019 amounted to 1.2% y/y.

#### 2.2. Market environment

#### SITUATION IN NPS

Table: Domestic electricity consumption (GWh).

	Q1 2019	Q1 2018	Change
Domestic electricity consumption	44 463	45 088	-625
Wind farms	4 652	3 168	1 484
Industrial thermal hard-coal fired power plants	20 568	21 839	-1 271
Industrial thermal lignite fired power plants	11 013	12 277	-1 264
Industrial gas-fired power plants	2 816	2 597	219
International trading balance	1 751	1 553	198
Other (industrial plants, hydro power plants, other RES)	3 663	3 654	9
Total supply (GWh)	44 463	45 088	-625

Source: data from PSE S.A.

In the first quarter of 2019 average temperature in Poland was by  $3.1^{\circ}$ C higher y/y. Increase of temperature in winter translates into decreasing demand for energy<sup>1</sup>. At the same time, due to better wind conditions production increased in non-controllable sources, which have priority of delivery in the power system. As a result, lower production from industrial hard coal-fired and lignite-fired power plants was needed in order to balance the system.

<sup>&</sup>lt;sup>1</sup> On hot summer days growth of temperature translates into rising electricity demand (air-conditioning).



Chart: Energy balance in the National Power System (y/y)



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

# ELECTRICITY PRICES – DOMESTIC MARKET

#### Day-ahead market (RDN)

Market/measure	Unit	Q1 2019	Q1 2018	Change %
RDN – average price	PLN/MWh	218	184	18%
RDN – trading volume	TWh	7.32	6.07	21%

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

Factor	Unit	Q1 2019	Q1 2018	Change %
CO <sub>2</sub> emission rights	EUR/t	22.07	10.28	115%
Polish Steam Coal Market Index PSCMI1	PLN/GJ	11.88	10.48	13%
Wind generation NPS	TWh	4.65	3.17	47%

In the first quarter of 2019, the average electricity price on the day-ahead market<sup>2</sup> was PLN 218/MWh, i.e. 18% higher than the average price (PLN 184/MWh) in same period in the preceding year. The increased electricity price (y/y) was a result of the situation on the related markets. In the first quarter of 2019, prices for  $CO_2$  emission rights were by 115% higher than in the same period in the base year. An increase was also observed with regard to coal prices, as the average PSCMI1 was PLN 11.88/GJ in the first quarter of 2019, i.e. 13% higher than in the same period in the preceding year. The increase in electricity prices (y/y) was slightly eased down by weather conditions, and the supply of wind energy to the national power grid was higher by 47% (y/y) (with simultaneous higher wind energy generation by approx. 25%, the average prices on the day-ahead market dropped by 11% q/q.).

<sup>&</sup>lt;sup>2</sup> Statistics calculated on the basis of fixings data.

![](_page_7_Picture_1.jpeg)

![](_page_7_Figure_2.jpeg)

Chart: Monthly prices and price volatility at the day ahead market in 2018–2019 (TGE)\*

\* Average monthly price of RDN index calculated on the base of hourly quotations (fixing), weighted by the trading volume.

## Forward market

Market/measure	Unit	Q1 2019	Q1 2018	Change %
BASE Y+1 – average price	PLN/MWh	262	186	41%
BASE Y+1 – trading volume	TWh	21.21	18.07	17%
PEAK5 Y+1 – average price	PLN/MWh	345	231	49%
PEAK5 Y+1 – trading volume	TWh	2.18	0.57	282%

Electricity prices on forward market are shaped by the similar fundamental factors, as the prices on the Day-Ahead Market described in the previous paragraph. Increases on the forward market (y/y) were related to the increases on the related markets: CO<sub>2</sub> emission rights and hard coal. A key difference between the spot market (day-ahead market) and the forward market is the weather. Weather can only be forecast for short periods, which is reflected in the price volatility on the day-ahead market, but not in the contracts for electricity for the following year. Strong wind conditions in the first quarter of 2019 weakened the increase in prices on the day-ahead market (price dynamics +18% y/y), but did not ease down the increase on the forward market (price dynamics +41% y/y). Revenues from electricity sales are recognised at delivery (and not when contracted).

![](_page_8_Picture_1.jpeg)

![](_page_8_Figure_2.jpeg)

Chart: Monthly prices and price volatility on the forward market in 2018–2019 (TGE)\*.

\* Monthly average index level for forward contracts for the next year (Y+1), baseload and peak, weighted by the trading volume.

## INTERNATIONAL MARKET

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

Chart: Comparison of average electricity prices on Polish market and on selected European markets in the first quarter of 2019 (prices in PLN/MWh, average exchange rate EUR/PLN 4.30).

![](_page_8_Figure_8.jpeg)

Source: TGE, EEX, EPEX, Nordpool, OTE a.s. PXE.

In the first quarter of 2019, growth in wholesale electricity prices in neighbouring countries was in the range of PLN 29-37/MWh y/y (i.e. by 17-23%). From this perspective the price growth in Poland by PLN 34/MWh (i.e. by 18%) is in line with the regional trend. The common electricity price y/y growth driver in the region was the situation on related commodity markets: growth in prices on the coal market and the  $CO_2$  emission allowance market. In the first quarter of 2019, the average electricity price in Poland was higher than in Germany (by PLN 40/MWh), in the Czech Republic (by PLN 27/MWh), in Sweden (by PLN 16/MWh),

![](_page_9_Figure_1.jpeg)

and in Lithuania (by PLN 11/MWh). In the first quarter of 2019 the price differential between Poland and its neighbours was similar to the one observed in previous year.

#### International trading

Chart: Monthly imports, exports and cross-border exchange balance in 2018-2019 (in GWh).

![](_page_9_Figure_5.jpeg)

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

In the first quarter of 2019, Poland remained a net importer of electricity: trading balance reached 1.7 TWh (import 2.3 TWh, export 0.6 TWh). It is a result similar to the analogical period of 2018, when a trading balance reached 1.6 TWh (including import 2.1 TWh and export 0.5 TWh).

Diagram: Geographical structure of commercial exchange in the first quarter of 2019 (in GWh).

![](_page_9_Figure_9.jpeg)

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

#### Retail market

The diversity of electricity prices for retail customers in the European Union depends not only on the level of the wholesale prices of electricity. The fiscal system, regulation mechanisms and support schemes in particular countries all have significant impact on

![](_page_10_Picture_1.jpeg)

the final price of electricity. In Poland in the second half of 2018<sup>3</sup> an additional burden for individual customers accounted for 36% of the electricity price and in comparison to EU average of 31%. 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 second half of 2018<sup>4</sup> (prices in PLN/MWh, average exchange rate EUR/PLN 4.30).

![](_page_10_Figure_4.jpeg)

Source: own work based on Eurostat data.

Diagram: The share of additional charges in electricity prices for the individual customers in selected EU countries in the second half of 2018<sup>5</sup> (prices in PLN/MWh, average exchange rate EUR/PLN 4.30).

![](_page_10_Figure_7.jpeg)

Source: own work based on Eurostat data.

<sup>&</sup>lt;sup>3</sup> Eurostat data are published in semi-annual intervals.

<sup>&</sup>lt;sup>4</sup> Eurostat data are published in semi-annual intervals.

<sup>&</sup>lt;sup>5</sup> Eurostat data are published in semi-annual intervals.

![](_page_11_Picture_1.jpeg)

# 2.3. Prices of certificates

In the first quarter of 2019 the average price of green certificates (index OZEX\_A) reached PLN 118 PLN/MWh and was higher by 87% y/y. The price growth resulted from demand factors (a regulation of the Minister of Energy that introduced an obligation to redeem green certificates from 17.5% in 2018 and to 18.5% in 2019). Additionally, the decrease in certificates supply was driven by the closure of a certification system for new units and the upcoming end of a 15-year support period for new installations that had entered the system in 2005. At the same time, weather in the first guarter of 2019 was the factor, which neutralized the growth of prices (from q/q perspective average price of green certificates fell with simultaneous growing wind generation).

In the first quarter of 2019, prices of green certificates were also affected by the legislative works on the amendment to the Act on Renewables, concerning the substitute fee. The average price for green certificates in the first quarter of 2019 was below the substitute fee which is PLN 129.78/MWh in 2019.

The average price for yellow certificates in the first quarter of 2019 was PLN 110/MWh, i.e. 7% lower than in the same period in the preceding year. The first quarter of 2019 was the first quarter in which the highly efficient cogeneration support scheme based on yellow and red certificates was not in force. As the redemption of certificates of origin related to the sales of electricity in the preceding financial year takes up to six months, yellow certificates continue to be traded on the power exchange. A drop in prices for yellow certificates results from the higher supply of electricity generated in gas-fired cogeneration sources (2018 versus 2017). In 2018, the obligation to redeem yellow certificates was 8%, and the substitute fee was PLN 115/MWh.

Yellow certificates (PMGM) Green certificates (OZEX A) and substitution fee and substitution fee 149 118 119 117 116 116 87% N N

115

03

2018 2018 2018 2018 2019

04

Q1

74

Q2

substitution fee

63

Q1

Chart: Average quarterly prices of certificates (PLN/MWh).

substitution fee

2018 2018

Q2

113

-7% V/Y

109

**Q**3

2018

111

Q4

2018

110

**Q1** 

2019

Source: Own work based on TGE quotations. The yellow certificates prices presented on the chart are weighted average blended price - for products PMGM-16, PMGM-17, PMGM-18.

**Q2** 

2017

**Q**3

Q4

2017 2017

01

# 2.4. Prices of CO2 emission rights

43

Q3

2017

28

Q2

2017

43

Q4

2017

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 are planned for realisation of investment tasks for 2019, what means that the free allocations in accordance with the currently used method will end in 2020.

PGE Polska Grupa Energetyczna

In the first quarter of 2019, the weighted average price of EUA DEC 19 reached EUR 22.07/t and was 115% y/y higher than the average price for EUA DEC 18 (EUR 10.28/t) in the similar period of 2018. The increase in  $CO_2$  emission prices observed in 2018 is a result of market perception of the EU ETS reform.

Chart: Prices of CO<sub>2</sub> emission rights.

![](_page_12_Figure_4.jpeg)

Source: own work based on ICE quotations.

# EMISSION RIGHTS GRANTED FREE OF CHARGE FOR YEARS 2013-2020

PGE's installations accounts were credited with free allowances for heat for 2019 and energy for 2018, while free allowances for electricity for 2019 will be received by the Group by the end of April 2020, after verification of reports from investments submitted to the National Investment Plan.

At the same time, redemption of emission rights resulting from CO<sub>2</sub> emissions in 2018 was completed in April 2019.

Table: Emission of  $CO_2$  broken down into electricity and heat production in relation to allocation of  $CO_2$  emission rights for 2019 (in tonnes).

Product	CO <sub>2</sub> emissions in Q1 2019*	Allocation of CO <sub>2</sub> emission rights for 2019**
Electricity	14 557 947	10 623 187
Heat	1 982 387	1 265 990
TOTAL	16 540 334	11 889 177

\* Estimates, emissions not verified - the data will be settled and certified by the authorised verifier of  $CO_2$  emission on the ground of yearly reports of volume of  $CO_2$  emissions.

\*\* Amount of granted CO<sub>2</sub> emission rights will be confirmed in the Regulation of the Council of Ministers in the first quarter of 2020.

![](_page_13_Picture_1.jpeg)

# 2.5. Regulatory environment

# DOMESTIC REGULATORY ENVIRONMENT

PGE Group operates in an environment with a significant impact of domestic and foreign regulations. Below we present a summary of the most significant decisions, which took place in the first quarter of 2019 and which could have an impact on PGE's operations in the coming years.

Segments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE
	Act on promoting of electricity produced in highly-efficient cogeneration.	<ul> <li>This act intends to support units producing electricity in highly-efficient cogeneration in as far as the costs of such production exceed the market price of energy:</li> <li>units &lt;50MW - existing and modernised: guaranteed bonus, the level of which is set by the Minister of Energy; new and significantly modernised: bonus set in auctions,</li> <li>units &gt;50MW - existing and modernised: guaranteed bonus, the level of which is set annually by the ERO President; new and significantly modernised: bonus set in selection.</li> </ul>	The law was voted through in <b>December 2018</b> .	It came into force on January 1, 2019, with payments of bonuses and the hosting of auctions and selections suspended until approval from the European Commission is received. European Commission approval for support scheme was issued on April 15, 2019. Six regulations must be issued in order to implement the act; their drafts are in progress.	This will secure stable revenue (for up to 15 years) covering the costs of substantial modernisations of existing cogeneration units and the construction of new ones.
₽ ₽	Updated energy law - exchange obligation.	<ul> <li>Introduction of a 100% exchange obligation while maintaining the existing exemptions from the exchange commitment (e.g. renewable energy, cogeneration).</li> <li>Regulation of reserve sales.</li> </ul>	Voted through in November 2018, entered into force on January 1, 2019.	-	The need to adapt trading strategy to new level of power exchange obligation.
₹ ₽	Act regulating electricity prices in 2019.	<ul> <li>Reduction in excise duty rates for electricity.</li> <li>Reduction in transition fee rates.</li> <li>Introduction of maximum sale prices for electricity in 2019 (in both trade and distribution) and introduction of compensation for trading companies.</li> </ul>	Voted through in November 2018, entered into force on January 1, 2019, significantly amended in February 2019.	Draft Regulation of the Minister of Energy, which is to constitute the basis for determining the amount of compensation for trading companies was published on March 14, 2019. The end date of the works on the draft is not known.	The act has an impact on trading companies due to the obligation to specify electricity sales prices in 2019 at the level from June 30, 2018 and adjust prices in the existing contracts. It is to be no later than 30 days of entry into force of the ME regulation on compensations, with the effect from January 1, 2019. Trading companies will be entitled to claim compensation.

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![](_page_14_Picture_1.jpeg)

Segments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE
Ref. 1	Regulation of the Minister of Energy amending regulation on detailed rules for determining and calculating tariffs and settlements in trade of	<ul> <li>The amendments concern:</li> <li>Rules for granting discounts for failure to meet electricity quality parameters and customer service quality standards.</li> <li>Introduction of possibility to create separate tariff group for off-takers who use electricity for needs of public road transport.</li> </ul>	The regulation was published on March 15, 2019 and entered into force on March 16, 2019.	-	Changes in the rules for granting discounts to electricity consumers specify in what circumstances the company must automatically (and not at the request of the off-taker) grant him an appropriate discount.
	electricity.	<ul> <li>Provisions were removed with regard to ceased support scheme for highly efficient co-generation in form of certificates.</li> </ul>			
₹ ₽	Regulation on the Low- Carbon Transport Fund.	The drafts set forth detailed rules for the functioning of the Low-Carbon Transport Fund established under the Act on Biocomponents and Liquid Biofuels. The draft regulation on the <b>detailed conditions for the</b> <b>granting and settlement of support granted under the</b> <b>Fund</b> determines, in particular, the maximum amount of support, the list of eligible costs and the intensity of support. The draft regulation on <b>the detailed criteria for selection</b> <b>of projects to be granted support under the Fund</b> , specifies the following key criteria: (i) significance of the project for purposes of market development, (ii) appropriateness and relevance of the activities planned and their implementation, (iii) assessment of the planned costs of the project in relation to the scope of works, (iv) organisational capacities of the applicant to complete the project and institutional arrangements for its implementation.	In February 2019, the public consultations on the draft regulations were ended.	The regulations are expected to enter into force in Q3 2019. The ME expects the first applications to be filed in Q4 2019.	The support granted under the Fund can be used, in particular, for the construction of the infrastructure for charging electrical vehicles and for the production of biomethane used in transport.

![](_page_15_Picture_1.jpeg)

# INTERNATIONAL REGULATORY ENVIRONMENT

Segments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE	
Climate-energy package that sets out greenhouse gas emission reduction targets by 2030						
	EU ETS directive and implementing and delegated acts	Combating climate change and performance of obligations resulting from the Paris Agreement. Development of investment incentives through a CO <sub>2</sub> price signal to develop low-emission sources.	<ul> <li>On March 19, 2018, Directive (EU) 2018/410 of the European Parliament and of the Council amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814, was published in the EU's Official Journal, in connection with which the EU ETS and MSR amendment entered into force on April 8, 2018.</li> <li>Key objectives in the revised EU ETS:</li> <li>Increase LRF to 2.2% annually from 2021.</li> <li>Doubling of the volumes of allowances for the market stability reserve ("MSR") in 2019-2023 from 12% to 24%, together with the introduction of cyclical cancellations of allowances from 2023 in an amount exceeding the volume of such allowances that was the subject of auctions in the preceding year.</li> <li>Amendment rules for derogation (art. 10c) and the Modernisation Fund (art. 10d), including the exclusion of fossil fuel-based investments from financing under the Modernisation Fund.</li> <li>Continued allocation of free emission allowances for district heating and highly-efficient cogeneration in respect of the production of the Innovation Fund in order to support innovations in low-emission technologies in evenly distributed locations throughout the EU.</li> <li>On December 19, 2018 a delegated act was adopted, on harmonised free allocation of emission allowances pursuant to Article 10a of the EU ETS Directive, including district heating. On February 26, 2019 a delegated act was adopted on the Innovation Fund.</li> </ul>	<ul> <li>Transposition date for most of the directive's provisions into national law - October 9, 2019.</li> <li>Implementing and delegated acts related to the implementation of the reviewed EU ETS, which are of the most importance to PGE Group: <ul> <li>implementing act setting out the way in which the Modernisation Fund operates,</li> <li>delegated act concerning allocating of free allowances for heating,</li> <li>delegated act specifying operating rules for the Innovation Fund.</li> </ul> </li> <li>Adoption of the implementing act on the functioning of the Modernisation Fund before the end of 2020.</li> </ul>	Improvement in the competitiveness of renewable and gas sources to the detriment of hard coal-based and subsequently lignite-based generation assets. Increase in operating costs for conventional generation of electricity. Option to obtain direct investment support from 2021 from the Modernisation Fund or Innovation Fund.	

![](_page_16_Picture_1.jpeg)

Segments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE
			"Clean energy for all Europeans"		
	RED II Directive	Promoting the development of renewable energy sources in the power, district heating and transport sectors, intended for the EU to reach the <b>32%</b> <b>renewables target</b> in overall consumption by <b>2030</b> .	<ul> <li>Key adopted issues (the directive came into force on December 24, 2018) include:</li> <li>Necessity to declare national contributions - no specific country targets were given.</li> <li>Support system stability.</li> <li>Introduction of simplifications and faster investment processes for renewables.</li> <li>Indicative target for annual increase of renewables in district heating and cooling.</li> <li>Restrictions concerning electricity production at biomass units.</li> <li>Criteria for sustainable development and greenhouse gas emission reductions for biomass fuels.</li> </ul>	Mandatory transposition of the directive to national law - <b>by</b> <b>June 30, 2021</b>	Increase in share of renewables with zero variable cost will cause a change in conventional units' operation profile. Impact on investment programme in generation segment (including renewables) and district heating by necessity to take into account development of renewables units. Impact on supply segment through development of prosumer segment, constituting an alternative for end users to buying energy.
	EED Directive	Promoting improvements in energy efficiency as regards both primary energy consumption and final energy consumption, intended for the EU to reach its target <b>32.5%</b> <b>improvement in energy</b> <b>efficiency</b> by 2030.	<ul> <li>Key adopted issues (the directive went into force on December 24, 2018) include:</li> <li>Need to declare energy efficiency improvements - targets are not binding.</li> <li>Extension of the obligation to generate savings in final energy consumption (implemented currently mainly through the white certificate system), combined with a change in the way in which the required level of savings is calculated (each year 0.8% of final energy consumption).</li> <li>Change in the level of default coefficient for conversion of final energy consumption into primary energy consumption.</li> </ul>	Mandatory transposition of the directive to national law - by June 25, 2020.	Impact on all segments, i.e. reduction of growth in energy consumption by taking energy efficiency actions. Impact on supply segment resulting from costs of white certificate system.
	Governance regulation	Introduction of framework for implementation of the EU's energy and climate targets by establishing a system for setting and monitoring targets by member states.	<ul> <li>Key issues adopted (regulation provisions of importance to the electricity sector went into force on January 10, 2019):</li> <li>Need for Poland to submit to the European Commission an Integrated National Plan for Energy and Climate, with a declaration on the trajectory of renewables development and improvement in energy efficiency as well as long-term policy for reduction of CO<sub>2</sub> emissions and development of cross-border connections.</li> <li>In the draft plan, Poland declared that by 2030 the following targets will be achieved: 21% of renewables in the gross final energy consumption, 27% of renewables in the electricity sector, 23% of improvement in energy efficiency for primary energy.</li> </ul>	A draft Integrated National Plan for Energy and Climate has been <b>submitted by Poland</b> to the European Commission. Deadline for expressing concerns on the draft plan by the European Commission: <b>June 30</b> , <b>2019</b> . Deadline for final version of the plan - by <b>December 31</b> , <b>2019</b> .	Regulation's impact is the same as Directives RED II and EED. This results from the fact that the regulation's key provisions introduce mechanisms intended to achieve the EU's targets specified in these directives, collectively by EU member states.

![](_page_17_Picture_1.jpeg)

Segments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE
	EMR regulation	Establishment of legal framework for further integration of internal electricity market.	The last trilogue took place on December 18-19, 2018, during which the <b>final wording of the regulation on internal electricity market</b> . The agreement must be accepted by the European Parliament and Council. The regulation was officially adopted by the European Parliament on March 26, 2019. Key assumptions in the adopted regulation: Rules regarding the application of EPS 550 and protection of vested	On May 22, 2019 the Council officially approved the regulation. Afterwards the regulation will be published in the Official Journal	Capacity contracts executed by PGE Group in auctions won on the capacity market in 2018 and 2019 will have vested rights protected throughout their entire term. New units which exceed the
<b> </b>			<ul> <li>Rules regarding the application of EPS 550 and protection of vested rights:</li> <li>The developed solution includes an exemption from the requirements specified in chapter IV of the Regulation (including EPS 550) for contracts executed prior to December 31, 2019, including multiannual contracts executed prior to that date.</li> <li>If capacity contracts are executed after the regulation enters into force:         <ul> <li>for units emitting more than 550 g of CO<sub>2</sub>/kWh (EPS 550) or 350 kg CO<sub>2</sub>/KWe/year (<i>carbon budget</i>) that start commercial production of electricity prior to entry into force of the regulation, a transition period until July 1, 2025 would apply,</li> <li>for units emitting more than 550 g CO<sub>2</sub>/kWh (EPS 550) and begin commercial production of electricity after entry into force of the regulation, no transition period applies.</li> </ul> </li> <li>Definition of capacity mechanisms that excludes ancillary services and constraint management measures from the definition.</li> <li>Introduction of ERAA and NRAA, including a prohibition on executing new capacity contracts if these assessments do not identify a capacity deficit.</li> <li>Introduced obligation for members states with an identified capacity deficit (including those already using capacity mechanisms) to prepare and implement a plan of implementing activities, in which market-type measures will be used first.</li> <li>Share of cross-border capacity in the capacity market.</li> <li>Requirement to make 70% of cross-border capacities available for market purposes from January 1, 2026 at the latest.</li> <li>Frameworks to develop a European organisation for distribution operators ("EU DSO entity"), which will co-author European grid codes.</li> </ul>	and will enter into force after 20 days. The majority of the provisions of the regulation will be effective from January 1, 2020.	<ul> <li>New Units which exceed the emissions standard 550 g</li> <li>CO<sub>2</sub>/kWh (EPS 550) and 350 kg CO<sub>2</sub> will not be eligible to receive any payments from the capacity market from the entry into force of the regulation (mid-2019), except for those which will have concluded contracts by the end of 2019. Existing coal units that exceed the emissions standard 550 g CO<sub>2</sub>/kWh (EPS 550) and 350 kg CO<sub>2</sub> will not participate in the capacity market from July 1, 2025. This means that capacity contracts (mainly annual) for existing units (including units modernised to BAT conclusions that do not meet the CAPEX threshold for multiannual contracts) will be performed until mid-2025 at the latest.</li> <li>Need to include lack of support for existing generating assets after 2025 in assesments of capacity sufficiency.</li> <li>A potential drop in volume of and price for electricity sold on the wholesale market by domestic units due to the increased energy imports to Poland (lower wholesale prices on the neighbouring markets), with a simultaneous increase in the use of domestic conventional nower</li> </ul>
			the state, termination of the approximity providy arandomey		·

Management Board's report on activities of the Capital Group of PGE Polska Grupa Energetyczna S.A. for the 3-month period ended March 31, 2019

![](_page_18_Picture_1.jpeg)

Segments	Regulation	<b>Regulation objectives</b>	Latest conclusions	Next stage	Impact on PGE
			to renewables and CHP plants. Retention of priority availability for renewables and high-efficiency cogeneration, as a rule for		plants under constraint management (redispatching).
			The last trilegue took place on December 18/19, 2018, during which		Further business consequences will also result from the way in which the solutions included in the Regulation are implemented wherever there is room to act by national authorities.
	EMD Directive	<ul> <li>Key goals of EMD directive revision:</li> <li>Strengthen the consumer's role on the electricity market.</li> <li>Protect energy-poor and sensitive customers.</li> <li>Ensure decarbonisation, especially by promoting and developing electromobility.</li> </ul>	<ul> <li>The last trilogue took place on December 18/19, 2018, during which the final wording of the directive on common rules for internal electricity market was agreed. The directive was officially adopted by the European Parliament on March 26, 2019.</li> <li>The key agreed issued include: <ul> <li>Requirement to implement intelligent metres.</li> <li>Restrictions in DSO activities, including energy storage and servicing EV charging stations and introduction of a new approach towards auxiliary services and flexibility services.</li> <li>As a rule, no fees for switching suppliers by households and micro and small enterprises.</li> <li>From 2026 onwards, it will be possible to switch suppliers within 24 h.</li> <li>Maintenance of exemption from the rule of free development of energy prices by sellers, making it possible to temporarily apply regulated (non-market) prices to households.</li> <li>Introduction of a legal framework under which agreements with dynamic prices can be signed.</li> </ul> </li> </ul>	On May 22, 2019 the Council officially approved the directive. Afterwards the directive will be published in the Official Journal and will enter into force after 20 days. Mandatory transposition of the directive to national law - by December 31, 2020.	Impact on the distribution segment, especially as regards restricting activity related to energy storage and operating EV charging stations and development of flexibility services as well as imposition of obligation to implement intelligent metering. Impact on supply segment, mainly through imposition of additional information requirements for consumers, reduction of time to replace seller, no fees for switching sellers, development of contracts with dynamic pricing.
			<ul> <li>The right to request that an agreement with a dynamic price be made if a customer has intelligent metering.</li> </ul>		

Support for the development of energy communities.

	The regulations concerning the EU's Multiannual Financial Framework and financing for sustainable economic growth									
Polska Grupa Energetyczna	EU's Multiannual Financial Framework	EU's financial framework (income and expenditures) established for 2021- 2027.	In March 2019, the European Parliament adopted its position on the regulation on the European Regional Development Fund and the Cohesion Fund, and in February 2019 it adopted its position on the regulation on common rules for European funds. At the same time, in February 2019, the Council adopted a general approach on the	Trilogues regarding the regulation on the European Regional Development Fund and the Cohesion Fund and the regulation on common rules for	Impact of regulation on decrease in funding that can be secured by PGE Group companies for investments.					

![](_page_19_Picture_1.jpeg)

Segments	Regulation	Regulation objectives	Latest conclusions	Next stage	Impact on PGE
			aforementioned regulations.	European funds – <b>H2 2019.</b>	
			<ul> <li>Some key issues that are included in the aforementioned positions and approach, respectively, of the European Parliament and the Council, are as follows:</li> <li>Exclude the following from this funding: <ul> <li>investments in emission reductions at units subject to EU ETS,</li> <li>investments in generation, processing, transport, distribution, storage and combustion of fossil fuels,</li> <li>funding for the construction of nuclear power plants and scrapping costs.</li> </ul> </li> <li>Funds are not available under these funds for any investments in renewables unless the national renewables target for 2020 has been achieved. Once the target is achieved, the funds are available.</li> </ul>	Work at the Council on adoption of a general approach to financial issues of MFF and the related specific legislative acts – H2 2019/2020.	
Polska Grupa Energetyczna	EU package for funding sustainable economic growth	Implementation of regulations intended to facilitate funding for sustainable economic growth in EU.	<ul> <li>In February and March 2019, trialogues were concluded regarding the regulation on reporting duties and the regulation on benchmarks.</li> <li>In March 2019, the European Parliament adopted its position on the regulation on criteria for assessment of economic activities in terms of their environmental sustainability.</li> <li>Key issues referred to the aforementioned position are as follows:         <ul> <li>Recognition as environmentally sustainable of activities aimed at minimising anthropogenic emissions of greenhouse gasses (without indicating their source).</li> <li>Exclusion from environmentally sustainable activities of any activities aimed at improving energy efficiency of electricity generation with the use of solid fossil fuels.</li> <li>Introduction of the obligation for the EC to determine technical conditions for verification in what circumstances a given activity can be recognised as environmentally sustainable. These requirements are to ensure that the following activities will not be recognised as sustainable:</li></ul></li></ul>	Entry into force of the regulation on reporting duties and the regulation on benchmarks – H1/H2 2019. Expected adoption of the general approach by the Council regarding the regulation for criteria based on which economic activities will be assessed to determine whether they are environmentally sustainable - the second half of 2019.	Possible impact of regulation on availability and cost of funding obtained by PGE Group companies for investments.

![](_page_20_Picture_1.jpeg)

# ADDITIONAL INFORMATION WITH REGARD TO INTERNATIONAL REGULATORY ENVIRONMENT

#### ACTION BROUGHT AGAINST THE EUROPEAN COMMISSION'S DECISION NOT TO RAISE OBJECTIONS TO THE POLISH CAPACITY MARKET

Segments	nts Proceeding Objective of the action Key events		Key events	Next stage Impact on PGE			
	Action broug	tht against the European C	ommission's decision not to raise objections to the Polish capacit	y market (SA. 46100), case file no	o. T-167/19		
	Proceedings brought by Tempus Energy Germany and T Energy Sweden against the European Commission (case file no. T-167/19)	The objective of the action is to annul the European Commission's Decision not to raise objections to the Polish capacity market (SA. 46100)	<ul> <li>On February 7, 2018 the European Commission issued a decision not to raise objections to the Polish capacity market (case file no. VI 46100). The declassified text was published on the website of the European Commission on April 18, 2018. The decision was published in the Official Journal only on December 21, 2018. The deadline for bringing a direct action against the EC decision concerning the Polish capacity market was March 14, 2019.</li> <li>On November 15, 2018 the General Court of the EU in its judgement on the case Tempus Energy and Tempus Energy Technology versus the European Commission (case T-793/14) annulled the decision C (2014) 5083 final of July 23, 2014 not to raise objections to the aid scheme for the capacity market proposed by the UK.</li> <li>On March 14, 2019 Tempus Energy Germany and T Energy Sweden brought an action against the EC decision concerning the Polish capacity market (case T-167/19).</li> <li>It transpires from information in the press that in their action brought they argue that the EC failed, in particular, to initiate formal investigation proceedings (the second stage of the capacity evaluation mechanism) and that the demand side response (DSR) suffered discriminatory treatment within the Polish capacity market</li> </ul>	The action has been served on the parties and currently the summary of the main pleas is expected to be published in the EU Official Journal. It is difficult to estimate the duration of the proceedings before the General Court of the EU, but the British experience shows that they may even take several years. The proceedings pending before the European Court of Justice concerning the appeal in the case Tempus Energy and Tempus Energy Technology versus the EC (case file no. C- 57/19 P) will have an impact on the action brought.	Depending on the outcome of the dispute, the case may have an impact on the conditions for the performance of capacity contracts.		

![](_page_21_Picture_1.jpeg)

# 3. Activities of PGE Capital Group in 2018

**3.1.** Business segments

		1001			₽ ₽ ₽
	Conventional Generation	District Heating	Renewables	Distribution	Supply
Key assets of the segment	5 conventional power plants 2 CHP plants 2 lignite mines	14 CHP plants	14 wind farms 1 photovoltaic power plant 29 run-of-river hydro power plants 4 pumped-storage power plants, including 2 with natural flow	291 404 km of distribution lines	-
Electricity volumes	Net electricity generation 11.93 TWh	Net electricity generation 2.94 TWh	Net electricity generation 0.73 TWh	Electricity distribution 9.30 TWh	Sales to final off-takers 11.18 TWh
Heat volumes	Heat production 2.40 PJ	Heat production 19.03 PJ			
Market position	PGE Group is the leader of lignite mining in Poland (90%)		PGE Group is the largest electricity producer from RES with market share of approx. ok. 9% (including biomass co-combustion)	Second domestic electricity distributor with regard to number of customers	One of the leaders in wholesale and retail trading in Poland
	PGE Group is also a national leader in ele	ectricity and heat generation			

![](_page_22_Picture_1.jpeg)

# 3.2. PGE Group's key financial results

The best way to measure the profitability of energy companies is EBITDA. This is a result before depreciation, amortization, income tax and financial operations, including interest from drawn debt. It reflects cash flows from operating activities and makes it possible to compare the results of companies regardless of the value of their assets, level of debt and existing income tax rates.

PGE Group's consolidated results are composed of the financial results of each of its operating segments. The Conventional Generation segment and Distribution segment made the largest contribution to the Group's result, participating respectively in 36% and 34% of the Group's EBITDA. District Heating segment accounts for 21% of EBITDA. The Renewables and Supply segments contributed 9% each to the Group's EBITDA.

![](_page_22_Figure_5.jpeg)

# EBITDA of the Capital Group by segments (PLN million)

![](_page_23_Picture_1.jpeg)

#### Chart: Key factors affecting EBITDA in PGE Capital Group (in PLN million).

![](_page_23_Figure_3.jpeg)

	EBITDA Q1 2018	Result on electricity sale by the producers*	Costs of fuels	Costs of CO <sub>2</sub>	Co- generation support	Result on sale of electricity to final off- takers	Personnel costs	Other	EBITDA Q1 2019
Change		783	-79	-624	-168	-180	-91	34	
EBITDA Q1 2018	2 214	3 067	1 124	355	171	145	1 236		
EBITDA Q1 2019		3 850	1 203	979	3	-35	1 327		1 889

\* Revenue from electricity sales reduced by cost of electricity purchase.

# CONSOLIDATED STATEMENT OF FINANCIAL POSITION

Chart: Structure of assets and equity and liabilities (in PLN million).

![](_page_23_Figure_8.jpeg)

![](_page_24_Picture_1.jpeg)

# CONSOLIDATED STATEMENT OF CASH FLOWS

Chart: Net change in cash (in PLN million).

![](_page_24_Figure_4.jpeg)

	Cash and cash equivalents at January 1, 2019	Net cash from operating activities	Purchase/ Sale of property, plant and equipment and intangible assets	Balance of repayments/ inflows from loans, borrowings, bonds and financial lease	Interest paid from loans, bonds and financial instruments	Others	Cash and cash equivalents at March 31, 2019
Impact on level of cash and cash equivalents		727	-1 863	1 171	-68	-10	
Cash and cash equivalents	1 279						1 236

![](_page_25_Picture_1.jpeg)

Chart: Net debt (in PLN million).

![](_page_25_Figure_3.jpeg)

\*See note 3 to the consolidated financial statements.

![](_page_26_Picture_1.jpeg)

# **KEY RESULTS IN BUSINESS SEGMENTS (IN PLN MILLION)**

![](_page_26_Picture_3.jpeg)

![](_page_26_Figure_4.jpeg)

![](_page_26_Figure_5.jpeg)

![](_page_26_Figure_6.jpeg)

![](_page_26_Figure_7.jpeg)

![](_page_26_Figure_8.jpeg)

Conventional Generation

![](_page_26_Picture_10.jpeg)

55% y/y

![](_page_26_Figure_12.jpeg)

![](_page_26_Figure_15.jpeg)

630 513 23% y/y

![](_page_26_Figure_17.jpeg)

**District Heating** 

2 016 1 866

8% y/y

581

446

83

27 of 63

-67% y/y

27

-43% y/y

405

256

-30% y/y

![](_page_26_Picture_19.jpeg)

**Renewables** 

![](_page_26_Picture_21.jpeg)

262

165

100

11

-27% y/y

15

45% y/y

212

114

50

100% y/y

24% y/y

**Sales revenues** 

**EBITDA** 

EBIT

**Capital expenditures** 

![](_page_26_Picture_22.jpeg)

Distribution

1541 1516

2% y/y

![](_page_26_Picture_24.jpeg)

Supply Q1 2019

Q1 2018 5 4 4 0

![](_page_26_Figure_27.jpeg)

189

645 638 1% y/y

![](_page_26_Figure_29.jpeg)

344 226 52% y/y

![](_page_26_Figure_31.jpeg)

150% y/y

2

![](_page_27_Picture_1.jpeg)

# BALANCE OF ENERGY OF PGE CAPITAL GROUP

#### Balance of electricity

Table: Sales, purchase, production and consumption of electricity in the PGE Capital Group (in TWh).

Volume	Q1 2019	Q1 2018	% Change
A. Sales of electricity outside the PGE Capital Group:	26.35	19.63	34%
Sales to end-users *	11.45	10.54	9%
Sales on the wholesale and balancing market	14.90	9.09	64%
B. Purchases of electricity from outside of PGE Group (wholesale and balancing market)	11.98	3.47	245%
C. Net production of electricity in units of PGE Capital Group	15.61	17.66	-12%
D. Own consumption DSO, lignite mines, pumped-storage power plants (D=C+B-A)	1.24	1.50	-17%

\* Sale mainly by PGE Obrót S.A. and PGE Energia Ciepła S.A.

The total volume of purchased and generated electricity is higher than the volume of electricity sold. The difference presented in point D results from the necessity to cover grid losses in the distribution business (Distribution System Operator), consumption of energy at lignite mines and consumption of energy at pumped-storage plants.

An increase in the volume of electricity sales and in the volume of electricity purchases result from the higher trading in electricity on the power exchange, which has been caused by the introduction of the 100% power exchange obligation.

Part of the increased volume of sales to end customers (ca. 0.5 TWh) is a consequence of difficult situation on retail market in 2018 resulting in bankruptcy of some companies that sold electricity to end customers and fulfilling the reserve seller by PGE Group companies. In addition absence of an active sales market is reflected in a smaller migration of customers between the retail sale companies.

#### Production of electricity

Table: Electricity production (TWh).

Electricity generation volume	Q1 2019	Q1 2018	% change
Electricity production in TWh, including:	15.61	17.66	-12%
Lignite-fired power plants	8.86	9.82	-10%
Coal-fired power plants	2.85	3.95	-28%
including co-combustion of biomass	0.01	0.01	0%
Coal-fired CHP plants	1.66	1.80	-8%
including co-combustion of biomass	0.01	0.01	0%
Gas-fired CHP plants	1.43	1.49	-4%
Biomass-fired CHP plants	0.07	0.05	40%
CHP plants fuelled by municipal waste	0.01	0.00	-
Pumped-storage power plants	0.17	0.11	55%
Hydroelectric plants	0.14	0.15	-7%
Wind power plants	0.42	0.29	45%
including RES generation	0.66	0.51	29%

The level of electricity generated in the first quarter of 2019, as compared to the first quarter 2018, was affected mainly by lower generation at hard coal-fired power plants (a decrease by 1.10 TWh) and at lignite-fired power plants (a decrease by 0.96 TWh). This is primarily a result of lower load factors and longer downtime of reserve units, mostly due to lower demand from the national power grid and higher generation of wind energy. In addition, lower production results from the modernisation of units in the Opole power plant and the Turów power plant.

Lower generation at hard coal-fired power plants results mainly from lower generation at the Opole power plant which was caused by the longer (by 2 202 h) repair-related downtime of its units (unit no. 1 has been in renovation since December 29, 2018) and by a lower load factor (by 21.5 MW). Lower generation at the Dolna Odra power plant results from longer reserve

![](_page_28_Picture_1.jpeg)

downtime of units by 2 015 h (including longer by 1 137 h reserve downtime of units 1 and 2 used by PSE S.A. as cold reserve) and longer by 323 h downtime of units being in overhauls.

Lower generation in the Rybnik power plant was caused by longer reserve downtime of units 3-8 (by 4 409 h) and lower load factor (by 5 MW), what was partly compensated by shorter by 2 547 h time of units 3-8 in overhauls. Units 1 and 2 in the first quarter of 2019 produced 0.07 TWh of electricity (556 working hours), while in the base period they remained non-operational due to ongoing process of obtaining the integrated permit.

Lower generation at lignite-fired power plants results from lower average load factors at the Belchatów power plant (by 24 MW) and at Turów power plant (by 19 MW). Furthermore, lower generation at Turów power plant results from the longer (by 486 h) repair-related downtime of its units (unit no. 1 has been in renovation since May 2018).

Lower generation at hard coal-fired CHP plants and gas-fired CHP plants results mainly from lower production of electricity in cogeneration with heat due to lower demand for heat by customers, which is a consequence of average daily temperatures being higher than in the comparable period.

Lower generation in hydro power plants was triggered by less favourable hydrological conditions.

Higher generation at wind farms results from better wind conditions.

Higher production in pumped-storage power plants results from the nature of these generation units which were used more extensively by PSE S.A. in the first quarter of 2019.

Slightly higher production at biomass CHP plants results from technical conditions for operation of the boiler at the Szczecin CHP plant, where higher production of electricity was necessitated by lower heat generation (result of higher external temperatures) in order to keep the technical minimum of boiler operation.

Table: Production of heat (PJ).

Heat production volume	Q1 2019	Q1 2018	% change
Heat production in PJ, including:	21.43	24.04	-11%
Lignite-fired power plants	1.00	1.09	-8%
Coal-fired power plants	0.35	0.31	13%
Coal-fired CHP plants	15.58	17.60	-11%
Gas-fired CHP plants	4.00	4.41	-9%
Biomass-fired CHP plants	0.38	0.53	-28%
CHP plants fuelled by municipal waste	0.05	0.00	-
Other CHP plants	0.07	0.10	-30%

Adverse external temperatures contributed more than any other factor to lower generation of heat in 2019 (y/y). As compared to 2018, the average temperature was by 3.1°C higher, which translated into lower production of heat (by 11% or 2.61 PJ) by CHP plants.

#### Sales of heat

In the first quarter of 2019 the heat sales volume in PGE Capital Group totalled 20.86 PJ and were lower by 2.62 PJ y/y. The above result was caused by lower demand for heat due to the higher average outside temperatures by  $3.1^{\circ}$ C.

![](_page_29_Picture_1.jpeg)

# 3.3. Operational segments

# CONVENTIONAL GENERATION

# Segment description and its business model

This segment includes lignite mining, generation of electricity and heat in conventional sources.

![](_page_29_Figure_6.jpeg)

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 natural gas, as well as **fees for CO<sub>2</sub> 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.

A significant item in the segment's revenue constitutes **revenues from the provision of regulatory system services** based on an agreement with the Polish transmission system operator, PSE S.A. This revenue is in parallel to revenue generated on the electricity market and is related to the need to ensure stable operations for the national power system. Regulatory system services are provided by power plants of PGE GiEK and by Rybnik power plant.

In addition, this segment generates **revenues from sales of heat** produced both at industrial plants and at the Szczecin CHP plant and Pomorzany CHP plant which form part of Zespół Elektrowni Dolna.

![](_page_30_Picture_1.jpeg)

## ASSETS

Conventional Generation segment consists of: 2 lignite mines, 5 conventional power plants and 2 CHP plants.

Conventional Generation is the leader of lignite mining (its share in the extraction market of this raw material accounting for 90%<sup>6</sup> of domestic extraction), it is also the largest generator of electricity as it generates approx. 31%<sup>7</sup> of domestic gross electricity production. The generation is based on lignite extracted from mines owned by the company as well as hard coal and biomass.

Diagram: Main assets of the Conventional Generation segment.

![](_page_30_Figure_6.jpeg)

<sup>&</sup>lt;sup>6</sup> Own calculations based on data from Central Statistical Office

<sup>&</sup>lt;sup>7</sup> Own calculations based on data from PSE S.A.

![](_page_31_Picture_1.jpeg)

# KEY FACTORS FOR THE RESULTS OF THE SEGMENT

Chart: Key changes of recurring EBITDA in Conventional Generation (in PLN million) – managerial perspective.

![](_page_31_Figure_4.jpeg)

Key factors affecting the recurring EBITDA result of Conventional Generation segment on y/y basis included:

- Lower electricity production volume in PGE GiEK by 2 TWh due to lower degree of use of units by PSE S.A. resulting from decreased demand in NPS and higher wind generation (see p. 3.2 of this report).
- Increase in electricity sales prices (see p. 3.2 of this report).
- Higher result on optimisation of electricity portfolio due to higher volume of electricity trading by o 3.9 TWh (PLN +109 million), with lower margin realized on electricity trading by PLN 7.6/MWh as a result of higher purchase price of electricity mainly caused by higher prices of CO<sub>2</sub> emission rights (PLN -49 million).
- Higher revenues from ancillary control services, mainly higher revenues from Operational Capacity Reserve ("OCR") in Rybnik power plant due to higher volume of capacity at disposal (units 1 and 2 in downtime in the first quarter of 2018).
- Lower fuel consumption costs, mainly hard coal, due to lower production based on this (see p. 3.3 of this report). The above effect was limited due to higher prices of hard coal on the domestic and international market, what directly translated into higher contractual prices. Main changes on different types of fuel are presented on the chart below.
- Higher CO2 costs as a result of higher price of allowances and lower allocation of allowances granted free of charge. The above effect was reduced as a result of lower emissions of CO<sub>2</sub> due to lower electricity production. Main changes are shown in the chart below.
- Higher personnel costs mainly due to ongoing process to optimise salaries.

![](_page_32_Picture_1.jpeg)

![](_page_32_Figure_2.jpeg)

Chart: Costs of production fuels consumption in Conventional Generation (in PLN million).

	Fuels Q1 2018	Hard coal volume	Hard coal price	Biomass volume	Biomass price	Light and heavy oil volume	Light and heavy oil price	Fuels Q1 2019
Change		-125	94	1	8	1	3	
Fuels Q1 2018	515	48	81		21	13	\$	
Fuels Q1 2019		4	50		30	17	,	497

Table: Data on use of production fuels consumption in Conventional Generation.

	Q1 2	019	Q1 2018		
Fuel type	Volume Cost		Volume	Cost	
	(tons ths)	(PLN million)	(tons ths)	(PLN million)	
Hard coal	1 489	450	2 036	481	
Biomass	124	30	120	21	
Fuel oil – light and heavy	369	17	346	13	
TOTAL		497		515	

![](_page_33_Picture_1.jpeg)

Chart: CO2 costs in Conventional Generation segment(in PLN million).

![](_page_33_Figure_3.jpeg)

	CO <sub>2</sub> costs Q1 2018	Allocation of free allowances for CO <sub>2</sub> emissions	CO <sub>2</sub> emission	Average CO <sub>2</sub> costs	CO <sub>2</sub> costs Q1 2019
Change		22	-45	574	
CO <sub>2</sub> costs Q1 2018	282				
CO <sub>2</sub> costs Q1 2019					833

# CAPITAL EXPENDITURES

Table: Capital expenditures incurred in Conventional Generation segment in the first quarter of 2019 and 2018.

PLN million	Q1 2019	Q1 2018	% change
Investments in generating capacities, including:	540	396	36%
<ul> <li>Development</li> </ul>	326	238	37%
<ul> <li>Modernisation and replacement</li> </ul>	214	158	35%
Other	8	14	-43%
Rybnik power plant	7	29	-76%
TOTAL	555	439	26%
Capitalised costs of overburden removal in mines	75	74	1%
TOTAL with capitalized costs of overburden removal	630	513	23%

## KEY DEVELOPMENTS IN THE FIRST QUARTER OF 2019 IN THE CONVENTIONAL GENERATION SEGMENT

Key development investments:

- On January 15, 2019 the generator in unit no. 5 at the Opole power plant was initially synchronised with the national power system.
- On February 7, 2019 unit no. 5 at the Opole power plant reached capacity of 931 MWe.
- On March 29, 2019 annex no. 9 was signed to the contract for the construction of unit no. 7 at the Turów power plant.
- On April 5, 2019 the light-oil-fired boiler in unit no. 6 at the Opole power plant was put in operation.
- On April 12, 2019 trial run readiness certificate was issued for unit no. 5 at the Opole power plant.
- On April 19, 2019 the coal-fired boiler in unit no. 6 at the Opole power plant was put in operation.

![](_page_34_Picture_1.jpeg)

- On April 30, 2019 uninterrupted trial operation of unit no. 5 at the Opole power plant was started.
- On May 14, 2019 unit no. 6 at the Opole power plant was synchronised with the NPS for the first time.

Key modernisation investments related to emission reductions:

- On January 26, 2019 the trial run of unit no. 2 at the Turów power plant was performed after its modernisation.
- On January 31, 2019 the SCR installation of boiler B was put into operation in the Pomorzany power plant.
- In February 2019, commissioning reports were signed for the AKPiA island, generator and electro-filter island and boiler island in unit no. 2 at the Turów power plant after their modernisation.
- On March 1, 2019 unit no. 2 at the Bełchatów power plant was stopped for modernisation.
- On April 1, 2019 unit no. 3 at the Turów power plant was stopped for modernisation.

![](_page_35_Picture_1.jpeg)

# KEY PROJECTS IN THE FIRST QUARTER OF 2019

Aim of the project	Budget (net, without costs of financing)	Capital expenditures incurred so far (net, without costs of financing)	Capital expenditures in Q1 2019 (net, without costs of financing)	Fuel/ Net efficiency	Contractor	Expected date of completion	Status
				Constructi	on of new units in Opole power pl	ant	
Construction of two power units of 900 MW each	PLN 10.94 billion	PLN 9.37 billion	PLN 178 million	Hard coal/ 45.5%	Syndicate of companies: Rafako, Polimex-Mostostal and Mostostal Warszawa with co-operation of GE as Project manager on behalf of the syndicate	unit 5 – June 15, 2019; unit 6 – September 30, 2019.	A hot start-up of unit 5 is ongoing. The first coal was fired in the boiler 5 in December 2018. The first synchronisation with the NPS took place in mid-January 2019 and on February 7, 2019 unit no. 5 for the first time achieved 930 MW, exceeding its contracted installed capacity. As regards unit 6, final assembly works are under-way and equipment and systems are being started. On April 19, 2019 the coal-fired boiler in unit no. 6 at the Opole power plant was put in operation. Overall work progress on this project at the end of March 2019 was approx. 96%.
				Construct	ion of new unit in Turów power pla	ant	
Construction of power unit with a capacity of 490 MW	PLN 4.26 billion	PLN 2.66 billion	PLN 71 million	Lignite / 43.1%	syndicate of companies: MHPSE, Budimex and Tecnicas Reunidas	October 2020.	Installation works were continued at the construction site in Q1 2019. The last bay was assembled in the coal-feed system as part of the ancillary tasks. At the end of March 2019 the overall work progress on the project was approx. 89%. On March 29, 2019 annex no. 9 to the contract for the construction of a unit was signed, which expands the scope of works, increases the value of the contract and extends the deadline for the completion of the unit by six months, i.e. until October 2020. The value of the annex amount to approx. PLN 108 million. The increase in the contract value and the prolongation of the deadline result from need of technological adaptations and broader scope of works.

![](_page_36_Picture_1.jpeg)

# DISTRICT HEATING

#### Segment description and its business model

Core business of the segment includes production of heat and electricity from conventional sources as well as transmission and distribution of heat.

![](_page_36_Figure_5.jpeg)

\*includes sales of heat, contracted capacity and distribution of heat.

As in the case of Conventional Generation, this segment's revenues are primarily **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. This is why, in contrast to industrial power plants in Conventional Generation, as a rule, CHP plants do not have any considerable impact on the development of prices for electricity on the wholesale market.

**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 (URE President) for approval. Heat production at PGE Group takes place in cogeneration units, which offer the opportunity to set tariffs for heat using a simplified approach (compared to tariffs based on a full cost structure), based on reference prices, which are mainly based on the average sales prices for heat generated in units with specific fuel other than cogeneration units. They are published each year by the ERO President. Tariffs for heat production for cogeneration units in a given tariff year thus reflect changes in the costs of heat-generation units (not co-generation units) in the previous calendar year. 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 will receive support at a level covering increased operating costs related to production. For large units, this will be set on an individual basis. In the first quarter of 2019, the support concerned was not paid, as the implementing regulations to the Act on Promotion of Electricity from High Efficiency Cogeneration had not yet been introduced. The support mechanism in the form of certificates is in place also for biomass-fired generating assets. This type of production is additionally remunerated by awarding origin certificates, i.e. green certificates, the sale of which generates additional revenue, within the segment obtained only in biomass unit in Kielce CHP.

![](_page_37_Picture_1.jpeg)

# ASSETS

District Heating within PGE Capital Group combines CHP plants separated from the EDF assets acquired on November 14, 2017 and CHP plants separated from PGE GIEK. Since January 2, 2019 the segment's composition has been as follows: PGE EC S.A., Kogeneracja S.A., PGE Toruń S.A. and Elektrociepłownia Zielona Góra S.A.

District Heating is the largest heat producer in Poland. Generation is based mainly on hard coal and gas.

Diagram: Main assets of the District Heating segment.

![](_page_37_Figure_6.jpeg)

![](_page_38_Picture_1.jpeg)

# TARIFFS IN DISTRICT HEATING

# Description of tariffs in the segment

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 (taking into consideration the fuels used) incurred by entities that are not co-generation entities for the year preceding the time of tariff establishment.

Charts: Changes in the reference price of heat for hard coal and natural gas (PLN/GJ).

![](_page_38_Figure_6.jpeg)

![](_page_38_Figure_7.jpeg)

Charts: Changes in costs of fuels - hard coal (PLN/GJ) and gas (PLN/MWh).

![](_page_38_Figure_9.jpeg)

![](_page_38_Figure_10.jpeg)

Chart: Changes in price of CO<sub>2</sub> emission rights (PLN/t).

![](_page_38_Figure_12.jpeg)

![](_page_39_Picture_1.jpeg)

Despite the fact that the reference price of heat has increased in 2018 by 6% (contributing to the increase in heat prices for cogeneration entities establishing the tariff also for 2019), the average market prices of hard coal increased by 22%, while the prices of  $CO_2$  emission rights - by 177%. In the conditions of increasing prices, the costs for the CHP plant can be even higher – in the first quarter of 2019, the prices of hard coal were higher by another 4% and the prices of  $CO_2$  emissions - by another 35%. Aside from the time delay in costs transfer, it is also important that the  $CO_2$  cost is only partially transferred in the reference unit price. This is related to the fact that only approx. 45% of heating entities in Poland is part of the ETS system (capacity above 20 MW), i.e. is obliged to redeem the carbon dioxide emission allowances. The reference price also transfers only approx. 45% of the real  $CO_2$  consumption costs at the average heat sales price.

Weather also substantially affects the segment's results. Temperatures directly shape the scale of heat demand. Simultaneously, the level of heat production determines the level of electricity production in co-generation, which is an additional source of revenues that decisively affects the CHP plant's profitability.

# KEY FACTORS FOR THE RESULTS OF THE SEGMENT

![](_page_39_Figure_5.jpeg)

Chart: Key changes of recurring EBITDA in District Heating (in PLN million) – managerial perspective.

	EBITDA Q1 2018	Heat production* - volume	Heat production - price	Electricity production - volume	Electricity production - price	Revenues from certificates	Costs of fuel	Costs of CO <sub>2</sub>	Personnel costs	Other	EBITDA Q1 2019
Change		-83	15	-27	224	-173	-48	-74	-10	-1	
EBITDA Q1 2018	581	77	71	54	8	178	631	72	127		
EBITDA Q1 2019		70	)3	74	15	5	679	146	137		405

\*Includes sales of heat, of contracted capacity and distribution of heat.

Key factors affecting the recurring EBITDA result of District Heating segment on y/y basis included:

- Lower volume of heat production in the first quarter of 2019 y/y is a result of high outside temperatures, in comparison with 2018 the average temperatures were higher by 3.1°C, which translated into lower generation of heat (by 2.3 PJ).
- Increase of heat sale price is connected with the publishing new tariffs by the ERO: increase of prices by 0.5% on generation for Kogeneracja S.A. (tariff of January 1, 2019) and new tariffs for distribution of heat for units in Toruń, Zielona Góra and Gorzów, where price grew by approx. 1.4% y/y.
- Lower volume of electricity generation by 0.15 TWh due to lower use of co-generation generating units related to lower demand for heat production.

![](_page_40_Picture_1.jpeg)

- Increase in electricity sale prices (see p. 3.2 of this report).
- Lower revenues from sale of certificates as a result of ceasing the support for production of electricity in highly efficient cogeneration in 2019.
- Higher costs of fuels caused by increasing prices of main fuels: hard coal and gas. This increase of prices y/y was reduced by lower production of heat and electricity.
- Higher CO<sub>2</sub> costs as a result of higher price of allowances and lower allocation of allowances granted free of charge. The above effect was reduced by lower emissions of CO<sub>2</sub> resulting from lower electricity and heat production. The main changes are shown in the chart below.
- Higher personnel cost result mainly from the consolidation and change in structure of a new segment.

Chart: Consumption costs of production fuels in District Heating (in PLN million).

![](_page_40_Figure_8.jpeg)

Table: Data on use of production fuels consumption in District Heating.

	Q1 2	019	Q1 2	Q1 2018		
Fuel type	Volume Cost			Volume		
	(tons ths)	(PLN million)		(tons ths)		
Hard coal	1 089	319	1 254	324		
Gas (cubic metres ths)	380 787	341	397 101	291		
Biomass	52	12	53	9		
Fuel oil – light and heavy	3		3	7		
TOTAL		679		631		

Chart: CO<sub>2</sub> costs in District Heating segment(in PLN million).

![](_page_41_Figure_3.jpeg)

	CO <sub>2</sub> costs Q1 2018	Allocation of free allowances for CO <sub>2</sub> emissions	CO <sub>2</sub> emission	Average CO <sub>2</sub> costs	CO <sub>2</sub> costs Q1 2019
Change		5	-11	79	
CO <sub>2</sub> costs Q1 2018					
CO <sub>2</sub> costs Q1 2019	72				
Change					146

# **CAPITAL EXPENDITURES**

Table: Capital expenditures incurred in District Heating segment in the first quarter of 2019 and 2018.

PLN million	Q1 2019	Q1 2018*	% Change
Investments in generating capacities, including:	26	76	-66%
<ul> <li>Development</li> </ul>	3	52	-94%
<ul> <li>Modernisation and replacement</li> </ul>	23	24	-4%
Other	1	7	-88%
TOTAL	27	83	-67%

\*Presented data were restated for the sake of comparability, because District Heating segment was not separated in data for the first quarter of 2019.

![](_page_42_Picture_1.jpeg)

# KEY DEVELOPMENTS IN THE FIRST QUARTER OF 2019 IN THE DISTRICT HEATING SEGMENT

Program of adaptation of PGE EC's assets to requirements of BAT conclusions, including:

- Rzeszów CHP decision of the Marshal of the Podkarpackie voivodship was obtained with regard to change of Integrated permit for boilers WR25 regarding reduction of capacity of boiler WR25 K2 from 35 MW to 29 MW in fuel.
- Tender proceedings were continued with regard to selection of contractors for adaptation of CHP plants to BAT conclusions.

![](_page_43_Picture_1.jpeg)

# RENEWABLES

#### Segment description and its business model

This segment is involved in the generation of electricity from renewable sources and in pumped storage plants.

![](_page_43_Figure_5.jpeg)

The Renewables segment generates revenue mainly 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. Electricity output volume translates into property rights (green) and revenue from the sale of energy origin certificates obtained by the segment's assets, excluding hydropower plants over 5 MWe.

A stable part of the segment's results is related to the provision of system services using pumped-storage plants, which is performed on the basis of an agreement with the transmission system operator, PSE S.A.

On the cost side, the most important items include: depreciation of segment assets, use of energy to pump water at pumpedstorage plants and third-party services, mainly in the form of repair services. Property tax and employee wages also constitute a significant cost item in this segment.

#### <u>Assets</u>

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., which is recognized in presentation of Renewables segment. This company is responsible for all activities related to off-shore wind farms.

Assets in the segment include:

- 14 wind farms,
- 1 photovoltaic power plant,
- 29 run-of-river hydro power plants,
- 4 pumped-storage power plants, including 2 with natural flow.

#### Diagram: Main assets of the Renewables segment.

![](_page_44_Figure_3.jpeg)

# KEY FACTORS FOR THE RESULTS OF THE SEGMENT

Chart: Key changes of EBITDA in Renewables (in PLN million) – managerial perspective.

![](_page_44_Figure_6.jpeg)

\* Excluding revenues and costs relating to Balancing market not affecting EBITDA result.

![](_page_45_Picture_1.jpeg)

Key factors affecting the y/y results of Renewables included:

- Increase in revenues from electricity sales resulting from: (i) higher generation volume by 120 GWh, what resulted in revenues increase by approx. PLN 20 million; (ii) higher electricity sale price by PLN 34/MWh y/y, what resulted in growth of revenues by approx. PLN 19 million; (iii) sale of electricity that is connected with the FIT/FIP support scheme for 9 small hydro power plants in place of certificates and is in force for those installations from January 2019, what attributed to increase of revenues by approx. PLN 2 million y/y.
- The increase of revenues from sales of certificates resulting mainly from higher volume of certificates sales, what translated directly into revenues growth by PLN 11 million.
- Lower sales revenues from ancillary control services result mainly from decreased scope of services, due to renovation works on the facilities.
- Increase of personel costs resulting mainly from increased employment level, what is connected with switching to proprietary maintenance of wind farms.
- Decrease in costs results mainly from mainly from a correction of property tax concerning wind farms due to changes in legislation following the amendment of the RES Law dated June 7, 2018, which changed the definition of the building by narrowing the scope of taxation, which resulted in tax reduction in subsequent periods. Tax for the first quarter of 2018 was adjusted in the second quarter of 2018.

# **CAPITAL EXPENDITURES**

Table: Capital expenditures incurred in Renewables segment in the first quarter of 2019 and 2018.

PLN million	Q1 2019	Q1 2018	% Change
Investments in generating capacities, including:	10	14	-29%
<ul> <li>Development</li> </ul>	3	9	-67%
<ul> <li>Modernisation and replacement</li> </ul>	7	5	40%
Other	1	1	0%
TOTAL	11	15	-27%

#### KEY DEVELOPMENTS IN THE FIRST QUARTER OF 2019 IN THE RENEWABLES SEGMENT

- On January 4, 2019 an agreement was signed for the design and construction of 110 kV cable line along the route: Kamień Pomorski substation (GPZ) Rybice switchboard (RS) Skrobotowo substation (GPZ), including the Rybice switchboard, and for the expansion of the Skrobotowo substation for the offtake from Rybice Wind Farm, Starza Wind Farm and Karnice II Wind Farm with the total capacity of 88 MW (project Klaster).
- In February 2019, the construction works concerning access roads and HV lines were commenced which formed part of the construction of Rybice Wind Farm, Starza Wind Farm and Karnice II Wind Farm with the total capacity of 88 MW.

![](_page_46_Picture_1.jpeg)

# DISTRIBUTION

#### Segment description and its business model

Core business of the segment includes supply of electricity to final off-takers through the grid and HV, MV and LV infrastructure.

![](_page_46_Figure_5.jpeg)

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 allows costs related to the distribution system operator's on-going activities to be transferred, that were considered justified by the ERO President. These are both 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 transmission system operator. At the same time, the tariff reflects the transferred costs in fees such as the RES fee, transition fee or - starting from 2019 - cogeneration fee (see note 3 to the consolidated financial statements).

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 18-month period preceding the tariff application submission. Moreover, the level of return on capital depends on achievement of individual quality targets set by the ERO President for efficiency indicators that cover: interruption time, interruption frequency, connection time and (not yet taken into account) time to provide metering and settlement data.

The act regulating electricity prices in 2019 kept the DSO tariffs unchanged at the level from December 31, 2018 and decreased the transition fee. The amended act eliminated the necessity to apply 2018 rates, but reduced transition fee was upheld. DSO tariff rates for 2019 was approved by the ERO President on March 22, 2019 and are used by PGE Dystrybucja S.A. from April 6, 2019.

![](_page_47_Picture_1.jpeg)

# VOLUME, CUSTOMERS AND OPERATING DATA

PGE Dystrybucja S.A. operates in the area of 123 425 sq. km and delivers electricity to approximately 5.4 million customers.

Diagram: Area of PGE distribution grid.

![](_page_47_Picture_5.jpeg)

Table: Volume of distributed energy and number of customers in the first quarter of 2019 and 2018.

Tariff	Volume	(TWh)*	Number of customers acc poin	ording to power take-off nts
	Q1 2019	Q1 2018	Q1 2019	Q1 2018
A tariff group	1.34	1.33	109	109
B tariff group	3.59	3.47	11 787	11 470
C+R tariff groups	1.88	1.91	480 703	478 548
G tariff group	2.49	2.48	4 923 558	4 871 791
TOTAL	9.30	9.19	5 416 157	5 361 918

\* with additional estimation of sales.

![](_page_48_Picture_1.jpeg)

## KEY FACTORS FOR THE RESULTS OF THE SEGMENT

Chart: Key changes of EBITDA in Distribution (in PLN million) – managerial perspective.

![](_page_48_Figure_4.jpeg)

	EBITDA Q1 2018	Electricity distribution volume	Change of distribution tariff *	Network losses **	Property tax	Personnel costs	Other	EBITDA Q1 2019
Change		13	-4	38	-5	-33	-2	
EBITDA Q1 2018	638	11	.16	147	96	274		
EBITDA Q1 2019		11	.25	109	101	307		645

\* Excluding cost of transmission services from PSE S.A.

\*\* Adjusted for revenues from the Balancing market.

Key factors affecting the results of Distribution y/y included:

- Increased volume of distributed energy by 101 GWh resulting from inter alia higher number of customers measured by power take-off points (by approx. 54 thousand y/y) and from growth of the economic activity of customers, mainly from group B, in the area of operation of PGE Dystrybucja S.A.
- A slight drop of the average rate by approximately PLN 0.4/MWh after decreasing revenues by cost of fees for PSE S.A. is related to the fact that throughout the first quarter (until April 5, 2019 inclusive) tariff rates from 2018 were applied.
- Lower costs of energy to cover balancing difference as a result the recognition of electricity estimates for covering the balancing difference.
- Increase of costs of tax on real estate in connection with an increase of: (i) grid assets value as a result of investments, (ii) tax rates binding in 2019.
- Increase in personnel costs, related to ongoing process to optimise salaries.

# CAPITAL EXPENDITURES

Table: Capital expenditures incurred in Distribution segment in the first quarter of 2019 and 2018.

PLN million	Q1 2019	Q1 2018	% Change
Development investments	141	86	64%
Modernisation and replacement	188	131	44%
Other	15	9	67%
TOTAL	344	226	52%

In the first quarter of 2019 the largest expenditures in amount of PLN 130 million were incurred for connection of new off-takers.

![](_page_49_Picture_1.jpeg)

# SUPPLY

#### Segment description and its business model

Supply segment activities include Group's wholesale and retail trading of electricity. Wholesale trading include mainly electricity trading on behalf of and for Conventional Generation segment, District Heating segment and Renewables segment.

![](_page_49_Figure_5.jpeg)

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, which constitutes approx. 3/4 of the sales volume, and to retail clients. The segment's revenue also includes the sale of fuels, mainly: pulverised coal and fat coal, which is sold by PGE Paliwa sp. z o.o., and **sale of gas**.

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 covers costs related to the Group's corporate centre.

# VOLUME, CUSTOMERS AND OPERATING DATA

Table: Volume of electricity sales to final off-takers and number of customers in the first quarter of 2019 and 2018.

Tariff	Volume (TWh)*		Number of customers according to power take- points	
	Q1 2019	Q1 2018	Q1 2019	Q1 2018
A tariff group	2.47	2.43	168	151
B tariff group	3.91	3.29	12 594	11 097
C+R tariff groups	2.07	1.81	455 013	428 255
G tariff group	2.70	2.47	4 824 881	4 748 208
TOTAL	11.15	10.00	5 292 656	5 187 711

\*PGE Obrót S.A.

![](_page_50_Picture_1.jpeg)

# KEY FACTORS FOR THE RESULTS OF THE SEGMENT

Chart: Key changes of EBITDA in Supply (in PLN million) – managerial perspective.

![](_page_50_Figure_4.jpeg)

Key factors affecting recurring EBITDA of Supply segment y/y included:

- Lower result from electricity by PLN 180 million resulting mainly from achieving lower unit margin on sale of electricity, due to: i) increase of prices on the wholesale market, particularly on spot market, partly used for balancing of electricity demand resulting from sales to final off-takers, ii) lowering prices for final off-takers billing pursuant to the act regulating electricity prices in 2019.
- Increase of revenues from services performed within the Group resulting mainly from increased revenues from the Agreement for Commercial Management of Generation Capacities ("ZHZW") (PLN (+) 70 million) as a consequence of higher sale and purchase prices of electricity under management and covering new assets under ZHZW agreement.
- Lower result on sale of hard coal mainly as a result of revaluation of inventories due to the unfavourable positioning of the international hard coal's forward curve, which is a base for calculating value of inventories.
- Increased personnel expenses in connection with ongoing process to optimise salaries and determination of FTEs, mainly as a
  result of organizational changes within PGE Capital Group.
- Balance of provisions for contracts giving rise to liabilities mainly in relation to the act regulating electricity prices in 2019. The
  provision in retail sale companies was recalculated at the end of the first quarter of 2019 and as a result the provision in the
  amount of PLN 263 million was released and the provision in the amount of PLN 124 million was recognised.

![](_page_51_Picture_1.jpeg)

# 3.4. Significant events of the reporting period and subsequent events

# BEGINNING OF TALKS REGARDING POTENTIAL COOPERATION ON CONSTRUCTION PROJECT OF 1 000 MW UNIT IN OSTROŁĘKA

In response to the invitation from Energa S.A. and Enea S.A., on January 7, 2019 the companies started talks that may potentially result in involvement of PGE in the construction project of 1 000 MW unit in Ostrołęka, which is currently pursued by Energa S.A. and Enea S.A.

Current report of PGE S.A.:

Beginning of talks regarding potential cooperation on construction project of 1 000 MW unit in Ostrołęka>>

# SIGNING OF AN ANNEX TO THE AGREEMENT FOR DESIGNING AND CONSTRUCTION OF POWER UNIT IN TURÓW POWER PLANT

On March 29, 2019 PGE GIEK S.A. signed the annex to the agreement for designing and turn-key construction of power unit in Turów power plant, that is being pursued by the consortium formed by companies: Mitsubishi Hitachi Power Systems Europe GmbH, Budimex S.A. and Tecnicas Reunidas SA. Due to need of technological adaptations and broader scope of works, the value of the Agreement was increased by PLN 108.5 million net to PLN 3 647 million net, and date of completion of works was prolonged by 6 months, i.e. till October 30, 2020.

Current report of PGE S.A.:

Signing of an annex to the agreement for designing and construction of power unit in Turów power plant>>

## GRANTING OF ADDITIONAL CO2 ALLOWANCES FOR PGE GROUP'S INSTALLATIONS

On the ground of the announcement of the Minister of Environment of April 16, 2019, the Company had taken information about the number of CO<sub>2</sub> emission rights, which had been granted to installations generating electricity, belonging to PGE Group in 2019.

As a result of settlement of capital expenditures in PGE Group, generation assets acquired from EDF group in 2017 received in April 2019 an additional allocation of  $CO_2$  emission allowances for the years 2013-2017 in amount of approx. 11 million emission rights.

Current report of PGE S.A.:

Granting of additional CO2 allowances for PGE's installations >>

# WITHDRAWAL FROM THE PROCESS OF ACQUISITION OF ALL SHARES IN PGE EJ1

On April 17, 2019 PGE decided to withdraw from the process of acquisition of shares of PGE EJ1 sp. z o.o. ("PGE EJ1") held by other partners, that was initiated in the fourth quarter of 2018. Thus, PGE's share in PGE EJ1 will remain at 70%.

Current report of PGE S.A.:

- Initial interest in buying all shares in the company PGE EJ1>>
- Withdrawal from the process of acquisition of all shares in PGE EJ1 >>

# ISSUE OF BONDS WITH TOTAL VALUE OF PLN 1.4 BILLION

Bonds amounting to total value of PLN 1.4 billion were issued in two series: PLN 1 billion with 10-year maturity (series PGE003210529) and PLN 400 million with 7-year maturity (series PGE002210526). On May 21, 2019, both series of issues were settled, and on May 23, 2019, Fitch Ratings assigned the final national rating of the issue at AA (pol). Information regarding the issue and terms of the bonds were published in the following current reports:

- Potential issue of bonds on Polish market>>
- Fitch Ratings assigns upcoming domestic bonds an expected senior unsecured National Rating>>
- Terms of domestic bonds issue by PGE Polska Grupa Energetyczna S.A.>>

# ACQUISITION OF 51.47% SHARES OF 4MOBILITY BY PGE NOWA ENERGIA

On April 24, 2019 PGE Nowa Energia sp. z o.o. ("Nowa Energia") concluded an agreement for the purchase of 51.47% of shares in 4Mobility. 4Mobility provides car-sharing services and is the third company in Poland in terms of the number of cars available to customers. It provides services in Warsaw and in Poznań. Information regarding the sale of shares in 4Mobility have been provided in section 4.1 of this report and in note 1.3 to the consolidated financial statements.

![](_page_52_Picture_1.jpeg)

# CHANGES IN THE MANAGEMENT BOARD AND SUPERVISORY BOARD

#### Management Board members

As at March 31, 2019 and as at the publication date of this report, the Management Board worked in following composition:

Name and surname of the Management Board	Position
Henryk Baranowski	President of the Management Board
Wojciech Kowalczyk	Vice-President for Capital Investments
Marek Pastuszko	Vice-President for Corporate Affairs
Paweł Śliwa	Vice-President for Innovations
Ryszard Wasiłek	Vice-President for Operations
Emil Wojtowicz	Vice-President for Finance

#### Supervisory Board members

As at March 31, 2019 and as at the publication date of this report, the Supervisory Board 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

![](_page_53_Picture_1.jpeg)

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 Chairman	Member	
Anna Kowalik	Member		Member	Member
Grzegorz Kuczyński	Member Chairman	Member		
Mieczysław Sawaryn			Member	Member Chairman
Jerzy Sawicki		Member	Member	Member
Artur Składanek	Member		Member Chairman	
Radosław Winiarski	Member		Member	

As at March 31, 2019 and as at the publication date of this report, the committees worked in following compositions:

# ACTIVITIES RELATED TO NUCLEAR ENERGY

#### **Business partnership**

PGE EJ1 is PGE Group's entity directly responsible for preparing the investment process, conducting environmental and location surveys, obtaining all of the necessary decisions for the construction of the first Polish nuclear power plant, and implementing the investment. In the future, PGE EJ1 will serve as the nuclear plant's operator. PGE EJ1 was established in 2010. In 2014, a shareholder agreement was signed, pursuant to which Enea S.A., KGHM Polska Miedź S.A. and TAURON Polska Energia S.A. (the "Shareholders") each purchased from PGE a 10% stake in PGE EJ1 (30% in total). The shareholder agreement requires the parties to jointly finance, proportionately to the stakes held, activities related to implementing the investment.

#### Site characterisation and environmental surveys

PGE EJ1 is currently conducting location and environmental surveys at two potential sites in the Pomeranian Voivodeship – "Lubiatowo-Kopalino" in the Choczewo municipality and "Żarnowiec" in the Gniewino and Krokowa municipalities. The surveys focus on activities necessary to prepare a report on the undertaking's environmental impact and a site report.

Selecting an appropriate location is one of the key aspects in ensuring nuclear safety and the efficient and reliable operation of a nuclear power plant. The results of these works are necessary in order to develop solutions that ensure the power plant's safe operation and minimise its impact on the natural environment and the everyday life of local residents.

#### Social acceptance

At the same time, with a view toward ensuring social acceptance for the project to build the first Polish nuclear power plant, PGE Group is conducting activities aiming to maintain a high level of community support at the planned nuclear plant sites and to deliver knowledge about nuclear power. In the first quarter of 2019, works were continued within the Site Municipality Development Support Programme intended to reinforce partner relations with the local communities and authorities of the municipalities by providing support to initiatives that are of significance to the residents and development of the region.

#### Prospects for the project implementation and financing capabilities

Decisions with regard to the continuation of the Programme will be made based on decisions by the Minister of Energy concerning a role of nuclear energy in Polish fuel mix, mode for the procurement of nuclear power plant technology, investment financing model and an updated Programme for Poland's Nuclear Power.

#### Compensations from WorleyParsons

WorleyParsons initiated a lawsuit for payment of PLN 59 million for due remuneration, according to the claimant, and return of an amount unduly collected, according to the claimant, by PGE EJ1 from a bank guarantee, and subsequently expanded its claim to

![](_page_54_Picture_1.jpeg)

PLN 104 million (i.e. by PLN 45 million). On March 31, 2018, the company filed a response to WorleyParsons' expanded claim. PGE Group does not accept the claim and regards its possible admission by the court as unlikely.

## LEGAL ASPECTS

#### Claims for annulment of the resolutions of the General Meetings of PGE S.A.

Information on claims for annulment of the resolutions of the General Meetings of PGE S.A. are described in note 20.4 to the consolidated financial statements.

The issue of compensation regarding the conversion of shares

Information on the issue of compensation regarding the conversion of shares are described in note 20.4 to the consolidated financial statements.

# INFORMATION CONCERNING PROCEEDINGS IN FRONT OF COURT, BODY APPROPRIATE FOR ARBITRATION PROCEEDINGS OR IN FRONT OF PUBLIC ADMINISTRATION AUTHORITIES

Significant proceedings pending in front of courts, competent arbitration authority or public administration authority are described in note 20.4 to the consolidated financial statements.

Claims related to agreements for sale of certificates signed with Energa-Obrót S.A.

Information on claims related to agreements for sale of certificates signed with Energa-Obrót S.A. are described in note 20.1 to the consolidated financial statements.

#### Termination by Enea S.A. of agreements for sale of certificates

Information on termination by Enea S.A. of agreements for sale of certificates are described in note 20.4 to the consolidated financial statements.

# INFORMATION CONCERNING THE GUARANTEES FOR LOANS GRANTED BY THE COMPANY OR A SUBSIDIARY

Within the Group, as at March 31, 2019 PGE S.A. and subsidiaries did not grant guarantees to other entities or to a subsidiary, where a value of guarantees constitutes at least 10% of the Company's equity.

# INFORMATION ON ISSUE, REDEMPTION AND REPAYMENT OF DEBT SECURITIES AND OTHER SECURITIES

Information on issue, redemption and repayment of debt securities and other securities is described in p. 4.1 of the foregoing report and in note 1.3 to the consolidated financial statements.

#### TRANSACTIONS WITH RELATED ENTITIES

Information about transactions with related entities is presented in note 22 to the consolidated financial statements.

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# 4. Other elements of the report

# 4.1. Significant changes in organisation of the Capital Group

Changes which occurred in the PGE Capital Group's structure in the period from January 1, 2019 until the publication date of this report, are presented in note 1.3 to condensed interim consolidated financial statements and described below

# ACQUSITION OR DISPOSAL OF SHARES BY THE COMPANIES

Segment	Shares of the company	Date of transaction/ registration in the National Court Register	Comment
Other Operations	ElectroMobility Poland S.A. ("ElectroMobility") - acquisition by PGE S.A. of increased value of the shares held in ElectroMobility	October 4, 2018/ January 7, 2019	On October 4, 2018 the Extraordinary General Meeting of ElectroMobility adopted resolution on a share capital increase by PLN 40 000 000 to PLN 70 000 000 by increasing the nominal value of existing shares. In exchange for a cash contribution, PGE S.A. took up increased nominal value of 2 500 shares, the total nominal value of which increased from PLN 7 500 000 to PLN 17 500 000, i.e. by PLN 10 000 000. As a result of the share capital increase, PGE S.A.'s stake in ElectroMobility did not change (25% shareholding).
District Heating	Pracownicze Towarzystwo Emerytalne "Nowy Świat" S.A. z siedzibą w Warszawie ("PTE Nowy Świat") – acquisition of shares by PGE EC (as a result of conditional share sale agreement)	February 18, 2019 No information from the Financial Supervisory Commission about the approval for transaction	On February 18, 2019 PGE EC as the buyer and PGE S.A. as the seller entered into the agreement for the sale of one registered share in PTE Nowy Świat with the total nominal value of PLN 10 which is 0.002% of the share capital. The ownership rights to the share will be transferred to PGE EC provided that, in particular, the Financial Supervision Authority grants its consent to the acquisition of the share concerned. The acquisition of the share will result in PGE EC becoming a shareholder in PTE Nowy Świat and PGE S.A. ceasing to be a shareholder in that company.
Other Operations	Energy Innovation SpeedUp Management spółka z ograniczoną odpowiedzialnością ASI S.K.A. seated in Poznań ("Energy Innovation") - acquisition by PGE Ventures sp. z o.o. ("PGE Ventures") of shares in the increased share capital of Energy Innovation	February 26, 2019 / April 29, 2019	On February 18, 2019 the Extraordinary General Meeting of Energy Innovation adopted resolution on a share capital increase by PLN 162 000 to PLN 212 000, through issue of new inscribed shares. On February 26, 2019 PGE Ventures sp. z o.o. signed an agreement to acquire a total of 75 330 new shares in the increased share capital of Energy Innovation with a total value of PLN 75 330 in exchange for a cash contribution. The acquired shares, jointly with other shares possessed by PGE Ventures sp. z o.o., i.e. total of 98 580 shares, constitute 46.5% share in the increased share capital of the company, what means that it has not changed.
Other Operations	4Mobility S.A. seated in Warsaw ("4Mobility") – acquisition by PGE Nowa Energia sp. z o.o. of shares in the increased share capital of 4Mobility	April 24, 2019/ May 8, 2019	On April 24, 2019 the Extraordinary Assembly of Partners of 4Mobility adopted resolution on a share capital increase by PLN 187 500 to PLN 364 316, through issue of new bearer shares. On April 24, 2019 PGE Nowa Energia sp. z o.o. signed an agreement to acquire all newly issued bearer shares, i.e. total of 1 875 000 shares in the increased share capital of 4Mobility with a total nominal value of PLN 187 500 in exchange for a cash contribution. The acquired shares constitute 51.47% in the share capital of the company.

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# ADDITIONAL EQUITY CONTRIBUTIONS

Segment	Entity	Date of registration in the National	Comment
		Court Register	
Renewables	Elektrownia Wiatrowa Baltica-3 sp. z o.o.	February 13, 2019	On November 28, 2018 the Extraordinary Assembly of Partners of the company adopted resolution on a share capital increase from PLN 15 800 000 to PLN 83 900 000, i.e. by PLN 68 100 000. The increase of the share capital was acquired and paid by PGE S.A. with cash. PGE S.A. holds 100% shares in the share capital.
Renewables	PGE Baltica sp. z o.o. (former name: PGE Inwest 5 sp. z o.o.)	January 22, 2019	On December 3, 2018 the Extraordinary Assembly of Partners of the company adopted resolutions regarding change of the Certificate of incorporation, including company name to: PGE Baltica sp. z o.o. and on a share capital increase from PLN 50 000 to PLN 9 250 000, i.e. by PLN 9 200 000. The increase of the share capital was acquired and paid by PGE S.A. with cash. PGE S.A. holds 100% shares in the share capital.
Other operations	PGE Nowa Energia sp. z o.o.	May 20, 2019	On April 17, 2019 the Extraordinary Assembly of Partners of the company adopted resolution on a share capital increase from PLN 15 220 000 to PLN 30 220 000, i.e. by PLN 15 000 000. The increase of the share capital was acquired and paid by PGE S.A. with cash. PGE S.A. holds 100% shares in the share capital.

# **DE-MERGERS**

Segment	Spun off company /acquiring	Date of	Comment
	company	transaction/	
		registration in the	
		National Court	
		Register	
Conventional Generation	PGE GIEK/ PGE EC	October 18, 2018 On January 2, 2019 de- merger was registered in the National Court Register	The Extraordinary General Meetings of PGE GiEK and PGE EC adopted resolutions on the division of PGE GiEK (divided company) through a carve out, pursuant to art. 529 § 1 point 4 of the Polish Commercial Companies Code, by way of transfer to PGE EC (acquiring company) of selected PGE GiEK assets in the form of six PGE GiEK branches (Branches), i.e.: (1) Zespół Elektrociepłowni Bydgoszcz, (2) Elektrociepłownia Gorzów, (3) Elektrociepłownia Zgierz, (4) Elektrociepłownia Lublin Wrotków, (5) Elektrociepłownia Kielce and (6) Elektrociepłownia Rzeszów. The Branches constitute an organised part of enterprise and are functionally related to the generation of electricity, generation of electricity and heat in cogeneration and distribution of heat and electricity. The transfer of the Branches to PGE EC was carried out by lowering PGE GiEK's share capital by PLN 406 847 180 and increasing PGE EC's share capital by PLN 763 432 450 through cancelling 40 684 718 shares of PGE GiEK, with nominal value of PLN 10 each, and issue of 76 343 245 new shares of PGE EC, with nominal value of PLN 10 each. As the sole shareholder of PGE GiEK, PGE S.A. acquired all new shares in PGE EC's increased share capital in exchange for the scancellor BCE (K charge).

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# **4.2.** Publication of financial forecasts

PGE S.A. did not publish financial forecasts.

#### 4.3. Information about shares and other securities

## SHAREHOLDERS WITH A SIGNIFICANT STAKE

According to the best knowledge, on the ground of the letter from the Ministry of the State Treasury of April 27, 2016, the State Treasury holds 1 072 984 098 ordinary shares of the Company, representing 57.39% of the Company's share capital and entitling to 1 072 984 098 votes on the General Meeting of the Company, constituting 57.39% of total votes.

Table: Shareholders holding directly or indirectly by subsidiaries at least 5% of the total votes at the General Meeting of PGE S.A.

Shareholder	Number of shares	Number of votes	% in total votes on General Meeting
State Treasury	1 072 984 098	1 072 984 098	57.39%
Others	796 776 731	796 776 731	42.61%
Total	1 869 760 829	1 869 760 829	100.00%

Shares of the parent company owned by the members of management and supervisory authorities

According to the best knowledge of the Management Board of the Company, members of management and supervisory authorities of the Company as of the date of submission of this report and as of the date of publishing of the consolidated report for 2018 did not hold shares of PGE S.A.

# 5. Statement on the reliable preparation of the financial statements

To the best knowledge of the Management Board of PGE S.A., the quarterly consolidated financial statements and comparative data were prepared in accordance with the governing accounting principles, presents a fair, true and reliable view of the material and financial situation of PGE Capital Group and its financial result.

The report of the Management Board on the activities of PGE Capital Group presents a true view of the development, achievements and situation of the Capital Group.

![](_page_58_Picture_1.jpeg)

# 6. Approval of the Management Board's Report

The foregoing Management Board's Report on activities of the Capital Group of PGE Polska Grupa Energetyczna S.A. was approved for publication by the Management Board of the parent company on May 28, 2019.

#### Warsaw, May 28, 2019

Signatures of Members of the Management Board of PGE Polskiej Grupy Energetycznej S.A.

President of the Management Board	Henryk Baranowski	
Vice- President of the Management Board	Wojciech Kowalczyk	
Vice- President of the Management Board	Marek Pastuszko	
Vice- President of the Management Board	Paweł Śliwa	
Vice- President of the Management Board	Ryszard Wasiłek	
Vice- President of the Management Board	Emil Wojtowicz	

![](_page_59_Picture_1.jpeg)

Glossary	
АКРІА	Control, measurement and automation apparatus area
Ancillary control	services provided to the transmission system operator, which are indispensable for the proper
services (ACS)	functioning of the National Power System and ensure the keeping of required reliability and quality standards.
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.
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
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	Document "Best Practice for GPW Listed Companies 2016" adopted by the resolution of the GPW Supervisory Board of October 13, 2015 and effective 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.
Black energy	popular name for energy generated as a result of combustion of black coal or lignite.
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
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.
Constrained	the generation of electricity to ensure the quality and reliability of the national power system; this
generation	applies to generating units in which generation must continue due to the technical limitations of the operation of the power system and the necessity of ensuring its adequate reliability.
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
Distribution	transport of energy through distribution grid of high (110 kV), medium (15kV) and low (400V) voltage in order to supply the customers.
Distribution System	a power company engaging in the distribution of gaseous fuels or electricity, responsible for traffic in the
Operator (DSO)	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.
Energy cluster	civil-law arrangement that may include natural persons legal entities scientific units research institutes
Lifergy cluster	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, roundation appointed for this purpose or any member
	European Union Allowances: transferable CO, emission allowances: one EUA allows an exerctor to
	release one tonne of $CO_2$ .
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 (0) EO L. OF 2009, NO. 140, D. 53—87).

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FIT/FIP	Feed-in-Tariff (FIT) and Feed-in-Premium (FIP): system of subsidies to the market price of electricity performed by Zarządca Rozliczeń S.A.
Generating unit	a technically and commercially defined set of equipment belonging to a power company and used to generate electricity or heat and to transmit power.
GJ	Gigajoule, a unit of work/heat in the SI system, 1 GJ = 1000/3.6 kWh = approximately 278 kWh.
GPZ	main power supply point, a type of transformer station used for the processing or distribution of electricity or solely for the distribution of electricity.
Green certificate	popular name for energy generated from renewable energy sources.
GW	gigawatt, a unit of capacity in the SI system, $1 \text{ GW} = 10^9 \text{ W}$ .
GWe	one gigawatt of electric capacity.
GWt	one gigawatt of heat capacity.
HICP	Harmonised Index of Consumer Prices
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.
IRIESP	the Transmission Network Operation and Maintenance Manual required to be prepared by a transmission system operator pursuant to the Energy Law; instructions prepared for power networks that specify in detail the terms and conditions of using these networks by system users as well as terms and conditions for traffic handling, operation and planning the development of these networks; sections on transmission system balancing and system limitation management, including information on comments received from system users and their consideration, are submitted to the ERO President for approval by way of a decision.
IRZ	Cold Intervention Reserve Service – service consisting of maintaining power units ready for energy production. Energy is produced on request of PSE S.A.
KSE	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.
KSP	the National Transmission System, a set of equipment for the transmission of electricity in the territory of Poland.
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.
Low Voltage Network (LV)	a network with a nominal voltage not exceeding 1 kV.
LTC	long-term contracts on the purchase of capacity and electricity entered into between Polskie Sieci Elektroenergetyczne S.A. and electricity generators in the years 1994-2001.
Medium-voltage network (MV)	an energy network with a nominal voltage higher than 1 kV but lower than 110 kV.
MEV	Minimum Energy Volumes.
MSR	Market Stability Reserve (relating to CO <sub>2</sub> )
MW	a unit of capacity in the SI system, $1 \text{ MW} = 10^6 \text{ W}$ .
Mwe	one megawatt of electric power.
MWt	one megawatt of heat power.
NAP	National emissions Allocation Plan, prepared separately for the national emission trading system and for the EU emission trading system by the National Administrator of the Emission Trading System.
NAP II	National CO <sub>2</sub> emissions Allocation Plan for the years 2008-2012 prepared for the EU emission trading system adopted by the Ordinance of the Council of Ministers of July 1, 2008 (Dz. U. of 2008, No. 202, item 1248).
Nm³	normal cubic meter; a unit of volume from outside the SI system signifying the quantity of dry gas in 1 m3 of space at a pressure of 101.325 Pa and a temperature of 0°C.
NO <sub>x</sub>	nitrogen oxides.
N:W ratio	Ration of volume of overburden removed in m <sup>3</sup> to the mass of extracted coal in tons

![](_page_61_Picture_1.jpeg)

OTF	Organized Trading Facilities
Operational Capacity Reserve (ORM)	ORM constitutes of generation capacities of active Production Schedular Units (JGWa) in operation or layover, representing excess capacity over electricity demand available to the TSO under the Energy Sale Agreements and on the Balancing Market in unforced generation
Peak, peakload	a 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.
Peak power pumped storage plants	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.
PJ	Petajoule, a unit of work/heat in the SI system, 1 PJ = approx. 278 GWh
Property rights	negotiable exchange-traded rights under green and co-generation certificates
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
RAB Rod cortificato	Regulatory Asset Base.
Red certificate	a certificate confirming generation of electricity in co-generation with heat.
Red energy Regulator	popular name for electricity co-generated with neat.
Regulator	for, among others, giving out licenses for energy companies, approval of energy tariffs, appointing Transmission System Operators and Distribution System Operators.
Renewable Energy Source (RES)	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.
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 on low voltage.
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 on low voltage.
SCR	Selective catalytic reduction
SNCR	Selective non-catalytic reduction
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.

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Transmission	transport of electricity through high voltage (220 and 400 kV) transmission network from generators to distributors.
Transmission System Operator (TSO)	a power company engaging in the transmission of gaseous fuels or electric energy, responsible for traffic in a gas or power transmission system, current and long-term security of operation of that system, the operation, maintenance, repair and indispensable expansion of the transmission system, including connections with other gas or power systems. In Poland, for the period from July 2, 2014 till December 31, 2030 Polskie Sieci Elektroenergetyczne S.A. was chosen as a TSO in the field of electricity transmission.
TWh	terawatt hour, a multiple unit for measuring of electricity unit in the system SI. 1 TWh is 10 $^9$ 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), $1 \text{ V}= 1J/1\text{C} = (1 \text{ kg x m}^2) / (\text{A x s}^3)$ .
W (watt)	a unit of power in the International Systems of Units (SI), 1 W = $1J/1s = 1 \text{ kg x m}^2 \text{ x s}^{-3}$ .
Yellow certificate	a certificate confirming generation of energy in gas-fired power plants and CCGT power plants.
Yellow energy	popular name for energy generated in gas-fired power plants and CCGT power plants.