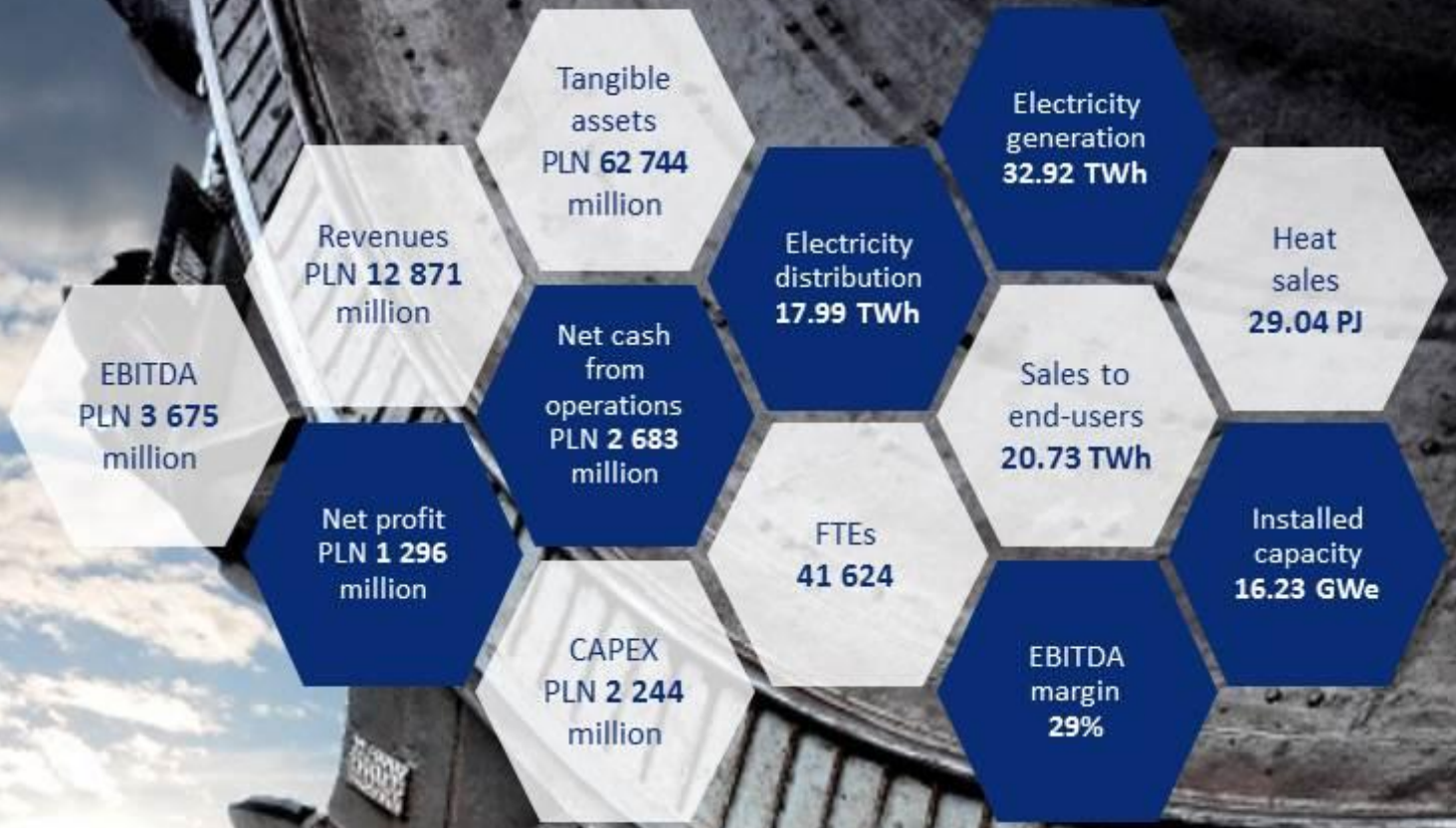


***Management Board's report on activities of  
the Capital Group of  
PGE Polska Grupa Energetyczna S.A.  
for the 6-month period***

***ended June 30, 2018***

## **Table of contents**

1. Description of activity of the Capital Group	5
1.1. Description of organisation	6
2. PGE Group's strategy and its implementation	8
2.1. Strategy of the Capital Group	8
2.2. Implementation of key projects within the strategic objectives	9
3. Electricity market and regulatory and business environment	16
3.1. Macroeconomic environment	16
3.2. Regulatory environment	18
3.3. Supply markets	28
4. Results of PGE Capital Group	30
4.1. Key financial results of the PGE Capital Group	30
4.2. Key operational figures of PGE Capital Group	34
4.3. Key financial results in the business segments	37
5. Risks and opportunities	49
5.1. Risk management	49
5.2. Risk factors and mitigating actions	50
5.3. Strategic risk	53
6. Significant events of the reporting period and subsequent events	54
6.1. Changes in the Management Board and Supervisory Board	54
6.2. Legal aspects	55
6.3. Information concerning proceedings in front of court, body appropriate for arbitration proceedings or in front of public administration authorities	55
6.4. Information about granting guarantees by the Company or its subsidiary	56
6.5. Information on issue, redemption and repayment of debt securities and other securities	57
6.6. Activities related to nuclear energy	57
6.7. Tender offer to subscribe for the sale of 100% shares of Polenergia S.A.	58
6.8. Transactions with related entities	59
6.9. Publication of financial forecasts	59
6.10. Information about shares and other securities	60
7. Statements of the Management Board	61
8. Approval of the Management Board's Report	61
Glossary	62



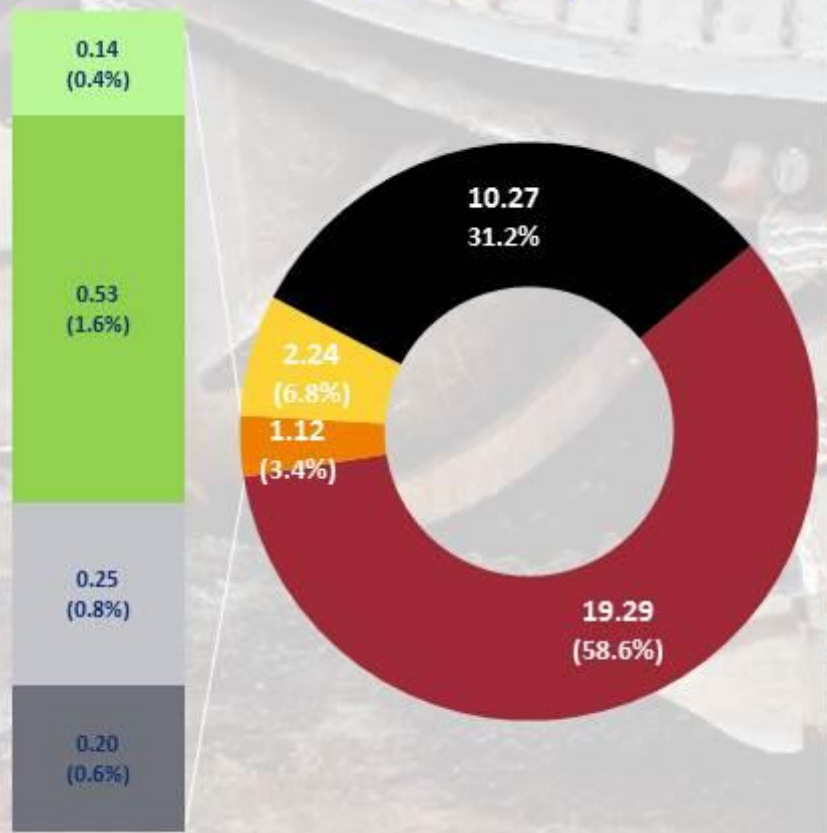
**EBITDA [PLN BN] H1**



**NET ELECTRICITY PRODUCTION [TWh] H1**



**ELECTRICITY GENERATION STRUCTURE [TWh]**



	CONVENTIONAL GENERATION	RENEWABLE ENERGY	SUPPLY	DISTRIBUTION
<b>Operations</b>	Extraction of lignite and generation of electricity and heat from conventional sources and distribution of heat and supporting operations in this respect	Electricity generation from renewable sources and in pumped-storage power plants	Wholesale trading of electricity on domestic and international market and trading of related products, fuels and CO <sub>2</sub> emission allowances	Supply of electricity to final off-takers through the grid and HV, MV and LV power infrastructure
<b>Key assets of the segment</b>	5 conventional power plants 16 CHPs 2 lignite mines	14 wind power plants 1 photovoltaic plant 29 run-of-river hydro power plants 4 pumped-storage power plants, including 2 with natural flow	-	288 802 kms. of distribution lines
<b>Energy volumes</b>	Generation 31.94 TWh	Generation 0.98 TWh	Sales to end-users 19.65 TWh	Electricity distributed 17.99 TWh
<b>Market position</b>	PGE is a leader in lignite mining in Poland (81%*) and domestic leader in electricity generation and the leading producer of heat	PGE is the leading producer of energy from renewable sources with market share of approx. 9%* (incl. biomass)	One of the leaders in wholesale trading and retail supply in Poland	Second energy distributor with regard to number of customers
<b>Revenues [PLNm]</b>	8 281	402	6 918	2 920
<b>EBITDA [PLNm]</b>	1 839	222	302	1 270
<b>Share of Group EBITDA</b>	50%	6%	8%	35%
<b>CAPEX [PLNm]</b>	1 580	48	5	596
<b>Assets [PLNm]</b>	44 084	3 235	4 551	17 986

\* According to data at the end of 2017

## 1. Description of activity of the Capital Group

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 currently organizes its activities in five business segments:

- Conventional Generation

Core business of the segment includes extraction of lignite, production of electricity and heat from conventional sources as well as transmission and distribution of heat. The Conventional Generation segment includes PGE Energia Ciepła S.A., which also trades in electricity.

- Renewables

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

- Supply

Core business of the segment includes trading of electricity across the country, wholesale trading of electricity on domestic and international market, provision of services to companies from the PGE Group related to commercial management of generation capacities of the Group and electricity produced, as well as trading of CO<sub>2</sub> allowances and energy certificates and fuels.

- 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 services, through the subsidiaries, to PGE Group, which includes organisation of capital raising projects and provision of IT, payroll & HR 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.

## 1.1. Description of organisation

Changes which occurred in the PGE Capital Group's structure in the period from January 1, 2018 until the publication date of this report, are presented in note 1.3 to condensed interim consolidated financial statements and described below.

### Increase of the share capital of subsidiaries

Entity	Date of registration National Court Register	(1) Share capital (2) Increase (3) Share capital after increase	Comment
<b>Towarzystwo Inwestycyjnych Energia S.A.</b> (previous name: PGE Towarzystwo Funduszy Inwestycyjnych S.A.)	Funduszy April 3, 2018	(1) PLN 6 250 000 (2) PLN 18 000 000 (3) PLN 24 250 000	On November 28, 2017 the Extraordinary General Meeting of the company adopted a resolution on an increase of the company's share capital. The increased capital was acquired by PGE S.A., in exchange for a cash contribution. PGE S.A. holds 100% of share capital.
<b>PGE Inwest 5 sp. z o.o., PGE Inwest 8 sp. z o.o., PGE Inwest 9 sp. z o.o., PGE Inwest 10 sp. z o.o., PGE Inwest 11 sp. z o.o., PGE Inwest 12 sp. z o.o. and PGE Inwest 14 sp. z o.o.</b>	PGE Inwest 5 sp. z o.o. – June 5, 2018, PGE Inwest 8 sp. z o.o. – May 22, 2018, PGE Inwest 9 sp. z o.o. – June 9, 2018, PGE Inwest 10 sp. z o.o. – May 28, 2018, PGE Inwest 11 sp. z o.o. – June 21, 2018, PGE Inwest 12 sp. z o.o. – May 21, 2018, PGE Inwest 14 sp. z o.o. – June 13, 2018	(1) PLN 20 000 (2) PLN 30 000 (3) PLN 50 000	On April 5, 2018 the Extraordinary Assemblies of Partners of the companies adopted resolutions on an increase of the company's share capital by PLN 30 000 in each case. The increased capital were acquired by PGE S.A. in exchange for cash contributions. PGE S.A. holds 100% of share capital of the companies.
<b>PGE Inwest 17 sp. z o.o., PGE Inwest 18 sp. z o.o. and PGE Inwest 19 sp. z o.o.</b>	PGE Inwest 17 sp. z o.o. – May 30, 2018, PGE Inwest 18 sp. z o.o. – May 30, 2018, PGE Inwest 19 sp. z o.o. – June 29 2018	(1) PLN 10 000 (2) PLN 30 000 (3) PLN 40 000	On April 5, 2018 the Extraordinary Assemblies of Partners of the companies adopted resolutions on an increase of the company's share capital by PLN 30 000 in each case. The increased capital were acquired by PGE S.A. in exchange for cash contributions. PGE S.A. holds 100% of share capital of the companies.

### Acquisition or disposal of shares by the companies

Shares of the entity	Date of transaction/ registration in the National Court Register	Number of acquired shares	Comment
<b>ElectroMobility Poland S.A.</b> ("ElectroMobility") – acquisition by PGE S.A. of the share capital increase shares of ElectroMobility	January 3, 2018/ April 23, 2018 ElectroMobility's share capital increase registered	2 500 shares	On January 3, 2018 the Extraordinary General Meeting of adopted resolution on a share capital increase by PLN 20 000 000 to PLN 30 000 000 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 2 500 000 to PLN 7 500 000. As a result of the share capital increase, PGE S.A.'s stake in ElectroMobility did not change (25% shareholding).

Shares of the entity	Date of transaction/ registration in the National Court Register	Number of acquired shares	Comment
Polska Grupa Górnicza S.A. ("PGG") – acquisition by PGE Górnictwo i Energetyka Konwencjonalna S.A. ("PGE GIEK") of shares in the increased share capital of PGG	January 31, 2018	300 000 shares	On January 31, 2018 the Extraordinary Assembly of Partners of PGG adopted resolution in the increase of the share capital by PLN 300 000 000 to PLN 3 916 718 200, through issue of new inscribed shares. PGE GIEK S.A. took up 300 000 shares with a nominal value of PLN 30 000 000, representing 0.8% in the increased share capital of PGG. Currently PGE GIEK holds a total of 6 000 000 shares with a nominal value of PLN 600 000 000 representing 15.32% in the share capital of PGG.
	April 6, 2018 PGG's share capital increase registered		
PGE Energia Ciepła S.A. - acquisition of shares by PGE S.A. (reverse squeeze-out procedure and squeeze out procedure)	March 7, 2018 and May 7, 2018 (reverse squeeze out)	342 728 shares	On March 7, 2018 and May 7, 2018 PGE S.A. acquired respectively 3 285 and 2 970 shares of PGE Energia Ciepła S.A., through reverse squeeze-out procedure, pursuant to art. 418 <sup>b</sup> of the Polish Commercial Companies Code. On May 18, 2018 PGE S.A. acquired 336 473 shares of PGE Energia Ciepła S.A., through squeeze-out procedure, pursuant to art. 418 of the Polish Commercial Companies Code. As a result of the above transactions, currently PGE S.A. holds shares representing 100% in the share capital of PGE EC.
	May 18, 2018 (squeeze out)		
Zespół Elektrociepłowni Wrocławskich Kogeneracja S.A. ("Kogeneracja S.A.") - acquisition of shares by PGE EC (as a result of tender offer)	March 14, 2018	1 202 172 shares	PGE EC acquired 1 202 172 shares of Kogeneracja S.A. (acquisition was a consequence of the tender offer due to exceeding 33% of total votes, pursuant to art. 73 Act of July 29, 2005 on public offering, conditions governing the introduction of financial instruments to organised trading, and public companies). Currently PGE EC holds directly 3 845 041 shares of the company with a nominal value of PLN 19 225 205, representing 25.81% in the share capital of Kogeneracja S.A. In addition, PGE EC, through one-man subsidiary Investment III B.V., holds indirectly 4 807 132 shares with a nominal value of PLN 24 035 660, representing 32.26% in the share capital of Kogeneracja S.A.

## Mergers

Acquiring company /acquired company	Date of transaction/ registration in the National Court Register	Comment
ELTUR - SERWIS sp. z o.o. - acquiring company TOP SERWIS sp. z o.o. - acquired company	February 26, 2018	On February 26, 2018 the Extraordinary Assembly of Partners of ELTUR - SERWIS sp. z o.o. (acquiring company) and TOP SERWIS sp. z o.o. (acquired company) adopted resolutions on merger of the companies in mode of art. 492 § 1 p. 1 of the Polish Commercial Companies Code (merger through acquisition), through transferring of all assets of the acquired company to the acquiring company in exchange for the shares, which the acquiring company allotted to PGE S.A. as a sole shareholder of the acquired company. The share capital of the acquiring company was increased by PLN 50 000, i.e. from PLN 34 824 500 to PLN 34 874 500.
	April 12, 2018 merger registered in the National Court Register	
PGE Energia Odnawialna S.A. - acquiring company PGE Energia Natury PEW sp. z o.o. - acquired company	March 27 and 29, 2018	The Extraordinary General Meeting of PGE Energia Odnawialna S.A. (acquiring company) and the Extraordinary Assembly of Partners of PGE Energia Natury PEW sp. z o.o. (acquired company) on – respectively – March 29, 2018 and March 27, 2018 adopted resolutions on merger of the companies in mode of art. 492 § 1 p. 1 of the Polish Commercial Companies Code (merger through acquisition), through transferring of all assets of the acquired company to the acquiring company without issue of new shares in exchange for the shares in the share capital of the acquired company, pursuant to art. 516 of the Polish Commercial Companies Code and dissolution of the acquired company without its liquidation. PGE Energia Odnawialna S.A. was the sole shareholder of PGE Energia Natury PEW sp. z o.o.
	May 2, 2018 merger registered in the National Court Register	

## Additional equity contributions

Entity	Date of transaction	Comment
PGE KLAFTER sp. z o.o.	March 29 and 30, 2018	On March 29, 2018 the Extraordinary Assembly of Partners of PGE KLAFTER sp. z o.o. adopted resolution on obligation of the sole shareholder i.e. PGE Energia Odnawialna S.A., to supplementary payment to the shares, in the meaning of art. 177 of the Polish Commercial Companies Code, in total amount of PLN 2 000 000, i.e. PLN 2 000 for each share of PGE KLAFTER sp. z o.o. entitled to PGE Energia Odnawialna S.A., by March 30, 2018. In accordance with the above resolution, additional equity contributions were paid on March 30, 2018.

## 2. PGE Group's strategy and its implementation

### 2.1. Strategy of the Capital Group

PGE Group's strategy update by 2020 was approved by the Supervisory Board on September 6, 2016. The strategy seeks to adapting the Group's activities to the changing environment, addresses threats and opportunities connected with, among others, volatility of fuel prices, climate policy directions, market model evolution and new technology development.

#### Mission, vision and overall objectives

PGE's mission is to ensure security and growth based on reliability of supply, technical excellence, modern services and partnership relationships. Increase its value for shareholders and the key role in ensuring Poland's energy security are the overall objectives which PGE Group is constantly realising.

Diagram: Redefining PGE Group's mission.



#### PGE Group's new mission

We provide security and growth based on reliability of supply, technical excellence, modern services and partnership relationships



PGE Group's vision determines our target position in four areas:





## 2.2. Implementation of key projects within the strategic objectives

	2016 – 2018	2018 +
<div style="border: 2px solid #004a87; padding: 5px; width: fit-content; margin: 0 auto;"> <p>Leader in generation, actively taking advantage of growth opportunities</p> </div>	<ul style="list-style-type: none"> <li>■ Continuation of flagship Investments in Opole and Turów</li> <li>■ Launch of preparatory phase for construction of 2 new gas-fired units at Dolna Odra power plant</li> <li>■ Closing of transaction to acquire EDF Polska's assets: strengthening the top position on the power market and securing the position of largest supplier of district heating</li> <li>■ Adoption of PGE Group's District Heating Strategy.</li> <li>■ Approval of "De-merger plan for PGE Górnictwo i Energetyka Konwencjonalna S.A." in order to transfer six of PGE GiEK's branches to PGE EC.</li> <li>■ Optimisation of generation portfolio in terms of participation in the capacity market.</li> </ul>	<ul style="list-style-type: none"> <li>■ Construction of 1 000 MWe of new cogeneration capacities.</li> <li>■ Establishment of specialised business line integrating activities in the district heating area – PGE Energia Ciepła S.A.</li> <li>■ Increase of low-emission fuels' share in the district heating segment to 50%.</li> <li>■ Launch of 1 045 MW offshore wind farm, with potential to expand the project by additional 1 500 MW.</li> <li>■ Increase of exposure to the diffuse source segment.</li> <li>■ Optimal adaptation of power plants and CHP plants to new industrial emission standards BAT.</li> <li>■ Modernisation of local district heating systems and construction of new cogeneration sources as part of a programme combating household-originated emissions.</li> </ul>
<div style="border: 2px solid #004a87; padding: 5px; width: fit-content; margin: 0 auto;"> <p>Reliable and active utility and service supplier</p> </div>	<ul style="list-style-type: none"> <li>■ Connection process simplified and shortened to 7 months.</li> <li>■ Launch of Telephone Reporting Centre, which is active throughout PGE Dystrybucja's entire area, handling the emergency line 991.</li> <li>■ Launched innovative system for detecting and isolating short-circuit incidents on overhead MV lines.</li> <li>■ Implemented innovative metering system at Białystok branch and Łódź branch.</li> <li>■ Adaptation of distribution network to new sources – 8 251 micro-installations connected in 2017 alone.</li> <li>■ Construction and modernisation of HV line and HV and MV transformer stations.</li> <li>■ Customer satisfaction indicators and credibility assessments at very high level.</li> <li>■ Retention of low client migration rate in mass segment.</li> <li>■ Expanded retail product offering.</li> <li>■ Launch of PGE's trading platform e-Shop.</li> <li>■ Launched new sales and customer service channels (mobile electronic customer service office, chatbot).</li> <li>■ Sale of electricity in the Warsaw area under the LUMI brand.</li> </ul>	<ul style="list-style-type: none"> <li>■ Increase of share of managed district heating networks at PGE Energia Ciepła S.A. locations to 2/3</li> <li>■ Increase of the Group's potential through mergers and acquisitions in the district heating area.</li> <li>■ Further improvement in supply reliability and reduction in SAIDI and SAIFI by 56% between 2015 and 2020.</li> <li>■ Development of integrated and automated system for managing LV distribution network infrastructure cooperating with diffuse energy sources and accumulators installed at prosumer installations.</li> <li>■ Construction of system for automatic reconfiguration of LV grid to improve the quality of distribution services in normal and emergency work mode.</li> <li>■ Development of autonomous mechanisms for reducing the effects of LV line failures.</li> </ul>

	2016 – 2018	2018 +
 <p>Poland's most efficient and flexible energy group</p>	<ul style="list-style-type: none"> <li>Reduction in PGE Group's controllable costs.</li> <li>Standardisation and optimisation of support functions across entire PGE Group.</li> <li>Start of implementation of integrated management system for production assets.</li> <li>Implementation of projects resulting from human capital management strategy.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction of controllable costs by PLN 500 million compared to 2016.</li> <li>In the district heating segment, reduction of repair expenses by 10% (by 2023, compared to 2017).</li> <li>Additional annual EBITDA resulting from implementing the District Heating Strategy estimated at approx. PLN 1 billion by 2030.</li> <li>Retention of competitiveness of lignite mining.</li> <li>Increase in efficiency of combustion by-product management.</li> </ul>
 <p>Leader in developing new business models and lines of business</p>	<ul style="list-style-type: none"> <li>Launch of specialised CVC fund by PGE Ventures sp. z o.o. ("PGE Ventures") for equity investments in promising startups.</li> <li>Formation of PGE Nowa Energia sp. z o.o. ("PGE Nowa Energia") for incubation and acceleration of earliest-stage projects.</li> <li>Agreement on establishment of two energy clusters.</li> <li>Launch of public fast charging stations for electric cars in several Polish cities as part of a pilot programme for the development and management of infrastructure for an electromobility system.</li> <li>Construction of photovoltaics laboratory and start of experimental station.</li> </ul>	<ul style="list-style-type: none"> <li>PLN 400 million until 2020 intended for research, development and innovations, half of which from external sources.</li> <li>Development of energy efficiency activities.</li> <li>Development and commercialisation of new technologies to introduce to the market modern and comprehensive client offering, covering photovoltaics, electromobility, intelligent home solutions (the Smart Energy project), natural gas and demand side response.</li> <li>Sale of charging services and short-term rentals of electric cars for clients (e-carsharing).</li> </ul>

## Key projects in H1 2018

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Development  
investments

### Construction of new units in Opole power plant

- **aim of the project:** construction of two power units of 900 MW each
- budget: approx. PLN 11 billion (net, without costs of financing)
- capital expenditures incurred so far: approx. PLN 8.6 billion
- fuel: hard coal
- net efficiency: 45.5%
- contractor: syndicate of companies: Rafako, Polimex-Mostostal and Mostostal Warszawa with co-operation of GE as Project manager on behalf of the syndicate
- commissioning according to the binding agreement with the General Contractor: unit 5 – July 31, 2018; unit 6 – March 31, 2019 wherein commissioning dates declared by the General Contractor are: May 31, 2019 for unit 5 and September 30, 2019 for unit 6.
- status: as regards unit 5 cold start-up is progressing, preparations for a chemical cleaning of the boiler are under way; assembly work on unit 6 and shared systems is on-going; coal deliveries for the start-up of both units are in progress;; coal deliveries for the start-up of both units are in progress; overall project progress at the end of June 2018 was approx.92%.

### Construction of new unit in Turów power plant

- **aim of the project:** construction of power unit with a capacity of 490 MW
- budget: approx. PLN 4 billion (net, without costs of financing)
- capital expenditures incurred so far: approx. PLN 1.8 billion
- fuel: lignite
- net efficiency: 43.1%
- contractor: syndicate of companies: MHPSE, Budimex and Tecnicas Reunidas
- commissioning: H1 2020
- as regards the unit's main equipment, assembly of the boiler's pressure part and elements of a turboset is continued, as is assembly of auxiliary systems, including a flue gas desulphurisation system and carburisation system and construction work on two electricity buildings: main (including control room) and electrostatic precipitator. Construction of a cooling tower shell was completed in the second quarter of 2018. Construction of a coal-feed system and technological feed system is in progress as part of ancillary works.

### Construction of a Thermal Processing Installation with Energy Recovery at Rzeszów CHP

- **aim of the project:** construction of a thermal processing installation with energy recovery at Rzeszów CHP with capacity of approx. 8 MWe in condensation (approx. 4.6 MWe + 16.5 MWt in co-generation )
  - budget: approx. PLN 293 million (net, without costs of financing )
  - capital expenditures incurred so far: approx. PLN 218 million
  - fuel: municipal waste
  - boiler's efficiency: 86%
  - contractor: syndicate of TM.E. S.p.A. Termomeccanica Ecologia and Astaldi S.p.A.
  - according to the binding agreement, investment should be commissioned in June 2018. the The General Contractor asked for a deadline extension for this investment. The parties began talks intended to define a new deadline for the investment, as short as possible. A delay of several weeks is expected.
  - status: the installation's hot start-up began and first waste was incinerated in the boiler; finishing works are on-going in buildings as well as works related to land management.
-

Modernisation and replacement projects

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#### **Comprehensive reconstruction and modernisation of units no. 1-3 at Turów power plant**

- **aim of the project:** Adaptation to future BAT conclusions requirements regarding permissible emissions of SO<sub>2</sub>, NO<sub>x</sub> and particulate, increase of availability and efficiency, as well as expansion of each turboset's nominal capacity by approx. 15 MWe
- **status:** unit 2 was synchronised with the National Power System on June 16, 2018. The unit is currently in regulatory operation. Unit 2 is planned to be commissioned in October 2018. Work on disassembly of combustion chamber lining at boiler 1, modernisation of turbo-set and assembly of electrical system as well as control and metering equipment and automatics for unit 1.
- **budget:** PLN 0.8 billion (net, without costs of financing)
- **fuel:** lignite
- **completion:** 2020

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#### **Change in technology of furnace waste storage for units 1-12 – Bełchatów power plant and construction of installation to transport ash; production and transport of sludge from unit 14 in Bełchatów power plant**

- **aim of the project:** to provide the capability for storage of furnace waste produced during the operation of units 1-12 of Bełchatów power plant until exhaustion of lignite resources. In the course of the project, the requirement to fit out unit 14 with new technology for the transport and storage of combustion waste was identified.
- **status:** works related to filling in and securing the “Zwałowisko” and “Lubień” storage sites continue, as do works related to construction of installations for unit 14. Start-up of specific systems related to the generation and pumping of suspension from reservoirs 1 and 2 and start-up work on ash transport system and shipping station. Commissioning of installations is planned at the end of August 2018.
- **budget for units 1-12:** ca. PLN 450 million (net, without costs of financing)
- **budget for unit 14:** ca. PLN 90 million (net, without costs of financing)
- **completion:** 2018

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#### **Modernisation of the Pomorzany power plant**

- **aim of the project:** Reduction of NO<sub>x</sub> and SO<sub>2</sub> emissions from Benson OP-206 boilers to a level allowing to meet the requirements of future BAT conclusions as well as to ensure that the plant remains in operation until about 2040
- **status:** SCR installation for unit A was handed over for use; assembly of SCR reactor at unit B is also nearly finished.  
As regards flue gas desulphurisation system: assembly of building steel structure and reactors for boilers A and B is in progress. Foundations for pipelines are almost finished. At the same time, work is continuing on an ash distribution station.
- **budget:** ca. PLN 213 million (net, without costs of financing)
- **fuel:** hard coal
- **completion:** SCR – 2018 (unit A/B), FGD – 2019

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#### **Construction of flue gas denitrification installation and flue-gas desulphurisation for OP-230 boilers no. 3 and 4 in Bydgoszcz CHPs**

- **aim of the project:** Reduction of NO<sub>x</sub> and SO<sub>2</sub> emissions from boilers no. 3 and 4 to a level allowing for further use
  - **status:** As regards flue gas desulphurisation system: assembly work is on-going, together with deliveries of the installation's elements. The reactor and bag filter structure were assembled. Construction of supporting structures and deliveries of sorbent management system elements are in progress.  
As regards deNO<sub>x</sub>: construction work on foundations for flue gas ventilators were completed; technical building was built – shell construction; construction of supporting structure for SCR reactors at boilers 3 and 4. Assembly of flue gas ventilators and reagent management system is in progress.
  - **budget:** for deNO<sub>x</sub> project: PLN 48 million (net, without costs of financing); for FGD project: PLN 45 million (net, without costs of financing)
  - **fuel:** hard coal
  - **completion:** 2018
-

**Construction of flue gas denitrogenation system for six OP-650 boilers at Rybnik power plant**

- **project objective:** construction of flue gas denitrogenation unit to ensure compliance with IED Directive requirements
- budget: PLN 259 million (net, without financing costs)
- expenditures so far: PLN 216 million (net, without financing costs)
- contractors: SCR – Consortium Strabag sp. z o.o. and Strabag Energy Technologies GmbH, SNCR – Energotechnika – Energorozruch S.A., PM – Energotechnika – Energorozruch S.A.
- completion: December 2018
- status: progress at approx. 90%. Still left to do is SNCR at boiler 5 as well as optimisation and warranty-related measurements on boilers 3 and 5.

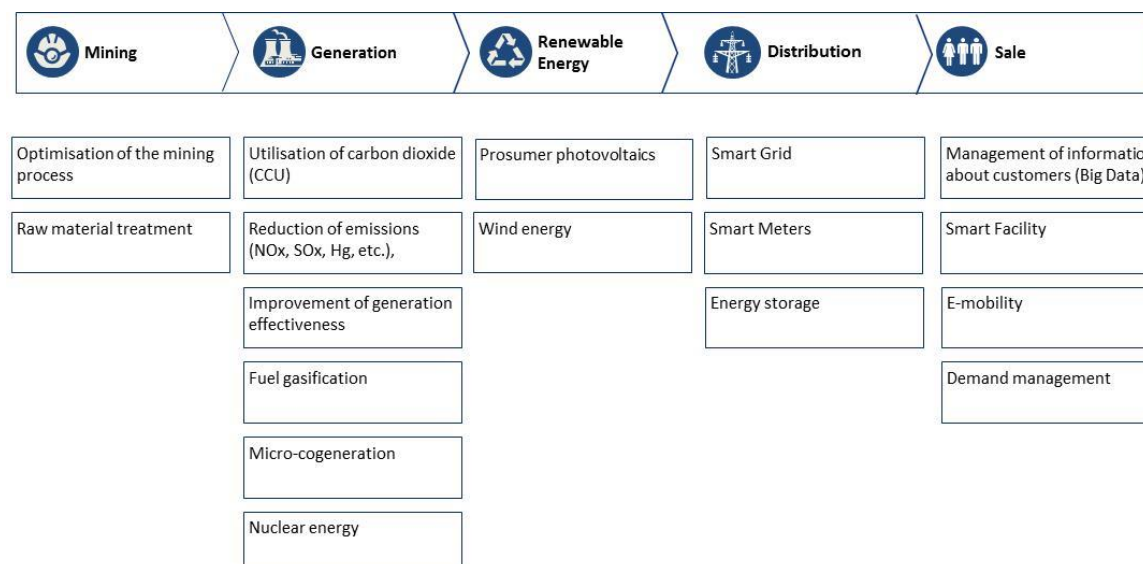
**Construction of flue gas denitrogenation units at CHP plants in: Kraków, Wrocław, Gdańsk, Gdynia**

- **project objective:** construct flue gas denitrogenation unit to ensure compliance with IED Directive requirements
- budget: PLN 545 million (net, without financing costs)
- expenditures so far: PLN 488 million (net, without financing costs)
- contractors: General Electric; Fortum-ZRE; Fortum Mehldau; SBB Energy; Fortum-Instal
- completion: December 2018
- status: progress at approx. 92%. Still left to complete and optimise are SNCR installations in Gdańsk, Kraków and Gdynia.

Project of network losses reduction

- **aim of the project:** reduction of electricity procurement costs for balancing differences
- activities undertaken (multi-year project):
  - replacement of HV/MV, MV/LV transformers with low-loss units, adaptation of transformers' output to power consumption;
  - grid conversion and modernisation: construction of HV/MV and MV/LV stations, increase of cable cross-sections for HV, MV and LV lines, reduction of MV and LV lines;
  - maintenance of optimal grid workload, elimination of adverse energy transit in HV lines, optimisation of MV line partitions;
  - reduction of load asymmetries in LV lines.
- **the results of the project:** lowering of the balancing difference in 2017 to 5.37% (in 2016 it amounted to 5.77%); volume of balancing difference in 2017 was by 5% lower than in 2016 with the simultaneous increase of volumes of energy delivered to off-takers by 3% in that period. The balancing difference in period July 2017 – June 2018 amounted to 5.21%.
- **activities initiated in H1 2018:** project assumptions for 2018-2022 were updated in March 2018; activities aimed at reducing balancing differences at PGE Dystrybucja S.A. are to be continued, the tasks assumed in the project are being carried out on an ongoing basis.

Strategic Research and Development and New Business Areas ("SOBiR+NB"), within which the Group intends to carry out R&D and innovation projects concerning, among others, the supply of new products or services. The SOBiR+NB areas are aligned with the Group's most important challenges and are identified for each element of the value chain (see the graph below).



In connection with an Update of the Group's Strategy until 2020 being introduced in the third quarter of 2016, works have progressed on updating the Development and Innovation Strategy that will place emphasis on challenges that most affect the Group, where R&D and innovation are essential to the achievement of set business objectives. Particular attention will be paid to both dynamically developing segments such as electromobility or energy storage as well as ways of acquiring and developing initiatives such as new models of management and implementation of innovations like acceleration and investing in an equity fund model in small businesses that develop technologies and products. A strategic option for PGE will be the design and development of specific technologies – which constitutes a large quality change in contrast to the previous model – an operator of technologies from other businesses, providers. An SPV named PGE Nowa Energia was formed to work with small businesses (start-ups) in the acceleration and project commercialisation (implementation of innovation solutions) formula. By working with start-up market stakeholders (small businesses, accelerators, other investors, government agencies, etc.), the company is a competence centre, allowing PGE to effectively identify and develop technologies and products being part of and related to the power value chain. Moreover, PGE Nowa Energia is a company designated to build charging infrastructure for electric vehicles and develop the Group's operations in the electromobility area.

In order to facilitate the continued development of companies and obtainment of new solutions from the market (at the maturity stage later than acceleration), the PGE Ventures company was established, which serves the role of the corporate investment fund of PGE Capital Group. The purpose of the company is to invest PGE's own funds and funds obtained via support tools – the public budget available through the Polish Development Fund (PFR) and the National Research and Development Centre ("NCBiR").

### Innovation

PGE focuses on initiating and executing R&D projects that fall within the SOBIR+NB areas. In the first quarter of 2018, several dozen projects were continued within these areas.

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#### Key projects in H1 2018

Involvement in equity structures that support the development of new technologies and solutions as well as small businesses	<ul style="list-style-type: none"><li>● <b>aim of the project:</b> Introduction of a new model for developing and implementing new solutions, allowing to manage higher-risk undertakings whilst reducing time-to-market for new solutions (for own purposes or to sell to other entities)</li><li>● <b>main activities:</b><ul style="list-style-type: none"><li>▪ the first edition of PGE Ventures' scouting programme was completed, with the first two investment agreements signed by PGE Ventures in January 2018</li><li>▪ 3 further investments were finalised, as a result of PGE Ventures' scouting program, during which more than 120 companies from energy sector were analysed</li><li>▪ the acceleration activities conducted by the PGE Nowa Energia company have been commenced and rules of co-operation between the companies (PGE Nowa Energia and PGE Ventures) have been determined, providing for optimization and maintenance of continuity at the next stages of development of small. Project acceleration applications are being accepted.</li><li>▪ activities related to the formation of an external investment fund named Energy Research Capital ("ERC") were finalised under the Polish Research and Development Centre's BRIDGE Alfa 2017 programme. PGE Ventures will serve as investor and will have influence over the fund's investment strategy. ERC will invest in innovative solutions for the energy industry, technologies from the IoT area and ICT technologies. ERC plans to invest in approx. 20 carefully selected companies that are characterised by high innovativeness.</li></ul></li></ul>
Electromobility	<ul style="list-style-type: none"><li>● <b>aim of the project:</b> promoting and developing electric transport in Poland and gaining by PGE Capital Group of experience and the competence necessary to serve the role of the operator of electrical cars charging infrastructure and of the supplier of electrical cars charging services</li><li>● <b>main activities:</b><ul style="list-style-type: none"><li>▪ concern individual transport – cars used for private and business purposes</li><li>▪ PGE has been continuing a project launched in December 2016 in which a pilot run is being implemented that consists of the construction of infrastructure for an electromobility system in Łódź, where the first rapid charging station in Łódź was launched and the next stations are expected to follow in the second half of 2018. Talks regarding cooperation in other locations are on-going.</li></ul></li></ul>

Recycling

- **aim of the project:** PGE Group is preparing to execute a project allowing to develop and implement a new technology for the recycling of lithium batteries, particularly those used in energy storage systems and to charge electric cars. This technology is intended to obtain strategic materials from used lithium batteries – cobalt, nickel and copper. The project directly supports the assumptions of the Ministry of Development concerning the transformation of the economy in the direction of closed-circuit economy, as well as the requirements of the Polish legislation specifying the needs of collection and utilization of used batteries. The project has a business potential due to the anticipated growth in the world's market of lithium batteries and the increase in the quantity of battery wastes connected with that, as well as increased demand of markets for products recycled from used batteries.
  - **main activities:** PGE S.A. has set up a consortium with RDLS sp. z o.o. ("RDLS"), a spin-off company of the Warsaw University operating in the area of environmental research and biotechnology. The goal of the consortium is to produce a pilot recycling installation for lithium batteries and implement this technology in Poland. The project was recommended by NCBiR for co-financing from public funds of the Research Programme of the Power Sector ("PBSE"). The consortium led by RDLS, received a consent for financing of the project from NCBiR funds. In December 2017 the Management Board of PGE S.A. issued approval for commencement of the project implementation phase and signing of an agreement on project funding between NCBiR and RDLS. The project implementation has commenced on December 29, 2017 – on that day the consortium leader signed the agreement for financing of the project.
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### 3. Electricity market and regulatory and business environment

#### 3.1. Macroeconomic environment

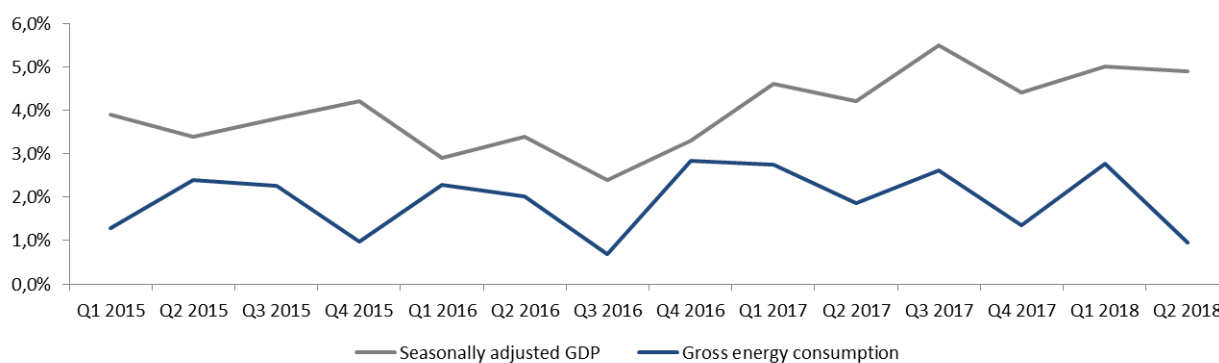
PGE Group's main operating area is Poland, and the domestic macroeconomic backdrop has a substantial impact on Group's results. At the same time, the condition of Poland's economy remains largely tied to the situation across the European Union and in global markets. The Group's financial results are 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 rising electricity demand and 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 half of 2018, gross electricity consumption went up 1.9% compared to analogical period of 2017. The increase was lower than in the first half of 2017, when consumption went up 2.3% compared to analogical period of 2016.

Economic trends in the first half of 2018 remained positive in general. Data from Credit Agricole shows that just in the second quarter of 2018 GDP grew by 4.9%, comparing to the same period last year. Growth was higher than in the second quarter of 2017, when it reached 4.2% y/y.

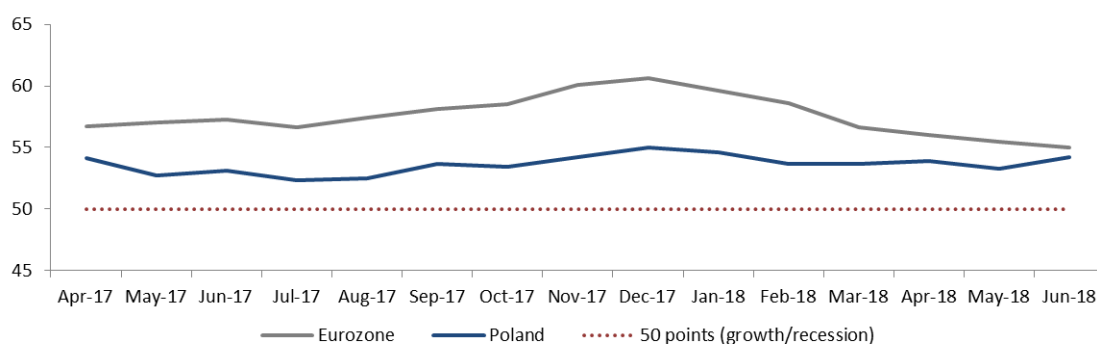
Diagram: Seasonally adjusted GDP change vs. change in domestic gross electricity consumption.



Source: Central Statistical Office of Poland, PSE S.A., GDP for Q2 2018 – estimate by Credit Agricole

Economic growth and rising electricity consumption were accompanied by optimistic condition of Polish industry, which is responsible for approx. 45% of domestic electricity consumption. The Purchasing Managers' Index (PMI) for industry reached 53.7 points on average in the first half of 2017, and 53.9 points on average in the first half of 2018. It means level above 50 points, above which the respondents expect the sector's situation to improve. The positive result stems mainly from growing production, employment and consumption. The results of the Polish industrial sector should be further strengthened by the Eurozone, whose PMI for H1 2017 reached an average level of 56.3 points, and 56.9 points in the analogical period of 2018.

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



Source: Markit Economics



Positive development in the Polish economy is confirmed by dynamics in overall industrial production. In the first half of 2018, it went up by 6.2% y/y, compared to 5.7% in the first half of 2017. The change resulted from increase in industrial production dynamics (6.4% y/y in the first half of 2018 versus 6.2% in the first half of 2017). Simultaneously, production in the whole energy sector increased by 8.4% y/y in the first half of 2018 vs 5.3% in the first half of 2017. The value of industrial manufacturing depends on volumes of goods produced and prices. PPI in the first half of 2018 amounted to 1.4% y/y. CPI reading in the second quarter of 2018 amounted to 1.7% y/y.

Table: Key economic indicators for Poland.

<b>Key economic indicators</b> (% change y/y)	<b>H1 2018</b>	<b>H1 2017</b>
GDP <sup>1</sup>	4.9	4.2
CPI <sup>2</sup>	1.7	1.8
PPI <sup>3</sup>	1.4	3.6
Sold industrial production <sup>3</sup>	6.2	5.7
Sold production – manufacturing <sup>3</sup>	6.4	6.2
Sold production – energy <sup>3</sup>	8.4	5.3
Dynamics of domestic electricity consumption <sup>4</sup>	1.9	2.3
Gross domestic electricity consumption (TWh) <sup>4</sup>	85.1	83.5
EUR/PLN <sup>5</sup>	4.22	4.27

Source: <sup>1</sup> for Q2 2018 – forecast by Credit Agricole bank, for Q2 2017 - Central Statistical Office of Poland, <sup>2</sup> National Bank of Poland, quarterly data <sup>3</sup> Central Statistical Office of Poland, <sup>4</sup> PSE S.A., <sup>5</sup> National Bank of Poland.

## 3.2. Regulatory environment

### Regulatory environment

#### Domestic

- Work on implementation of a capacity market, including implementing provisions for the Act on Capacity Market
- notification of the support mechanism established in the Act on Capacity Market to the European Commission ("EC"). EC issued a decision on February 7, 2018.
- contemplated changes in system services in connection with the expected introduction of the capacity market in 2018
- on-going work on a new support mechanism for high-efficiency cogeneration. A draft bill on promoting electricity from high-efficiency cogeneration was referred for public consultations. The existing system, based on cogeneration certificates of origin, expires at the end of 2018
- matter of implementation of quality tariff in distribution, that will make regulated income dependant on SAIDI and SAIFI ratios and connection time, among others
- entry into force of ordinance of the Energy Minister of December 29, 2017, on detailed rules for establishing and calculating tariffs and settlements in trade in electricity, which introduced a tariff with lower prices and fee rates during off-peak hours (e.g. at night)
- update of the Act on Renewable Energy Sources (act of June 7, 2018), which designates a system for supporting the production of energy from renewable sources. This update includes, among other things, a change in which public aid is calculated and a change in auctions for support of new technology baskets. The update sets auction parameters for renewables installations, including reference prices and quantities of energy from renewable sources that may be sold through auctions in 2018.
- change in the level of the so called green obligation, i.e. the obligation to redeem certificates of origin confirming the origin of electricity produced from renewable energy sources in 2018-2019 (regulation of the Minister of Energy of August 11, 2017)
- entry into force of an update of the act on investment in wind farms. The bill includes a change in property tax rules for wind farms (only a part of an installation constituted the tax base) retroactively from January 1, 2018 and prolongation of time for obtaining use permits to 5 years.
- work on a legislative package that is intended to transform linear economy towards a circular economy.
- work on an update of the Act on waste. The draft includes numerous changes in waste management, including the obligation to establish collateral for each tonne of waste stored, reduction in waste storage time from three years to one year, on-site monitoring of landfills.
- entry into force of act on electromobility and alternative fuels on February 22, 2018
- work on a regulation regarding the technical requirements for charging stations and charging points
- entry into force of the Water Law of July 20, 2017, which introduces a system of fees for using water for energy purposes and publication of the ordinance of the Council of Ministers of December 22, 2017, on rates for water services, which specifies unit rates for fees for using water for energy purposes
- adoption by the Council of Ministers of National Action Plan concerning energy efficiency for Poland 2017
- works on new Energy Policy of Poland until 2050

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#### International

- key climate-energy package regulations, setting out greenhouse gas emission reduction targets by 2030 and the package "Clean energy for all Europeans," which aims to implement on the legal side the concept of energy union. The following regulations will have a significant impact on the Polish energy sector, including PGE Group, after 2020:
  - Directive of the European Parliament and of the Council no. 2018/410 amending Directive 2003/87/EC (to enhance cost-effective emission reductions and low- carbon investments) and decision (EU) 2015/1814, setting up in particular: the level of the linear reduction factor ("LRF") set at 2.2% annually from 2021; double increase in volume of allowances to be directed to the market stability reserve ("MSR") in 2019-2023 from 12% to 24% of allowances being traded and the introduction of cyclical removal of allowances from 2023 in a volume that will exceed the volume of allowances being the subject of auctions in the preceding year; Modernisation Fund, the size of which has been set at 2% of the total number of allowances after 2021, with a conditional possibility to increase its size to 2.5%; way of redistributing the Modernisation Fund's investment funds, with a simple decision path for select project categories (including renewables and grids) and receipt of a recommendation from the investment committee if

support of coal investments is not possible; way of redistributing free allowances that does not interfere with obtaining support for pro-environment modernisations.

After formal adoption of the act in the first quarter of 2018, on March 19, 2018 the text of Directive was published in the UE Official Journal. In the first half of 2018, the European Commission began work on an implementing act that will set detailed rules for the Modernisation Fund and the Innovation Fund as well as on a delegated act concerning free allocation of allowances for industry and district heat producers. A potential decision by the European Commission on whether to issue guidelines for the application of art. 10c (derogations) will depend on the number of member states interested in using free-of-charge allocation of allowances for producers of electricity.

- COM (2016) 767 final - proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources ("RED II"), trilogues ended in mid-June 2018. According to the key conclusions, EU's binding target will be a 32% share of renewables in final gross energy consumption in 2030, although no country targets were introduced. Member state contributions to the EU target will be specified based on declarations made as part of the first integrated national plans for energy and climate.
- COM (2016) 861 final - proposal for a Regulation of the European Parliament and of the Council on the internal market for electricity ("EMR"), which provides inter alia, regulation of capacity mechanisms (detailed proposal to introduce European assessment of capacity sufficiency and a standard for CO<sub>2</sub> emissions for units participating in the capacity market at 550 g/kWh). Moreover, the European Parliament is proposing stricter requirements for the introduction and maintenance of capacity markets and detailed provisions dedicated to the strategic reserve. Negotiations regarding the final version of the Regulation will be led by the Austrian presidency, which began in July 2018. The first trilogue, mainly organisational in nature, took place during the Bulgarian presidency on June 27, 2018.
- COM (2016) 864 final – Proposal for a Directive of the European Parliament and of the Council on common rules for the internal market in electricity ("EMD"), intended to create a new structure for the single energy market, including through introducing many prosumer solutions and making the market more flexible. Negotiations concerning the Directive's final version will be led by the Austrian presidency. The first trilogue, mainly organisational in nature, took place during the Bulgarian presidency on June 27, 2018.
- COM (2016) 759 final/2 - proposal for a Regulation of the European Parliament and of the Council on the Governance of the Energy Union ("EU Governance"), which is intended to create a system for monitoring progress in energy union targets in cooperation with other member states and based on arrangements with the European Commission. Trilogues concerning EU Governance were finalised at the end of June 2018. According to the key conclusions, an obligation for each member state to notify by the end of 2018 the first integrated national plan for energy and climate, containing the declared national share of renewables in final energy consumption in 2030, which constitutes a contribution to the EU target. The European Commission will evaluate the drafts and subsequently approve the content of final plans and will monitor their performance. A trajectory for the development of renewables is envisioned, which assumes that it will be necessary to achieve reference points, i.e. 18% of the required growth will be achieved in 2022, 43% in 2025 and 65% in 2027. If the voluntarily declared national contributions are not sufficient to achieve the EU target, a formula to calculate a fair national contribution, expressed as a percentage, will be used.
- COM (2016) 761 final - proposal for a Directive of the European Parliament and of the Council amending Directive 2012/27/EU on energy efficiency ("EED"), including the way in which Poland may contribute to EU's energy efficiency improvement targets by 2030. Trilogues concerning the EED directive were finalised at the end of June 2018. According to the key assumptions, a non-binding European target for energy efficiency increase by 32.5% from consumption forecasts created in 2007 will be introduced. Member states will separately declare possible energy consumption reductions and present their national contributions to the EU target. The annual savings in energy sold to end customers will reach 0.8%.
- regulations related to the EU multiannual financial framework ("MFF"): the European Commission presented in May and June 2018 the key assumptions for the EU multiannual financial framework for 2021-2027 and legislative act proposals. The Commission proposed an increase in funding for climate objectives from 20% as part of MFF for 2014-2020 to 25% of the EU's overall budget in 2021-2027, which in absolute terms means an increase in expenditures on this objective from EUR 206 billion to EUR 320 billion. The catalogue of criteria based on which regional development and cohesion funds will be awarded was expanded. Furthermore, these funds will not be available for investments in reducing emissions of units that fall under the EU ETS directive and investments in the generation, storage and combustion of fossil

fuels and the option to finance the construction of liquidation costs for nuclear power plants. The Commission did not propose to support transformation for countries and regions that are dependent on coal. However, it proposed a new source of the EU's own resources: member states are to contribute to the EU's new budget up to 30% of revenue from the sale of emission allowances allocated pursuant to art. 10 sec. 2 letter A of EU ETS and up to 30% of the market equivalent of allowances that may not be allocated for free to electricity producers under art. 10c of EU ETS. Entitlements under the Modernisation Fund and the Innovation Fund as well as entitlements from the solidarity pool for less wealthy countries will be excluded from having to contribute to this new source.

- Regulations concerning funding for sustainable economic growth: the European Commission presented in March 2018 a plan of action of the financing of sustainable economic growth and in May 2018 proposals for the first legislative acts concerning this issue. The Commission estimates that in order to reach the energy and climate targets by 2030, EUR 180 billion in investment across the entire European Union is needed annually. The Commission proposed to involve the private sector to reach the aforementioned targets by providing funding for sustainable investments. The presented legislative act proposals contain criteria based on which economic activity will be evaluated in order to check whether it is sustainable in terms of the environment. This will include activities aimed at eliminating anthropogenic greenhouse gas emissions, including from sources based on fossil fuels. Information obligations for institutional participants in financial markets is also proposed, as it related to the way in which risk concerning sustainable development is taken into account in investment decision-making processes or in the process of financial advisory as well as reference indicators that take into account CO<sub>2</sub> emissions.
- regulations related to emission reduction as part of the environmental policy, including:
  - The European Commission on July 31, 2017, adopted Commission Implementing Decision (EU) 2017/1442 of 31 July 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants ("BAT conclusions for LCP"), which was published in the EU Journal on August 17, 2017. The deadline for adapting installations is four years from the publication date, i.e. August 17, 2021. The Polish government filed a complaint regarding this decision with the EU Court of Justice, an appeal against the legal act itself, filed by Eurocoal, is being examined in parallel.

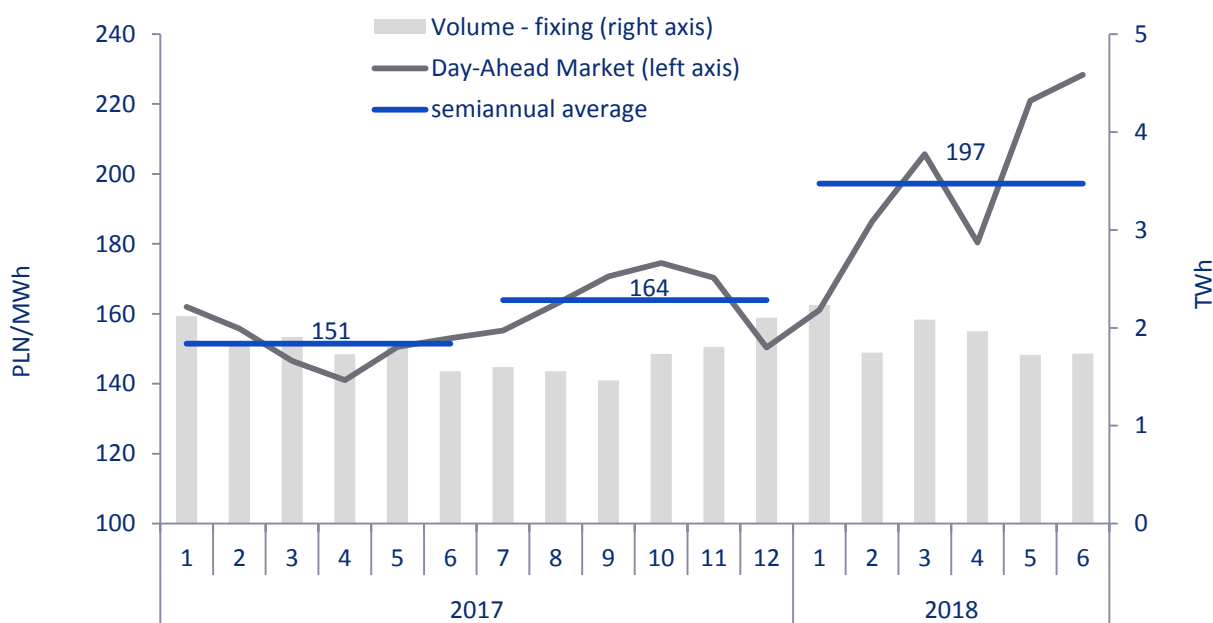
### 3.2.1. Electricity prices

#### Domestic market - Prices

##### Day-ahead market

In the first half of 2018, the average price of electricity on the Day Ahead Market was PLN 197/MWh and was 30% higher than the average price (PLN 151/MWh) in the same period last year. The growth in energy prices on the spot market is related to growth in the price of CO<sub>2</sub> emission allowances, among other things. The EUA December 2018 instrument was priced at an average of EUR 12.6/t in the first half of 2018, meaning 152% growth y/y. The growth in energy prices was also driven by higher fuel costs. The average level of the Polish Industry Coal Market Index (PSCMI1) in the period January-May 2018 was PLN 10.6/GJ, i.e. 18% higher than in the same period last year (PLN 9.0/GJ). An additional factor having impact on electricity price growth was a decline in the volume of wind-based production, which in the first half of 2018 reached 6.2 TWh and was 9% lower y/y.

Chart: Monthly prices and price volatility at the day ahead market in 2017–2018 (TGE)\*

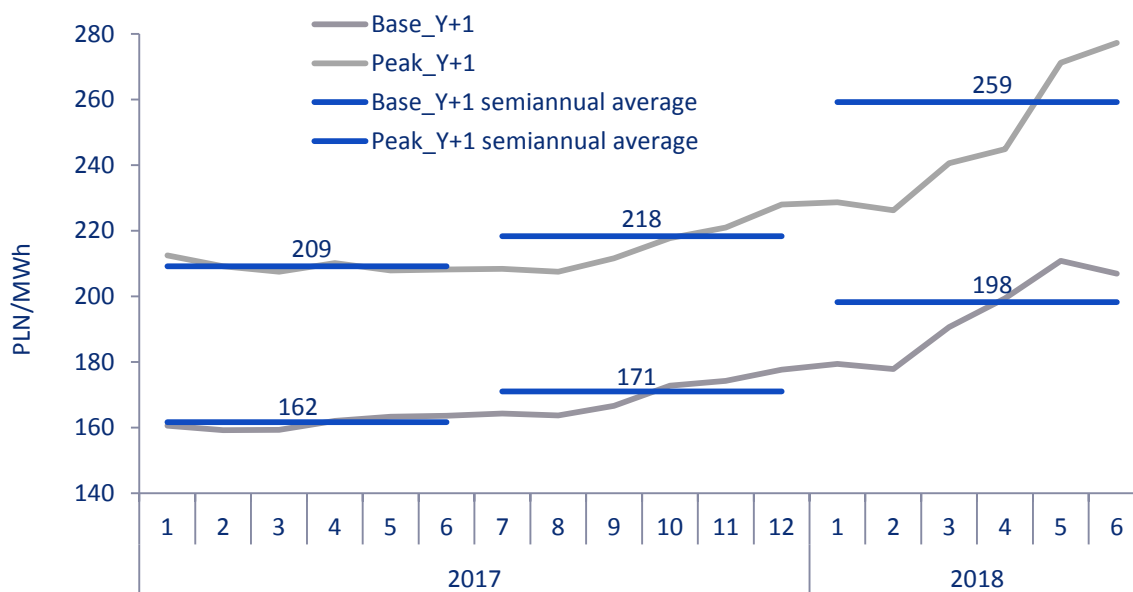


\* average monthly price of IRDN index calculated on the base of hourly quotations (fixing), weighted by the trading volume

##### Forward market

The average price for BASE\_Y-19 contracts in the first half of 2018 reached PLN 198/MWh, while in the same period of last year price of BASE\_Y-18 was PLN 162/MWh on average (+23% y/y). Trading volume for BASE\_Y-19 in the first half of 2018 was 47.3 TWh – this is 173% higher than the BASE\_Y-18 trading volume in the first half of 2017 which reached 17.0 TWh. The increased trading volume is a result of the power exchange obligation. In 2017 minimum of 15% of electricity sales was required to be traded on TGE market. As from January 18, 2018 the power exchange obligation for all energy groups in Poland was raised to 30%. The average price for PEAK5\_Y-19 contracts in the first half of 2018 was PLN 259/MWh and was 24% higher than the analogical contract PEAK5\_Y-18 quoted in the first half of 2017. PEAK5\_Y-19 trading volume in the first half of 2018 amounted to 2.0 TWh – this is by 22% higher than the trading volume of PEAK5\_Y-18 in the first half of 2017.

Chart: Monthly prices and price volatility on the forward market in 2017–2018 (TGE)\*.



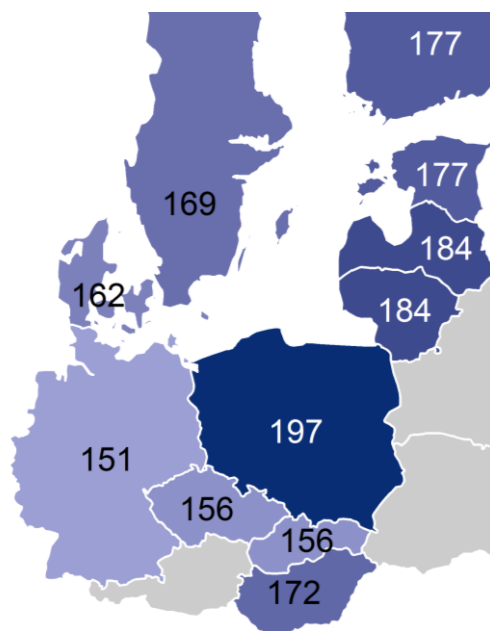
\* monthly average index level for forward contracts for the next year (Y+1), baseload and peak, calculation based on hourly quotations, weighted by the trading volume.

## International market

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

In the first half of 2018, average energy prices in neighbouring countries were lower than in Poland: in Germany by PLN 46/MWh, in the Czech Republic by PLN 41/MWh, in Sweden by PLN 29/MWh. The electricity generation structure in Poland, compared to Germany, Sweden and the Czech Republic, is more dependent on coal-based conventional energy therefore dynamic growth in the price of CO<sub>2</sub> emission allowances and a rising cost of coal fuel had a larger impact on energy price growth in Poland than in countries with a generation mix, more based on renewable sources and nuclear power. The differences in prices were reflected in cross-border trade exchange volumes.

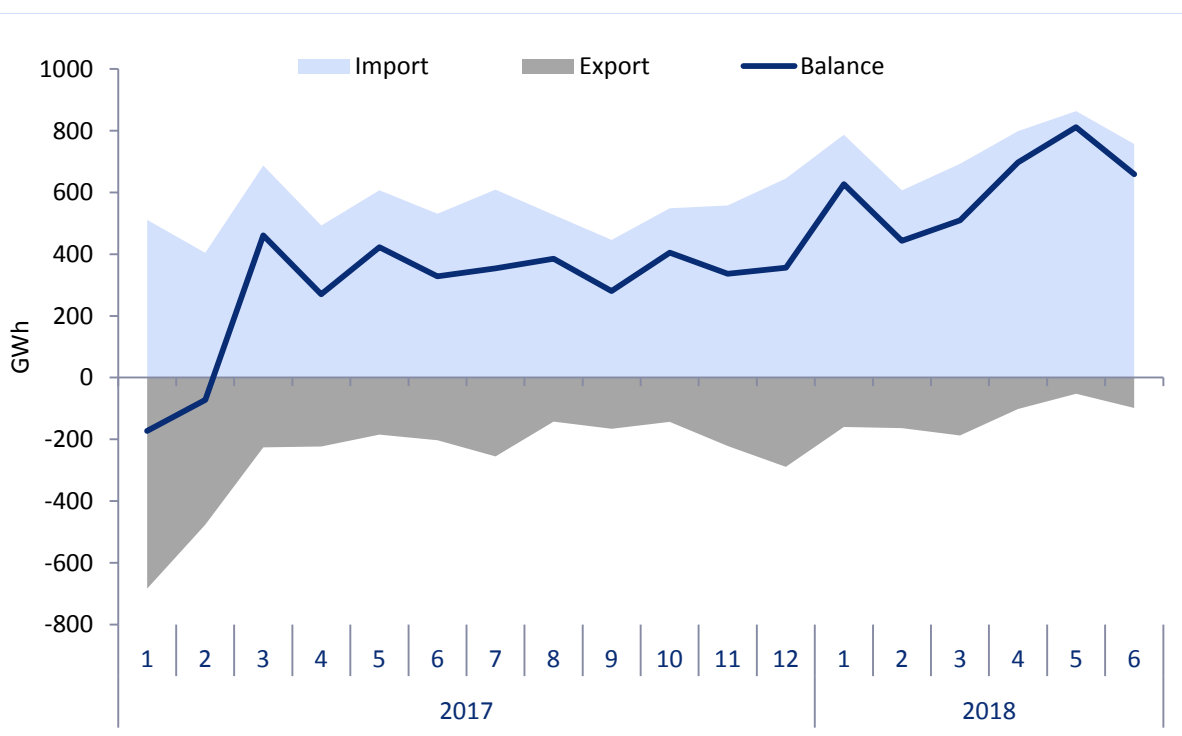
Chart: Comparison of average electricity prices on Polish market and on selected European markets in the first half of 2018 (prices in PLN/MWh, average exchange rate EUR/PLN 4.22).



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

### International trading

Chart: Monthly imports, exports and cross-border exchange balance in 2017-2018 (in GWh).

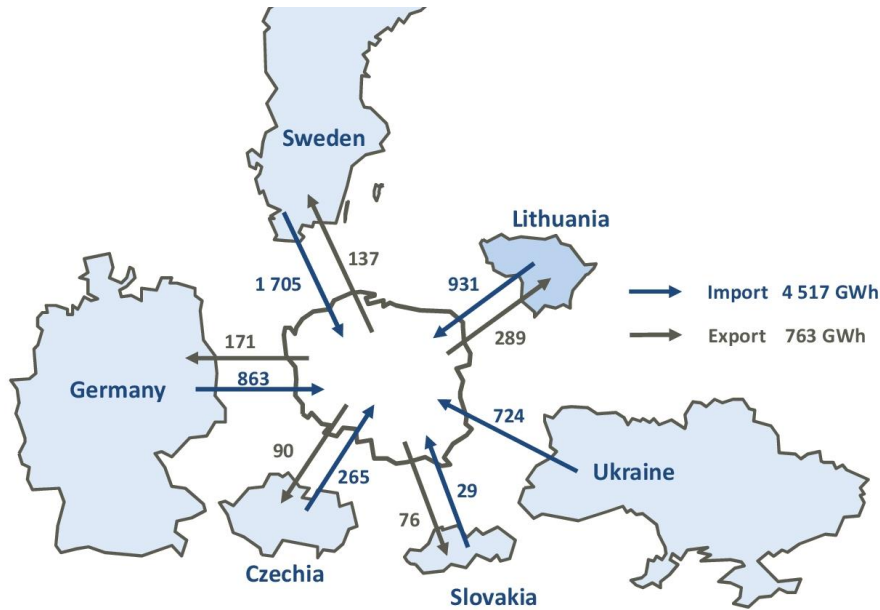


Source: own work based on PSE S.A. data.

In the first half of 2018, Poland was a net importer of electricity: the foreign trade balance was 3.7 TWh (import of 4.5 TWh, export of 0.8 TWh). In the same period last year, import and export were close to equal (import of 3.2 TWh, export of 2.0 TWh). The excess of import over export continues since March 2017. The largest y/y change was the reversal of trade exchange with Germany and the Czech Republic. In the first half of 2017, net export to these two countries reached 1.0 TWh, while in the first half of 2018 net import was 0.9 TWh – this was mainly caused by a general increase in the import

balance in y/y terms. Sweden, Lithuania and Ukraine remained the sources of net import in the first half of 2018, with the volume of exchange with these countries being similar to that recorded in the base period.

Diagram: Geographical structure of commercial exchange in the first half of 2018 (GWh).

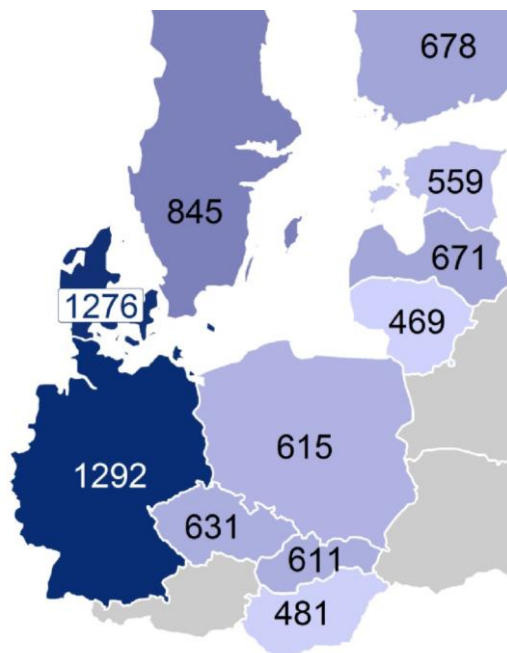


Source: own work based on PSE S.A. data.

### 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 the final price of electricity. In Poland in the second half of 2017, an additional burden for individual customers accounted for approx. 35% 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%.

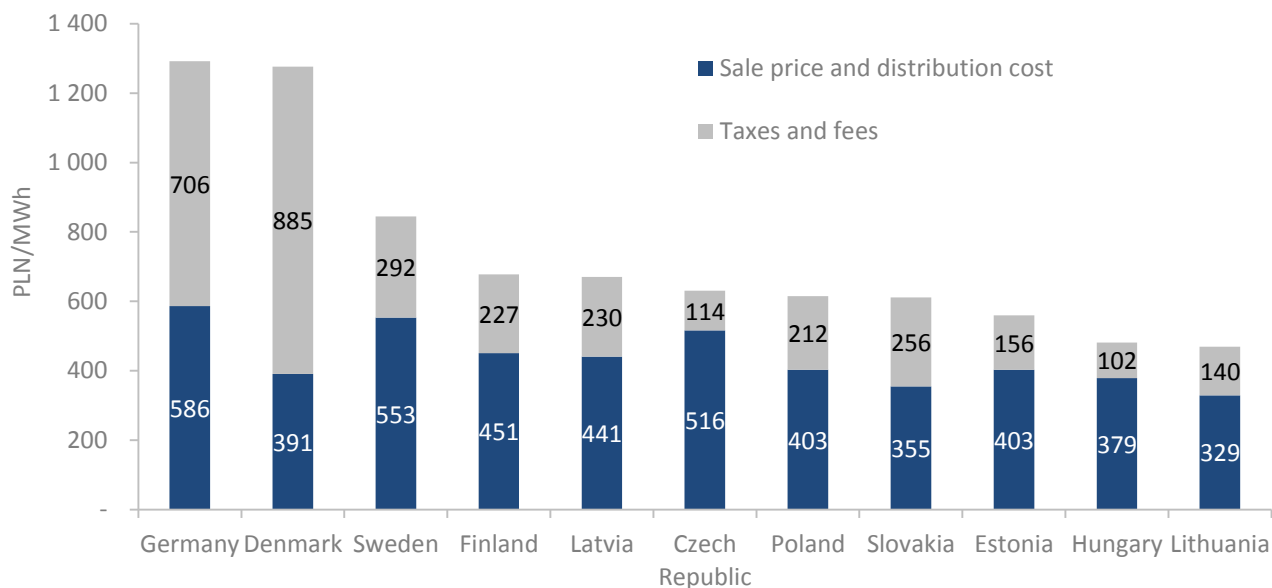
Chart: Comparison of average prices for individual customers in selected EU countries in the second half of 2017 (prices in PLN/MWh).



Source: own work based on Energy prices in the EU. Eurostat, the statistical office of the European Union. EUR/PLN 4.24.



Diagram: The share of additional charges in electricity prices for the individual customers in selected EU countries in the second half of 2017 (prices in PLN/MWh, calculated with average exchange rate EUR/PLN 4.24).

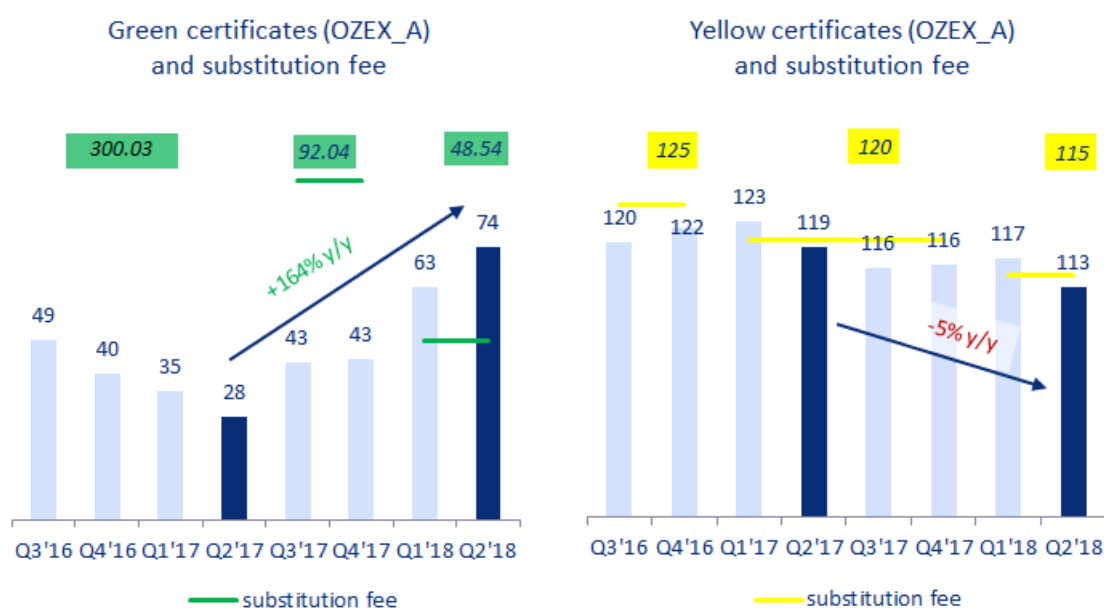


Source: Eurostat

### 3.2.2. Prices of certificates

In the second quarter of 2018, the average price of green certificates (index OZEX\_A) reached PLN 74/MWh and was 164% higher than in the same period of last year. The price growth was driven by both supply (14% y/y decline in wind generation in the second quarter of 2018) and demand factors (regulation of the Minister of Energy that increased an obligation to redeem green certificates from 15.4% in 2017 to 17.5% in 2018 and to 18.5% in 2019). The average price of yellow certificates in the second quarter of 2018 reached PLN 113/MWh and was 5% lower than in the same period last year. The decline resulted from a higher supply of energy produced in gas-fired cogeneration sources and a reduction of the substitute fee from PLN 120/MWh in 2017 to PLN 115/MWh in 2018. The obligation to redeem yellow certificates increased to 8% in 2018, compared to 7% in 2017.

Chart: Average quarterly prices of certificates.



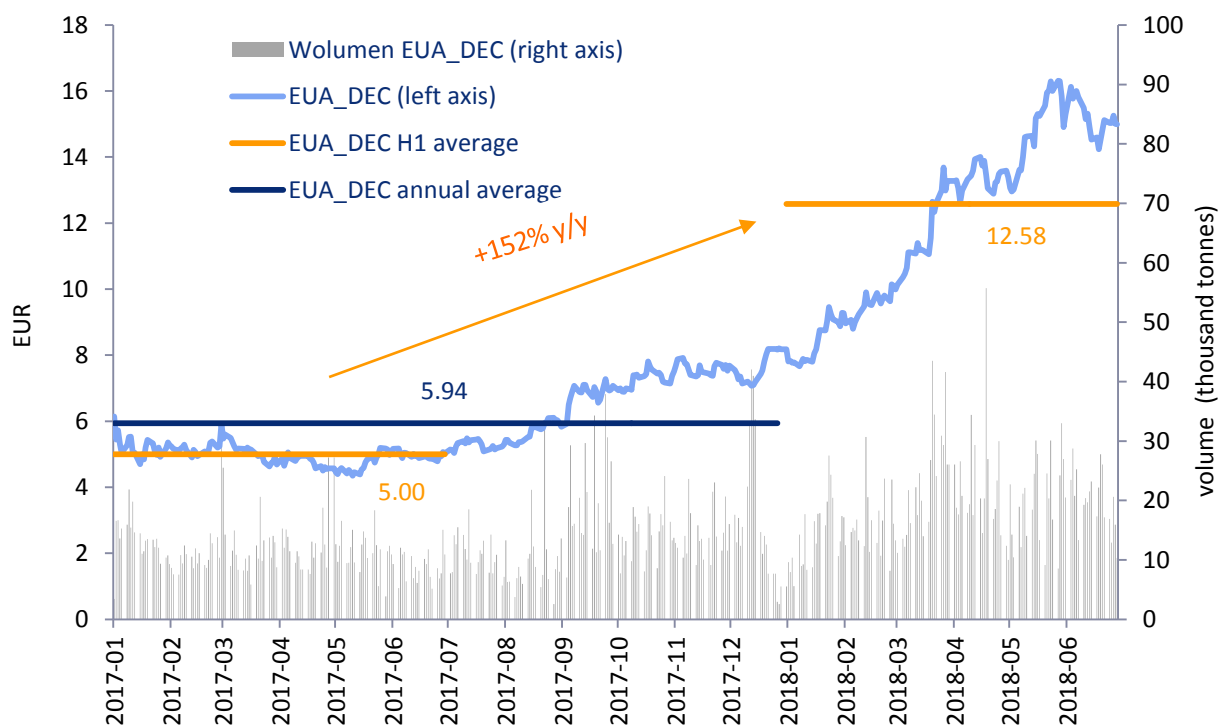
Source: Own work based on TGE quotations. The yellow certificates prices presented on the chart are weighted average blended price – for products PMGM-16, PMGM-17, PMGM-18

### 3.2.3. Prices of CO2 emission rights

EUA (European Union Allowances) prices are one of the key factors determining wholesale energy prices and PGE Group's financial results. Installations emitting CO<sub>2</sub> in the process of electricity or heat production bear the expenses for purchasing EUA allowances to cover the deficit (i.e. the difference between CO<sub>2</sub> emissions at PGE Group's generating units and the free-of-charge allowances received under derogation in accordance with the National Investment Plan). In the first half of 2018, the weighted average price of EUA DEC 18 was EUR 12.58/t and was 152% higher than the average price for EUA DEC 17 (EUR 5.00/t) in the same period last year. In the second quarter of 2018 alone, the weighted average price of EUA DEC 18 was EUR 14.47/t, denoting a threefold increase in comparison to the EUR 4.78/t price for the EUA DEC 17 instrument recorded in the second quarter of 2017. The increase in CO<sub>2</sub> emission prices observed in the second half of 2018 is a result of market perception of the end of the EU ETS reform. In November 2017, in the course of a trilogue, an arrangement was made between the European Parliament, European Commission and European Council as to the final wording of Directive 2003/87/EC and changes in the MSR decision. The amended content of the directive was published in the EU's Official Journal at the beginning of March 2018. The key changes include: increase in linear indicator of emission reduction from 1.74% in 2013-2020 to 2.2% annually from 2021, doubling the volume of allowances directed to MSR for 2019-2023 from 12% to 24% (allowances in trade), together with the introduction of their cyclical erasure from 2023 and the introduction of dedicated "solidarity mechanisms" for the poorest member states (including Poland) – i.e. free allocation of allowances for producers of electricity and the Modernisation Fund, although with limited capabilities for their use in conventional energy generation.

Moreover, the Court of Justice, in a ruling of June 21, 2018 in case C-5/16, repealed Poland's appeal of the MSR decision, making it possible to introduce further changes intended to strengthen reduction ambitions within the EU ETS system even before the end of the next settlement period. Further discussion about enhancing the reduction ambitions within the European Union should be expected to take place at the COP24 in Katowice, during which the European Commission is expected to present in greater detail a preliminary version of the Road Map 2.0, together with specific proposals for the EU's new reduction ambitions until 2050. At the same time, work is on-going on delegated and implementing acts for the directive recently adopted. New legislative motions related to the revision of the EU ETS directive and the MSR decision should be expected once the new European Commission is appointed, which will take place in the second half of 2019.

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



Source: Bloomberg, own work

### 3.2.4. Emission rights granted free of charge for years 2013-2020

The Regulation of the Council of Ministers, that sets the allocation of allowances for particular units of electricity producers in period 2013-2020, was adopted on April 8, 2014. Analogically, allocations of allowances for heat producers were set by the Regulation of the Council of Ministers of March 31, 2014.

PGE's installations accounts were credited with free allowances for heat for 2018 and energy for 2017, while free allowances for electricity for 2018 will be received by the Group by the end of April 2019, 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 2017 was completed in April 2018.

Table: Emission of CO<sub>2</sub> from major Group installations in the first half of 2018 in comparison to allocation of CO<sub>2</sub> emission rights for 2018 (in Mg).

Operator	CO <sub>2</sub> emissions in H1 2018*	Allocation of CO <sub>2</sub> emission rights for 2018**
Bełchatów Power Plant	19 185 597	6 211 022
Turów Power Plant	3 290 757	2 500 954
Opole Power Plant	3 646 230	1 437 267
ZEDO ***	2 004 217	1 187 286
Bydgoszcz CHPs	404 532	290 951
Lublin Wrotków CHP	268 909	166 164
Gorzów CHP	262 270	129 987
Rzeszów CHP	166 456	78 433
Kielce CHP	106 589	52 905
Zgierz CHP	90 420	22 210
<b>TOTAL PGE GIEK S.A.</b>	<b>29 425 977</b>	<b>12 077 179</b>
Rybnik power plant	2 423 763	458 373
Wybrzeże CHPs****	1 109 549	583 062
Kraków CHP	938 576	497 146
ZEW Kogeneracja*****	877 321	387 589
Zielona Góra CHP	273 227	47 491
Toruń CHP	139 927	52 056
<b>TOTAL Acquired assets</b>	<b>5 762 363</b>	<b>2 025 717</b>
<b>RAZEM segment Energetyka Konwencjonalna</b>	<b>35 188 340</b>	<b>14 102 896</b>

\* estimates, emissions not verified - the data will be settled and certified by the authorised verifier of CO<sub>2</sub> emission on the ground of yearly reports of volume of CO<sub>2</sub> 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 2019

\*\*\* Pomorzany CHP, Dolna Odra power plant, Szczecin CHP

\*\*\*\* Gdańsk CHP and Gdynia CHP

\*\*\*\*\* Wrocław CHP, Czechnica CHP, Zawidawie CHP

### 3.3. Supply markets

#### 3.3.1. Fuel purchase costs

Table: Volume and cost of purchase of fuels from third party suppliers in the first half of 2017 and 2018

Type of fuel	H1 2018		H2 2017	
	Volume (tons ths)	Cost (PLN m)	Volume (tons ths)	Cost (PLN m)
Hard coal	5 534	1 343	2 446	546
Gas (cubic metres ths)	597 333	427	368 686	266
Biomass	258	50	253	46
Fuel oil*	20	45	13	18
<b>TOTAL</b>		<b>1 865</b>		<b>876</b>

\* heavy and light

In the first half of 2018 the costs of purchasing primary fuels from providers outside the Group amounted to PLN 1 865 million and were higher by PLN 989 million than in the first half of 2017. The biggest impact on the change of fuel purchase costs in PGE Group came from the Acquired assets which are mainly hard coal-fired and gas-fired.

#### Hard coal

- higher purchase volume by 126% (PLN +689 million)

The higher volume of hard coal purchased in the first half of 2018 is mainly related to the acquisition of EDF's assets.

- higher average price by 9% (PLN +108 million)

Higher hard coal price in the first half of 2018 results from the higher prices on the mining market, both domestic and international, what translated directly into higher contractual prices.

#### Gas

- higher purchase volume by 62% (PLN +165 million)

Increased volume of gas used results from acquisition of gas-fired EDF assets (see p. 4.2.1 of this report).

- lower average price by -1% (PLN -4 million)

#### Fuel oil

- higher average price by 63% (PLN +17 million)

Higher global prices of crude oil and refinery products attributed to the significant increase of average purchase price of fuel oil.

- higher purchase volume by 54% (PLN +10 million)

Higher purchase volume in the first half of 2018 compared to the analogical period of the previous year results from impact of acquisition of assets from EDF. Higher number of generating units translated into higher number of trial run of units related to failures, planned overhauls and TSO's request to produce.

#### Biomass

- higher average price by 7% (PLN +3 million)
- higher purchase volume by 2% (PLN +1 million)

Higher volume of biomass purchase is a result of heat production in the Acquired assets.

In the first half of 2018 approximately 59% of the electricity was produced from internally sourced lignite, whose extraction price is fully controlled by PGE Capital Group. In comparable period of 2017 the production from lignite accounted for 72% of total production.

### 3.3.2. Tariffs

PGE Group companies earn part of their income based on tariffs approved by the President of the Energy Regulatory Office:

- tariffs for the sale of electricity to households (G tariff group);
- tariffs of the distribution companies;
- tariffs for heat.

#### Distribution of electricity

Methodology of and assumptions for tariffs determination were published in the document "Tariffs for the DSO for the year 2018", which was prepared and published by the President of the Energy Regulatory Office.

On December 14, 2017, the President of ERO approved a tariff for PGE Dystrybucja S.A. for electricity distribution services over the period from January 1, 2018, to December 31, 2018.

Tariff came into force on January 1, 2018.

On January 3, 2018, the President of ERO approved a change in PGE Dystrybucja S.A.'s tariff consisting of the introduction of so called an anti-smog tariff (G12as). This tariff was adjusted by the decision of the ERO President of January 16, 2018.

On February 27, 2018, in connection with the publication of the Act on Electromobility and Alternative Fuels, a change in the tariff was made in the part related to the connection to the grid of charging infrastructure for public road transport and publicly available charging stations – change is effective from March 14, 2018.

Distribution tariffs for 2018 approved by the President of the Energy Regulatory Office, contributed to changes in average tariff in particular tariff groups (calculated for revenues and volume in a given tariff year) in comparison to year 2017:

- A tariff group – decrease by 4.44%,
- B tariff group – decrease by 0.28%,
- C+R tariff group – decrease by 0.47%,
- G tariff group – decrease by 0.79%.

The change in rates for distribution services takes into account a decline in the RES fee to PLN 0/MWh in 2018 and maintaining the transition fee at the same level as in 2017. These fees are fully transferred to entities in charge of support instruments, thus they do not impact profit of the distribution companies.

Changes in average tariff in particular tariff groups (not including RES fees and transition fee) are as follows:

- A tariff group – decrease by 1.73%,
- B tariff group – increase by 2.78%,
- C+R tariff group – increase by 1.17%,
- G tariff group – increase by 0.72%.

The quality regulation elements introduced in 2016 are being continued in 2018. It has been settled that the ratios directly impacting the regulated revenue will be following key performance indicators:

- SAIDI – System Average Interruption Duration Index,
- SAIFI – System Average Interruption Frequency Index,
- Connection time.

Not meeting the levels of ratios indicated by the ERO President will result in penalty of decreasing the regulated revenue through reduction of amount of return on capital in year t+2. In the initial period no rewards are anticipated for achieving better indicators than the required ones.

Impact of quality parameters realized in 2016 is included in tariff for 2018 and the realization of 2018 parameters will be included in tariff for 2020. In accordance with the assumptions adopted by the ERO, a penalty cannot exceed 2% of regulated revenue and value of 15% of return on capital in a given year. The 2018 tariff does not include a reduction in regulated revenue from quality regulation.

#### Tariff for heat

Pursuant to the Energy Law, energy companies holding concessions set tariffs for heat and propose their duration. Conduction of proceedings concerning heat tariffs approval lies within the competence of regional branches of the Energy Regulatory Office. PGE's average sales price for district heating increased by approx. 2% from the prices in effect in the first half of 2017.

## 4. Results of PGE Capital Group

### 4.1. Key financial results of the PGE Capital Group

Key financial data	Unit	H1 2018	H1 2017	% change
Sales revenues*	PLN million	12 871	10 620	21%
<b>EBIT</b>	<b>PLN million</b>	<b>1 831</b>	<b>1 932</b>	<b>-5%</b>
<b>EBITDA</b>	<b>PLN million</b>	<b>3 675</b>	<b>3 445</b>	<b>7%</b>
Net profit for the reporting period	PLN million	1 296	1 495	-13%
LTC compensations	PLN million	-83	83	-
<i>LTC revenues</i>	<i>PLN million</i>	<i>-83</i>	<i>0</i>	<i>-</i>
<i>LTC settlements adjustment (other operations)</i>	<i>PLN million</i>	<i>0</i>	<i>83</i>	<i>-</i>
<b>Capital expenditures</b>	<b>PLN million</b>	<b>2 244</b>	<b>2 595</b>	<b>-14%</b>
Net cash from operating activities	PLN million	2 683	3 282	-18%
Net cash from investing activities	PLN million	-2 905	-591	392%
Net cash from financial activities	PLN million	-1 122	-242	364%
<b>EBITDA margin</b>	<b>%</b>	<b>29%</b>	<b>32%</b>	

Key financial data		As at June 30, 2018	As at December 31, 2017*	% change
Working capital	PLN million	-254	524	-
<b>Net debt/LTM EBITDA **</b>	<b>x</b>	<b>1.04</b>	<b>0.99</b>	

\* The Group has applied IFRS 15 since the standard's effective date i.e. since January 1, 2018, without restating the comparable data (changes introduced by IFRS 15 are described in note 4 to the interim condensed consolidated financial statements)

\*\* Data restated

\*\*\* LTM EBITDA - Last Twelve Months EBITDA

Table: Impact of one-offs on EBITDA (in PLN million).

One-offs	H1 2018	H1 2017	% change
LTC compensations	-83	83	-
Change in reclamation provision	-17	0	-
<b>Total</b>	<b>-100</b>	<b>83</b>	<b>-</b>

#### 4.1.1. Consolidated statement of comprehensive income

Chart: Key changes of recurring EBITDA in PGE Capital Group (in PLN million).

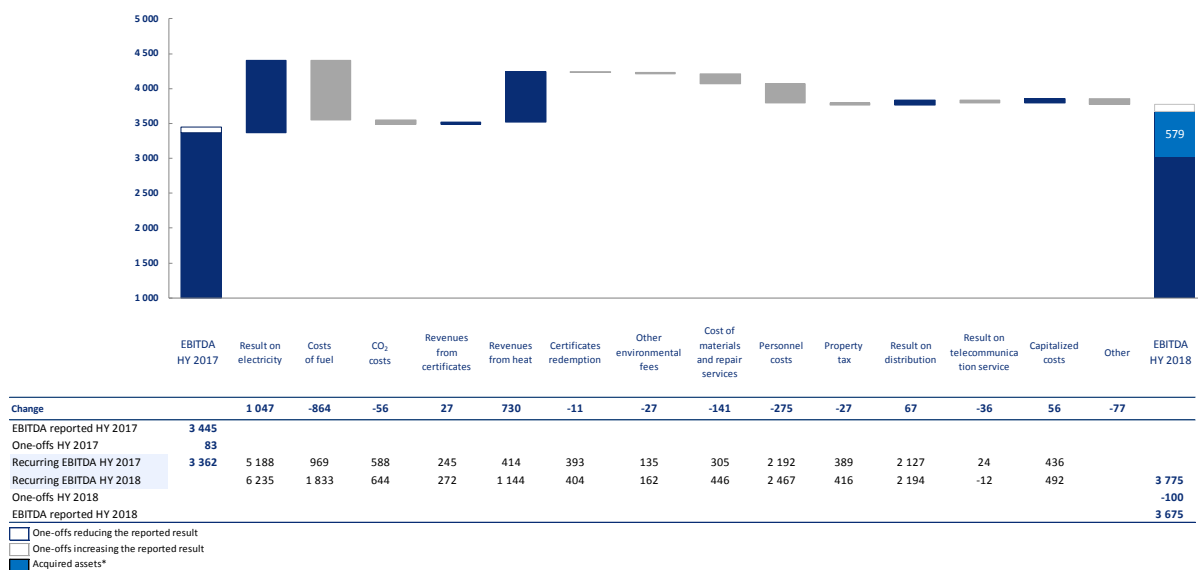
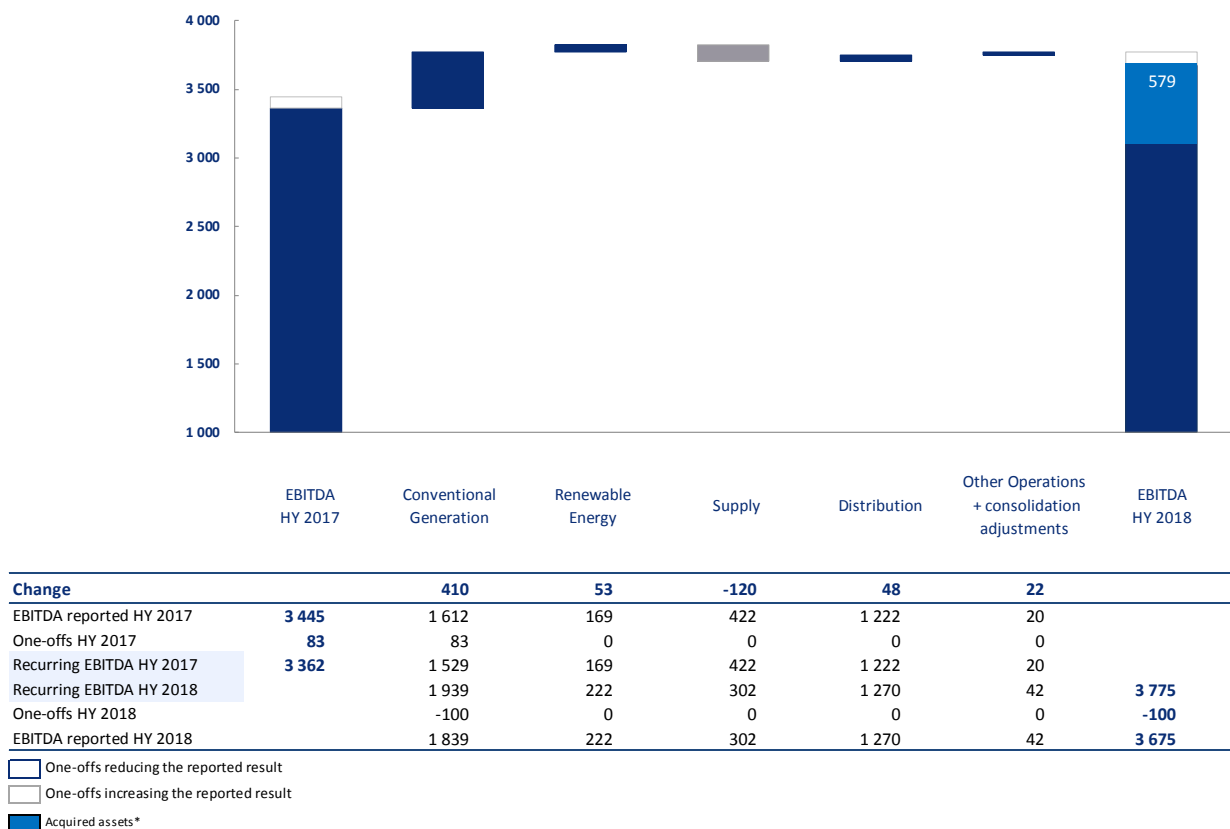


Chart: Key changes of recurring EBITDA by segments (in PLN million).



\* EBITDA of companies: PGE Energia Ciepła S.A., PGE Toruń S.A., PGE Gaz Toruń sp. z o.o., EC Zielona Góra S.A., Kogeneracja S.A., PGE Paliwa sp. z o.o., PGE Ekoserwis sp. z o.o., Torec sp. z o.o., Zower sp. z o.o., Energopomiar sp. z o.o.

#### 4.1.2. Consolidated statement of financial position

Chart: Key changes in Assets (in PLN million).

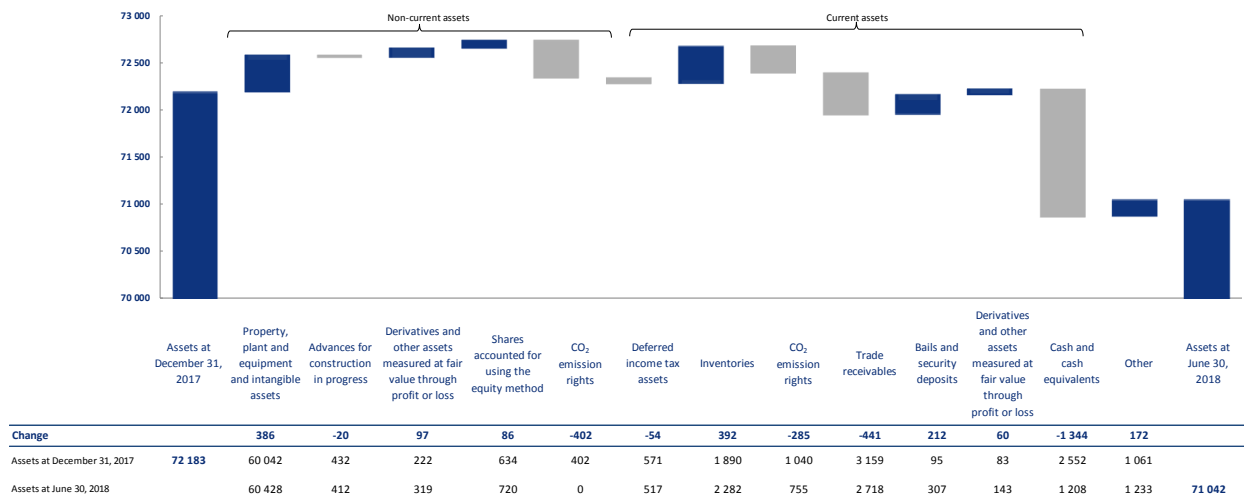
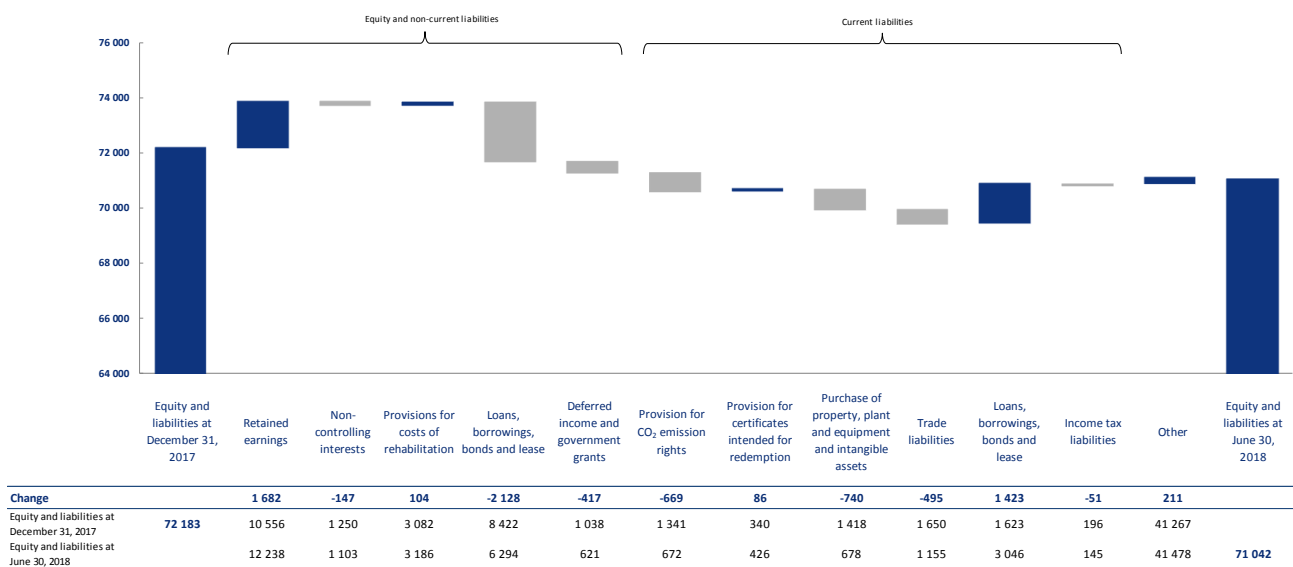


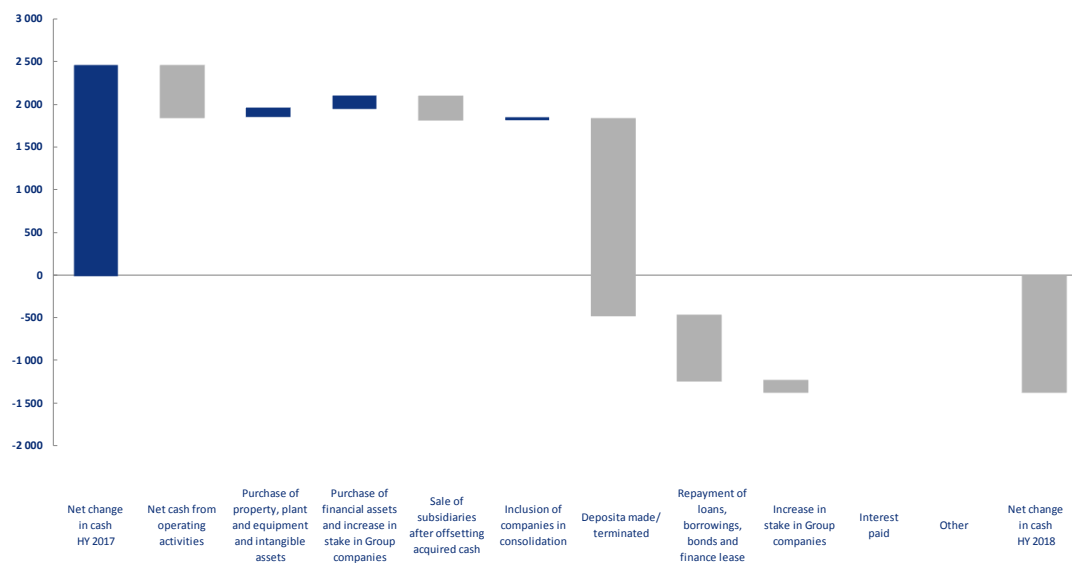
Chart: Key changes in Equity and Liabilities (in PLN million).





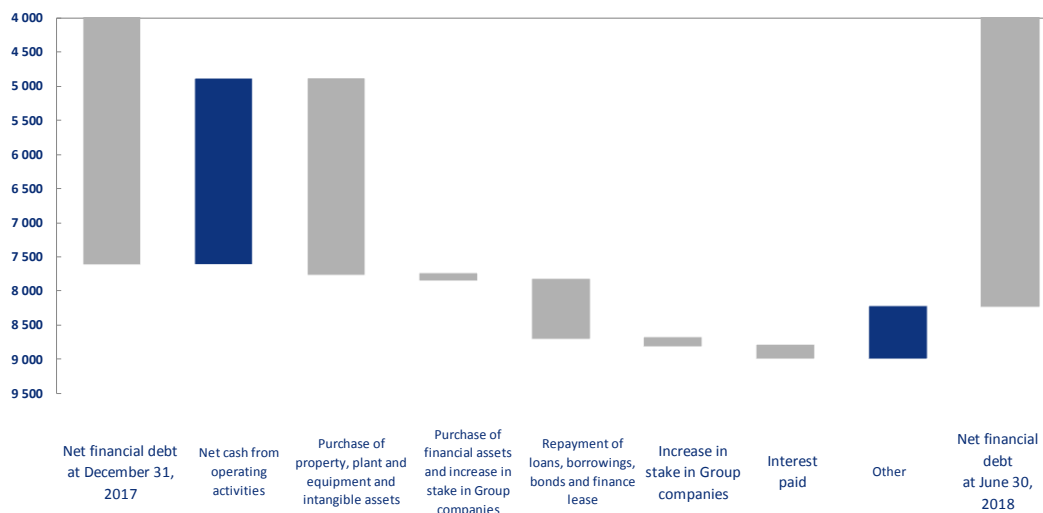
### 4.1.3. Consolidated statement of cash flows

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



	Net change in cash HY 2017	Net cash from operating activities	Purchase of property, plant and equipment and intangible assets	Purchase of financial assets and increase in stake in Group companies	Sale of subsidiaries after offsetting acquired cash	Inclusion of companies in consolidation	Deposits made/terminated	Repayment of loans, borrowings, bonds and finance lease	Increase in stake in Group companies	Interest paid	Other	Net change in cash HY 2018
Change		-599	101	137	-272	18	-2 296	-760	-111	-16	5	
Net change in cash HY 2017	2 449	3 282	-2 948	-218	272	0	2 283	-83	0	-156	17	
Net change in cash HY 2018		2 683	-2 847	-81	0	18	-13	-843	-111	-172	22	-1 344

Chart: Net debt (in PLN million).



	Net financial debt at December 31, 2017	Net cash from operating activities	Purchase of property, plant and equipment and intangible assets	Purchase of financial assets and increase in stake in Group companies	Repayment of loans, borrowings, bonds and finance lease	Increase in stake in Group companies	Interest paid	Other	Net financial debt at June 30, 2018
Change in HY 2018		-2 683	2 847	81	843	111	172	-741	
Net financial debt	7 579								8 209

## 4.2. Key operational figures of PGE Capital Group

Table: Key operational figures.

Key figures	Unit	H1 2018	H1 2017	% change	2017
Lignite extraction	Tons m	25.18	25.02	1%	49.51
Net electricity production	TWh	32.92	27.88	18%	56.79
Heat sales	PJ	29.04	10.61	174%	24.85
Sales to final customers*	TWh	20.73	19.80	5%	40.43
Distribution of electricity**	TWh	17.99	17.50	3%	35.34

\* after elimination of sales within PGE Group

\*\* with additional estimation

### 4.2.1. Balance of energy of PGE Capital Group

Table: Sales of electricity outside the PGE Capital Group (in TWh)).

Sales volume	H1 2018	H1 2017	% change	2017
<b>SALES IN TWh, including:</b>	<b>37.80</b>	<b>32.03</b>	<b>18%</b>	<b>65.78</b>
Sales to end-users*	20.73	19.80	5%	40.43
Sales on the wholesale market, including:	15.48	10.80	43%	22.67
<i>Sales on the domestic wholesale market - power exchange</i>	13.43	6.84	96%	14.66
<i>Other sales on the domestic wholesale market</i>	1.83	3.78	-52%	7.55
<i>Sales to foreign customers</i>	0.22	0.18	22%	0.46
Sales on the Balancing Market	1.59	1.43	11%	2.68

\* after elimination of internal sales within PGE Group

The higher volume of sales to end customers compared to the same period of 2017 resulted from recognition of sales generated by PGE Energia Ciepła S.A. Retail sales by Supply segment remained at a similar level (19.7 TWh). The higher sales volume on the wholesale market – exchange results mainly from placing generation capacity of the newly acquired assets. Additionally, the volume growth was driven by favourable market conditions. Sales volume on the other wholesale markets declined due to lower sales in bilateral contracts, caused by larger requirements resulting from the so-called “exchange obligation”, which led to the transfer of sales into the regulated segment and a change in regulations regarding allocating energy from renewable sources (limit on sales to obligated sellers).

## Purchases of electricity

Table: Purchases of electricity from outside of the PGE Capital Group (in TWh).

Purchases volume	H1 2018	H1 2017	% change	2017
<b>PURCHASES IN TWh, including:</b>	<b>7.12</b>	<b>6.37</b>	<b>12%</b>	<b>13,76</b>
Purchases on the domestic wholesale market – power exchange	2.76	1.05	163%	2,55
Purchases on the domestic wholesale market, other	0.18	2.26	-92%	4,43
Purchases from abroad	0.27	0.04	575%	0,21
Purchases from Balancing Market	3.91	3.02	29%	6,57

The growth in volume of purchases from the power exchange results from the recognition of newly acquired assets in sales portfolio optimisation and the exercise of early buy-back options for energy previously sold at prices below the cost of manufacture as well as due to higher trading activities being tied to greater liquidity at the TGE exchange. The decline in purchases on the domestic wholesale market – other is mainly the result of the removal of the obligation to purchase electricity from renewable energy sources of over 500 kWe. The growth in sales in the Conventional Generation segment contributed to higher purchases from the Balancing Market as a result of a higher volume of reductions forced by PSE S.A., largely due to imported electricity covering a larger share of domestic demand.

## Production of electricity

Table: Production of electricity (in TWh).

Generation volume	H1 2018	H1 2017	% change	2017
<b>ELECTRICITY HENERATION IN TWh, including:</b>	<b>32.92</b>	<b>27.88</b>	<b>18%</b>	<b>56.79</b>
Lignite-fired power plants	19.25	19.93	-3%	38.95
<i>including co-combustion of biomass</i>	0.00	0.00	-	0.00
Coal-fired power plants	7.93	4.81	65%	11.11
<i>including co-combustion of biomass</i>	0.05	0.06	-17%	0.13
Coal-fired CHP plants	2.44	0.52	369%	1.47
<i>including co-combustion of biomass</i>	0.01	0.00	-	-
Gas-fired CHP plants	2.24	1.46	53%	2.87
Biomass-fired CHP plants	0.08	0.10	-20%	0.20
Pumped-storage power plants	0.20	0.18	11%	0.44
Hydroelectric plants	0.25	0.26	-4%	0.47
Wind power plants	0.53	0.62	-15%	1.28
<i>Including Acquired assets*:</i>	5.24	-		1.58

\* Rybnik power plant, EC Gdańsk, EC Gdynia, EC Kraków, EC Wrocław, EC Czechnica, EC Zawidawie, EC Zielona Góra, EC Toruń

The main impact on the level of electricity generation in the first half of 2018, compared to the first half of 2017, was lower generation at hard coal-fired power plants. This growth results from inclusion of Rybnik power plant in generation (2.42 TWh). Higher generation at Opole power plant resulted from repair-related downtime being lower by 1 857 hours (unit no. 3 remained in medium overhaul from March 3, 2017 till May 4, 2017) and larger use of the power plant's units by PSE S.A. Higher production at Opole power plant compensated for lower output at Dolna Odra power plant, due to lower demand from PSE S.A. in the first half of 2018.

The higher production at hard coal-based CHP plants results from recognition of production of Gdańsk CHP, Gdynia CHP, Wrocław CHP, Czechnica CHP and Kraków CHP (1.95 TWh).

The growth in production at gas-fired combined heat-and-power plants results from the recognition of production of Toruń CHP, Zielona Góra CHP and Zawidawie CHP (0.87 TWh).

Production in biomass CHP plants remained at the similar level as in the first half of 2017.

Decreased production in lignite-based power plants in the first half of 2018 results from lower load of Bełchatów power plant units by 11 MW and longer downtime of units in Turów power plant (by 3 239 h) in repairs and modernisations. During the first half of 2018 unit no. 2 was in modernisation, while unit no. 2 has been in modernisation since May 1, 2018.

Production at wind power plants was lower than in the first half of 2017 resulting mainly from worse windiness.

Production at hydro power plants was at slightly lower level compared to the first half of 2017.

Slightly higher production in pumped storage power plants results from the nature of these generation units, which in the first half of 2018, were used to a higher extent by PSE S.A.

#### **4.2.2. Sales of heat**

In the first half of 2018 the heat sales in PGE Capital Group totalled 29.04 PJ and were higher by 18.43 PJ than in the first half of 2017. The above growth includes the sales of heat by the Acquired assets from Conventional Generation segment, which were not recognised in the first half of 2017 (18.81 PJ) and lower sales by branches of PGE GiEK S.A. (-0.38 PJ), what resulted largely from increased demand for heat caused by the higher average outside temperatures.

### 4.3. Key financial results in the business segments

Table: Breakdown of the Group's revenues by business segments in the first half of 2018 and 2017.

PLN million	H1 2018	H1 2017	% change
Conventional Generation	8 281	5 650	47%
Renewables	402	369	9%
Supply	6 918	7 630	-9%
Distribution	2 920	3 175	-8%
Other Operations	299	251	19%
<b>TOTAL</b>	<b>18 820</b>	<b>17 075</b>	<b>10%</b>
<b>Consolidation adjustments</b>	<b>-5 949</b>	<b>-6 455</b>	<b>-8%</b>
<b>TOTAL AFTER ADJUSTMENTS</b>	<b>12 871</b>	<b>10 620</b>	<b>21%</b>

Table: Key financial figures for each business segment in the first half of 2018 (after intrasegmental eliminations).

PLN million	EBITDA	EBIT	Capital expenditures	Assets of the segment*
	H1 2018			
Conventional Generation	1 839	743	1 580	44 084
Renewables	222	95	48	3 235
Supply	302	290	5	4 551
Distribution	1 270	688	596	17 986
Other Operations	37	-8	71	738
<b>TOTAL</b>	<b>3 670</b>	<b>1 808</b>	<b>2 300</b>	<b>70 594</b>
<b>Consolidation adjustments</b>	<b>5</b>	<b>23</b>	<b>-56</b>	<b>-3 256</b>
<b>TOTAL AFTER ADJUSTMENTS</b>	<b>3 675</b>	<b>1 831</b>	<b>2 244</b>	<b>67 338</b>

\* see note 6.1 to the the interim condensed consolidated financial statements

Table: Key financial figures for each business segment in the first half of 2017 (after intrasegmental eliminations).

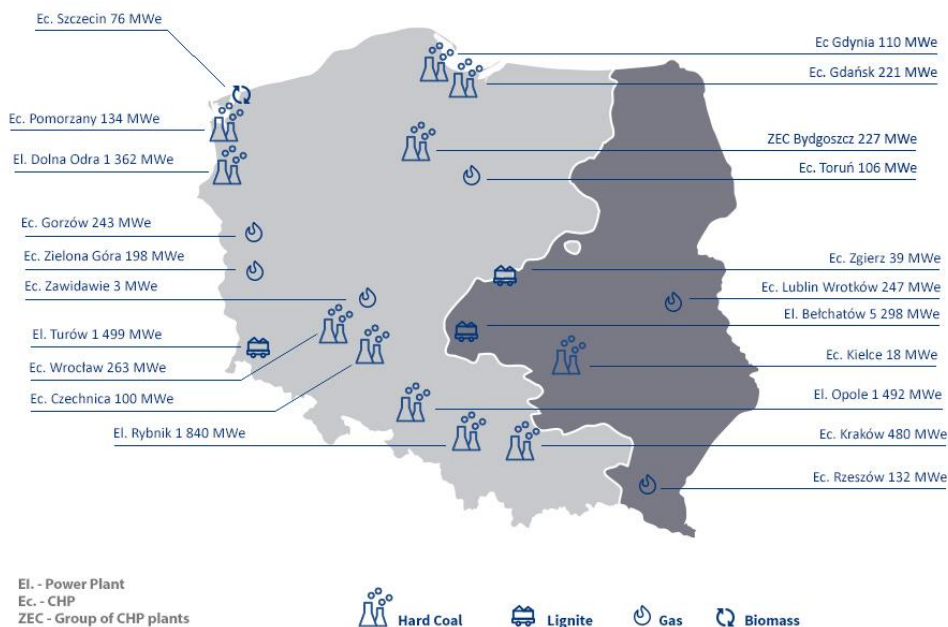
PLN million	EBITDA	EBIT	Capital expenditures	Assets of the segment*
	H1 2017			
Conventional Generation	1 612	855	1 906	36 653
Renewables	169	37	28	3 547
Supply	422	409	5	6 430
Distribution	1 222	642	629	17 349
Other Operations	20	-31	53	609
<b>TOTAL</b>	<b>3 445</b>	<b>1 912</b>	<b>2 621</b>	<b>64 588</b>
<b>Consolidation adjustments</b>	<b>0</b>	<b>20</b>	<b>-26</b>	<b>-5 325</b>
<b>TOTAL AFTER ADJUSTMENTS</b>	<b>3 445</b>	<b>1 932</b>	<b>2 595</b>	<b>59 263</b>

\* see note 6.1 to the the interim condensed consolidated financial statements

### 4.3.1. Conventional Generation segment

#### Assets

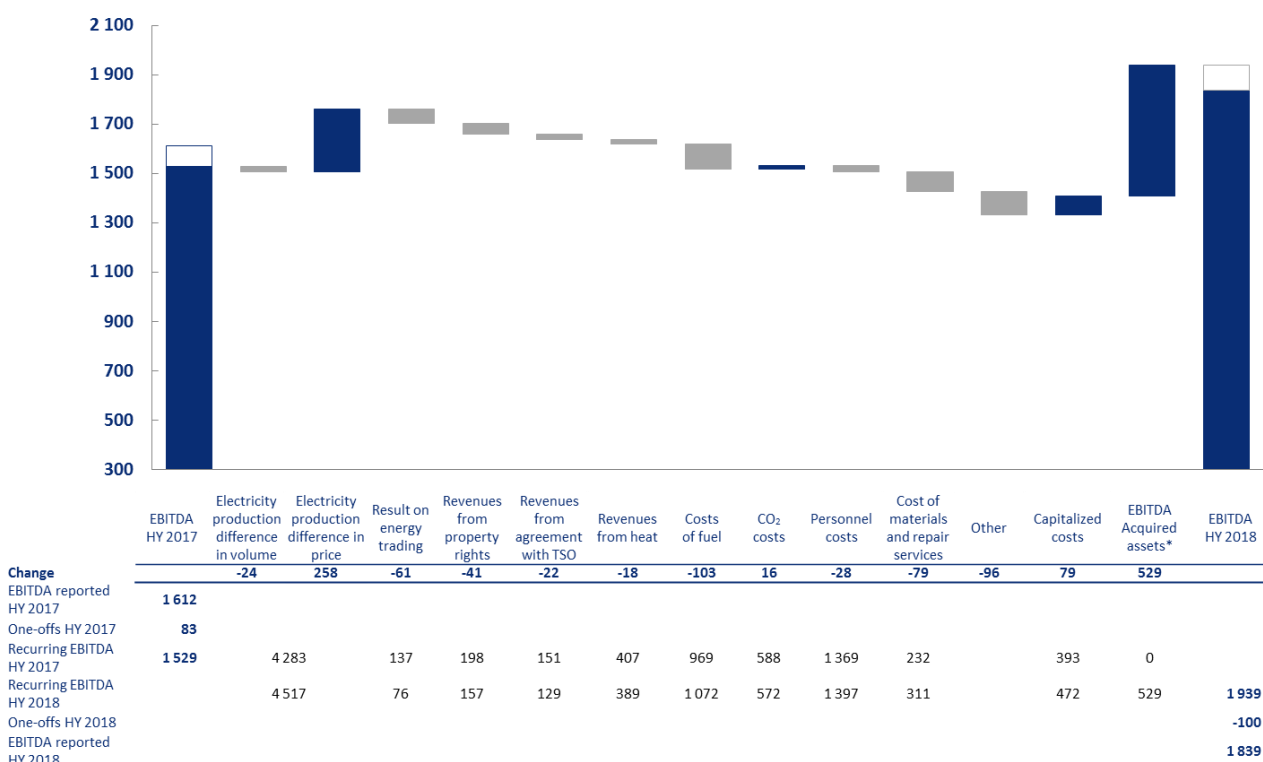
Diagram: Main assets of the Conventional Generation segment.



Key financial figures.

PLN million	H1 2018	H1 2017	% change
Sales revenues	8 281	5 650	47%
EBIT	743	855	-13%
EBITDA	1 839	1 612	14%
Capital expenditures	1 580	1 906	-17%

Chart: Key changes of EBITDA in Conventional Generation (in PLN million).

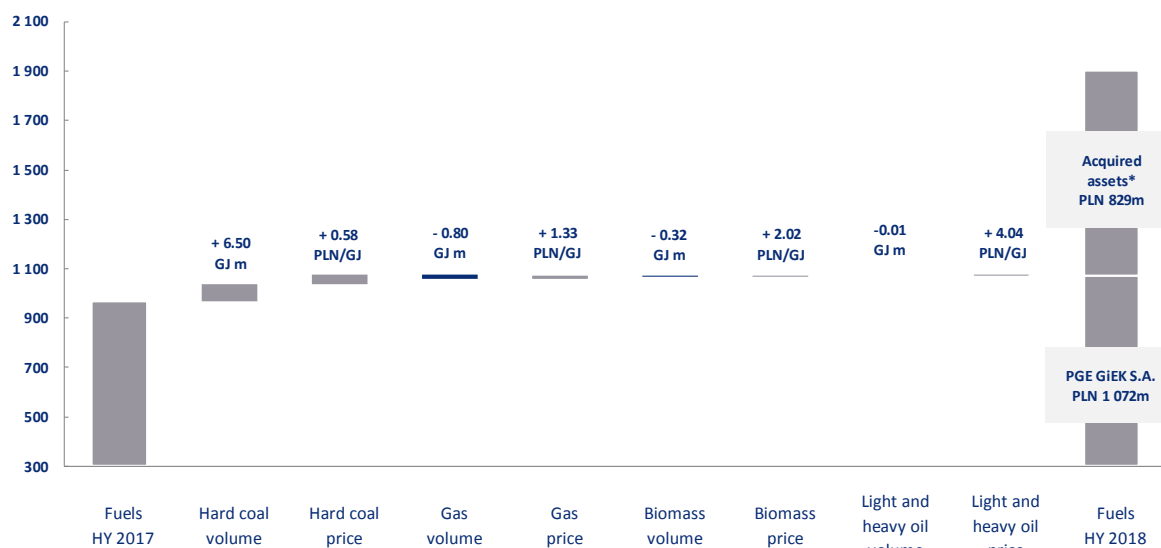


\*EBITDA of companies: PGE Energia Ciepła S.A., PGE Toruń S.A., PGE Gaz Toruń sp. z o.o., EC Zielona Góra S.A., Kogeneracja S.A.

Key factors affecting the results of Conventional Generation segment in the first half of 2018 compared to the results of the first half of 2017 included:

- **Lower electricity sales volume** in PGE GiEK S.A. by 0.13 TWh, mainly as a result of lower production in Bełchatów power plant and Turów power plant (see p. 4.2.1 of the foregoing report).
- **Increase in electricity sales prices**, which caused an increase in revenue from sales. The average realised sales price for electricity at the Conventional Generation segment excluding the sales to final off-takers in the first half of 2018 was PLN 173/MWh (PLN 174/MWh including the impact of the Acquired assets), compared to PLN 163/MWh in the first half of 2017.
- **Lower result on electricity trading**, including higher electricity trading volume by 1.56 TWh (change on volume PLN +70 million) and lower margin realized on electricity trading by PLN 28/MWh (change on price PLN -131 million).
- **Lower revenues from certificates**, due to: (i) lack of revenues from the sale of white certificates, which were recognized in the first half of 2017, (ii) sale price of green certificates generated at Szczecin CHP lower by PLN 199/MWh, (iii) average sale price of yellow certificates lower by PLN 6/MWh.
- **Lower revenues from ancillary control services**, mainly lower revenues from Operational Capacity Reserve due to lower volume of OCR in Opole, Dolna Odra and Bełchatów power plant (unit no. 1) due to higher trading factor of those power plants.
- **Lower revenues from sales of heat**, resulting from decreased demand for heat by off-takers caused by higher average daily temperatures.
- **Higher fuel consumption costs**, mainly hard coal. It is mainly a result of higher electricity production in Opole power plant (see p. 4.2.1 of this report) and higher prices of hard coal. Main changes on different types of fuel are presented on the chart below.
- **Lower CO<sub>2</sub> costs** as a result of lower unit cost of allowances. This favourable effect was lowered by unfavourable impact of lower allocation of allowances granted free of charge and higher emission of CO<sub>2</sub> (see note 4 to the interim condensed consolidated financial statements).
- **Higher personnel expenses** mainly as a result of higher remuneration fund and salary-related expenses.
- **Higher repairs expenses**, mainly higher costs of materials and repair services in subsidiaries as a result of a larger range of investment tasks realized for PGE GiEK S.A.
- **Higher capitalised costs**, mainly as a result of greater involvement of own services into investment execution.
- EBITDA generated by the Acquired assets in the first half of 2018.

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



Change	70	37	-18	14	-6	4	0	2	
Fuels HY 2017	969	637	265	47	16				
Fuels HY 2018		744	261	45	18				1 072

\*Acquired assets: Rybnik power plant, Gdańsk CHP, Gdynia CHP, Kraków CHP, Wrocław CHP, Czechnica CHP, Zawidawie CHP, Zielona Góra CHP, Toruń CHP

## Capital expenditures

Table: Capital expenditures incurred in Conventional Generation segment in the first half of 2018 and 2017.

PLN million	H1 2018	H1 2017	% change
Investments in generating capacities, including:	1 198	1 660	-28%
▪ Development	701	1 221	-43%
▪ Modernisation and replacement	497	439	13%
Purchase of finished capital goods	12	30	-60%
Vehicles	1	1	0%
Other	13	11	18%
Acquired assets*	189	-	-
<b>TOTAL</b>	<b>1 413</b>	<b>1 702</b>	<b>-17%</b>
Capitalized costs of overburden removal in mines	167	204	-18%
<b>TOTAL with capitalized costs of overburden removal</b>	<b>1 580</b>	<b>1 906</b>	<b>-17%</b>

\*PGE Energia Ciepła S.A., PGE Toruń S.A., PGE Gaz Toruń sp. z o.o., EC Zielona Góra S.A., Kogeneracja S.A.

Highest capital expenditures in the first half of 2018 were incurred for the following projects:

- construction of units 5 and 6 in Opole power plant
  - construction of new unit in Turów power plant
  - construction of a Thermal Processing Installation with Energy Recovery at Rzeszów CHP
  - modernisation of units 1-3 in Turów power plant
  - construction of suspension production and transport installation from u. 14 in Bełchatów power plant
  - expansion of flue gas desulphurisation system for OP 230 boilers no. 3 and 4 at ZEC Bydgoszcz
  - change in technology of furnace waste storage in Bełchatów power plant
  - construction of flue gas denitrogenation system for OP 230 boilers no. 3 and 4 at ZEC Bydgoszcz
  - shaping of reservoir no. 4 at KWB Bełchatów mine's internal heap
- PLN 380 million;  
 PLN 215 million;  
 PLN 103 million;  
 PLN 86 million;  
 PLN 25 million;  
 PLN 24 million;  
 PLN 20 million;  
 PLN 17 million;  
 PLN 16 million.



Key developments in the first half of 2018 in the Conventional Generation segment:

- Decision on environmental conditions secured for project "Lignite mining at Złoczew deposit".
- Use permit secured for dam on reservoir Witka.
- Construction of both cooling towers for units 5 and 6 at Opole power plant completed.
- A SCR system for unit A at Pomorzany power plant was put into service in April 2018.
- Contracts were executed with contractors for the modernisation of electrostatic precipitators at units from 1 to 4 and for NOx emission reduction to below 150 mg/Nm<sup>3</sup> at units 1, 2, 4 at Opole power plant in order to adapt them to BAT conclusions.
- Unit 2 at Turów power plant was launched and synchronised with the grid on June 16, 2018, following the completion of modernisation work.
- Contracts were executed with contractors to install sealed desulphurisation hatches at units 2 and 5-11, expand the limestone mill and adapt units 2-12 and 14 to BAT conclusions concerning mercury and ammonia monitoring at Bełchatów power plant.
- Contracts were executed with contractors for a limited modernisation of unit 2 at Bełchatów power plant.

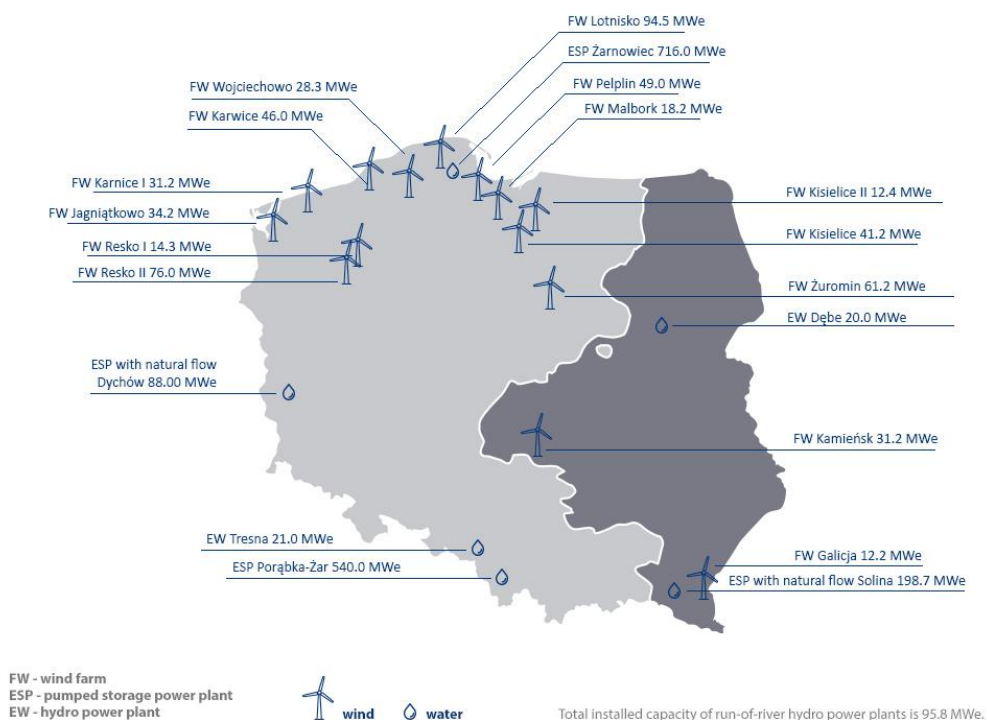
### 4.3.2. Renewables segment

#### Assets

The PGE Capital Group's operations in renewable energy are managed by the PGE Energia Odnawialna S.A. 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.

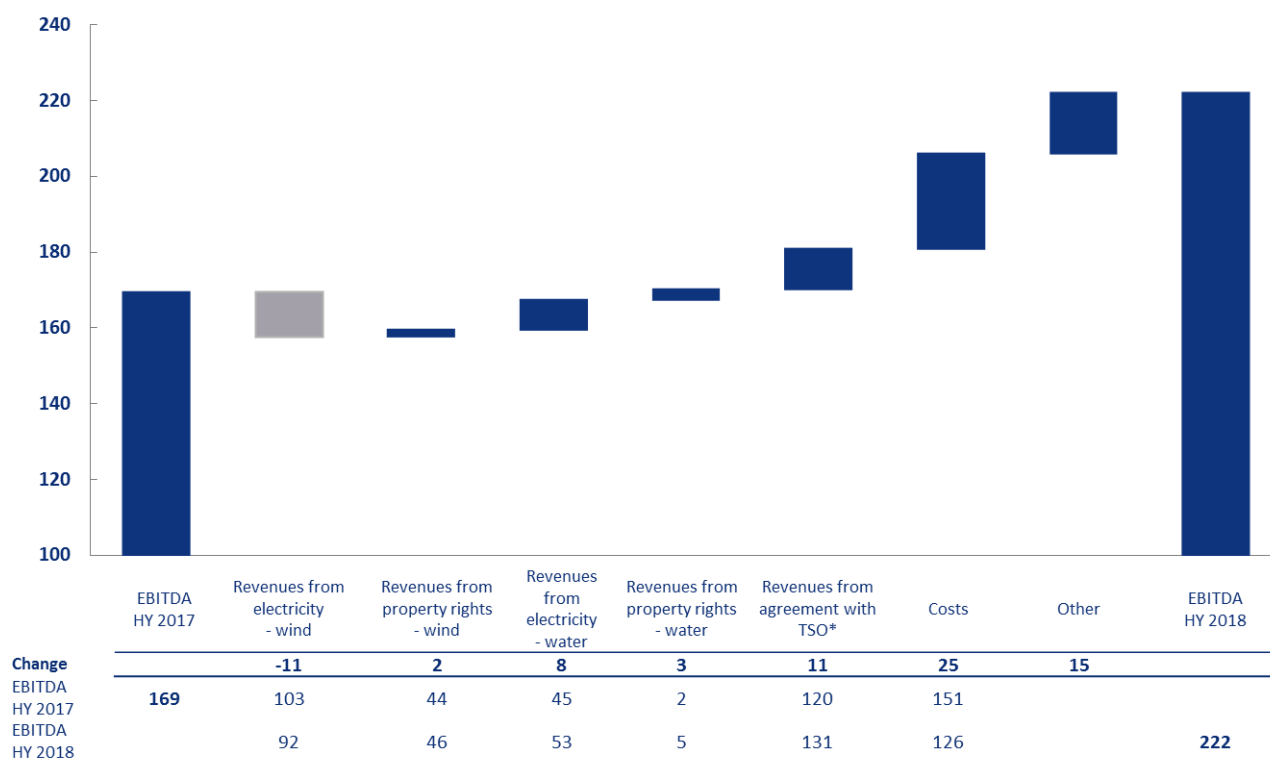


## Key financial figures

Table: Key figures for Renewables.

PLN million	H1 2018	H1 2017	% change
Sales revenues	402	369	9%
EBIT	95	37	157%
EBITDA	222	169	31%
Capital expenditures	48	28	71%

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



\* excluding revenues and costs relating to balancing market not affecting EBITDA result

Key factors affecting the results of Renewables in the first quarter of 2018 compared to the first half of 2017 were:

- **Decrease in revenues from electricity sales from wind farms** resulting mainly from: (i) unfavourable wind conditions in the analysed period, what translated into lower volume of electricity sales by 95 GWh compared to the first half of 2017.
- **The increase of revenues from sales of certificates from wind farms** resulting from: (i) valuation of certificates at a price approx. PLN 17/MWh higher in the first half of 2018 than in the first half of 2017, which increased revenue by approx. PLN 4; (ii) negative adjustment of certificates sold and revaluation of inventories, what attributed to the decline of revenues by approx. PLN (-) 2 million.
- **The increase of sales revenues of electricity from hydro power plants** mainly due to price higher by PLN 29/MWh in comparison to the first half of 2017.
- **The increase of revenues from sales of certificates from hydro power plants** resulting from valuation of ongoing production of certificates at a price higher by approx. PLN 34/MWh in the first half of 2018 compared to the first half of 2017.
- **Higher sales revenues from ancillary control services** (agreement with PSE S.A.) result mainly from higher tariff for active cold intervention reserve service.
- **Favourable deviation in costs** results mainly from mainly from a correction of property tax concerning wind and lower costs of services of Trading and Technical Operator and trade balancing.
- **Favourable result in the Other item** results mainly from penalties for failure to perform the contract for sale of certificates to Enea S.A. and Energa Obrót S.A.

## Capital expenditures

Table: Capital expenditures incurred in Renewables segment in the first half of 2018 and 2017.

PLN million	H1 2018	H1 2017	% change
Investments in generating capacities, including:	47	25	88%
▪ Development	13	10	30%
▪ Modernisation and replacement	34	15	127%
Other	1	3	-67%
<b>TOTAL</b>	<b>48</b>	<b>28</b>	<b>71%</b>

### 4.3.3. Distribution segment

PGE Dystrybucja S.A. operates in the area of 122,433 sq. km and delivers electricity to approximately 5.4 million.

Diagram: Area of PGE distribution grid.



### Key financial figures

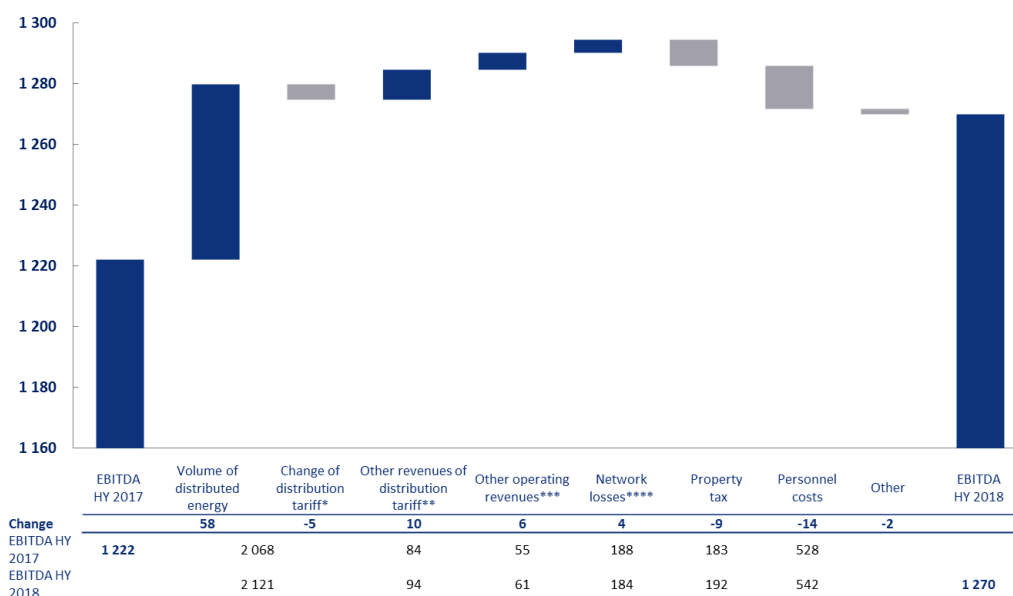
Table: Key figures for Distribution.

PLN million	H1 2018	H1 2018*	H1 2017**	% change	% change *
Sales revenues*	2 920	3 229	3 175	-8%	2%
EBIT	688	693	642	7%	8%
EBITDA	1 270	1 275	1 222	4%	4%
Capital expenditures	596	596	629	-5%	-5%

\* Data restated – IFRS 15 not applied in 2018

\*\* The Group has applied IFRS 15 since the standard's effective date i.e. since January 1, 2018, without restating the comparable data (changes introduced by IFRS 15 are described in note 4 to the interim condensed consolidated financial statements)

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



\* Except costs of transmission by PSE S.A.

\*\* Reactive power, excess capacity, additional services

\*\*\* Revenues from connection fee, resumption of supplies, transit services balance, revenues from illegal electricity consumption and additional fees

\*\*\*\* Adjusted for revenues from the Balancing Market

Key factors affecting the results of Distribution in the first quarter of 2018 compared to the results of the first half of 2017 included:

- **Increased volume of distributed energy** by 488 GWh, resulting from – inter alia – higher number of customers measured by power take-off points (by approx. 47 thousand) in comparison to the first half of 2017 and growth of the economic activity of customers, mainly from group A, in the area of operation of PGE Dystrybucja S.A.
- **A slight drop of the average rate** by approximately PLN 0.3/MWh after decreasing revenues by cost of fees for PSE S.A.
- **Increase of other revenues** mainly from passive power and excessive capacity what results from behaviour of off-takers, whose power consumption is higher than volume contracted in the agreement with PGE Dystrybucja S.A.
- **Growth in other revenue from operating activities** mainly included the balance of transmission services as a result of an increase in the quantity of electricity delivered over the quantity of electricity received from neighbouring Distribution System Operators by approx. 352 GWh.
- **Lower costs of energy to cover balancing difference** as a result of a decline in the volume of balancing difference by 11 GWh and the recognition of energy 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 current year.
- **Increase in personnel costs**, resulting largely from an completed process to optimise.
- **Change in other** resulting mainly from higher costs: (i) fees for situating equipment within a road lane as a result of an increase in the base for calculating these fees and an increase in rates, (ii) transmission-related fees for State Forests as a result of changes in land tax charged by State Forests offices.

### Capital expenditures

Table: Capital expenditures incurred in Distribution segment in the first half of 2018 and 2017.

PLN million	H1 2018	H1 2017	% change
MV and LV power networks	240	193	24%
110/ MV and MV/MV	41	68	-40%
110 kV power lines	15	13	15%
Connection of new off-takers	218	226	-4%
Purchase of transformers and energy counters	38	71	-46%
IT, telemechanics and communication	24	38	-37%
Other	20	20	0%
<b>TOTAL</b>	<b>596</b>	<b>629</b>	<b>-5%</b>

#### 4.3.4. Supply segment

##### Key financial figures

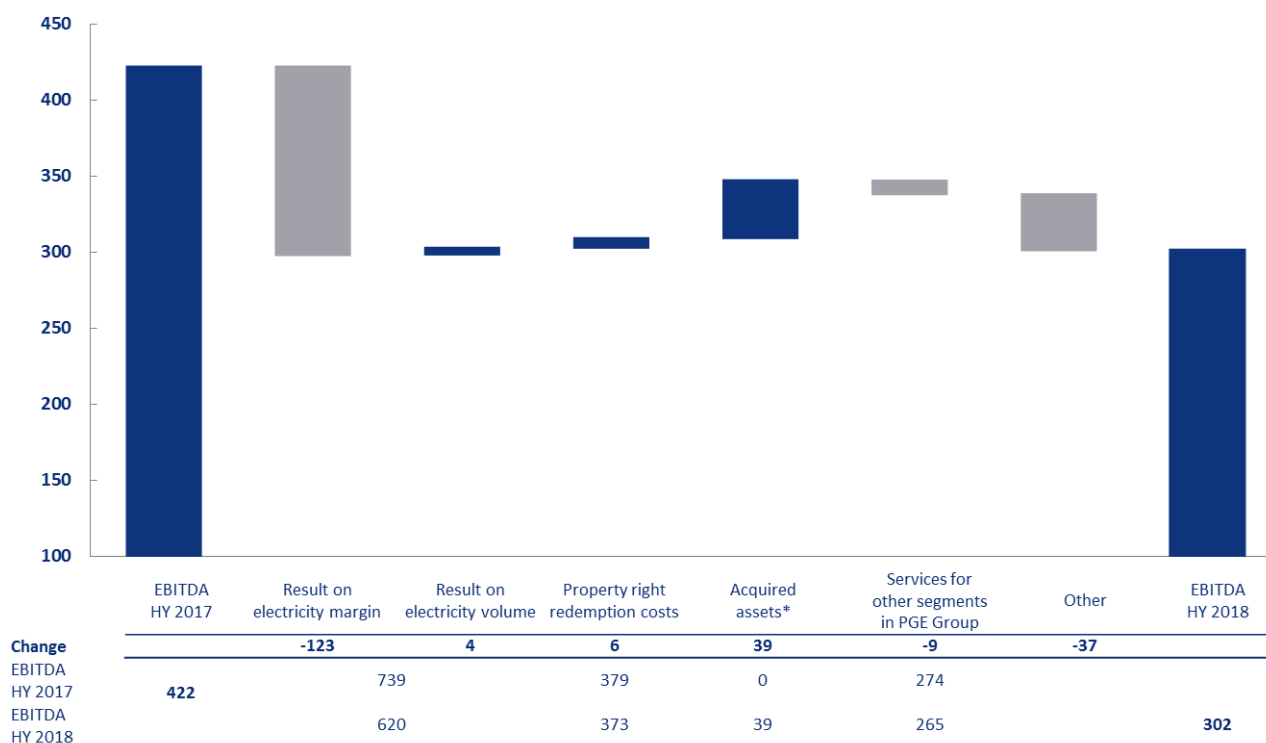
Table: Key figures for Supply.

PLN million	H1 2018	H1 2018*	H1 2017**	% change	% change *
Sales revenues*	6 918	8 936	7 630	-9%	17%
EBIT	290	290	409	-29%	-29%
EBITDA	302	302	422	-28%	-28%
Capital expenditures	5	5	5	0%	0%

\* Data restated – IFRS 15 not applied in 2018

\*\* The Group has applied IFRS 15 since the standard's effective date i.e. since January 1, 2018, without restating the comparable data (changes introduced by IFRS 15 are described in note 4 to the interim condensed consolidated financial statements)

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



\*PGE Paliwa sp. z o.o.

Key factors affecting EBITDA of Supply segment in the first quarter of 2018 compared to the first half of 2017 included:

- **Lower result from electricity** by PLN 119 million resulting mainly from achieving lower unit margin on sale of electricity, related to increase of prices on the wholesale market (particularly on spot market), after which balancing of electricity demand resulting from sales to final off-takers partly occurred.
- **Decrease in costs to redeem certificates**, mainly as a result of lower market prices for green, yellow and red certificates, partly compensated by increased demand for certificates stemming from increased obligation to redeem green, yellow and purple certificates.
- **Decrease of revenues from services performed within the Group** resulting from the change of settlement method between the companies (PLN -34 million), partly compensated by the increase of revenues from the Agreement for Commercial Management of Generation Capacities ("ZHZW") due to higher trading volume by 1.5 TWh and higher sale and purchase prices of electricity under management.
- **Lower result in other** mainly as a result of: (i) lower revenue from wind farm balancing services (PLN 15 million), (ii) higher operating costs in the segment (PLN 19 million).

#### 4.3.5. Other operations

##### Key financial figures

Table: Key figures for Other operations.

PLN million	H1 2018	H1 2017	% change
Sales revenues	299	251	19%
EBIT	-8	-31	-
EBITDA	37	20	85%
Capital expenditures	71	53	34%

**Increase in the EBITDA result of the Other operations segment** by approx. PLN 17 million was mainly connected with the EBITDA of PGE Systemy S.A. higher by approx. PLN 10 million as a consequence of increasing the range of services provided for companies from the Group belonging to other segments.

Capital expenditures

Capital expenditures in Other Operations in the first half of 2018 amounted to PLN 71 million compared to PLN 53 million in the first half of 2017.

Within the above amount, the highest capital expenditures in the first half of 2018 were incurred by the following companies:

- PGE EJ 1 sp. z o.o. – for nuclear project development PLN 40 million;
- PGE Systemy S.A. – for IT infrastructure and software development PLN 28 million.



## 5. Risks and opportunities

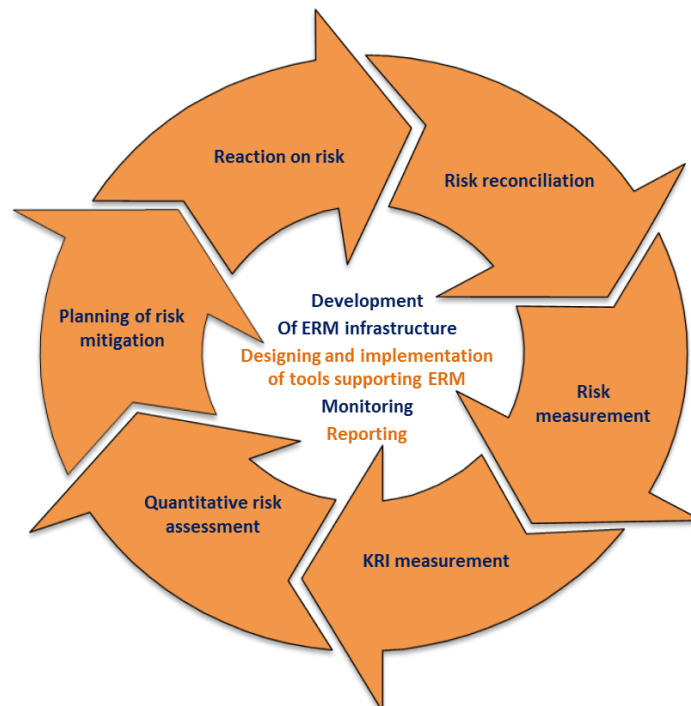
### 5.1. Risk management

PGE S.A., as the Corporate Centre managing the Group, creates and implements integrated risk management architecture at PGE Group. In particular, it shapes PGE Group's risk management policies, standards and practices, designs and develops internal IT tools to support these processes, specifies global risk appetite and adequate limits as well as monitors these.

PGE Capital Group companies, as well as other entities from the electrical and power sector, are exposed to a number of risks and threats resulting from the specific operating activities and operating in specific market and regulatory environment.

In PGE Group risk management process is pursued based on the GRC (Governance - Risk - Compliance) model. It allows adaptation and integration of each of the operational areas at all levels of management. Having established a top-level Risk Committee, which reports directly to the Management Board, supervision over the effectiveness of risk management in the Group is ensured. Function definition within corporate risk management allows an independent assessment of particular risks, their impact on PGE Group and limiting and controlling major risks using the capital exposed to risk concept via dedicated instruments. Formation of a separate compliance function within the Group guarantees that PGE Group's activities are in line with legal conditions and ensures observance of the adopted internal standards.













The PGE Capital Group has consequently developed a comprehensive risk management system. Mechanism allowing identification of areas exposed to risk and risk level measurement methods are constantly verified and developed. Thanks to that, the significant risks concerning various areas of operations are identified and kept within the assumed limits by reducing negative effects of such risks and by taking preventive or corrective measures, in accordance with the below cycle.



## 5.2. Risk factors and mitigating actions

The main risks and threats of PGE S.A. and the PGE Group are presented below along with their assessment and outlook in the horizon of the next year.

Risk level	Risk outlook					
	low	medium	high	decrease	growth	stable
low level	Risk does not pose a threat and may be tolerated,					
medium level	Risk which needs preparation of the proper reaction based on analysis of costs and benefits,					
high level	Intolerable risk, which needs immediate and active reaction, leading simultaneously to limitation of possible consequences and of probability of occurrence thereof.					
<b>Market and product risks</b>	<b>Prices of electricity and related products</b> – resulting from a lack of certainty with regard to the future levels and volatility of commodity prices relative to open contract positions - this particularly concerns electricity and associated products (property rights, CO2 emission allowances).					
Related to prices and volumes of offered products and services	<b>Electricity sales volumes</b> – this risk derives from a lack of certainty with regard to the conditions determining the demand and supply of electricity, directly affecting the volume of market sales by PGE Group.					
	<b>Tariffs (regulated prices)</b> – resulting from the requirement to approve rates for distribution services and electricity and heat prices for particular groups of entities.					
	<b>Failures</b> – connected with the operation and degradation over time of energy equipment and facilities (maintenance and repair work, diagnostics)					
<b>Property risks</b>	<b>Damage to property</b> – connected with the physical protection of energy equipment and facilities against destructive external factors (including fire, weather phenomena and intentional damage).					
Related to development and maintenance of the assets	<b>Investment and development</b> – connected with strategic plans for expanding the generation, distribution and sales potential as well as on-going investments.					
	<b>Electricity and heat production</b> – connected with production planning and impact of the factors that determine production capacities.					
	<b>Fuel management</b> – connected with uncertainty regarding the costs, quality, timeliness and volumes of fuel supply (mainly coal) and production raw material as well as the effectiveness of inventory management processes.					
<b>Operational risks</b>	<b>Human Resources</b> – pertaining to provision of employees with the relevant experience and competences, who are capable of performing specific tasks.					
	<b>Social dialogue</b> – connected with a failure in achieving agreement between the Group's management and employees, what could lead to strikes/collective labour disputes.					
	<b>Legal changes in support systems</b> – connected with uncertainty as to the future shape of the support system for production of certified energy.					
<b>Regulatory and legal risks</b>	<b>Purchase of certificates and CO2 allowances</b> - resulting from the possible changes to the statutory requirement for electricity sellers to purchase a specified quantity of property rights and to uncertainty with regard to volume of CO2 emission rights granted free of charge in future.					
	<b>Environmental protection</b> – resulting from industry regulations specifying which "environmental" requirements energy installations should meet and what the principles for using the natural environment are. The future environmental regulations and uncertainty concerning their final shape (in particular with regard to the revision of BAT / BREF) may translate into a change in the level of capital expenditures of the PGE Group.					
	<b>Unresolved legal status</b> – connected with difficulties in respect of land acquisition or access to land in the course of new investments (particularly in the Distribution segment).					

	<b>Concessions</b> – resulting from the statutory requirement to hold concessions with regard to conducted operations.		
	<b>Discriminatory activities</b> – connected with application by the Group of practices that limit or eliminate competition and infringe on legal regulations or consumer interests.		
<b>Financial risks</b>			
<b>Related to finance management</b>	<b>Credit risk</b> – connected with the counterparty default, partial and/or late payment of receivables or a different type of breach of contractual conditions (for example failure to deliver/collect goods or failure to pay for any associated damages or contractual penalties).		
	<b>Liquidity risk</b> – connected with the possibility of losing the ability to meet current liabilities and obtaining financing sources for business operations.		
	<b>Interest rate risk</b> – resulting in particular from the negative impact of changes in market interest rates on PGE Group's cash flows generated by floating-rate financial assets and liabilities.		
	<b>Foreign exchange risk</b> – understood in particular as risk that PGE Group's cash flows denominated in currencies other than the functional currency are exposed to due to negative exchange rate movements.		

The main risk mitigation actions for the PGE Group are presented below along with the description of the main tools used for the management of the given risk.

### Market and product risks

<b>Impact:</b> revenues and product and service offerings	<p><b>Measures:</b> PGE Group has rules for managing market risk (price- and volume-related), which include a global risk appetite measure, VaR-based position limits and management of consolidated exposure to commodity pricing risk through mechanisms for protection against risk exceeding acceptable levels. Those rules provide consistent guidance in respect of process organisation in the context of commercial strategy and mid-term planning. PGE Group follows rules pertaining to a strategy for hedging key exposures in the area of electricity and related product trading that correspond to the adopted risk appetite in the mid-term. Position hedging levels are established with consideration given to the results of analysing pricing risk in respect of electricity and related products. Target hedging levels are specified taking into consideration the Group's financial standing, including in particular its strategic objectives.</p> <p>PGE Group researches, monitors and analyses the electricity and related products markets in order to optimally use its generation, distribution and selling capacities.</p> <p>New products are introduced on the retail market and actively promoted through nationwide marketing campaigns. Maintaining a diverse product portfolio and focusing efforts on tailoring its offering to the market, the Group diversifies channels used to reach the end-customers and diversifies target groups with account take to client's volume potential. Efforts aimed at current clients retention are based on a model consisting of a diversified portfolio of customer loyalty schemes and client-acquisition activities. Portfolio includes also special offers dedicated to former clients who moved over to the competitors, as well as industry offerings dedicated to specific types of economic activity. PGE Group also introduces bundled offers. Particular attention is paid to ensuring a high level of customer service by developing employees' competences and building relations with business and retail clients. Having implemented tools to support these processes, the Group effectively manages information flows, which directly translates into comfortable client relations as well as better sales planning and organisation.</p>
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### Operational risks

**Impact:** costs

**Measures:** PGE Group's results are to a large extent dependent on the costs incurred in the course of operations. The Group optimises costs inter alia through monitoring of fuel prices and reserves and securing supply through long-term contracts with suppliers and through price fixing formulas. Inspections, repairs and modernisation of the existing assets optimise equipment lifecycles and required availability of key components of those assets. Level of costs is affected by securing CO<sub>2</sub> emission allowances partly free of charge and purchase of lacking allowance with the assumption of securing the margin on sales.

An intensive and effective dialogue is also carried out in order to avoid escalation of potential disputes with the social partners and to work out the most favourable solutions with regard to employment and employment costs within PGE Capital Group connected therewith.

### Property risks

**Impact:** assets

**Measures:** PGE Group effectively pursues a strategy for building up and modernization of its production capacities. The Group diversifies current structure of the production sources due to energy generation technology. Currently PGE Group is running two key investments (Opole, Turów) alongside a number of grid investments, as well as modernisation and replacement projects. We are continuously carrying out maintenance and repair work. Our main generation assets were insured against failure and damage to property. The reliability of the power supply to the end users has been systematically improved.

### Regulatory and legal risks

**Impact:** compliance area

**Measures:** PGE Group's operations are subject to a host of national and international laws and regulations. Monitoring of the changes being introduced or proposed provides that our operations in key business segments are carried in compliance with the law and that PGE Capital Group has solutions which take into account potential changes in the legal environment. PGE S.A. is one of the members of the Polish Electricity Committee that opened its office in Brussels. Through the Committee's operations, PGE S.A. actively influences proceeding and shaping of EU law and engages a dialogue with the EU institutions.

The Group adapts its internal regulations and practices to make sure that the activities are in compliance with the power sector regulations and binding law.

The extraction of fossil fuels as well as the production and distribution of electricity and heat have impact on the environment therefore the Group continuously improves its activities aimed at protecting and improving the state of the environment by implementing technological and organisational solutions ensuring efficient and effective management in this area.

### Financial risks

**Impact:** Finance management















**Measures:** PGE Group manages credit risk stemming from commercial transactions. Prior to executing a transaction, a counterparty assessment is carried out and forms a base for applying credit limits, that are regularly updated and monitored. Exposures that exceed established limits are hedged in accordance with the Group's credit risk management policy.

PGE Group applies a central financing model, which is generally used by PGE S.A. when raising external capital. PGE Group subsidiaries use a variety of intra-group financing sources and liquidity risk is monitored using periodic planning for operating, investing and financing activities. As regards currency risk and interest rate risk, PGE Group has implemented internal management procedures. PGE Group companies execute derivative transactions involving interest rate- and/or currency-based instruments (IRS, CCIRS) only in order to hedge identified risk exposures.

### 5.3. Strategic risk

PGE Group does not focus exclusively on risks concerning on-going activities. Risks that may have an impact on the Group's functioning in a longer timeframe are also subject to identification, assessment and analysis. Assessment of impact on the Group's objectives, image and business continuity is performed at the top management level. This allows us to prepare for arising challenges and ensure the Group's development in the long term. Unlike threats to PGE's day-to-day business and results, strategic risks might have an impact on strategy implementation and the future of the entire organisation.

Presented below are the key identified strategic risks along with their assessment.

Impact					
	very low	low	medium	high	very high
 <b>Cybersecurity</b> Risk associated with intentional disruption of information processing and exchange IT systems used at PGE Group and intentional interference in the IT infrastructure responsible for controlling and supervising the proper operation of production and distribution assets.					
 <b>Energy policy - a growth vision for the sector</b> Risk associated with changes of development directions and redefining power sector's role and rules for the functioning of the electricity market.					
 <b>Forces of nature</b> Risk associated with more frequent extreme weather events having impact on electricity and heat generation and distribution.					
 <b>Environmental restrictions</b> Risk connected with stricter environmental restrictions applicable to PGE Group's electricity and heat production and mining activities.					
 <b>Human resources</b> Risk associated with restricted availability of employees who are of key importance to PGE Group's processes.					
 <b>Legal</b> Risk of changes in laws that outline rules for the Group's operations.					
 <b>Macroeconomic</b> Risk of negative change in economic situation and fluctuations of macroeconomic indicators having impact on PGE Group's activities.					
 <b>Technological revolution</b> Risk of technological change causing a limited competitiveness of electricity and heat production in generation assets owned by the Group and their distribution using grid assets owned by PGE Group.					
 <b>Competition</b> Risk associated with the development by competition of a product offering that would decrease PGE Group's share of the energy market.					

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

### 6.1. Changes in the Management Board and Supervisory Board

As at June 30, 2018 the Management Board worked in unchanged 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 Wasilek	Vice-President for Operations
Emil Wojtowicz	Vice-President for Finance

As at June 30, 2018 the Supervisory Board consisted of:

Name and surname of the Supervisory Board member	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
Witold Kozłowski	Supervisory Board Member - independent
Mieczysław Sawaryn	Supervisory Board Member - independent

On July 9, 2018 Witold Kozłowski resigned from the position of the Supervisory Board member.

On July 19, 2018 the Ordinary General Meeting of the Company appointed eight members to the Supervisory Board of 11<sup>th</sup> term as from July 20, 2018.

As at the publication date of this report, the Supervisory Board of the Company consists of:

Name and surname of the Supervisory Board member	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
Artur Bartoszewicz	Supervisory Board Member - 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

As at June 30, 2018 the standing committees of the Supervisory Board consisted of:

Name and surname of the member of the Supervisory Board	Audit Committee	Corporate Governance Committee	Strategy and Development Committee	Appointment and Remuneration Committee
<b>Janina Goss</b>	Member from March 2, 2016			Member from March 2, 2016
<b>Tomasz Hapunowicz</b>		Member From January 23, 2018	Member From January 23, 2018	
<b>Anna Kowalik</b>	Member		Member From January 23, 2018	Member
<b>Witold Kozłowski</b>		Member from Sep. 13, 2016 Chairman from October 25, 2016	Member from December 13, 2017	Member from September 13, 2016
<b>Grzegorz Kuczyński</b>	Member from March 2, 2016 Chairman from March 18, 2016	Member from March 2, 2016	Member From January 23, 2018	
<b>Mieczysław Sawaryn</b>			Member from March 2, 2016	Member from March 2, 2016 Chairman from August 8, 2016
<b>Artur Składanek</b>	Member From September 19, 2017	Member from March 2, 2016	Member from March 2, 2016 Chairman from January 23, 2018	

## 6.2. 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 21.4 to the interim condensed 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 21.4 to the interim condensed consolidated financial statements.

## 6.3. 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 21.4 to the interim condensed consolidated financial statements.

#### 6.4. Information about granting guarantees by the Company or its subsidiary

Table: Main guarantees granted by the PGE Group companies as at June 30, 2018.

Issuer of guarantee	Entity entitled to guarantee (Beneficiary)	Entity whose liabilities are subject to guarantee (Debtor)	Date of commitment due to the granted guarantee (yyyy-mm-dd)	Validity of guarantee until (yyyy-mm-dd)	Value of guarantee (million)	Currency	Value of loan subject to guarantee (million)	Currency
PGE S.A.	Bondholders	PGE Sweden AB	2014-05-22	2041-12-31	2 500.0	EUR	638.0	EUR
PGE S.A.	Nordic Investment Bank	PGE GiEK S.A.	2017-05-12	2024-12-31	121.4	EUR	101.2	EUR



## 6.5. 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. 1.1 of the foregoing report and in note 1.3 to the interim condensed consolidated financial statements.

## 6.6. Activities related to nuclear energy

The programme to build Poland's first nuclear power plant (the "Programme") is focusing on conducting site characterisation and environmental surveys until an environmental impact assessment report and site report are prepared. Decisions with regard to the continuation of the Programme, in the above scope or otherwise, will be made based on decisions by the Minister of Energy concerning an updated Programme for Poland's Nuclear Power, a model for the procurement of nuclear power plant technology and investment financing model.

### Business partnership

As a result of the sale of shares on April 15, 2015 to the Business Partners (TAURON Polska Energia S.A., ENEA S.A. and KGHM Polska Miedź S.A.) by PGE S.A., PGE S.A. holds 70% in the share capital of PGE EJ 1 sp. z o.o. ("PGE EJ 1", "EJ 1"), and each of the Business Partners holds 10% in the share capital of PGE EJ 1.

According to the Partners' Agreement, concluded on September 3, 2014, the Parties jointly undertook to finance operations under the initial phase of the Program (the "Development Stage"), proportionally to their shareholdings. It is assumed that PGE's financial commitment in the Development Stage will not exceed amount of approx. PLN 700 million. The funds for the Program are paid to PGE EJ1 in form of the increase of the share capital and loans. In the first quarter of 2018, PGE EJ 1 received a loan from its shareholders instead of a share capital increase.

### Proceeding for selection of technology

Further action with regard to delivery of technology is dependent on the final arrangements with the Ministry of Energy related to formula of technology selection, working out economic, organisational and legal solutions, including the risk distribution and estimated costs of implementation of those solutions.

### Site characterisation and environmental survey

Site characterisation and environmental surveys, necessary to prepare an environmental impact assessment and a site characterisation report, were continued in the first half of 2018. The surveys are being carried out with the participation of ELBIS Sp. z o.o., a company from PGE Group. The aim of the surveys is gathering of data necessary to assess the area from the point of view of usefulness for foundation of nuclear power plant.

Works are being conducted at two sites: Lubiatowo-Kopalino and Żarnowiec, within Choczewo, Krokowa and Gniewino municipalities in the Pomeranian Voivodeship.

The works on schedule update have been carried out.

### Social acceptance

The main aim of activities in this area is to maintain a high level of community support at the planned nuclear plant sites and to deliver knowledge about nuclear power and about the Programme to the widest possible range of stakeholders.

In the first half of 2018, 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.

### Compensations from WorleyParsons

In 2013, PGE EJ1 sp. z o.o. signed an agreement for environmental studies, site characterisation and services related to obtaining permits and permissions necessary in the investment process associated with the construction of a nuclear power plant with a consortium of WorleyParsons Nuclear Services JSC, WorleyParsons International Inc. and WorleyParsons Group Inc. ("WorleyParsons"), in the amount of approximately PLN 253 million net (including basic scope of approximately PLN 167 million). Due to delays in the implementation of the agreement, in 2013 PGE EJ 1 accrued to WorleyParsons a contractual penalty in the amount of approximately PLN 7 million. In addition, in connection with a further improper execution of services in 2014, PGE EJ 1 accrued contractual penalties in the total amount of approximately PLN 43 million. On December 23, 2014, PGE EJ 1 terminated the contract for reasons attributable to WorleyParsons.

Contractual penalties of 2013 were deducted from the remuneration payable to WorleyParsons in 2014. Penalties for 2014 were partly deducted from the remuneration payable to WorleyParsons and partly obtained from the bank guarantee. After all deductions and amounts received by the company from the bank guarantee, PGE EJ 1 is entitled to claim towards WorleyParsons for payment of approximately PLN 14 million as a penalty by way of delay.

On August 7, 2015 PGE EJ 1 filed with the District Court in Warsaw a claim against WorleyParsons for the payment of approximately PLN 15 million plus statutory interest for late payment of the amount due.

On November 13, 2015, PGE EJ 1 received a payment demand from WorleyParsons for about PLN 59 million due for WorleyParsons remuneration, which - according to the claimant - was deducted unduly, for the works that in opinion of WorleyParsons were unjustifiably not accepted and for the project management, as well as funds collected from the bank guarantee. The court obligated PGE EJ 1 sp. z o.o. to submit a statement of defence within three months from receipt. Moreover, value of claims by WorleyParsons amounting to approximately PLN 54 million was included in the WorleyParsons' payment demand for PLN 92 million of March 13, 2015 with regard to termination of the agreement. On March 24, 2017, PGE EJ1 received a procedural document expanding the action being brought by WorleyParsons from approximately PLN 59 million to approximately PLN 104 million (i.e. by around PLN 45 million). It is possible that WorleyParsons will file another claim amounting to approximately PLN 32 million representing the difference in amount of claims from the demand for payment of March 13, 2015 and the expanded claim received on March 24, 2017.

PGE EJ 1 does not accept the claim and regards its possible admission by the court as less likely than its dismissal.

On March 29, 2017, mediation between the Parties took place – the meeting did not result in a settlement. The first hearing was held on December 8, 2017, during which the Court decided to examine the matter behind closed doors (without an audience).

Further hearings in the case took place on February 15 and 16, 2018.

The company filed a response to WorleyParsons' expanded lawsuit on March 31, 2018.

Furthermore, on May 20, 2016, PGE EJ 1 filed a motion with the District Court for the Capital City of Warsaw in Warsaw to commit WorleyParsons to attempt reaching a settlement concerning PGE EJ 1's claims of PLN 41 million together with statutory interest for compensation for undue contractual performance. A conciliation meeting at the court is scheduled for June 8, 2017. During the hearing on June 8, 2017, the Court stated that a certified copy of the application was not delivered to the American WorleyParsons companies, and therefore it adjourned the hearing without setting a date. On July 3, 2017, a representative of PGE EJ 1 received information that a certified copy of the application was delivered to the American companies. At a hearing on September 19, 2017, the court ruled that a settlement had not been agreed and concluded the case. The company is considering expanding the lawsuit. The company's claim expires in September 2019.

Additional hearings in the case were held on April 24 and 25, 2018.

The court scheduled 10 hearings for the second half of 2018. The next upcoming hearing dates are August 21 and 22, 2018.

## **6.7. Tender offer to subscribe for the sale of 100% shares of Polenergia S.A.**

On May 22, 2018 PGE S.A., using the intermediary services of Pekao Investment Banking S.A. (acting as financial advisor to PGE), announced a tender offer (the "Tender Offer") to subscribe for the sale of 45,443,547 ordinary bearer shares of Polenergia S.A. ("Polenergia"), that is for all shares issued by Polenergia, entitling to exercise 100% of total votes at the general meeting of Polenergia, for a price of PLN 16.29 per each share. PGE is also the entity acquiring the shares in the Tender Offer. Within the transaction in way of tender offer, a security in form of a bank guarantee was issued for the liabilities of PGE. Bank guarantee was issued by Bank Polska Kasa Opieki S.A. and its beneficiary is PEKAO Investment Banking S.A. The bank guarantee was issued on May 22, 2018 for the amount of PLN 740 million and is valid until November 21, 2018.

The Tender Offer was announced subject to the following conditions:

- the President of the Competition and Consumer Protection Office grants an unconditional consent to a concentration consisting of a takeover of control over Polenergia
- subscriptions placed under the Tender Offer cover at least 66% of the total number of shares of Polenergia
- appointment of the candidates proposed by PGE to the Supervisory Board of Polenergia
- adoption of a resolution on changes in the statutes of Polenergia by the general meeting

- concluding of an agreement by PGE and Polenergia on strategic cooperation and integration of Polenergia within the PGE Group.

Unless the subscription period under the Tender Offer is extended or shortened, the subscriptions can be placed from July 13, 2018 to September 20, 2018.

Full text of the Tender Offer was published by PGE in the current report no. 10/2018.

## **6.8. Transactions with related entities**

Information about transactions with related entities is presented in note 23 to the interim condensed consolidated financial statements.

## **6.9. Publication of financial forecasts**

PGE S.A. did not publish financial forecasts.

## 6.10. Information about shares and other securities

### 6.10.1. 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%
<b>Total</b>	<b>1 869 760 829</b>	<b>1 869 760 829</b>	<b>100.00%</b>

### 6.10.2. 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 the first quarter of 2018 did not hold shares of PGE S.A.

## 7. Statements of the Management Board

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

To the best knowledge of the Management Board of PGE S.A., the half-yearly financial report, containing interim condensed consolidated financial statements of PGE Capital Group, interim condensed standalone financial statements for PGE S.A. and comparative data were prepared in accordance with the governing accounting principles, present 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.

### Statement on the entity authorised to audit the financial statements

The Management Board of PGE S.A. declares that the entity authorised to audit the financial statements, which reviews the interim consolidated financial statements and interim condensed standalone financial statements for PGE S.A., has been appointed in accordance with provisions of the law. The entity and the statutory auditors, who performed the review, fulfilled all the requirements for issuing an unbiased and independent report on the review, in accordance with the governing provisions and professional standards.

## 8. 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 August 7, 2018.

Warsaw, August 7, 2018

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

**President**  
of the Management Board **Henryk Baranowski**

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**Vice-President**  
of the Management Board **Wojciech Kowalczyk**

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**Vice-President**  
of the Management Board **Marek Pastuszko**

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**Vice-President**  
of the Management Board **Paweł Śliwa**

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**Vice-President**  
of the Management Board **Ryszard Wasilek**

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**Vice-President**  
of the Management Board **Emil Wojtowicz**

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## Glossary

AKPiA	Control, measurement and automation apparatus area
Ancillary control services (ACS)	services provided to the transmission system operator, which are indispensable for the proper functioning of the National Power System and ensure the keeping of required reliability and quality standards.
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 exchanges and the TSO as the balancing company.
Base, baseload	standard product on the electricity market: a constant hourly power supply per day in a given period, for example week, month, quarter or year.
BAT	Best Available Technology
Best Practices	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 generation	the generation of electricity to ensure the quality and reliability of the national power system; this 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 Operator (DSO)	a power company engaging in the distribution of gaseous fuels or electricity, responsible for traffic in the gas or electricity distribution systems, current and long-term security of operation of the system, the operation, maintenance, repairs and indispensable expansion of the distribution network, including connections to other gas or power systems.
Energy cluster	civil-law arrangement that may include natural persons, legal entities, scientific units, research institutes or local government units, concerning the generation, distribution or trade in energy and energy demand balancing, with this energy being from renewable sources or other sources or fuels, within a distribution grid with nominal voltage below 110 kV, within the operational area of the given cluster, not exceeding the area of one district (powiat) in the meaning of the act on district authorities) or 5 municipalities (gmina) in the meaning of the act on municipal authorities; an energy cluster is represented by a coordinator, which is a cooperative, association, foundation appointed for this purpose or any member of the energy cluster indicated in the civil-law arrangement
ERO	Energy Regulatory Office (pol. URE).
EUA	European Union Allowances: transferable CO <sub>2</sub> emission allowances; one EUA allows an operator to release one tonne of CO <sub>2</sub> .
EU ETS	European Union Greenhouse Gas Emission Trading Scheme) EU emission trading scheme. Its operating rules are set out in the ETS Directive, amended by the Directive 2009/29/EC of the European Parliament and of the Council of April 23, 2009 (OJ EU L. of 2009, No. 140, p. 63–87).
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 GW = 10 <sup>9</sup> 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.
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 MW = 10 <sup>6</sup> 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).
Nm <sup>3</sup>	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.
Operational Capacity Reserve (ORM)	ORM constitutes of generation capacities of active Production Scheduling 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 Energy Coal Market Index 1 - average level of prices of coal dust sold to industrial-scale power plants in Poland
RAB	Regulatory Asset Base.
Red certificate	a certificate confirming generation of electricity in co-generation with heat.
Red energy	popular name for electricity co-generated with heat.
Regulator	the President of ERO, fulfilling the tasks assigned to him in the energy law. The regulator is responsible for, among others, giving out licenses for energy companies, approval of energy tariffs, appointing Transmission System Operators and Distribution System Operators.
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 Gielda Energii S.A. (Polish Power Exchange), a commodity exchange on which trading can take place in electricity, liquid or gas fuels, extraction gas, emission allowances and property rights whose price depends directly or indirectly on electric energy, liquid or gas fuels and emission allowances, admitted to commodity exchange trading.
TPA, TPA rule	Third Party Access, the owner or operator of the network infrastructure to third parties in order to supply goods/services to third party customers.
Transmission	transport of electricity through high voltage (220 and 400 kV) transmission network from generators to distributors.
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 <sup>9</sup> kWh.
Ultra-high-voltage network (UHV)	an energy network with a voltage equal to 220 kV or higher.
V (volt)	electrical potential unit, electric voltage and electromotive force in the International System of Units (SI), 1 V= 1J/1C = (1 kg x m <sup>2</sup> ) / (A x s <sup>3</sup> ).
W (watt)	a unit of power in the International Systems of Units (SI), 1 W = 1J/1s = 1 kg x m <sup>2</sup> x s <sup>-3</sup> .
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.