Polskie Górnictwo Naftowe i Gazownictwo SA

DIRECTORS' REPORT ON THE OPERATIONS OF PGNiG SA AND THE PGNiG GROUP

2019

PGNiG GROUP IN 2019

PLN 42.0bn
revenue

PLN 1.4bn
net profit

PLN 59.2bn
total assets

PLN 5.5bn
EBITDA

Seventh
largest company listed on the WSE*

24.8 thousand
number of employees

PLN 2.4bn
EBIT

PLN 25.0bn
market capitalisation

PLN 27.7m
average daily value of trading

EXPLORATION AND PRODUCTION

PLN 3 360m	EBITDA
1.2m tonnes	production of crude oil, condensate and NGL
4.5 bcm	production of natural gas
884 mboe	oil and gas reserves
217	number of producing licences

GENERATION

PLN 856m	EBITDA
39.3 PJ	heat output
3.9 TWh	electricity output
5.1 GW_t	thermal power
1.2 GW_e	electric power

PGNiG

TRADE AND STORAGE

PLN (470)m	EBITDA
30.7 bcm	volume of gas sold by Group (outside PGNiG Group)
3.1 bcm	gas storage capacities
9.1 bcm	volume of gas sold on PPX
14.9 bcm	volume of imported gas

DISTRIBUTION

PLN 1 995m	EBITDA
7.1m	number of customers
191 thousand km	length of distribution network
1,595	number of municipalities connected to the gas grid
11.5 bcm	volume of distributed gas

*in terms of market capitalisation as at December 30th 2019.

Financial highlights of the PGNiG Group

Table 1 Financial highlights of the PGNiG Group for 2018–2019

	PLNm		EURm			
	2019	**2018**	**2019**	**2018**	**Change (%)**	**Change yoy**
Revenue	**42 023**	**41 234**	**9 769**	**9 664**	**2%**	**789**
Total operating expenses	(39 575)	(36 839)	(9 200)	(8 634)	7%	(2 736)
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	5 504	7 115	1 279	1 667	(23%)	(1 611)
Depreciation and amortisation expense	(3 056)	(2 720)	(710)	(637)	12%	(336)
Operating profit	2 448	4 395	569	1 030	(44%)	(1 947)
Profit before tax	2 159	4 502	502	1 055	(52%)	(2 343)
Net profit	1 371	3 209	319	752	(57%)	(1 838)
Net cash from operating activities	4 938	5 814	1 148	1 363	(15%)	(876)
Net cash from investing activities	(6 152)	(4 704)	(1 430)	(1 102)	31%	(1 448)
Net cash from financing activities	327	237	76	56	38%	90
Net increase/(decrease) in cash and cash equivalents	(887)	1 347	(206)	316	(166%)	(2 234)
	Dec 31 2019	**Dec 31 2018**	**Dec 31 2019**	**Dec 31 2018**	**Change (%)**	**Change yoy**
Total assets	59 185	53 271	13 898	12 389	11%	5 914
Non-current assets	43 939	38 898	10 318	9 046	13%	5 041
Current assets, including	15 246	14 373	3 580	3 343	6%	873
Inventories	4 042	3 364	949	782	20%	678
Total equity and liabilities	59 185	53 271	13 898	12 389	11%	5 914
Total equity	38 107	36 632	8 948	8 519	4%	1 475
Total non-current liabilities	10 378	7 255	2 437	1 687	43%	3 123
Total current liabilities	10 700	9 384	2 513	2 183	14%	1 316
Total liabilities	21 078	16 639	4 950	3 870	27%	4 439

Financial highlights of PGNiG

Table 2 Financial highlights of PGNiG for 2018–2019

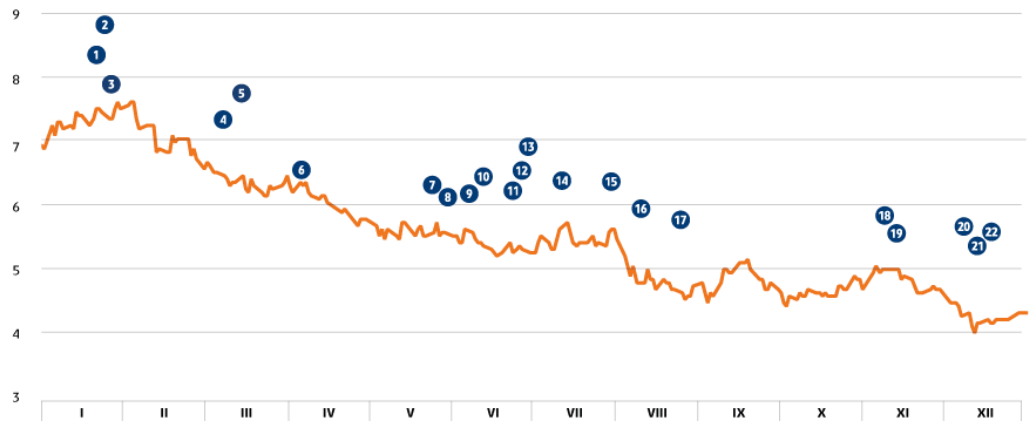
	PLNm		EURm			
	2019	**2018**	**2019**	**2018**	**Change (%)**	**Change yoy**
Revenue	22 615	22 344	**5 257**	**5 237**	**1%**	**271**
Total operating expenses, including	(20 626)	(18 667)	(4 795)	(4 375)	10%	(1 959)
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	1 241	2 637	288	618	(53%)	(1 396)
Depreciation and amortisation expense	(856)	(798)	(199)	(187)	7%	(58)
Operating profit	388	1 839	90	431	(79%)	(1 451)
Profit before tax	1 989	3 677	462	862	(46%)	(1 688)
Net profit	1 748	3 289	406	771	(47%)	(1 541)
Net cash from operating activities	1 989	2 658	462	623	(25%)	(669)
Net cash from investing activities	(2 256)	644	(524)	151	(450%)	(2 900)
Net cash from financing activities	(52)	(138)	(12)	(32)	(62%)	86
Net increase/(decrease) in cash and cash equivalents	(319)	3 164	(74)	742	(110%)	(3 483)
	Dec 31 2019	**Dec 31 2018**	**Dec 31 2019**	**Dec 31 2018**	**Change (%)**	**Change yoy**
Total assets	41 044	36 993	9 638	8 603	11%	4 051
Non-current assets	28 885	25 742	6 783	5 987	12%	3 143
Current assets, including	12 159	11 251	2 855	2 617	8%	908
Inventories	3 230	2 691	758	626	20%	539
Total equity and liabilities	41 044	36 993	9 638	8 603	11%	4 051
Total equity	30 618	28 833	7 190	6 705	6%	1 785
Total non-current liabilities	3 315	2 551	778	593	30%	764
Total current liabilities	7 111	5 609	1 670	1 304	27%	1 502
Total liabilities	10 426	8 160	2 448	1 898	28%	2 266

EUR/PLN mid exchange rates quoted by the National Bank of Poland:

average exchange rate in 2019: 4.3018; 2018: 4.2669.

exchange rate at period end: 2019: 4.2585; 2018: 4.3000.

CALENDAR OF CORPORATE EVENTS 2019



I QUARTER

1. 18.01.2019
Three new licences awarded to PGNiG UN by the Norwegian Ministry of Petroleum and Energy as part of the APA 2018 licensing round

2. 25.01.2019
President of URE's decision to reduce the prices and rates of network fees under the PSG Distribution Tariff by 5%

3. 25.01.2019
President of URE's decision to increase the price of gas fuel under the PGNiG OD Retail Tariff by 2.5%

4. 11.03.2019
Notification of antitrust proceedings initiated by the President of UOKiK against PGNiG TERMIKA and PGNiG

5. 13-18.03.2019
Completion by Grupa LOTOS and PGNiG of the first commercial LNG bunkering of sea vessels

II QUARTER

6. 03.04.2019
Start-up of a coal-bed methane fired power generating unit in Gilowice

7. 20.05.2019
Drilling of the Rehman-6 production well in the Rehman field commenced by PGNiG Pakistan Branch

8. 23.05.2019
Submission by Grupa Azoty Group companies of a representation to extend the term of natural gas supply contracts until September 30th 2022

9. 07.06.2019
Execution by PGNiG UN of an agreement to purchase an interest in the King Lear field from Total E&P Norge AS

10. 12.06.2019
Execution by PGNiG of an annex to the long-term contract with Venture Global Plaquemines LNG, LLC

11. 24.06.2019
Execution by PGNiG of a syndicated loan agreement

12. 26.06.2019
Upgrade of PGNiG's credit rating by Moody's Investors Service from Baa3 to Baa2

13. 27.06.2019
Adoption by the PGNiG Annual General Meeting of a resolution on allocation of PGNiG's net profit for the financial year 2018

III QUARTER

14. 12.07.2019
Execution by PGNiG UN of an agreement to purchase interests in licences covering the Duva field from Wellesley Petroleum AS

15. 31.07.2019
Natural gas and crude oil production forecast for 2019–2021

16. 08.08.2019
Court of Appeal's ruling on Abener Energia's claims against ECSW

17. 22.08.2019
Changes in the composition of the PGNiG Supervisory Board

IV QUARTER

18. 07.11.2019
Execution of an agreement for PGNiG UN to purchase an additional 10% interest in the Duva field from Pandion Energy

19. 15.11.2019
Notification of intent to terminate the Yamal Contract with Gazprom with effect from December 31st 2022.

20. 12.12.2019
Upgrade of PGNiG's credit rating by Fitch Ratings from BBB- to BBB

21. 13.12.2019
Announcement of the Arbitration Court of Stockholm's intention to issue a final ruling on the change in the contractual price for gas supplied by Gazprom under the Yamal Contract in February or March 2020

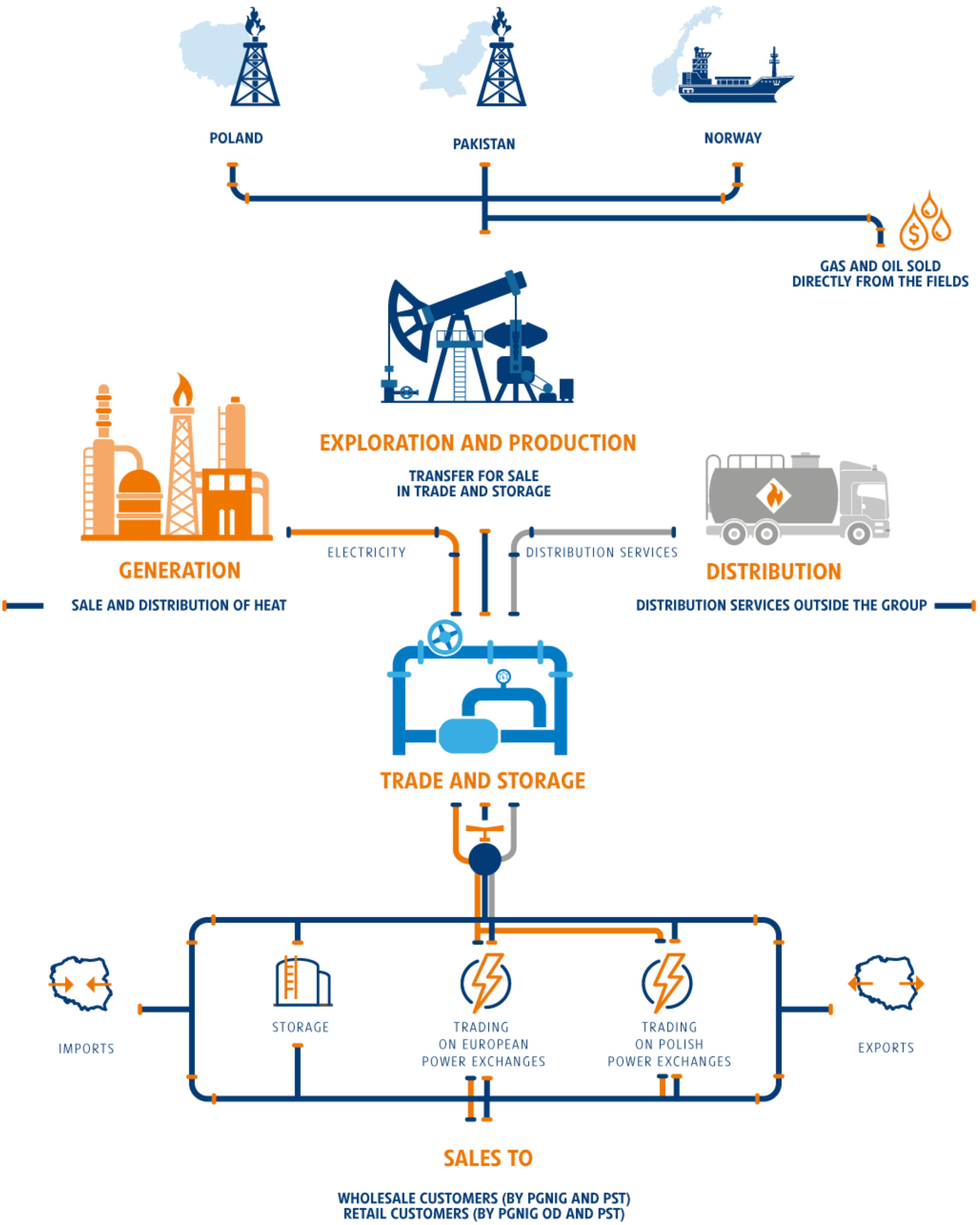
22. 17.12.2019
President of URE's decision to reduce the price of gas fuel under the PGNiG OD Retail Tariff by 2.9%

Table of contents

1. Business model and structure of the PGNiG Group

1.1 PGNiG Group's business and business model

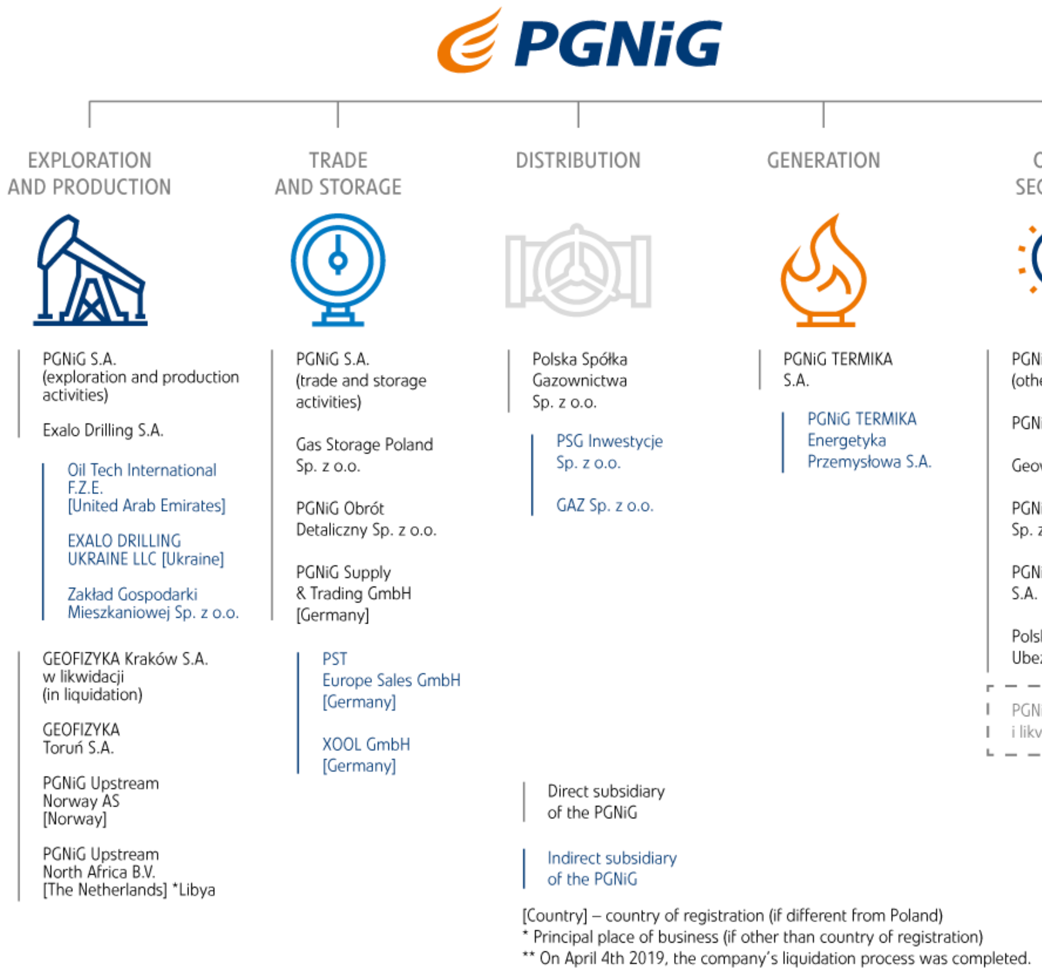
Figure 1 PGNiG Group's business model



1.2 Structure of the PGNiG Group

As at December 31st 2019, PGNiG (the parent) and 23 subsidiaries were fully consolidated. PGNiG comprises the Wholesale Trading Branch, Geology and Hydrocarbon Production Branch (Sanok Branch, Zielona Góra Branch, Odolanów Branch), Central Measurement and Research Laboratory, Well Mining Rescue Station, and Foreign Branches (the Operator Branch in Pakistan and the UAE Branch).

Figure 2 Fully consolidated companies of the PGNiG Group



1.3 Shareholding structure and PGNiG on the WSE

1.3.1 Shareholding structure

As at December 31st 2019, the share capital of PGNiG was approximately PLN 5.78bn.

Table 3 Shareholding structure at the end of 2019

Shareholders	Number of shares/voting rights as at Dec 31 2018	Percentage of share capital/total voting rights at the GM as at Dec 31 2018	Change in 2019	Number of shares/voting rights as at Dec 31 2019	Percentage of share capital/total voting rights at the GM as at Dec 31 2019
State Treasury	4,153,706,157	71.88%	-	4,153,706,157	71.88%
Others, including:	1,624,608,700	28.12%	-	1,624,608,700	28.12%
- OFE*	569,056,636	9.85%	43,121,901	612,178,537	10.59%
Total	5,778,314,857	100.00%	-	5,778,314,857	100.00%

** Data based on annual asset specifications of open-end pension funds as at December 30th 2019.*

For information on shares in PGNiG and its related companies held by members of the Management and Supervisory Boards, see Section 8.4.

Chart 1 Shareholding structure comparison

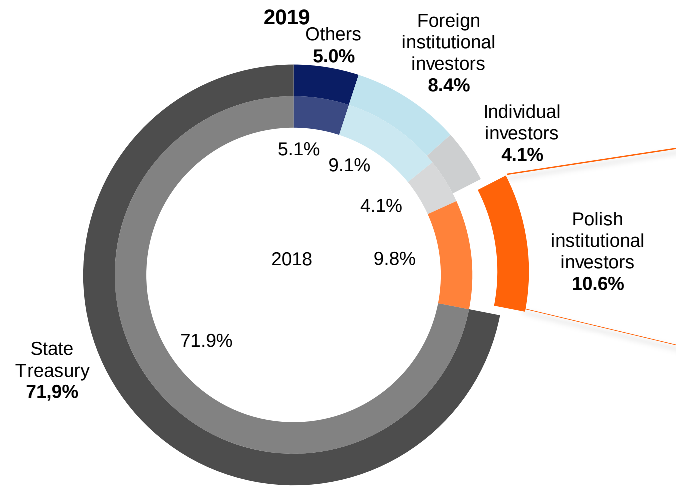


Chart 2 Percentage of PGNiG share capital held by Polish institutional investors at the end of 2019

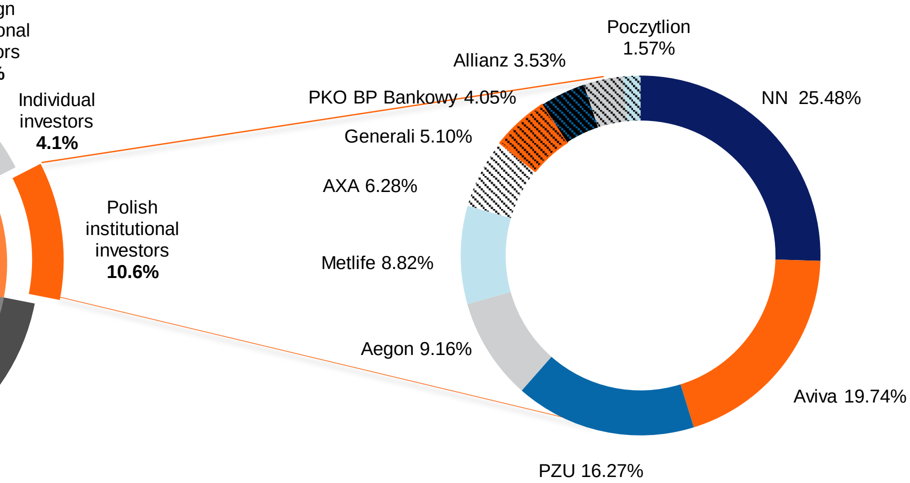


Chart 3 The largest investors in Europe (excluding Poland) in PGNiG's shareholding structure

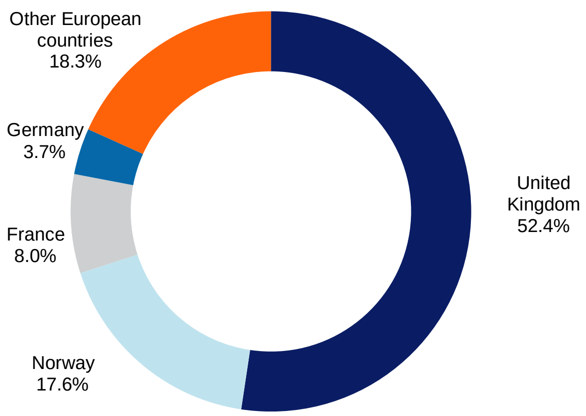
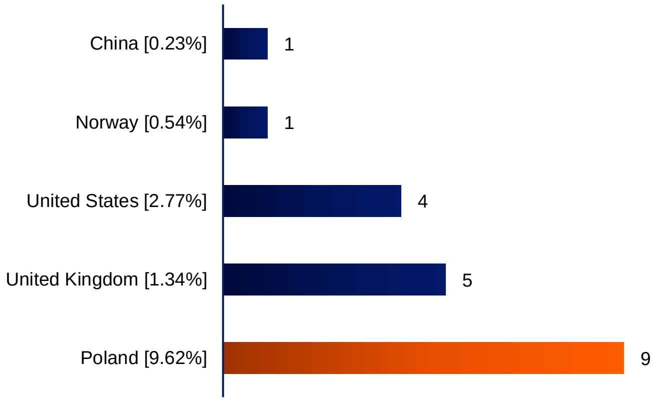


Chart 4 Geographical structure of the 20 largest institutional investors*



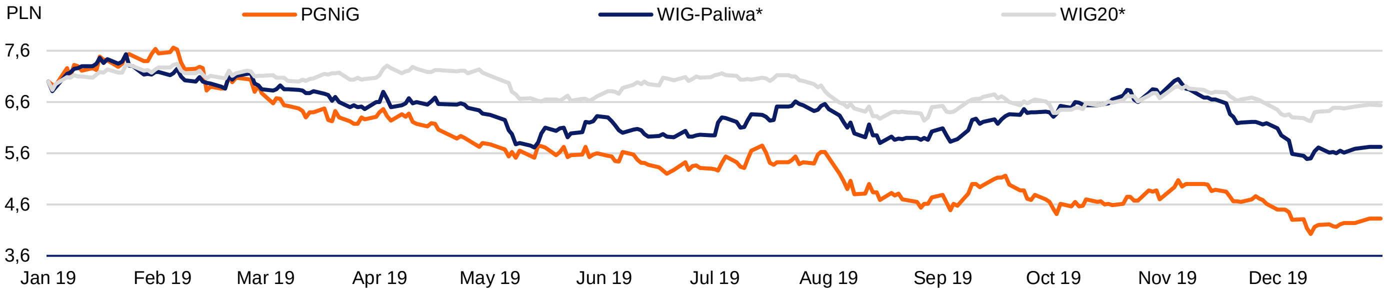
Source: In-house analysis based on annual asset specifications of open-end pension funds as at December 30th 2019.
* [%] percentage share in the PGNiG shareholding structure.

1.3.2 Performance of the PGNiG stock

Since September 23rd 2005, the PGNiG stock has been listed in the continuous trading system of the main market on the Warsaw Stock Exchange. The issue price in the Company's public offering was PLN 2.98. In 2019, PGNiG shares were included in the following indices: WIG, WIG20, WIG30, WIG-Poland, RESPECT Index (since September 2019: WIG-ESG), WIGdiv, WIG-PALIWA (sectoral index), and WIG.MS-PET (macrosectoral index)

In 2019, the annual rate of return on Company shares, excluding dividends, was -38%. Over that time, the sectoral index WIG Paliwa and the blue-chip index WIG20, yielded rates of return of -18% and -7%, respectively. The PGNiG share price movements ranged between -28% (the lowest closing price of PLN 4.03 on December 11th 2019) and +37% (the highest closing price of PLN 7.66 on February 5th 2019) from the 2019 average closing price of PLN 5.59. To compare, fluctuations of the WIG20 index ranged between -9% (the lowest value of 2,047.34 points on December 11th 2019) and +7% (the highest value of 2,414.41 points on February 6th 2019).

Chart 5 PGNiG share price vs WIG20 and WIG-Paliwa



Source: WSE – Warsaw Stock Exchange (Giełda Papierów Wartościowych S.A. w Warszawie).
** Rebased to PGNiG share price.*

1.3.3 Stock exchange indicators

Table 4 Stock exchange indicators for 2017–2019

Key metrics	Unit	2019	2018	2017	2019/2018 change (%)
Net profit attributable to owners of the parent	PLNm	1,371	3,209	2,923	(57%)
Earnings per share[1]	PLN	0.24	0.56	0.51	(57%)
Stock price at the close of trading on last session day in the year	PLN	4.33	6.91	6.29	(37%)
Average stock price in the year	PLN	5.59	6.12	6.33	(9%)
Number of shares outstanding	million shares	5,778	5,778	5,778	-
Capitalisation at year end	PLNm	25,019	39,928	36,346	(37%)
Average daily trading volume	million shares	5.02	3.90	3.50	29%
Average daily trading value	PLNm	27.62	24.20	21.70	14%
Dividend amount[3]	PLNm	1,040	-	1,156	-
Stock exchange indicators[2]					
P/E at average share price	-	23.56	11.02	12.52	114%
P/E at year end	-	18.25	12.44	12.44	47%
P/BV at year end	-	0.66	1.09	1.08	(48%)
EV/EBITDA	-	5.22	5.58	5.59	(18%)
Dividend per share[3]	PLN	0.18	-	0.20	-

Source: WSE – Warsaw Stock Exchange (Giełda Papierów Wartościowych S.A. w Warszawie).
1) Attributable to holders of ordinary shares in the parent.
2) Prices at close of trading.
3) Dividend from previous year's profit.
P/E at average share price = average share price in financial year / net earnings per share attributable to owners of the parent
P/E at year end = share price at close of trading on last session day in financial year / net earnings per share attributable to owners of the parent
P/BV at year end = share price at close of trading on last session day in financial year / book value per share
EV/EBITDA = market capitalisation at close of trading on last session day in financial year + net debt at end of financial year / operating profit (earnings before interest, taxes, depreciation and amortisation) in financial year + total depreciation and amortisation in financial year
Dividend per share = dividend for previous financial year / number of shares outstanding

1.3.4 Investor Relations

In 2019, in the performance of its disclosure obligations, PGNiG published 60 current reports, including disclosures on the acquisition of hydrocarbon deposits, execution of trade contracts, proceedings, changes in the Company's ratings, as well as operating and financial performance.

The Company held four teleconferences for analysts and investors and press conferences in connection with the publication of its periodic reports. It also prepared an integrated report for 2018, presenting a wealth of information on the oil and gas market and the PGNiG Group growth initiatives. In 2019, the PGNiG Group's representatives held close to 80 meetings with investors and analysts of brokerage houses, including at foreign conferences in London, Paris and Prague, as well as in Kraków and Warsaw.

In October 2019, the PGNiG Group received the main award in the Best Annual Report 2018 competition, and a distinction for the best application of International Financial Reporting Standards/International Accounting Standards and the usefulness of its full-year report, in the corporate category (the evaluation covered full-year reports, including consolidated financial statements, Directors' Reports, and the 2018 integrated online report). The competition was organised by the Institute of Accountancy and Taxes.

The PGNiG Group again ranked among the most transparent companies of the WIG20 index in the *Transparent Company 2018* ranking compiled by the Institute of Accountancy and Taxes and the *Parkiet* newspaper. The Group was highly rated not only for its reports, including financial reports, and investor relations, but also for its corporate governance. Likewise, PGNiG's investor relations received the maximum rating in the IR Excellence Programme organised by the Warsaw Stock Exchange.

INVESTOR'S CALENDAR 2020

I QUARTER

14.01.2020
Trigon Investor Day 2020 - Top-picks by Trigon

21-22.01.2020
Santander 2020 CEE Outlook Conference

12.03.2020
Publication of annual report for 2019

II QUARTER

14.05.2020
Publication of the report for the first quarter of 2020

3-4.06.2020
PKO by the Sea

III QUARTER

20.08.2020
Publication of the report for the first half of 2020

24.09.2020
PKO Bank Polski Investor's Day: Metals & Energy

IV QUARTER

19.11.2020
Publication of the report for the third quarter of 2020

3-4.12.2020
WOOD's Winter Wonderland EME conference

1.3.5 Dividend policy

The PGNiG Group's Strategy for 2017–2022 provides for distribution of up to 50% of consolidated net profit as dividend, with the proviso that in recommending dividend payments the PGNiG Management Board must always take into account the PGNiG Group's current financial condition and investment plans.

On June 27th 2019, the Annual General Meeting resolved to allocate PLN 1,040,096,674.26 for dividend distribution. The dividend record date and the dividend payment date were set for July 26th 2019 and August 7th 2019, respectively.

The dividend amount paid on August 7th 2019 was reduced by the amount of interim dividend from the Company's 2018 profit paid on December 3rd 2018.

Table 5 Dividend from net profits for 2014–2018

	2018	2017	2016	2015	2014
Dividend for financial year (PLNbn)	1.04	-	1.16	1.06	1.18
Dividend per share (PLN)	0.18	-	0.20	0.18	0.20
Average annualised share price (PLN)	6.12	6.33	5.16	5.94	4.85
Dividend yield	2.94%	-	3.88%	3.03%	4.12%

2. Strategy of the PGNiG Group

2.1 Mission and vision

Mission statement We are a trustworthy supplier of energy for households and businesses	**Trustworthy** – the customers can depend on premium quality and reliability of our services **Energy supplier**– our customers are offered a full range of energy products (gas + electricity + heat + other/services) **Households and businesses** – we care for and value all our customers: households, businesses, and institutions
Vision We are a responsible and effective provider of innovative energy solutions	**Responsibly** – we act transparently, in line with the principles of corporate social responsibility **Effectively** – we have implemented process and cost optimisation measures **Innovative solutions** – we are an innovation leader in the energy sector
Primary objective Increase the PGNiG Group's value and ensure its financial stability	**Value growth** – our primary ambition is to create added value for our shareholders and customers **Financial stability** – we seek to secure long-term financial stability and creditworthiness

2.2 Key challenges

The PGNiG Group's operations strongly depend on external factors which also pose challenges for the Group, including:

- **Developments in the global fuel and energy markets, including depressed oil and gas prices, and rapid expansion of the LNG market**

In 2019, changes taking place in the Polish gas market were accompanied by price declines elsewhere in Europe. The drop in natural gas prices was reflected in the revenue from gas sales to wholesale customers in the Trade and Storage segment.

In addition, gas prices on European markets have become increasingly detached from prices of oil products in recent years.

Another source of major implications for the PGNiG Group was the year-on-year fall in crude oil prices in 2019. On the one hand, it will translate into lower gas procurement costs under long-term contracts, increasing the attractiveness of imports, but on the other it will affect the economics of the Group's foreign upstream projects with a predominant share of oil in total reserves, causing lower valuation of the foreign Exploration and Production segment.

LNG infrastructure – both export capacities (liquefaction plants, mainly in North America and Australia) and import capacities – has been expanding rapidly on the global market in recent years. Earlier predictions of an LNG glut proved wrong as LNG demand saw strong growth in Asia, notably in China. As a global LNG market player, PGNiG will be able to optimise its long-term gas portfolio and secure additional gas supplies to Poland in the short term to address spikes in demand or exploit price opportunities (optimisation of gas supplies from other directions).

- **Need to change the mix of imported gas sources**

The PGNiG Group's portfolio of gas supply sources is designed to fully cover the gas requirements in Poland both from the Group and the Group's customers, and comprises mainly long-term import contracts (the Yamal and Qatar contracts). In 2019, the Group pursued its strategy to diversify import sources, raising the share of gas sourced from suppliers west and south of Poland (based on market prices of gas at relevant hubs) and LNG (spot deliveries and long-term contracts), while reducing the share of gas supplies from countries east of Poland.

As the Yamal contract expires after 2022, the PGNiG Group is actively supporting the development of alternative routes for natural gas supplies, mainly from countries north of Poland via the planned Baltic Pipe. It is also the Group's objective for the period beyond 2022 to optimise the use of the LNG terminal in Świnoujście, and to this end PGNiG expanded its LNG portfolio through a number agreements with US partners, providing for gas deliveries after 2022.

- **Weather conditions, in particular average temperatures in winter**

The higher average monthly temperatures, in particular in the heating season, translate into lower sales and distribution volumes of natural gas and heat for district heating purposes, which has an effect on the profit or loss.

- **Policy and regulatory changes**

The regulatory environment in which the PGNiG Group operates is subject to regular and substantial changes, in particular with respect to taxation of hydrocarbon production and the exchange sale requirement.

2.3 PGNiG Group Strategy for 2017−2022 with an Outlook until 2026

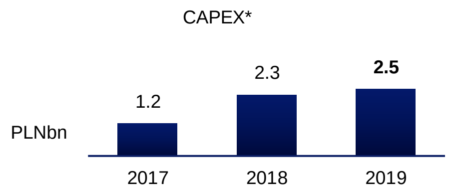
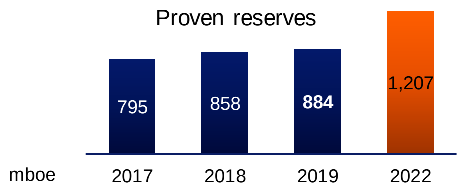
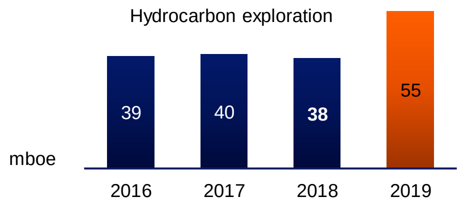
In response to the changing internal and external environment, the Group developed the new PGNiG Group Strategy for 2017−2022 with an Outlook until 2026, which was approved by the PGNiG Supervisory Board on March 13th 2017.

The pursuit of sustainable development as the Group's priority will be driven by parallel investments in riskier business areas yielding relatively high rates of return (upstream) and in regulated areas offering considerable safety of the investments (gas distribution, power and heat generation).

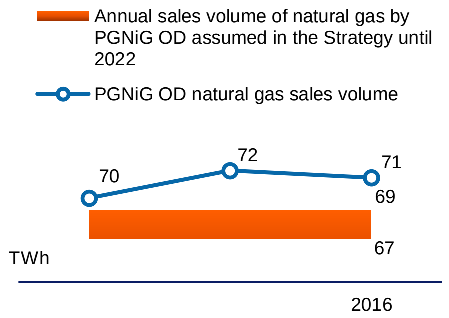
The PGNiG Group has embarked on an ambitious capital investment programme that is to lay the foundations for long-term sustainable value growth.

2.3.1 Objectives and ambitions for 2017−2022 Implementation of the Strategy in 2017–2019

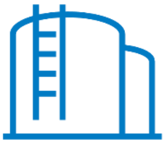
Table 6 Objectives, ambitions and implementation of the Strategy in 2017–2019

Segment	Ambitions	Objectives	Execution
Exploration and Production 	Increase hydrocarbon reserves and production	Expand the documented resource base by ca. 35% Increase hydrocarbon production by ca. 41% Significantly reduce unit cost of exploration and appraisal activities Maintain unit cost of hydrocarbon development and production	  

** CAPEX including expenditure on acquisition of hydrocarbon deposits.*

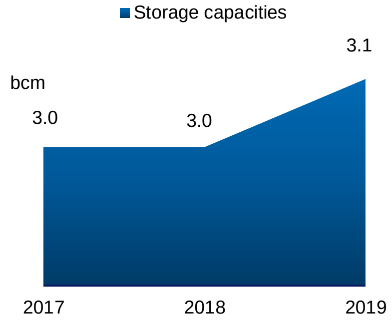
Segment	Ambitions	Objectives	Execution
Trade and Storage 	Retail: Maintain current market position and maximise margins	Maximise retail margins while maintaining the total volume of retail gas sales at ca. 67–69 TWh/year	

Trade and Storage



Storage: Ensure availability of storage capacities

Ensure availability of storage capacities adjusted to actual demand and improve storage efficiency

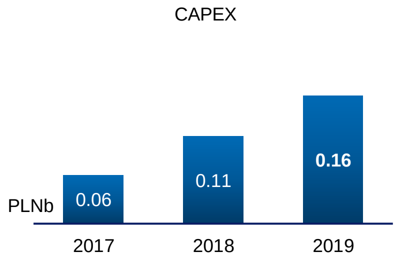


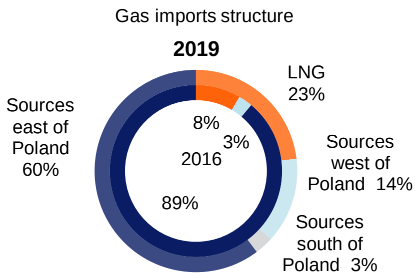
Trade and Storage

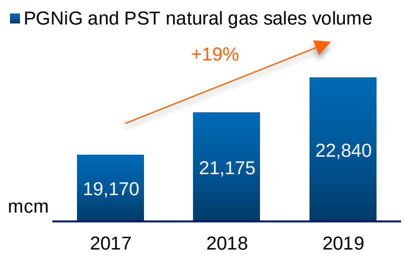
Wholesale trade: Diversified and competitive gas supply portfolio

Build a diversified and competitive gas supply portfolio beyond 2022

Increase total volume of natural gas sales by ca. 7%





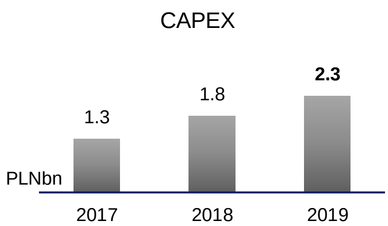


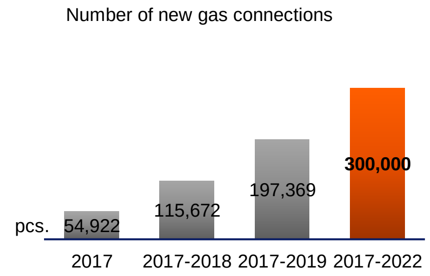
Distribution

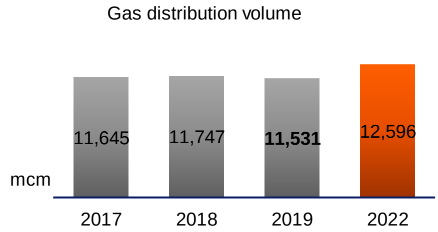
Step up gas network roll-out in Poland

Construct more than 300,000 new gas service lines

Increase gas distribution volumes by ca. 16%



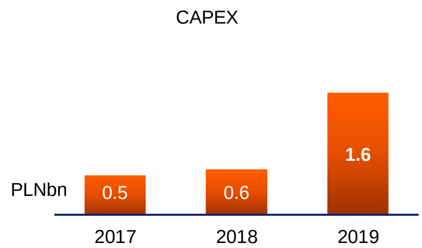


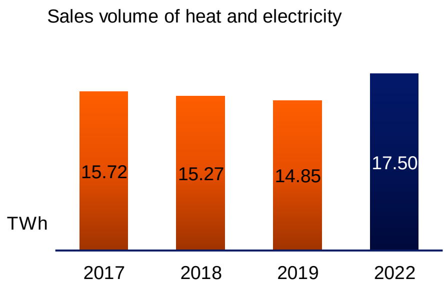


Generation

Increase energy generation volumes

Increase power and heat sales volumes by ca. 20%





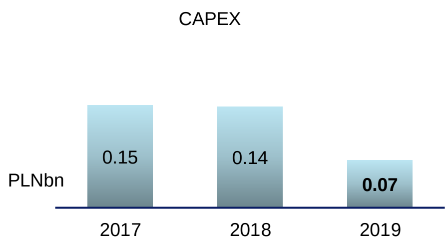
Corporate Centre

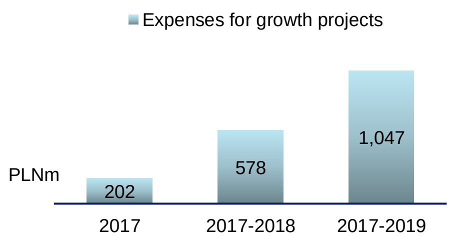
Effective business model, development of R&D&I and CSR

Increase involvement in and effective execution of R&D&I projects (target outlays of ca. PLN 680m)

Improve operational efficiency across the PGNiG Group

Enhance the Group's image





Capital expenditure in 2017–2019 totalled PLN 14.8bn, representing approximately 44% of the 2017−2022 CAPEX plan.

Exploration and Production

In 2019, implementation of the Strategy in the areas of building a base of documented hydrocarbon reserves in Poland, developing the discovered domestic deposits, and producing hydrocarbons from Polish fields proceeded in accordance with the assumptions. PGNiG conducted activities under its exploration and production licences located mainly in the provinces of Szczecin, Poznań, Rzeszów and Kraków. In 2019, drilling was carried out on 35 boreholes with a total depth of 79km. Two new fields, Olchowiec and Gnojnica, as well as 12 new wells in producing fields were tied in.

Given the limited capacity for growth in discoveries of new hydrocarbon reserves and little prospects of finding unconventional reserves in Poland, the Group is also looking for ways to increase its hydrocarbon reserves and step up production abroad. The Group remains committed to carrying out production projects which will yield equity gas on the Norwegian Continental Shelf, in order to directly transport the gas to Poland.

In 2017–2019, in the pursuit of the strategic objective of scaling up hydrocarbon production outside Poland, PGNiG UN took steps to acquire six fields: Ærfugl, Skogul, Fogelberg, Tommeliten Alpha, King Lear and Duva. In addition, steps were taken to acquire seven new licences. As at the end of 2019, PGNiG UN held 26 licences on the Norwegian Continental Shelf.

Following new investments, PGNiG UN's Norwegian reserves grew significantly, from 141.9 mboe at the beginning of the year to 169.4 mboe at the end of 2019. The change is mainly attributable to the acquisition of interests in the King Lear and Duva fields. This increase does not include the acquisition of a 10% interest in the Duva field from Wellsley Petroleum, which was finalised in 2020.

Trade and Storage

Wholesale

The PGNiG Group's operations have been adversely affected by the long-term contract for gas supplies to Poland concluded in the past (the Yamal contract). As it is due to expire in 2022, the Group seeks to ensure real diversification of gas supplies. In this respect, the Group's key activities include:

- Supporting the construction of the Baltic Pipe – the Group's strategic objective is to build a mix of gas supply sources that would be available via the Baltic Pipe, to enable gas imports from new directions and at market prices, thus ensuring flexibility of the gas supply portfolio beyond 2022;
- Enhancement of LNG trading and logistic capabilities on the global market – improvement of these capabilities will help the PGNiG Group create a more flexible gas supply portfolio beyond 2022 as it will be able to swiftly balance its gas imports. PGNiG has signed long-term contracts for the supply of liquefied natural gas to Poland which are to be performed after 2022. Looking further ahead, efforts will continue to develop the Group's capabilities and strengthen its presence on the global LNG market;
- Expanding the resource base in Poland and abroad – by developing and maintaining high gas production levels in Poland and investigating potential for acquiring gas from new directions with a view to strengthening the Company's competitive position beyond 2022.

In 2019, PGNiG's sales of natural gas totalled approximately 190 TWh. The Group is aspiring to further increase its natural gas trading volumes in Poland and on international markets. As a matter of strategy and supported by PST's experience and capabilities, the Group will continue working towards expanding its foothold in other gas and electricity trading markets in Central and Eastern Europe. The Group intends to continue its efforts aimed at strengthening its presence in Ukraine, one of the most promising markets in the region.

Retail

In implementing the Strategy guidelines, a number of initiatives, projects and operational activities are being carried out to support achievement of the strategic objectives in all four defined areas: implementation of a margin defence strategy, optimisation and digitisation of customer service processes, development of product offering, and development of energy consultancy activities.

The initiatives undertaken by PGNiG OD in 2019 and continued in order to achieve the strategic objectives set out in the defined areas, include the following projects and operational activities:

- Central Billing System – following selection of the supplier, the implementation of a new billing system started in 2019 to replace the current distributed environment;
- Development of the LNG offering – addition of the bunkering of LNG based on the truck-to-ship (TTS) technology, which is a novelty on the Polish market;
- Development of the product offering by introducing energy efficiency solutions for PGNIG Group's customers – implementation of a new service in the PGNiG Group's cogeneration sales structures.

Storage business

With a view to securing availability of the target storage capacities, in 2019 GSP worked on the construction of the Kosakowo CGSF, consisting of five chambers in Cluster B, which are to be filled with gas and put into operation by 2021. In 2019, three chambers in Cluster B with a total capacity of 93.9 mcm were placed in service, and the remaining two chambers with a total capacity of 61 mcm will be completed by 2021. GSP monitors the market and analyses gas storage issues, including growth opportunities related to storage infrastructure.

In 2019, GSP was engaged in activities aimed at developing the offering of gas storage services. Work was carried out to adjust the GSP product mix to changing market conditions in order to offer the storage capacities for third-party access and adapt the product mix. In addition, the sales platform was developed to expand the possibility of offering storage services through auction sessions.

Distribution

Working towards its strategic objectives, PSG continued activities which in 2019 led to the execution of more than 113,000 connection contracts (up 16% year on year) and delivery of 124.3 TWh / 11.53 bcm of natural gas to customers (down 2% year on year).

By the end of 2019, more than 208,000 decisions defining the terms of connection were issued (up 17% year on year) and 81,697 service lines with a total length of 821 km were built.

Furthermore, PSG carried out a number of initiatives to roll out the gas distribution grid in new areas and improve the investment process:

- The 'Programme for accelerating investment in Poland's gas network' announced in 2018 provides that by 2022 around 90% of all Poles will live in municipalities connected to the gas grid. As part of the Programme, 111 municipalities were connected to the grid, which was followed by the launch of the distribution service (in January 2020, PSG launched the distribution service in another 6 municipalities), and an order to launch the distribution service in 12 new municipalities was issued;
- The distribution network was expanded in areas that are not connected to the grid, and gas was delivered to customers using the LNG technology, i.e. based on the 'off-grid roll-out' model. The LNG technology is used to supply gas in new areas even before a supply pipeline is constructed. By the end of 2019, 25 commissioning certificates were signed for new LNG stations.

In 2019, PSG spent nearly PLN 1.36bn on development of the gas grid and connection of new customers, and PLN approximately 674m (VAT exclusive) on redevelopment and upgrades of the grid, including approximately PLN 214m (VAT exclusive) on replacement and certification of diaphragm gas meters and metering system components.

Generation

The strategic vision for PGNiG's power and heat generation business is to effectively expand the generation capacities and provide district heating distribution services. The PGNiG Group also intends to increase heat sales and distribution volumes by acquiring district heating assets and expanding its generation busiess across Poland. In 2019, the PGNiG Group's strategy for the power and heat generation area was implemented through:

- A programme to acquire district heating systems

In 2019, the PGNiG TERMIKA Group purchased a district heating system in Dęblin. Similar acquisition processes were also conducted in Przemyśl and Śrem, which will be finalised in early 2020. In line with its strategy, the PGNiG TERMIKA Group actively looks for and remains committed to pursuing acquisition opportunities on the district heating market in Poland.

- Implementation of strategic investment projects at existing locations

In order to meet the stricter industrial emissions standards, the BAT (best available technology) criteria and the climate policy requirements, the PGNiG TERMIKA Group is carrying out projects to upgrade old and environmentally inefficient generation assets, including: construction of a CCGT unit and a gas-fired water boiler house at the Żerań CHP plant, adaptation of the Pruszków CHP plant to operate after 2022, preparation and construction of a multi-fuel generating unit at the Siekierki CHP plant, and construction of a cogeneration unit at the Zofiówka CHP plant.

- Securing regulatory support in the heat and cogeneration sector

The entry into force in 2018–2019 of capacity market regulations and regulations promoting high-efficiency cogeneration will support the development of new electric capacities, in particular high-efficiency gas-fired cogeneration units.

Other growth projects

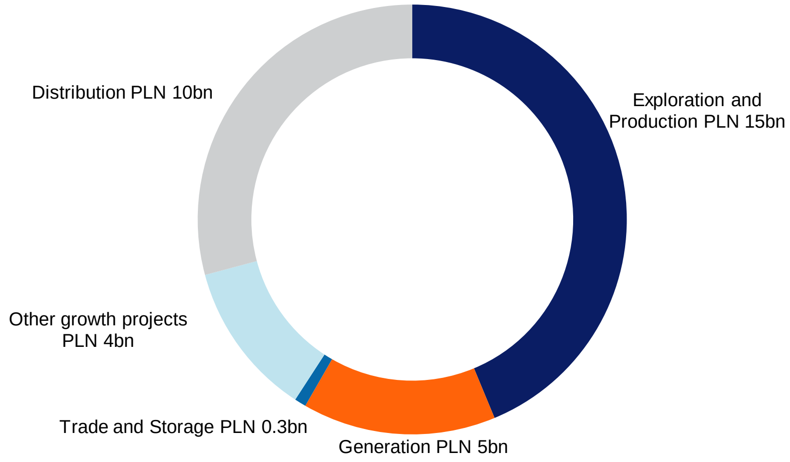
In 2019, 106 proposals to establish cooperation in R&D projects were registered (55 of which were submitted as part of the fifth edition of the *Young Innovators for PGNiG* competition) and 121 innovative projects were carried out. Capital expenditure on R&D&I activities at the PGNiG Group was ca. PLN 400m in 2019.

Key benefits from innovative projects at the Group companies included: a reduction in expenses achieved by cutting down expenditure on day-to-day operations, acquisition of new customers, improvement of efficiency through standardising, improved efficiency and reduced plant failure rate, and improved employee safety.

2.3.2 Investment projects in 2017−2022

The total CAPEX has been assumed to exceed PLN 34bn in 2017−2022. Average annual capital expenditure will amount to ca. PLN 5.7bn: The investment programme should deliver cumulative 2017−2022 EBITDA of ca. PLN 33.7bn, driving long-term growth of the Group's EBITDA in 2023−2026 to the annual average of ca. PLN 9.2bn. At the same time, the net debt to EBITDA ratio should stay below 2.0 over the Strategy term, with the current dividend policy providing for distribution of up to 50% of the Group's consolidated net profit upheld.

Chart 6 Planned CAPEX in 2017−2022*



** CAPEX including expenditure on acquisition of hydrocarbon deposits.*

2.3.3 Capital expenditure in 2020

The Group intends to maintain a high level of capital expenditure in 2020. Spending will focus primarily on projects involving maintenance of hydrocarbon production rates, as well as projects in the exploration for and appraisal of crude oil and natural gas deposits, and development of the power generation segment.

Exploration and Production

Working towards its strategic objective of increasing total hydrocarbon production, PGNiG will continue to tie in wells in Poland at the Zielona Góra and Sanok Branches. In 2020, 25 wells are planned to be tied in.

In the area of appraisal and production work in Pakistan, plans for 2020 include completion of drilling, tests and tying in of the Rizq-3 production well and drilling of the Rehman-7 production well. In parallel with the drilling campaign, work will be carried out to expand the capacity of the production infrastructure and tie in new wells: Rehman-6, Rehman-7 and Rizq-3 for commercial production.

PGNiG UN will continue to produce, as a partner, hydrocarbons from the Skarv, Morvin, Vilje, Vale, and Gina Krog fields and will proceed with the development of the Skogul, Ærfugl and Duva fields. Development of the Tommeliten Alpha and King Lear fields is at the concept preparation phase. PGNiG UN is preparing to acquire further deposits on the Norwegian Continental Shelf by monitoring and analysing potential projects on an ongoing basis, and in the upcoming licensing rounds the company plans to apply for additional licence areas.

Trade and Storage

In 2020, projects will be undertaken in the retail area to develop customer service tools, which will include modernisation of customer service offices as part of the BOK 2.0 programme (with 15 offices planned to be modernised in 2020), further development of the eBOK platform, and development and optimisation of the Contact Centre.

New products will be added to the offering:

- Construction and operation of gas-fired cogeneration units combined with sale of their electricity and heat output. The service will include performing energy analyses/ audits, a proposal of the PGNiG Group's financial support in the project implementation, supervision of the investment process, installation of equipment, obtaining additional income from energy efficiency enhancement measures (white certificates), and subsequent operation of the units and sale of their energy output;
- With respect to CNG and LNG:
    - Operation of refuelling stations where no other seller will be selected,
    - LNG bunkering – the ship bunkering segment is an attractive sale market for LNG,
    - Increasing the share of LNG sales in the B2B segment by developing solutions to sell LNG to customers and construct regasification stations in the B2B formula;
- New business involving photovoltaic products – launch of products for retail customers in 2020.

In the long term, PGNiG will focus on the performance of obligations under its long-term contracts with respect to minimum offtake volumes (Yamal contract) and contracted LNG volumes.

PST will continue to develop wholesale trading in energy commodities. Commercial activities are planned to be undertaken in the Slovak and Hungarian markets in 2020. PST Polish Branch began to supply gas to industrial customers in Poland (formerly Wholesale Trading Branch customers) in January 2020.

In 2020, GSP will work on the construction of the Kosakowo CUGSF, comprising five chambers in Cluster B, which are to be filled with gas and put into operation by 2021.

Distribution

The Group plans to maintain the current level of expenditure on expanding the distribution grid, connecting new customers, and on altering and modernising the gas network to a high standard, with 70,000 new gas service lines expected to be built in 2020.

Capital expenditure on gas grid upgrades is made in order to meet growing requirements related to the need to ensure security of gas supplies and operation of the gas grid, including gas pipelines, gas service lines and gas service points, complexes and stations.

Compared with 2019, when a total of approximately 600 km of the grid was upgraded, the scale of upgrades will range from 770 km in 2020 to 1,000 km in 2022.

Generation

The PGNiG TERMIKA Group faces a number of challenges in its market and regulatory environments, as well as the need to continue its modernisation programme to replace or adapt its existing generation assets to more and more stringent environmental requirements and expand its generation capabilities.

The PGNiG TERMIKA Group will proceed with its strategic initiatives and acquisitions commenced in 2019, and intends to markedly scale up the volume of electricity sales by implementing projects aimed at building new, cost-effective generation capacities and upgrading existing sources using low-carbon technologies.

Additionally, in 2020 the Generation segment will work on securing heat supplies to the city of Rybnik, connecting the Zofiówka and Pniówek CHP plants' heat systems, launching a programme to develop the hot domestic water market (initially in Jastrzębie Zdrój) and drilling additional gas wells at the Krupiński coal mine. Work is in progress on the projects to build an off-grid heating system in Warsaw, construct a complex of eight local gas-fired boiler units in Toruń.

Other growth projects

In 2020, PGNiG Ventures will commence operations with a strategy to invest in growth-potential companies. In 2020, the company is expected to launch a programme to search for entities meeting the investment criteria, which will enable it to estimate the scope and level of investments.

In 2020, the research and development area will be geared towards commercialisation projects and achievement of direct business benefits. At the same time, new business areas with a potential for enhancing the Group's competitiveness and market position in the medium and long term will be constantly explored. These include: strengthening of the position in hydrogen technologies, transferring the MiniDrill and EkoHead R&D projects for commercialisation, wide application of photovoltaics, including in the production of 'green' hydrogen, biomethane, and development of modern environmental management systems through the implementation of the Eco Management Audit Scheme at the PGNIG Group.

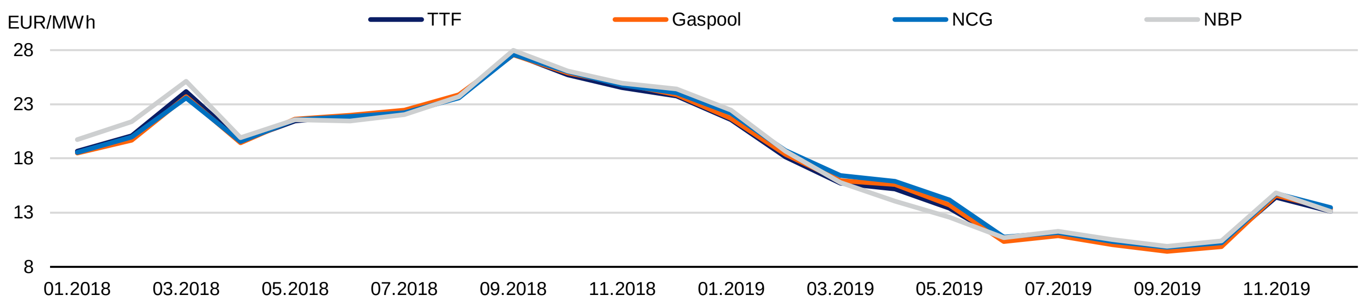
3. Business environment

3.1 Market overview

3.1.1 Gas market in Europe and globally

In 2019, natural gas prices in Europe fell on average by 39% year on year (based on prices recorded at TTF, GASPOOL, NCG and NBP, and on the Polish Power Exchange), from EUR 23.15/MWh in 2018 to EUR 14.08/MWh. The largest price declines were seen in the Netherlands (TTF) and in the United Kingdom (NBP) – by over 40% on average, and the smallest in Poland (ca. 36%).

Chart 7 Average monthly spot prices of natural gas at selected European hubs



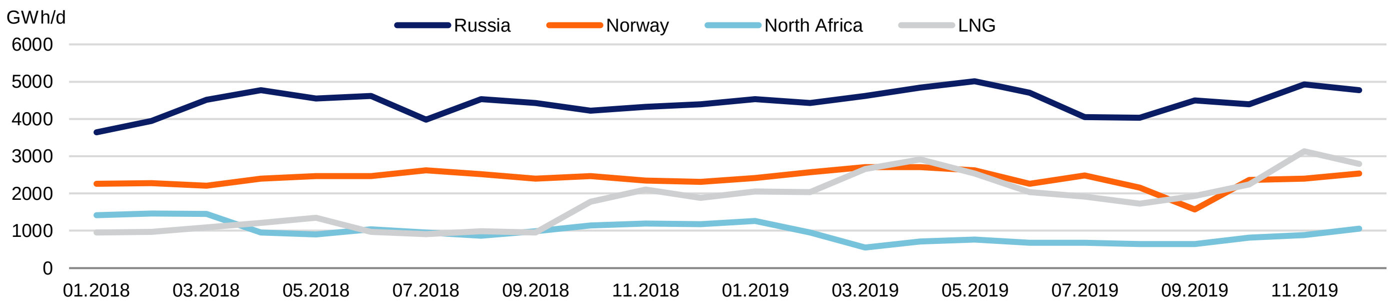
Source: In-house analysis based on ICE data.

In Europe, the air temperatures in winter were generally above the typical range for the season, which depressed the demand for gas used for heating purposes. At the same time, LNG imports to Europe grew strongly, by 60% compared with 2018, driven by lower demand for natural gas in Asia (higher temperatures and lower growth rates of industrial production) and launch of new liquefaction capacities in the US and Russia. LNG from the US was exported to Europe even below the profitability threshold. Meanwhile, demand in Europe grew by 3% in the period. The continued oversupply resulted in pressure on prices, which kept falling across all European markets until September, when it reached the historical monthly low of EUR 9.68/MWh.

In the second half of 2019, gas prices in Europe were affected to a large extent by the high levels of inventories held in gas storage facilities. The uncertainty of future transmission of Russian gas through Ukraine's infrastructure and the relatively low price led to higher gas injection volumes, with the 90% filling level reached already in August.

The fourth quarter saw an increase in gas prices in Europe, but the average price in that period was 48% lower than in the corresponding period of 2018. This trend was so strong that in the fourth quarter the average price of gas was lower than in the second quarter. Further price declines were halted as electricity production from coal-fired units was being replaced with gas-powered sources. The substitutability of these two energy sources was one of the reasons for a spike in gas demand in Europe in 2019.

Chart 8 Main sources of gas imports to Europe



Source: In-house analysis based on Thomson Reuters data.

The total volume of natural gas imported into Europe in 2019 was 3,690 TWh, of which 45% (1,667 TWh) came from Russia. The share of imports from Russia fell slightly below the 2018 level. The second largest gas supplier in Europe was Norway, with 876 TWh (80mcm), accounting for 24% of the total supplies. Imports from North Africa amounted to 293 TWh (26.5 bcm, 8% of the total supplies), while LNG deliveries to European terminals reached 852 TWh (23% of the imported volumes).

LNG

The global LNG trading volume grew by 12% year on year, to over 483 bcm after regasification. This strong increase on 2018 (of 52 bcm) was caused by the launch of new liquefaction capacities, including in Australia, the US and Russia. The largest rises in exports in 2018−2019 were seen in the US – of 20 bcm, while the largest growth in imports, in percentage and value terms, took place in Europe – almost 50 bcm compared with 2018.

Table 7 LNG demand and supply in 2018 and 2019, in bcm, after regasification

Supply	2019	2018	Change %
Europe	6.6	6.6	0.0%
including Norway	6.47	6.46	0.2%
Asia and Pacific	217.4	192.88	12.71%
including Australia	104.48	94.04	11.1%
North and South America	73.44	52.68	39.4%
including United States	49.97	29.94	66.90%
Africa	59.18	53.23	11.2%
Middle East	126.55	125.97	0.5%
including Qatar	105.56	105.9	(0.32%)
Globally	483.21	431.35	12.0%
Demand	**2019**	**2018**	**Change %**
North and South America	23.05	25.77	(10.55%)
Europe	121.39	71.81	69.04%
Middle East	9.67	10.53	(8.17%)
North-East Asia	262.88	267.00	(1.57%)
including China	82.19	72.26	13.74%
Globally	479.32	427.97	12.00%

Source: In-house analysis based on Thomson Reuters.

3.1.2 Polish gas market

The growing demand for natural gas in Poland is met by domestic production and imports. Gas is transported to Poland via an extensive transmission network, with LNG-derived gas additionally fed into the network since 2016. Gas is traded on the Polish Power Exchange, and distributed physically to end users through distribution and transmission networks. The last component of the national gas system is gas storage facilities.

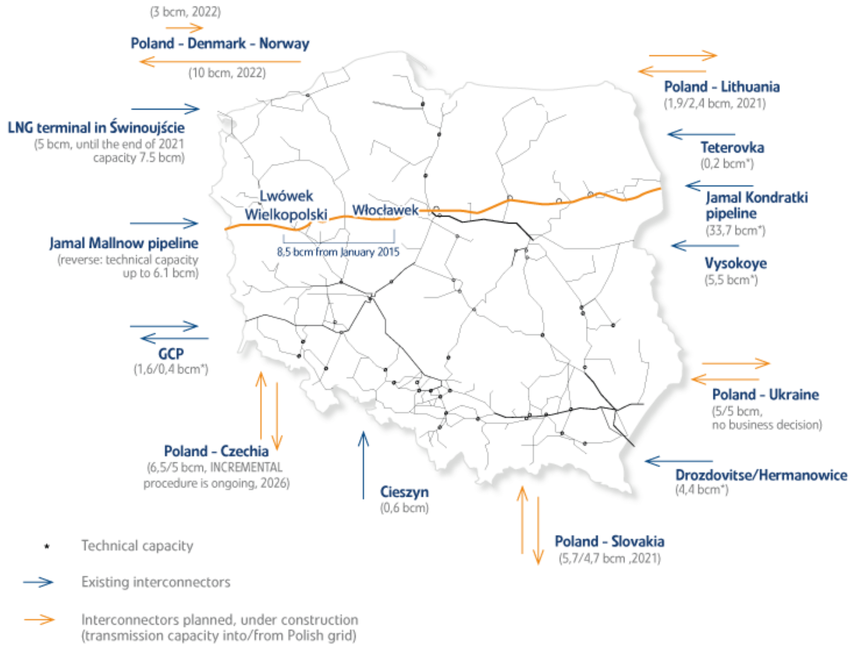
Gas demand in Poland and its structure

Consumption of high-methane grid gas in Poland in 2019 (excluding gas fuel supplied on the OTC and PPX markets) was some 183.5 TWh. Compared with 2018, the volume grew by 2.9 TWh, or 1.6% year on year. The increased consumption was a function of greater consumption of gas by new customers connected to the transmission network (up 7.3% year on year) following the launch of new gas-fired generating units. The distribution network demandwas close to that seen in the previous year (-0.3% year on year).

Transmission system

The management of the transmission network and the supply of gas to distribution networks and end users connected to the transmission system are the responsibility of GAZ-SYSTEM. The transmission network comprises the Transit Gas Pipeline System and the National Transmission System (high-methane gas [E group] and nitrogen-rich gas [Lw subgroup]).

Figure 3 The transmission system and existing and planned strategically important cross-border entry points into the transmission system



Source: GAZ-SYSTEM and European Network of Transmission System Operators for Gas (ENTSOG).

The Baltic Pipe

The Baltic Pipe project is a strategic infrastructure project aimed at creating a new gas supply corridor on the European market. It is to enable the transmission of gas directly from deposits located in Norway to markets in Denmark and Poland, as well as to consumers in the neighbouring countries. The annual transmission capacity of the Baltic Pipe will reach up to 10 bcm to Poland and up to 3 bcm to Denmark and Sweden.

GAZ-SYSTEM and Energinet, operators of the Polish and Danish transmission systems who are implementing the project, made a final investment decision in 2018. In 2019, the Polish and Danish operators continued preparations for the construction, which included taking steps to obtain environmental and location decisions and building permits for the individual components of the planned infrastructure. Construction work is expected to from 2020 to 2022. Gas transmission is scheduled to commence on October 1st 2022.

LNG terminal

The nominal annual regasification capacity of the LNG terminal in Świnoujście is 5 bcm (after regasification) of natural gas, which is then fed into the transmission network. PGNiG has 100% of the regasification capacity until 2035. In October 2019, Polskie LNG S.A., the operator of the terminal, signed a contract for the purchase of submerged combustion vaporizers (SCV), which will enable it to increase the nominal regasification capacity to 7.5 bcm annually. LNG is also transported by road tankers, and its volumes delivered to the gas network from the terminal, which reach end users in the form of liquefied natural gas (small-scale LNG), are steadily growing.

Imports

2019 saw increasing volumes of gas fuel imported to Poland. They reached 183.71 TWh (up by 20.7 TWh, or approximately 12.7%), with a 0.2% decline in gas imported from countries east of Poland and a nearly 40% rise in gas imports from the EU year on year. The majority of imported gas (ca. 54% of total flows) originated from across Poland's eastern border.

Table 8 Gas flows at Poland's gas grid entry/exit points

Entry/exit point (in TWh)	2019	2018	Change %
Supplies from EU	48.79	34.82	39.94%
including Lasów, Gubin (GCP)	3.97	4.33	(8.69%)
including Cieszyn	4.70	3.89	20.14%
including Mallnow	40.12	26.60	50.80%
Supplies from across Poland's eastern border	98.75	98.83	-0.19%
including Drozdovitse	41.96	42.51	(1.51%)
including Teterovka	0.86	0.87	(1.79%)
including Kondratki	23.90	22.06	8.38%
including Vysokoye	32.04	33.39	(4.11%)
LNG regasification	36.16	29.17	23.63%
Exports to Ukraine (mainly Hermanowice)	14.99	7.26	106.11%
Total flow	198.69	170.08	16.65%

Source: In-house analysis based on ENTSOG data.

In 2019, the volume of gas regasified at the LNG terminal in Świnoujście increased by 23.6% on 2018 as a result of spot purchases and deliveries under a long-term contract with Cheniere.

In 2019, PGNiG received a total of 18 LNG shipments under the long-term contracts with Qatargas. The volume of LNG imports from Qatar amounted to 1.65m tonnes, i.e. approximately 25.08 TWh or 2.29 bcm of natural gas after regasification. In 2019, PGNiG purchased gas under ten spot contracts; its volume totalled 0.61m tonnes, i.e. ca. 9.34 TWh or 0.85 bcm of natural gas after regasification. The spot deliveries were sourced from Norway (three shipments) and the US (seven shipments), and were arranged in cooperation with the LNG trading office in London. In 2019, PGNiG also received two LNG shipments under a medium-term contract with Centrica.

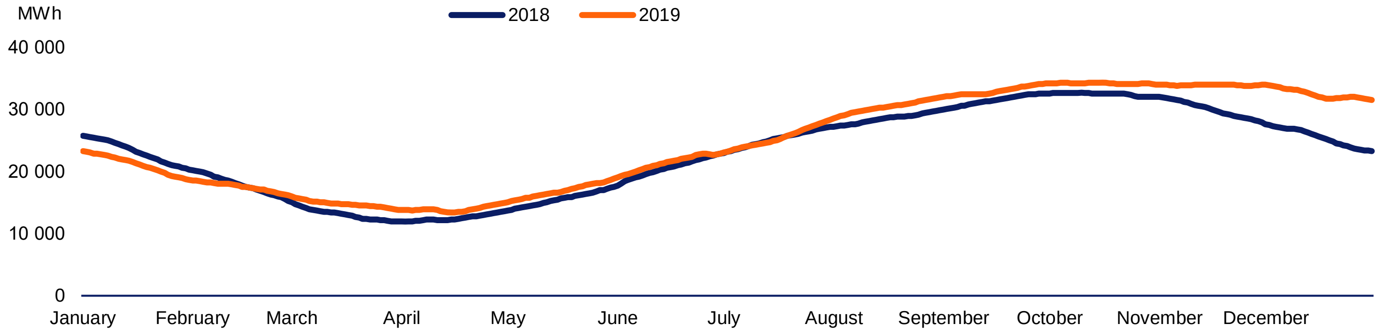
Over 2019, PGNiG imported 31 shipments of LNG via the LNG terminal, with a total volume of 2.46m tonnes, i.e. approximately 3.43 bcm of natural gas after regasification.

Gas storage

The average daily withdrawal of gas from Polish UGSFs over the withdrawal period amounted to 75 GWh in 2019, down 45% on the previous year. In the summer of 2019, gas was injected into storage at an average rate of 127 GWh/d, up 8 GWh/d on 2018.

At the end of 2019, Polish gas storage facilities were filled to approximately 92.3% of capacity, up 26pp on the end of the previous year. Other European markets also saw higher inventory levels at storage facilities: in Germany, they grew to 97% of capacity, from 75% as at the end of 2018.

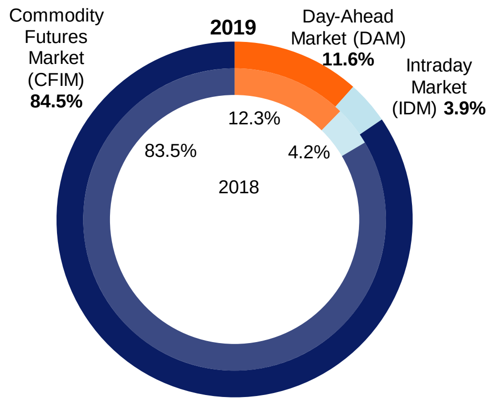
Chart 9 Levels of gas in storage in Poland in 2018–2019



Source: In-house analysis based on Gas Infrastructure Europe and Gas Storage Europe data.

Polish Power Exchange

Chart 10 Contracts traded on the PPX in 2018 and 2019

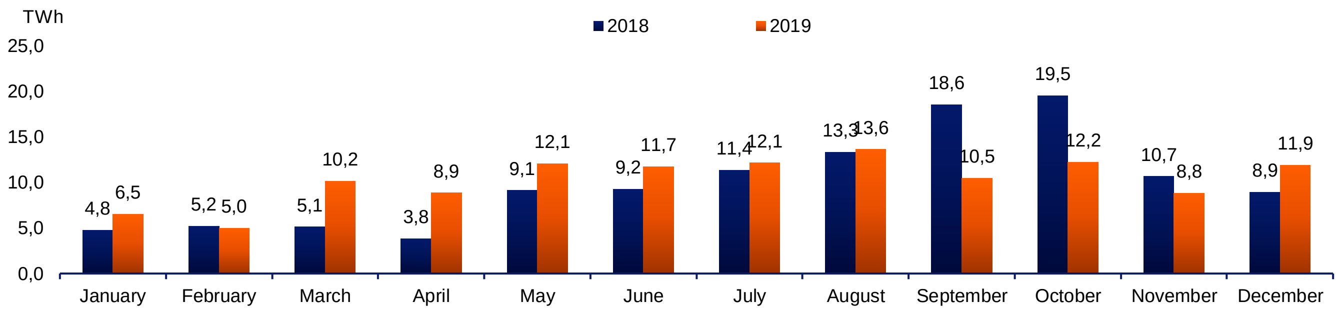


Source: In-house analysis based on PPX data.

PGNiG is the leader of gas trading on the PPX. According to PPX data, in 2019 the total gas trading volume was 146.1 TWh, of which 123.5 TWh was traded on the commodity futures market (RTT). This means that almost 85% of gas trades in 2019 were executed under contracts with maturities of a year, season (summer, winter), quarter, month, and week.

In 2019, the Polish Power Exchange reported a record-high result in the history of its gas trading, and the total volume of gas trades grew by 2.0% relative to 2018. Record trading volumes were also seen on the commodity futures market for gas (RTT): they went up by 3.2% year on year. On the other hand, the volumes on the Day-Ahead Market and the Intraday Market declined on 2018, and stood at 16.9 TWh (down 3.7%) and 5.7 TWh (down 6.3%), respectively.

Chart 11 Commodity futures (RTT) trading volume on the PPX in 2018 and 2019 (TWh)



Source: In-house analysis based on PPX data.

3.2 Regulatory environment

The tables present the provisions of Polish and European laws which are of key importance to the PGNiG Group's operations.

3.2.1 Regulatory environment in Poland

Table 9 Changes in Polish regulations and their impact on the PGNiG Group

	Scope of the changes	Effect of the changes on the PGNiG Group
Energy Law	• Amendments to the Energy Law that came into force in 2019 relate to the designation in contracts of an emergency supplier and introduce the requirement to sell all electricity output on the public market. • The Energy Law was amended to bring it in line with the new structure of the cogeneratton support system. • The obligations of gas system operators (including operators of the transmission, distribution and the entire connected gas system) were defined, and more specific regulations on the powers of the President of URE in defining the relationship between the gas network owner and its operator were introduced. • Amendments were also made to adapt the Energy Law to changes made to the RES support system in relation to prosumption.	The effect of the changes is neutral to the PGNiG Group.
Act on Mandatory Stocks	In 2019, the rules governing the maintenance of crude oil stocks were amended.	The effect of the changes is neutral to the PGNiG Group.
Act on Electromobility	• An amendment to the Act on Electromobility that came into force in 2019 provides that small DSOs are not obliged to prepare programmes for the construction of natural gas stations. • Certain acts amending the Act on Electromobility were also enacted, establishing the reference roles of local government units and public administration authorities, and changing the definitions of liquefied natural gas bunkering (LNG) and liquefied natural gas bunkering points.	The effect of the amendments is favourable for the PGNiG Group.
Energy Efficiency Act	• An amendment to the Energy Efficiency Act that came into force in 2019 recognises the implementation of municipal low-carbon programmes as a measure improving the energy efficiency of public sector entities and provides for the possibility of obtaining energy efficiency certificates for such programmes. • It was also established that energy efficiency certificates issued under the previous Energy Efficiency Act of April 15th 2011 could be used until June 30th 2021 to meet the efficiency obligation.	The effect of the changes is neutral to the PGNiG Group.
Capacity Market Act	No amendments to the Capacity Market Act were made in 2019.	
Act on the Promotion of Electricity from High-Efficiency Cogeneration	Amendments were made to the Act to align the rules for the provision of support to new units with the EU law.	The effect of the changes is neutral to the PGNiG Group.
Act on Special Hydrocarbon Tax	In 2019, the special hydrocarbon tax was abolished.	The effect of the amendments is favourable for the PGNiG Group.
Diversification Regulation	In 2019, no amendments were made to the Diversification Regulation.	
System Regulation	In 2019, no amendments were made to the System Regulation.	
Tariff Regulation	The amendments made in 2019 to the tariff Regulation clarified the method of calculating and making settlements on the gas fuel market.	The effect of the amendments is favourable for the PGNiG Group.

3.2.2 European regulatory environment

Table 10 Changes in European regulations

	Scope of the changes	Effect of the changes on the PGNiG Group
Gas Directive (Directive 2009/73/EC)	• The amendment of the Gas Directive was intended to confirm applicability of the Directive to gas import infrastructure from third countries up to the territorial seas of the EU Member States. • The final text of the amended Gas Directive (Directive (EU) 2019/692 of the European Parliament and of the Council (EU) amending Directive 2009/73/EC concerning common rules for the internal market in natural gas – the "Amendment") was adopted on April 17th 2019. • The Amendment provides for the application of the Gas Directive to offshore gas pipelines used to import gas into the European Union. The geographical limits for the applicability of the Gas Directive are defined as the boundaries of the territorial seas of the EU Member States. • There are two exceptions to the principle of applying the European law to import infrastructure from third countries. First, new gas infrastructure, just like European infrastructure, may be exempted from the above obligations in accordance with the rules provided in the Gas Directive. The second exception is where a Member State grants derogation from the obligations for infrastructure from a third country	The Amendment may have a positive effect on the operations of the PGNiG Group, depending on the implementation of the Gas Directive by the Member States.

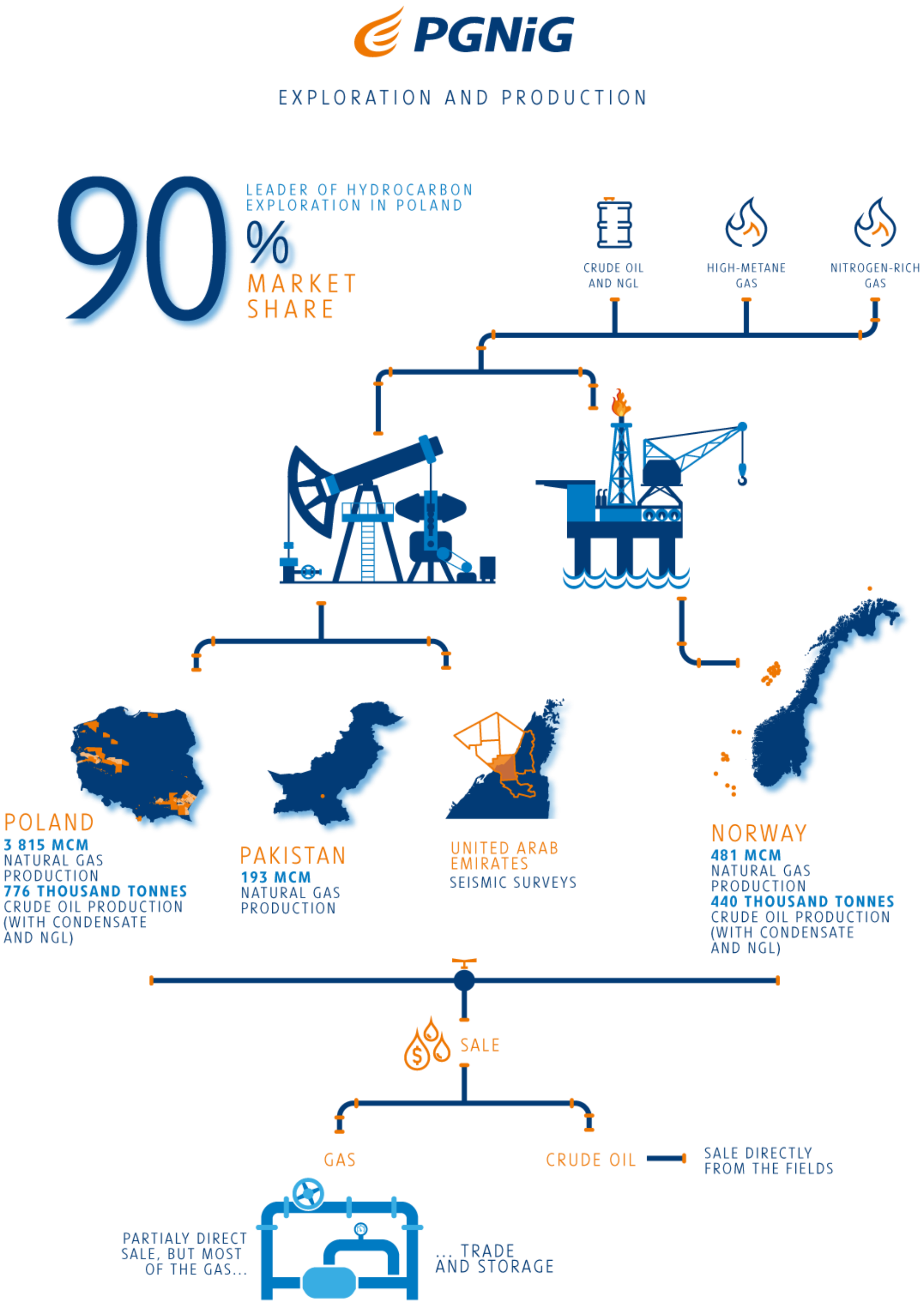
	built before the effective date the Amendment to the Gas Directive (May 23rd 2019).	
European funds	• Work continued on legal acts setting out the framework for spending European funds in the 2021–2027 financial framework. • Under the previous financial framework, the PGNiG Group was primarily a beneficiary of the European Regional Development Fund (ERDF). • The ERDF funds are to be used to provide financial assistance to projects supporting the economic and social development of the European Union. Under both the previous and current financial frameworks, the ERDF was a significant source of funding for the extension of gas distribution network and gas storage facilities. The European Commission's proposal carries a significant risk: no applications can be submitted to the ERDF for financial support for any project involving the transport, combustion or storage of fossil fuels. Work on the subject is being carried out by committees of the European Parliament and by the Council of the European Union. The final form of the regulation on the financing of natural gas will be the subject of interinstitutional negotiations between the European Parliament and the Council of the European Union. It is not possible to estimate the date of adoption of the final wording of the ERDF Regulation at this stage of legislative work. • Another instrument governing spending of European funds is the Regulation establishing the Connecting Europe Facility for natural gas. The PGNiG Group was not a direct beneficiary of the funds under the Facility, but the development of interconnections financed with such funds had a positive effect on the operations of the PGNiG Group. • With regard to natural gas, the Connecting Europe Facility is intended to support infrastructure projects which are part of the supply corridors enabling diversification of natural gas supplies to the European Union.	At the current stage, there are risks related to the potential ineligibility of gas infrastructure investments.
Communication on the European Green Deal	• The Communication on the European Green Deal was adopted and published by the European Commission in November 2019. • The Communication outlines the legislative and non-legislative plans for climate action. According to the Communication, the European Commission intends to introduce the 2050 climate neutrality objective in the EU legislation, increasing its 2030 greenhouse gas reduction targets to 50–55%. • In order to achieve those plans, the European Commission intends to propose a number of energy and climate policy and financing regulations during its current term of office.	The Communication will have no effect on PGNiG Group's business. However, challenges for the PGNiG Group should be expected in relation to the legislative acts proposed by the European Commission.
Sustainable Finance Package	• The objective of the Sustainable Finance Package was to adopt regulations harmonising sustainable finance and promoting sustainable investment. • In 2019, the final shape of the Sustainable Finance Package was agreed. Two new sustainability benchmarks have been introduced as well as the framework requirements that must be met for operations to be qualified as sustainable investments. • Also in 2019, the European Commission's Technical Expert Group on Sustainable Finance published reports aimed at providing technical support to the European Commission in the preparation of implementing and delegated acts based on the Sustainable Finance Package. • Work on the implementing and delegated acts is expected to commence in 2020.	At this stage, the effect of the regulations on the PGNiG Group's operations is assessed as neutral.
Clean Energy for All Europeans Package	• The Clean Energy for All Europeans Package is a comprehensive reform of the European regulatory environment for the electricity sector. • All legislative procedures related to the Clean Energy for All Europeans Package were finally adopted in 2019. • The new regulations increased the 2030 target on the share of renewable energy in energy consumption (Directive 2018/2001/EC of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources) to 32% (the previous target was 20% to be achieved by 2020), and increased the energy efficiency target to 32.5% (Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency). • The new regulation on the internal market for electricity (Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity) also introduced harmonised requirements for capacity mechanisms, including by introducing climate requirements for installations eligible to participate in those mechanisms. Only installations that emit less than 550 g CO_2/kWh will be eligible. At the same time, a transitional period until 2025 was introduced for installations which became operational before the effective date of the Regulation (July 4th 2019) and installations in respect of which commitments have been made under the capacity mechanisms.	It is expected that the new regulations for the electricity market will have a neutral effect on the PGNiG Group's operations.

Directive on the Promotion of Clean and Energy Efficient Road Transport Vehicles	• In 2019, Directive (EU) 2019/1161 of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles ("CVD Amendment") was also adopted. The purpose of the CVD Amendment was to increase the obligation for the share of clean and energy-efficient vehicles imposed on the public procurement sector. • In the final version of the Amendment to the Clean Vehicle Directive, heavy-duty vehicles using natural gas (LNG/CNG) as fuel were classified as clean vehicles. This means that by procuring such vehicles a public body can achieve the target for the share of clean vehicles. Poland is obliged to ensure by 2025 that 32% of buses meet the definition of a clean vehicle; by 2030, this share should increase to 46%.	The regulations will have a positive effect on the operations of the PGNiG Group.
NC CAM Regulation	• The purpose of Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No 984/2013 ("NC CAM") is to introduce harmonised allocation mechanisms for interconnectors. The harmonisation is intended to facilitate cross-border trading in natural gas in case of disruption in gas supplies.	
EU ETS	• The EU ETS Directive (Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814 – the "Amendment to the EU ETS Directive) is designed to limit the amount of emission allowances available on the European market for emissions trading. The Amendment to the EU ETS Directive has also created a dedicated fund supporting the development of RES, low-carbon technologies (mainly CCS/CCU) and energy storage technologies. • In 2019, the European Commission adopted a delegated act establishing the Innovation Fund (Commission Delegated Regulation (EU) 2019/856 of 26 February 2019 supplementing Directive 2003/87/EC of the European Parliament and of the Council with regard to the operation of the Innovation Fund). The Fund will be financed with proceeds from the sale of 450 million CO_2 emission allowances and its purpose will be to support the development of renewable energy, energy storage solutions and carbon capture and utilisation technologies (CCS/CCU). • In addition, in the Communication on the European Green Deal, the European Commission announced its plans to modify the EU ETS so that the emission trading mechanism supports increased EU's climate ambition.	The Amendment to the EU ETS Directive affected the cost of emission allowances, thus having a negative effect on the PGNiG Group's operations.
SoS Regulation	• Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard security of gas supply and repealing Regulation (EU) No 994/2010 ("SoS Regulation"). The purpose of the SoS Regulation was to improve the security of natural gas supplies to the European Union and its Member States and to introduce regional measures to improve security of supply. • In 2019, work continued to adapt the national regulatory framework to the new requirements of the SoS Regulation. The PGNiG Group worked on harmonising its procedure to be followed in the event of gas supply disruptions.	
TAR NC Regulation	• Commission Regulation (EU) 2017/460 of 16 March 2017 establishing a network code on harmonised transmission tariff structures for gas (the "NC TAR Regulation"), aimed at enhancing the transparency of transmission tariff structures and procedures for their determination by, inter alia, setting out requirements for publishing information on the determination of transmission system operators' revenue and the determination of different transmission and non-transmission tariffs. • In 2019, the NC TAR Regulation was not amended.	

4. Operating activities in 2019

4.1 Exploration and Production

The segment's operations involve exploring for and extracting natural gas and crude oil from deposits, and include geological surveys, analysis of geophysical data, drilling, and development of and production of hydrocarbons from gas and oil fields. Its core business is conducted in Poland, Pakistan and on the Norwegian Continental Shelf, while supporting activities are carried out worldwide. The segment also relies on storage capacities available at the Bonikowo and Daszewo UGSFs.



4.1.1 Key operating metrics

Table 11 Volume of PGNiG Group's natural gas production by country

mcm	2019 PGNiG Group	2019 PGNiG	2018 PGNiG Group	2018 PGNiG	2017 PGNiG Group	2016 PGNiG Group	2015 PGNiG Group
Poland	3,815	3,815	3,808	3,808	3,839	3,881	3,967
high-methane gas (E)	1,337	1,337	1,296	1,296	1,315	1,400	1,454
nitrogen-rich gas (Ls/Lw as E equivalent)	2,478	2,478	2,512	2,512	2,524	2,481	2,513
Other countries	674	193	738	200	698	576	625
Norway (high-methane gas (E))	481	-	538	-	548	517	573
PGNiG Pakistan Branch (nitrogen-rich gas (Ls/Lw as E equivalent))	193	193	200	200	150	59	52
TOTAL (measured as E equivalent)	4,489	4,008	4,546	4,008	4,537	4,458	4,591

Table 12 Volumes of E&P segment's natural gas sales to non-PGNiG Group customers by country

mcm	2019 PGNiG Group	2019 PGNiG	2018 PGNiG Group	2018 PGNiG	2017 PGNiG Group	2016 PGNiG Group	2015 PGNiG Group
Poland	679	679	684	684	676	707	685
high-methane gas (E)	25	25	26	26	30	53	52
nitrogen-rich gas (Ls/Lw as E equivalent)	654	654	658	658	646	645	633
Other countries	192	192	199	199	149	58	52
Norway (high-methane gas (E))	-	-	-	-	-	24	1
PGNiG Pakistan Branch (nitrogen-rich gas (Ls/Lw as E equivalent))	192	192	199	199	149	58	51
TOTAL (measured as E equivalent)	871	871	883	883	825	780	737

Table 13 Crude oil production and sales volumes* at the PGNiG Group (including condensate and NGL)

thousand tonnes	2019 PGNiG Group	2019 PGNiG	2018 PGNiG Group	2018 PGNiG	2017 PGNiG Group	2016 PGNiG Group	2015 PGNiG Group
Crude oil production*	1,216	771	1,345	818	1,257	1,318	1,428
in Poland	776	771	818	818	787	763	765
in Norway	440	-	527	-	470	555	664
Crude oil sales*	1,210	771	1,410	817	1,270	1,347	1,391
including oil produced in Poland	771	771	817	817	791	753	772
including oil produced in Norway	439	-	593	-	479	593	619

Including condensate and NGL.

Table 14 Production volumes for other products

thousand tonnes	2019 PGNiG Group	2019 PGNiG	2018 PGNiG Group	2018 PGNiG	2017 PGNiG Group	2016 PGNiG Group	2015 PGNiG Group
Propane-butane	39	39	39	38	37	37	35
LNG	20	20	21	21	22	26	25
mcm							
Helium	3	3	3	3	3	3	3

Table 15 Sales volumes for other products

thousand tonnes	2019 PGNiG Group	2019 PGNiG	2018 PGNiG Group	2018 PGNiG	2017 PGNiG Group	2016 PGNiG Group	2015 PGNiG Group
Propane-butane	39	39	39	39	37	37	35
LNG	14	14	21	21	17	22	21
mcm							
Helium	3	3	3	3	3	3	3

4.1.2 Operations in Poland

The exploration and production activities in Poland are carried out by PGNIG, with the involvement of its subsidiaries Exalo Drilling and Geofizyka Toruń. The Geology and Hydrocarbon Production Branch serves as the competence centre for geological exploration, geological work, investments in well mining facilities, and hydrocarbon production. It oversees the production of crude oil and natural gas, underground storage of waste, and underground non-reservoir storage of gas for production purposes. PGNiG's structure includes three leading Branches, located in Sanok, Zielona Góra and Odolanów.

Licences in Poland

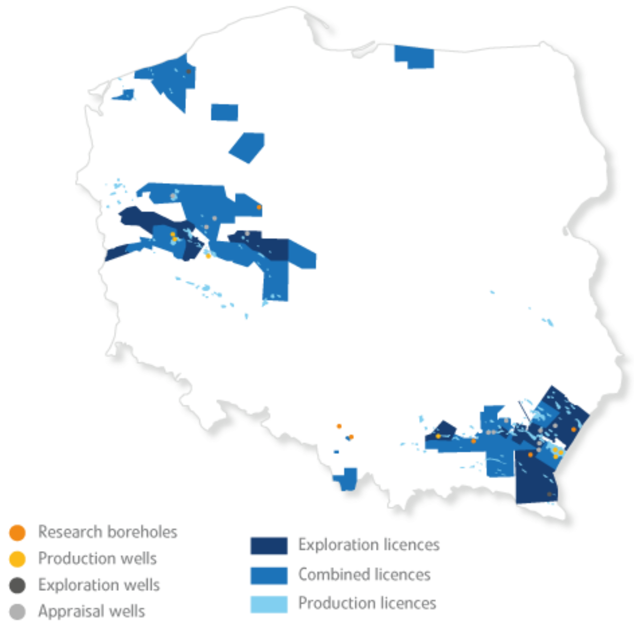
As at January 1st 2019, PGNiG held 47 licences: 20 licences for exploration for and appraisal of oil and gas deposits and 27 combined licences (for exploration, appraisal and production). As at December 31st 2019, PGNiG held 47 licences: 13 licences for exploration for and appraisal of crude oil and natural gas deposits (including 1 licence undergoing the conversion procedure) and 35 combined licences (for exploration, appraisal and production).

In 2019, 21 proceedings to obtain, amend or convert a licence were completed. As at December 31st 2019, proceedings to convert 1 licence, and 21 applications for a licence or licence amendment were pending resolution at the Ministry of the Environment (currently Ministry of Climate). 16 proceedings to approve additional works in plans of geological operations were also completed.

As at December 31st 2019, PGNiG held 202 licences, including 190 production licences, 3 underground waste storage licences and 9 underground gas storage licences. In 2019, PGNiG was granted 3 new production licences (Jata, Babimost and Karmin), 40 licences were amended, 16 were terminated, and proceedings were pending in respect of 8 licences.

Operations under licences held by PGNiG

Figure 4 PGNiG's licences and wells in 2019



Source: In-house analysis based on data from the Geology and Hydrocarbon Production Branch.

Throughout 2019, PGNiG continued crude oil and natural gas exploration and appraisal projects in the Carpathian Mountains, Carpathian Foothills, Sudetian Monocline, and Polish Lowlands, both on its own and jointly with partners. Out of the 35 boreholes drilled in 2019, the target depth was reached by 30, including: 4 research, 3 exploration, 12 appraisal and 11 production wells.

As at the end of 2019, formation test results were obtained from 24 boreholes (3 exploration, 10 appraisal, and 11 production wells). The 24 wells with known formation test results included: 21 positive wells (including 1 exploration, 10 appraisal and 10 production wells), and 3 dry wells (including 2 exploration wells and 1 production well that failed to yield a commercial flow of hydrocarbons). In addition, 2 research wells were abandoned (due to their research nature, the wells are not subject to reservoir classification).

In 2019, workovers, formation tests and abandonment operations were also performed on wells drilled in previous years, including: 5 research wells (of which: 1 well is in the test production phase, 1 is undergoing formation tests, and 1 has been abandoned), 1 production well (abandoned), 7 exploration wells (6 abandoned wells and 1 in the test production phase) and 7 appraisal wells (in 2 formation tests were completed with a positive result, and 2 wells are undergoing production tests).

New wells brought on stream in the Sanok Production Branch's area of operations in 2019 include: 2 wells in the Zagorzyce field (Sędziszów-38K and Sędziszów-39K – long-term test production, wells brought on stream temporarily as part of notified work), 1 well in the Nosówka field (Słotwinka-1), 1 well in the Zagorzyce field (Sędziszów-37), 1 well in the Pruchnik-Pantalowice field (Pantalowice-7K), 5 wells in the Przemyśl field (Przemyśl-288k, Przemyśl-302k, Przemyśl-305k, Przemyśl-286k, Przemyśl-47 – long-term test production) and 1 well in the Przeworsk field (Przeworsk-24 – long-term test production). In addition, production began from 2 boreholes, Kramarzówka-2H and Kramarzówka-1k, as part of long-term tests.

New fields in the Sanok Production Branch's area of operations where production started in 2019 include Olchowiec (Olchowiec-2 well – long-term test production) and Gnojnica (Gnojnica-2k and Gnojnica-3k wells – long-term test production).

In the Zielona Góra Production Branch's operational area, a new Miłosław-5k/H borehole in the Miłosław field was tied in in 2019.

Table 16 PGNiG's production facilities

No. of production facilities	Sanok	Zielona Góra
Gas production facilities	18	10
Oil production facilities	5	1
Oil and gas production facilities	13	7
Total	36	18

Operations in licence areas conducted with partners

In 2019, in its licence areas PGNiG cooperated with other entities, including: LOTOS Petrobaltic S.A., ORLEN Upstream Sp. z o.o. and FX Energy Poland Sp. z o.o. (with effect from January 1st 2020, FX Energy Poland Sp. z o.o.'s interest was acquired by ORLEN Upstream Sp. z o.o.).

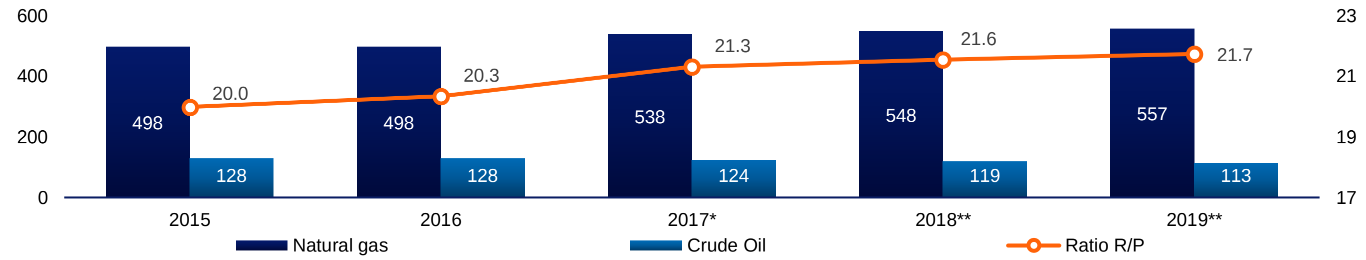
Under licences held by PGNiG, work was continued in the following areas:

- Płotki – under the joint operations agreement dated May 12th 2000; licence interests: PGNiG (operator) – 51%, FX Energy Poland Sp. z o.o. – 49%. A 3D seismic survey was started over the Rusocin area, and processing and interpretation of 3D seismic data from the Boguszyn-Młodzikowo area were commenced. Work was continued on the development of the Chwalęcin natural gas field;
- Poznań – under the joint operations agreement dated June 1st 2004; licence interests: PGNiG (operator) – 51%, FX Energy Poland Sp. z o.o. – 49%. Drilling of the Pławce-3/3H appraisal well and the 3D seismic survey of the Brzezie-Gołuchów area were commenced, and development of the Miłosław gas field (Miłosław-5K/H) was completed;
- Bieszczady – under the joint operations agreement dated June 1st 2007; licence interests: PGNiG (operator) – 51%, Eurogas Polska Sp. z o.o. – 24%, and Energia Bieszczady Sp. z o.o. – 25%. On July 20th 2015, ORLEN Upstream Sp. z o.o. acquired a 49% interest in licence blocks 437, 438, 456, 457, 458 and in parts of licence blocks 417 and 436 held by Eurogas Polska Sp. z o.o. and Energia Bieszczady Sp. z o.o., thus becoming a party to the joint operations agreement. The licences for blocks 436 and 456 were terminated in December 2018 and April 2019, respectively. On October 30th 2019, licences for blocks 437 and 457 were converted into a combined licence for exploration, appraisal and production of crude oil and natural gas. In March 2019, documentation of seismic surveys on the 2D Leszczowate field was completed. In July 2019, the Czarna Dolna-1 borehole was abandoned owing to no commercial flow of hydrocarbons. In December 2019, drilling of the Dylągowa-1 exploration hole was commenced;
- 'Sieraków' – under the joint operations agreement dated June 22nd 2009; licence interests: PGNiG (operator) – 51%, ORLEN Upstream Sp. z o.o. – 49%. Analytical and documentation work was continued and a decision was made to develop the field by drilling the Sieraków-2H well;
- Górowo Iławieckie – under the joint operations agreement dated December 31st 2014; licence interests: PGNiG (operator) – 51%, LOTOS Petrobaltic S.A. – 49%. 3D seismic surveys were carried out on the Miłaki area and interpretation of seismic surveys was completed. A geological work plan was prepared for drilling the Miłaki-1k borehole, approved for implementation in December 2019.
- Under licences held by FX Energy Poland Sp. z o.o., work was conducted in the Warszawa-Południe area (block 255) under the joint operations agreement dated May 26th 2011. The licence interests are as follows: FX Energy Poland Sp. z o.o. (operator) – 51%, and PGNiG – 49%. In October 2017, PGNiG terminated the joint operations agreement. In 2019, the Wilga Production Centre infrastructure was decommissioned (the Wilga 255-2 well was abandoned, and the surface infrastructure and gas pipeline were decomissioned).

Recoverable reserves

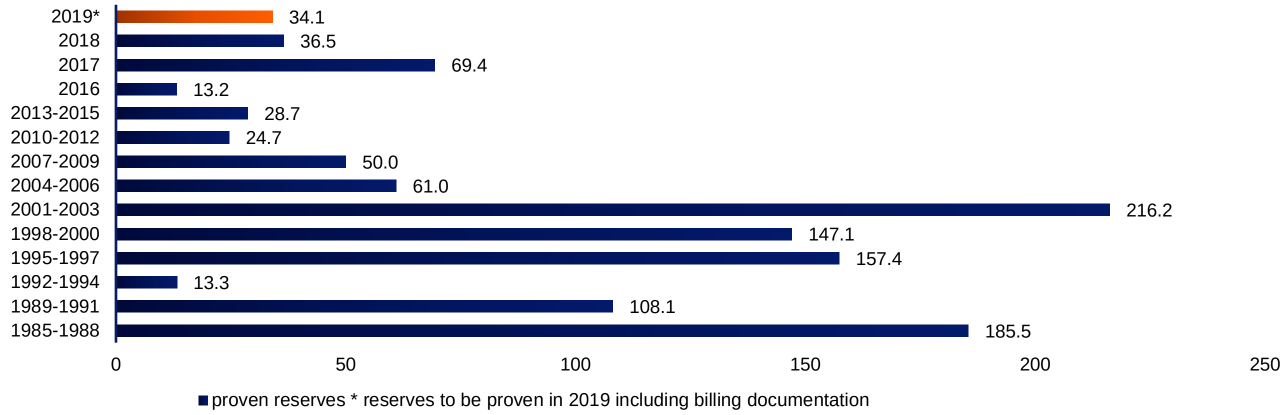
As at December 31st 2019, recoverable reserves in Poland were as follows: approximately 15.4 million tonnes of crude oil and 86.4 mcm of natural gas (at high-methane gas equivalent), including the reserves covered by geological prospecting documentation and deposit usage documentation submitted to the Ministry of Climate and pending the Minister's decision.

Chart 12 Recoverable reserves documented by PGNiG in Poland in 2015–2019 and the R/P ratio (mboe)***



** Also included are reserve increases specified in the documentation approved by the Commission for Mineral Resources, pending the decision of the Minister.*
*** Including reserves covered by geological prospecting documentation and deposit usage documentation submitted to the Ministry and pending the Minister's decision*
**** Ratio of the hydrocarbon reserves to the production volume.*

Chart 13 Recoverable reserves documented by PGNiG in Poland in 1985−2019 (mboe)



Use of the extracted hydrocarbons

The main products sold by the Exploration and Production segment are high-methane gas, nitrogen-rich gas and crude oil. Some of the produced nitrogen-rich gas is further treated into high-methane gas at the Odolanów and Grodzisk Wielkopolski nitrogen rejection units. Other products, obtained in the process of crude refining, include crude condensate, sulfur, and propane-butane.

Part of the natural gas extracted in Poland is sold directly from gas fields to non-PGNiG Group customers, and also within the PGNiG Group. Natural gas extracted and not sold in the upstream segment is transferred for sale to the Trade and Storage segment.

As regards trading in crude oil extracted in Poland, in 2019 PGNiG continued its trading partnerships with major Polish and foreign players in the fuel sector.

Crude oil is delivered by rail to the Grupa LOTOS refinery in Gdańsk and to Orlen Południe S.A.'s Trzebinia Production Plant (the ORLEN Group). Supplies to the Orlen Południe S.A.'s Jedlicze Production Plant are delivered by road. Crude oil is also supplied, via the PERN pipeline, to TOTSA Total Oil Trading S.A.. PGNiG sells crude oil at market prices.

Competition

In 2019, domestic production of natural gas in Poland was approximately 42.5 TWh, of which 0.7 TWh was produced by PGNiG's competitors (mainly FX Energy Poland Sp. z o.o. and the ORLEN Group). The share of the competitors in domestic production remained at 1.5% compared with 2018. The production volume of high-methane grid gas was close to 24.6 TWh.

Key projects and investments in Poland

In 2019, PGNiG's capital expenditure in the Exploration and Production segment amounted to PLN 997m and was in line with the figure reported for 2018. Major investment projects implemented in 2019 included:

- Drilling of the Jaworze Górne 1 research well: PLN 47.7m;
- Drilling of the Rokietnica 6H appraisal well: PLN 23.6m;
- Drilling of the Granówko 1 exploration well: 23.9m;
- Drilling of the Przemyśl 303K production well: PLN 15.5m;
- Drilling of the Zbąszyń 11H production well: PLN 22.3m;
- Drilling of the Kramarzówka 3H appraisal well: PLN 22.3m;
- Fracturing and formation tests in the Dukla 3H well: PLN 12.5m.

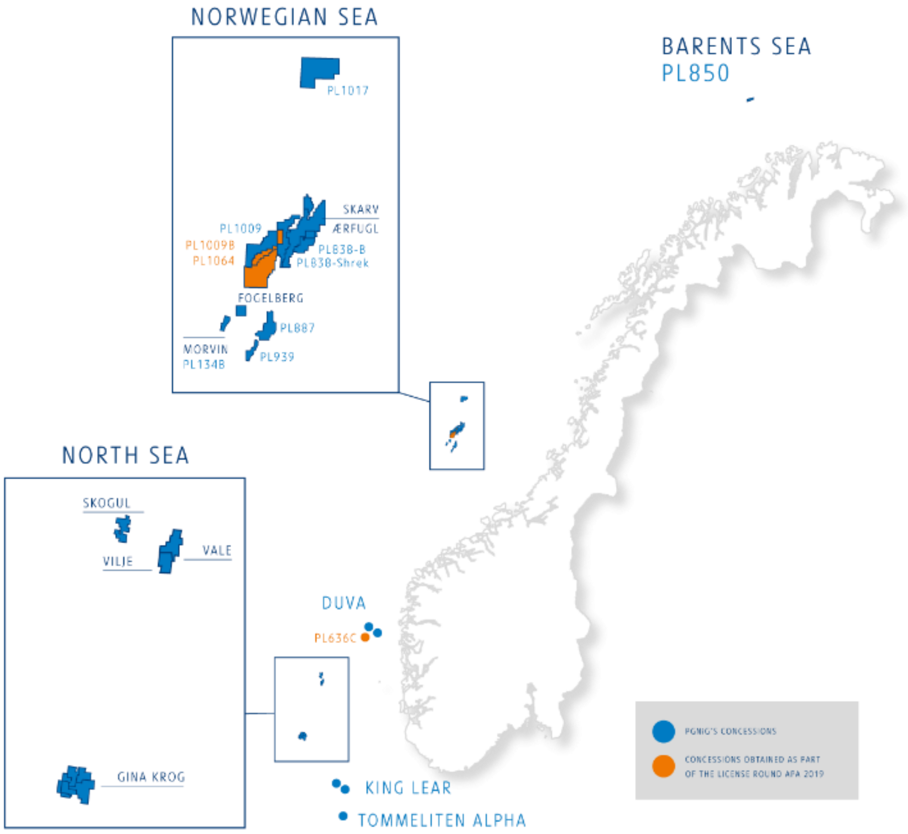
PGNiG's capital expenditure on exploration activities in Poland totalled PLN 594m. Key development projects (in terms of allocated CAPEX) in 2019 included:

- Development of the Gnojnica 2K, 3K OZG Góra Ropczycka – KZG Czarna Sędziszowska wells: PLN 6.7m, completed in 2019;
- Development of the Miłosław gas field – Miłosław 5K/H well: PLN 4.1m, completed in 2019;
- Redevelopment of the Załęcze gas compressor station and upgrade of the boiler house: PLN 11.6m, completed in 2019;
- development of the Przeworsk 24 – KGZ Jarosław well – PLN 2.3m, completed in 2019,
- power generation unit Gilowice 1 K – PLN 6.7m, completed in 2019,
- modernisation of the pipeline system to reduce working pressure on OC Buszewo – PLN 5.2m, completed in 2019.

4.1.3 Foreign operations

Norway

Figure 5 PGNiG UN licences and fields



Source: In-house analysis based on PGNiG UN data.

PGNiG UN holds interests in production, and exploration and production licences on the Norwegian Continental Shelf in the Norwegian Sea, in the North Sea, and in the Barents Sea. Together with its partners it produces hydrocarbons from the Skarv, Morvin, Vilje, Vale, and Gina Krog fields and works on the development of the Skogul, Ærfugl, Duva and Snadd Outer fields. Development of the Tommeliten Alpha and King Lear fields is at the concept preparation phase. In the other licence areas, the PGNiG UN is engaged in exploration projects. PGNiG UN also works towards ensuring stable, predictable and long-term gas supplies to Poland. These efforts include involvement in the construction of infrastructure between Norway and Poland (the Baltic Pipe project), and also potential acquisitions of gas fields in Norway. For more information on the Baltic Pipe project, see Section 3.1.2.

In 2019, the company produced a total of 440 thousand tonnes of crude oil with condensate and NGL (measured as tonnes of crude oil equivalent) and 0.48 bcm of natural gas from the Skarv, Morvin, Vilje, Vale, and Gina Krog fields. Production from those fields was lower year on year due to natural depletion. Another factor affecting production volumes was an unplanned maintenance shutdown on the Vilje and Vale fields.

In 2019, the company proceeded with the development of the Ærfugl i Skogul fields, in which PGNiG UN is a licence partner: The development activities included completion and drilling of production wells. Both fields, operated by Aker BP, are expected to commence producing hydrocarbons in 2020.

In the first half of 2019, PGNiG UN and its partners continued to develop the Gina Krog field. The main activities included drilling of additional gas injection wells to increase oil production. The injected gas will be withdrawn from the field at a later time.

In June 2019, PGNiG UN signed an agreement to acquire 22.2% interests in PL146 and PL333 licences covering the King Lear gas field. The operator of the PL146 and PL333 licences is Aker BP, which holds a 77.8% interest.

In July 2019, PGNiG UN entered into an agreement for the acquisition of 20% interests in licences PL636 and PL636B (covering the Duva field) from Wellesley Petroleum AS. The field operator is Neptune Energy, which holds a 30% interest. The field development plan was approved by the Norwegian Ministry of Petroleum and Energy at the end of June 2019.

The acquisition of interests in the King Lear and Duva fields was finalised in October 2019. In November 2019, PGNIG UN increased its involvement in the Duva project after signing an agreement to purchase an additional 10% interest in the PL636 and PL636B licences from Pandion Energy AS. The last transaction was finalised in the first quarter of 2020. After its settlement, PGNiG UN's interest in the Duva field increased to 30%.

Following these transactions, in 2019 PGNiG UN recorded a significant increase in its proven reserves, from 141.9 mboe at the beginning of the year to 169.4 mboe at the end of 2019. The increase, attributable mainly to the acquisition of interests in the King Lear and Duva fields, does not take into account the acquisition of an additional 10% interest in the Duva field from Pandion Energy AS, which was finalised at the beginning of 2020.

As part of another APA 2018 (Awards in Pre-defined Areas) round, completed in January 2019, PGNiG UN was awarded interests in three new exploration licences – PL838B, PL1009 and PL1017:

- 40% interest as the operator in the PL838B licence area, situated in the North Sea and being an extension of the PL838 licence area;
- 35% interest as a partner in the PL1009 (Warka) licence area in the Norwegian Sea. The licence area is located close to the Skarv field and is operated by ConocoPhilips (holding a 65% interest);
- 50% interest as the operator in the PL1017 (Copernicus) licence area in the Norwegian Sea, located east of the Aasta Hansteen field. The licence partner is Equinor (50%).

The obligations under licence PL1009 include drilling of an exploration well. As regards the other two licences, within two years the licence partners are to carry out necessary geological and geophysical surveys to precisely estimate the oil production potential of the licence areas. After that period, drill-or-drop decisions will be made.

In January 2020, another APA 2019 (Awards in Pre-defined Areas) round was concluded, as a result of which PGNiG UN obtained interests in three further exploration licences:

- The PL636C licence is an extension of the PL636 licence, whose area includes the Duva oil and gas field. The field's operator is Neptune Energy Norge (with a 30% interest), and the other partners are Idemitsu, Pandion Energy, and Sval Energy.
- The PL1009B licence is an extension of the PL1009 licence, where PGNiG, and ConocoPhillips plan to drill an exploration borehole before the end of 2020. PGNiG UN has a 35% interest in the licence, and ConocoPhillips (with a 65% interest) is the operator.
- The PL1064 licence, in which PGNiG UN obtained a 30% interest, is located near the Skarv field in the immediate vicinity of the PL1009 and PL1009B licence areas. The operator is ConocoPhillips (a 40% interest) and the other partner, apart from PGNiG UN, is Aker BP (30%).

The new licences have significant gas production potential. All three licence areas are located close to existing production and pipeline infrastructure, so if a decision to proceed with their development is made, the process will be much simpler and faster. The PL1009B and PL1064 licence areas are located near the Skarv field, the largest field in the PGNiG UN's asset portfolio, and near the Åsgard field, allowing the company to leverage its extensive experience in oil and gas exploration in this region.

Jointly with its partners, PGNiG UN also continued work in other exploration licence areas. In the second half of 2019, the company drilled an exploration well under the PL838 licence and discovered the Shrek field. This makes PGNiG UN the first Polish company to have drilled a borehole in the Norwegian Sea as the operator. Located in the Norwegian Sea, the PL838 licence area is directly adjacent to the Skarv and Ærfugl fields, in which PGNiG holds 12% interests as a partner.

In February 2020, PGNiG UN entered into an agreement with Aker BP to purchase an interest in the Alve Nord field and to increase its interest in the Gina Krog field. Following the transaction, PGNiG UN's interest in the Gina Krog field rose by 3.3%, to 11.3%. In exchange, PGNiG UN will transfer to Aker BP a 5% interest in the Shrek field it discovered recently, under the PL838 licence. On the basis of the same agreement, PGNiG UN will also purchase an 11.92% interest in the PL127C licence, covering the Alve Nord field where production operations have not started yet.

As at December 31st 2019, PGNiG UN held interests in 26 exploration and production licences on the Norwegian Continental Shelf, in four of them as the operator. At the beginning of 2020, the number of licences grew to 31 following resolution of the last licensing round (three licences) and the transaction with Aker BP (two licences).

Table 17 PGNiG UN fields

Licence	Operator	Interest	Type of deposit	Type of licence	Planned activities
PL029C (Gina Krog)	Equinor	29.63% (8% interest in the project)	Oil and gas field	Exploration/development	Production Exploration
PL036D (Vilje)	Aker BP	24.243%	Oil field	Production	Production
PL044	ConocoPhilips	30% for exploration (42.38% interest in Tommeliten Alpha)	Gas and condensate field	Exploration/development	Exploration/Preparation of a development concept
PL036 (Vale) **PL249 (Vale)**	Spirit	24.243%	Gas and condensate field	Exploration/production	Production
PL146 (King Lear) **PL333**	AkerBP	22.2%	Gas and condensate field	Exploration/development preparation	Preparation of a development concept
PL134B (Morvin) **PL134C (Morvin)**	Equinor	6%	Oil field	Production	Production, exploration
PL212 (Skarv) **PL212B (Skarv)**	AkerBP	15%	Oil and gas field	Exploration/development/ production	

PL262 (Skarv)		(11.9175% interest in the project)			Production, Ærfugl field development (production to commence in 2020)
PL212E (Snadd Outer)	AkerBP	15%	Gas and condensate field	Development	Project implemented jointly with Ærfugl development
PL433 (Fogelberg)	Spirit	20%	Gas and condensate field	Exploration/appraisal	Review of production testing results
PL460 (Skogul)	Aker BP	35%	Oil field	Exploration/development	Development (production scheduled to start in 2020)
PL636 (Duva)	Neptune	20%	Gas and condensate field	Development	Development (production scheduled to start in 2021)
PL636B	Neptune	20%		Exploration	Decision on drilling to be made in 2020
Op. PL838 (Tunfisk/Shrek)	PGNiG	40%	Oil field	Exploration	Field discovered as a result of drilling a well in 2019, development studies
Op.PL838B	PGNiG	40%		Exploration	Analysis of exploration potential using Shrek field data
PL839 (Nise/Storkobbe)	AkerBP	11.9175%		Exploration	Seismic data interpretation
PL850 (Ulv)	Edison	20%		Exploration	DoD* in May 2020
PL887 (Novus East)	PGNiG	40%		Exploration	DoD* in February 2020
PL939 (Egyptian Vulter)	Equinor	30%		Exploration	DoD* in March 2020
PL941 (Gronlifielet)	AkerBP	20%		Exploration	DoD* in March 2020
PL1009	ConocoPhilips	35%		Exploration	Obligation to drill a well by March 2021
PL1017	PGNiG	50%	-	Exploration	DoD* in March 2021

**Drill-or-drop decision – a decision to either commit to drilling exploration wells or relinquish the licence*

Producing fields

The Skarv field was brought on stream in December 2012. Currently it is developed with 16 wells connected to five subsea templates, which can support a further seven wells, adding much flexibility to the Skarv operations going forward. The Skarv FPSO has a long useful life and can be an attractive production and transport hub for future discoveries in the region.

Reserves at the end of 2019: approximately 17.7 mboe, including 10.6 mboe of natural gas and 4.7 mboe of crude oil and NGL

The Gina Krog field is an oil and gas field brought on stream in June 2017 with five wells. The number of wells has increased to 14, of which 4 are used to inject gas, thus allowing optimum recovery of crude oil reserves. The field was developed based on the construction of a new offshore rig and use of a 850,000 bbl floating vessel to store crude oil. From the vessel crude is transported further (with intermediate reloading at sea) by tankers. Raw natural gas is transmitted to the Sleipner platform, from which it is pumped to the Gassled pipelines. Condensate and NGL are shipped to processing plants in Kårstø, Norway.

Reserves at the end of 2019: approximately 13.8 mboe, including 6.2 mboe of natural gas and 5.5 mboe of crude oil and NGL

The Vilje field is located in the central part of the North Sea, close to the Alvheim and Heimdal facilities. The field is developed with three subsea wells linked by pipeline to the Alvheim FPSO vessel.

Crude oil reserves at the end of 2019: approximately 3.4 mboe

The Vale field is a gas and condensate field discovered in the North Sea in 1991. Despite the downtimes that occurred in 2018 and 2019, output from the Vale field is expected to rise in the coming years as a result of recent investments made in the Heimdal platform.

Reserves at the end of 2019: approximately 1.3 mboe, including 0.8 mboe of natural gas and 0.5 mboe of crude oil

The Morvin field was discovered in the Norwegian Sea in 2001. Oil is produced through two subsea templates. The field is tied back to the Åsgard B platform.

Reserves at the end of 2019: approximately 0.9 mboe, including 0.3 mboe of natural gas and 0.5 mboe of crude oil

Fields under development

Tommeliten Alpha is a gas and condensate field located in the North Sea in the immediate vicinity of the Ekofisk field. Its reserves are likely to prove higher than confirmed to date, while the PL044 licence offers considerable potential for further exploration work. According to the current schedule, first oil is expected in 2024.

Tommeliten Alpha reserves at the end of 2019: approximately. 55.5 mboe, including 37.6 mboe of natural gas and 15.6 mboe of crude oil and NGL

The Ærfugl and Snadd Outer fields are gas and condensate deposits discovered in the Skarv licence area. Six additional wells are currently being drilled in these fields. Wells on both jointly developed fields will be tied, using the existing infrastructure, to the Skarv FPSO for further hydrocarbon transmission. The schedule provides for the launch of production from the first development phase in Q4 2020 and the second development phase in Q4 2021.

Ærfugl reserves at the end of 2019: approximately 26.4 mboe, including 19 mboe of natural gas and 3.1 mboe of crude oil and NGL

Sandd Outer reserves at the end of 2019: approx. 5.8 mboe, including 4.4 mboe of natural gas and 0.5 mboe of crude oil and NGL

Skogul is on oil field situated in the North Sea near the Vilje field. The development plan envisages drilling one well connected to the subsea installation on the Vilje field, and then using the existing infrastructure, including the Alvheim FPSO platform. The project is currently in the final stage of implementation. Production is expected to commence at the end of the first quarter of 2020.

Reserves at the end of 2019: approximately 3.3 mboe, including 0.3 mboe of natural gas and 3 mboe of crude oil

Duva field is a 2,200 m deep gas and oil field with good reservoir characteristics. It is located in the northern part of the North Sea near the Gjøa field. Duva was discovered in 2016. Its development plan, approved in 2019, envisages the installation of a subsea foundation slab, prepared for tying in four production wells. The stream of hydrocarbons will be sent via subsea pipelines to the Gjøa platform in order to process and export the hydrocarbons.

As at the end of 2019, investment work to develop the field was under way. Production is scheduled to commence in late 2020 and early 2021. Hydrocarbons from Duva will be produced by gradually lowering reservoir pressure. Initially, mainly crude oil will be extracted, and as of 2023 the share of natural gas in production will start to go up.

As at the end of 2019, the Company held a 20% interest in the field. At the beginning of 2020, the interest increased by another 10%.

Reserves at the end of 2019: approx. 18.2 mboe, including 10.3 mboe of natural gas and 5.6 mboe of crude oil and NGL (figures do not take into account the additional 10% interest in the field).

King Lear field is a gas and condensate field located in the North Sea. According to the Norwegian Petroleum Directorate data, the field has recoverable reserves of 9.2 bcm of natural gas and 6.5 mcm of crude oil. PGNiG UN's interest in the field is 22.2%. In 2019, work was under way to develop the field development concept. The investment process is planned for 2021–2024 and production is planned to be launched in 2025. Based on the operator's current data, after the field goes on stream, gas production attributable to PUN is expected to be 0.25 bcm per annum.

Reserves at the end of 2019: approximately 22.3 mboe, including 13.6 mboe of natural gas and 9.3 mboe of crude oil and NGL

Prospects under exploration/appraisal

Fogelberg is a condensate and gas prospect located in the Norwegian Sea, north-east of the Morvin field. In 2019, data sourced from the well in 2018 continued to be analysed, focusing mainly on the productivity of the field and determination of recoverable reserves.

Shrek field is an oil field located in the immediate vicinity of the Skarv FPSO. The field was proven using the exploration well drilled in 2019 and operated by PGNiG UN. According to preliminary calculations, the recoverable reserves of hydrocarbons in the newly discovered Shrek field in the PL838 licence area are between approximately 19 and 38 mboe, as confirmed by the Norwegian Petroleum Directorate (NPD).

Sales of hydrocarbons

Crude oil is sold directly from the fields to Shell International Trading and Shipping Company Ltd (crude from the Skarv, Vilje, Vale and Gina Krog fields) and to TOTSA Total Oil Trading S.A. (from the Morvin field). All fields, except for Vilje, also produce associated gas, which is transferred via gas pipelines mainly to Germany, where it is received by PST, a Group company.

From January 2019, the corporate income tax rate was lowered in Norway from 23% to 22%, which was offset by an increase in the special petroleum tax from 55% to 56% and a reduction of the uplift tax incentive from 21.2% to 20.8%. The marginal tax rate on production activities remained at 78%, thus the changes have only a minor impact on the company's business.

Pakistan

Apart from the work carried out on the Norwegian Continental Shelf, the Group is also very active in Pakistan. Through its Operator Branch, PGNiG is engaged in exploration work in Pakistan under an agreement for hydrocarbon exploration and production in the Kirthar licence area executed between PGNiG and the government of Pakistan on May 18th 2005. The work is conducted jointly with Pakistan Petroleum Ltd. (PPL), with production and expenses shared pro rata to the parties' interests in the licence: PGNiG (operator) – 70%, PPL – 30%. Exploration activities within the licence area have resulted in the discovery of two gas deposits − Rehman and Rizq.

Reserves as at the end of 2019 (nitrogen-rich gas converted to high-methane gas, attributable to PGNiG): approximately 6.94 bcm (44.7 mboe), including the Rehman field 5.07 bcm (32.6 mboe) and the Rizq field 1.87 bcm (12.1 mboe)

Gas from the Rehman and Rizq fields is produced via facilities located in the Rehman field. PGNiG's share in the production from the Rehman and Rizq fields, carried out from eight wells in 2019, amounted to some 193 mcm of gas (measured as high-methane gas equivalent). Positive results were obtained from the Rehman-5 production well (work commenced in September 2018) and Rehman-6 (work commenced in the first half of 2019), and the drilling of the Rizq-3 well is underway.

As part of continued exploration work, in 2019 the Pakistan Branch completed basic processing of seismic data: 3D seismic imaging in the W1 prospect and 2D seismic imaging for the W2 prospect.

United Arab Emirates

In December 2018, PGNiG's bid for the acquisition of hydrocarbon exploration, appraisal and production rights in onshore block 5 in the Emirate of Ras Al Khaimah was selected. Following the selection of its bid, the Company acquired a 90% interest in the block, with an area of 619 km^2. Agreements between PGNiG and the Ras Al Khaimah Petroleum Authority and RAK GAS LLC were signed in January 2019. The PGNiG Branch was registered in the Emirate of Ras Al Khaimah, obtained a relevant licence to conduct operations, and commenced seismic surveys.

Libya

Due to mounting safety issues in Libya in early H2 2014, PGNiG UNA gave notice of a force majeure to the National Oil Corporation (NOC). There was no significant change in the political situation relative to 2018. PGNiG UNA took measures agreed upon with NOC to reduce the impact of the force majeure.

Key projects and investments abroad

PGNiG's total capital expenditure on foreign production operations reached PLN 147m. This figure includes the capital expenditure made in 2019 in Pakistan, amounting to PLN 136m, up 45% on 2018.

2019 was a record year for PGNiG Upstream Norway in terms of its capital expenditure, which exceeded NOK 3.24bn. Capital expenditure made in 2019 in Norway reached NOK 1.58bn (net of acquisitions). In 2019, the company took steps to maintain production from its existing fields while preserving good operating performance by investing in:

- Production from additional wells in the Gina Krog field in the first half of 2019;
- Development of the Ærfugl and Skogul fields;
- acquisitions and development of the Duva field, with three production wells to be drilled in 2020: two producing crude oil and one producing natural gas. Based on the development plan, another oil producing well may be drilled.
- preparation of the Tommeliten Alpha field development concept,
- acquisition of the King Lear field.

4.1.4 Activities supporting the segment in Poland and abroad

Geophysical services and seismic surveys

GEOFIZYKA Toruń has gained a leading position in geophysical surveys in Europe, and its principal business involves exploration geophysics (seismic data acquisition, processing and comprehensive interpretation) and drilling operations (downhole geophysical surveys and their interpretation). In 2019, GEOFIZYKA Toruń engaged in the following activities:

- Seismic data acquisition in: Poland, Germany, the Netherlands, United Kingdom, Hungary, Georgia, Egypt, Mozambique, the United Arab Emirates;
- Seismic data processing and interpretation in: Poland, the Netherlands, Austria, India, Pakistan, Colombia, Mexico;
- Well logging and measurement of gas drilling parameters services, with Poland and Slovakia as the key markets.

In connection with its core business, GEOFIZYKA Toruń also engages in R&D&I activities through various innovative projects, including the method of seismic data acquisition for multi-channel satellite images. In 2019, the Geology and Hydrocarbon Production Branch of PGNiG acquired 383.4 km of 2D seismic data and 343.4 km^2 of 3D seismic data.

Drilling works and oilfield services

In 2019, the PGNiG Geology and Hydrocarbon Production Branch carried out drilling operations on 35 wells with a total depth of 78.9 km.

A company of the PGNiG Group, EXALO, provides seismic survey, oilfield and drilling services both to other Group members and to third-party customers. It is one of the leading European onshore drilling companies. Key contracts performed by EXALO in 2019 included:

- For PGNiG: operation of the 2000 KM drilling rig and provision of oilfield services, including drilling; drilling wells in Pakistan;
- For third-party customers: well drilling for customers in Pakistan, Chad, Kazakhstan, and provision of oilfield services in Ukraine under a drilling contract.

Underground gas storage facilities

The segment's operations are supported by two nitrogen-rich gas storage facilities (Daszewo UGSF and Bonikowo UGSF), whose main role is to regulate the operation of the nitrogen-rich gas system and store gas from nitrogen-rich gas production facilities.

The classification of these storage facilities is different from the high-methane gas storage facilities (which are part of the Trade and Storage segment) because of the different type of gas stored and tehir different function.

Table 18 Underground gas storage facilities (UGSF)

	Working capacity	Maximum withdrawal capacity	Maximum injection capacity
	mcm	mcm/d	mcm/d
Bonikowo	200	2.4	1.7
Daszewo	60	0.4	0.2

Exploration, appraisal and extraction of coal bed methane

In 2019, work continued on the Geo-Metan II project, involving exploration for, appraisal, and extraction of coal bed methane, see Section 4.6, Geo-Metan II.

4.1.5 Growth prospects and future challenges

Poland

In 2020, PGNiG plans to produce in Poland 3.9 bcm of natural gas (measured as high-methane gas equivalent), and 0.7m tonnes of crude oil and condensate.

Work planned to be carried out in 2020 in the area of operations of the Sanok Production Branch includes:

- Development and tying-in of the following wells: Sędziszów (-38K, -39K – completion of the investment process, obtaining an operation permit, transfer of the facility to the Sanok Branch), Gilowice-3K, -4H, Przemyśl (-49, -287, -289K, -290K, -), Kramarzówka-3H, Przeworsk (-26, -27K, -28, -29), Kraczkowa-3, Jastrzębiec-2, -3, Palikówka (-10K, -13K), Mirocin -65, -66, -67, -68, -69, and Królewska Góra -1, -2K.

The activities planned in the Zielona Góra Branch include:

- expansion of oil and gas production facilities – KRNiGZ Dębno and KRNiGZ Lubiatów;
- Development of the following fields: Różańsk, Babimost and Zbąszyń, Rokietnica, Kamień Mały,
- Development of the following wells: Grotów (-4, -10, -12), Sierkaów-2H, Borowo-5, Granówko-1, Szczepowice-1, Turkowo-2.

PGNiG's production branches will also engage in other investment projects, focusing mainly on maintaining or ramping up hydrocarbon production. Such projects include, for instance, work related to the installation of gas compressors or upgrade of flowline systems or gas pipelines.

Other countries

Norway

PGNiG UN monitors and analyses prospective upstream projects in the Norwegian Continental Shelf with a view to acquiring new licence areas in the regions attractive for the company, through farm-in (purchase of interests from other companies) or farm-down (exchange of interests with other companies) arrangements.

PGNiG UN, as a partner, will continue to produce hydrocarbons from the Skarv, Morvin, Vilje, Vale, and Gina Krog fields, and will proceed with the development of the Skogul, Ærfugl, Duva, Tommeliten Alpha, and King Lear fields. Production of hydrocarbons under the Skogul and Ærfugl licences is scheduled to commence in 2020.

Pakistan

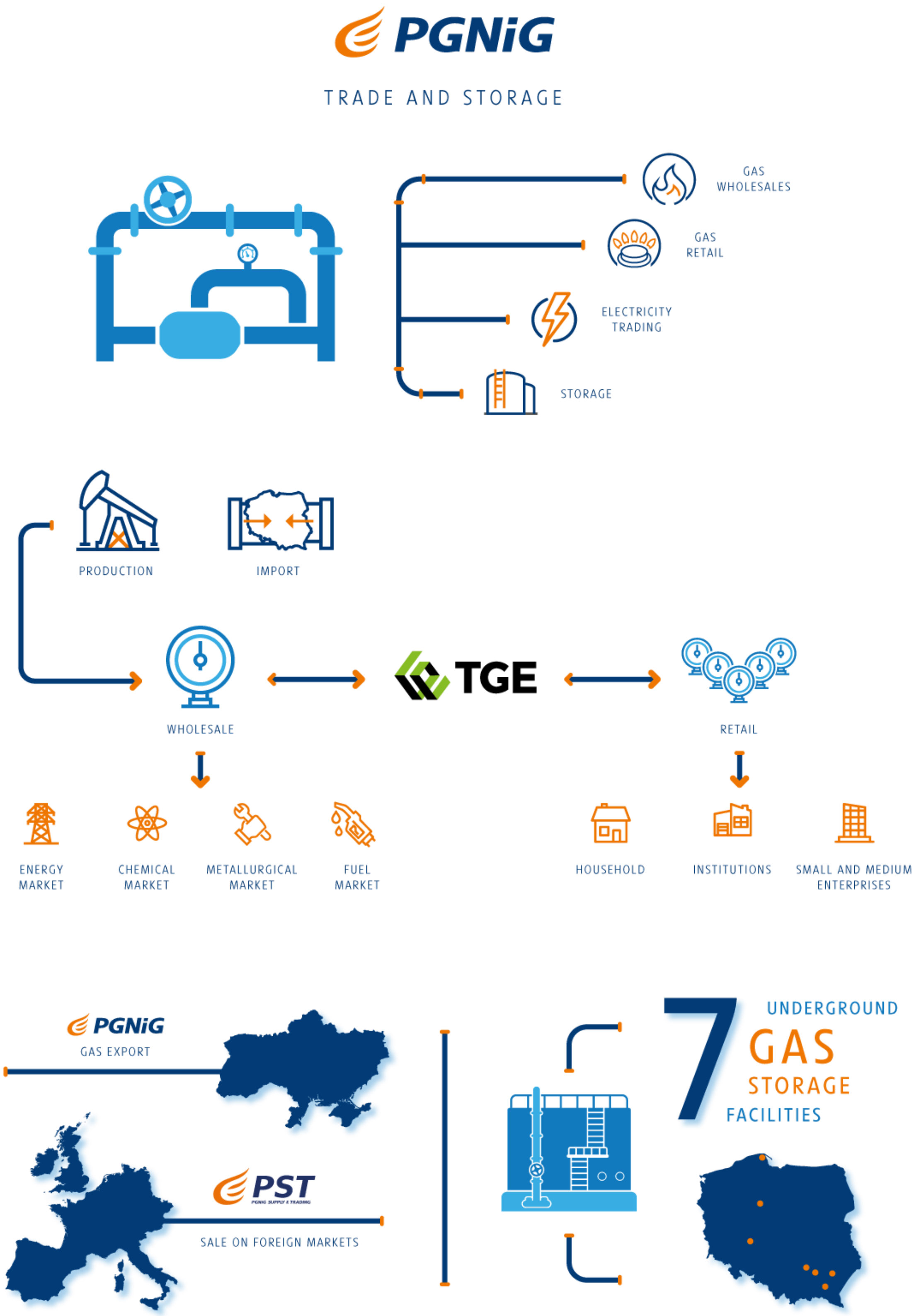
The appraisal and production work planned for 2020 also includes completion of drilling, testing and tying in of the Rizq-3 production well and drilling of the Rehman-7 production well. In parallel with the drilling campaign, the PGNiG Pakistan Branch will work on expanding the capacity of the production infrastructure and tying in new wells for commercial production. In 2020, the Rehman-6, Rehman-7, and Rizq-3 wells are scheduled to come on stream. As part of continued exploration work, the Pakistan Branch also intends to complete advanced processing of 3D seismic imaging in the W1 prospect and 2D seismic imaging in the W2 prospect.

Other directions

As regards seismic services, work planned for 2020 includes 3D seismic data acquisitions in Poland (mainly for PGNiG) and abroad, including in Germany, the Netherlands, Bulgaria, Croatia, and the United Arab Emirates, as well as 2D seismic data acquisition in Mozambique.

4.2 Trade and Storage

In Poland, where the PGNiG Group is the largest natural gas supplier, the segment sells natural gas produced from domestic fields as well as imported gas. Through PST (wholesale) and PST Europe Sales GmbH (retail sale), the PGNiG Group is developing its business mainly in Germany, the Netherlands and Austria. The segment also trades in electricity, certificates of origin for electricity, CO_2 emission allowances, and crude oil (since 2018, through PST). The segment operates seven underground gas storage facilities and provides a ticketing service for gas storage to external customers.



4.2.1 Key operating metrics

Table 19 Volumes of natural gas sales to non-PGNiG Group customers

mcm	2019		2018		2017	2016	2015
	PGNiG Group	PGNiG	PGNiG Group	PGNiG	PGNiG Group	PGNiG Group	PGNiG Group
High-methane gas (E)	29,031	16,464	27,440	16,132	25,261	22,818	21,596
Nitrogen-rich gas (Ls/Lw as E equivalent)	751	262	721	232	701	671	611
TOTAL (measured as E equivalent)	29,782	16,726	28,161	16,364	25,962	23,489	22,207
including:							
PGNiG – Wholesale	*16,726*	*16,726*	*16,364*	*16,364*	*16,159*	*13,734*	*12,415*
PGNiG OD – Retail sale	*7,815*	*-*	*7,868*		*7,617*	*7,245*	*7,753*
PST – Wholesale/retail sale	*5,242*	*-*	*3,929*		*2,186*	*2,510*	*2,039*

Table 20 T&S segment's natural gas customers from outside the PGNiG Group – Poland

mcm	2019		2018	
	PGNiG Group	PGNiG	PGNiG Group	PGNiG
Households	4,152	0	4,107	-
Retail, services, wholesale	1,597	342	1,859	351
Nitrogen processing plants	2,272	2,264	2,325	2,319
Power and heat plants	1,927	1,749	1,836	1,661
Refineries and petrochemical plants	2,020	2,013	2,111	2,105
Other industrial customers	2,968	903	2,741	991
Exchange	9,061	8,910	8,802	8,486
Exports from Poland	544	544	451	451
Total T&S sales to non-PGNiG Group customers	24,541	16,726	24,232	16,364

Table 21 Volumes of natural gas sold abroad to non-PGNiG Group customers (excluding gas exports from Poland)

mcm	2019	2018	2017	2016	2015
	PGNiG Group	PGNiG Group	PGNiG Group	PGNiG Group	PGNiG Group
High-methane gas (E)	5,242	3,929	2,186	2,384	2,039
TOTAL (measured as E equivalent), including:	5,242	3,929	2,186	2,384	2,039
PST - Wholesale/retail sale	5,242	3,929	2,186	2,384	2,039

Table 22 PST's natural gas customer base

mcm	2019		2018	
	mcm	%	mcm	%
Households	32	1%	38	1%
Other industrial customers	230	4%	32	1%
Retail, services, wholesale	2,677	51%	2,388	61%
Exchange	2,303	44%	1,471	37%
Total sales to non-PGNiG Group customers	5,242	100%	3,929	100%

Table 23 PGNiG's electricity customer base in the T&S segment

	2019		2018	
	GWh	%	GWh	%
End users	-	-	0.1	-
Trading companies	492.1	6%	1,951.4	29%
Balancing market	353.0	5%	712.5	10%
Exchange	6,713.3	85%	3,851.0	57&
Producers	324.6	4%	305.2	4%
Total PGNiG's sales	7,883.0	100%	6,820.2	100%

Table 24 Total working storage capacities and TPA working storage capacities

	Working storage capacities (mcm)		TPA working storage capacities (mcm)		TPA working storage capacities (GWh)	
	2019	2018	2019	2018	2019	2018
Kawerna Storage Facilities Group	825	825	813	813	8,915	8,915
Wierzchowice SF	1,200	1,200	1,200	1,200	13,166	13,166
Sanok Storage Facilities Group	1,050	1,050	1,050	1,050	11,521	11,521
Total	3,075	3,075	3,063	3,063	33,602	33,602

** Converted to gas with a calorific value of 39.5 MJ/m³.*

4.2.2 Wholesale business

Operations in Poland

Operations involving wholesale of natural gas produced from domestic fields and imported by pipelines and by sea are conducted by PGNiG. Through its specialised organisational unit, the Wholesale Trading Branch, it trades in natural gas, LNG, crude oil, electricity, CO_2 emission allowances, and property rights. The Wholesale Trading Branch is also responsible for the import policy and diversification of gas fuel supply sources to Poland.

As part of its business, PGNiG holds a licence to trade in gas fuels, trade in natural gas abroad, generate electricity, trade in electricity, liquefy natural gas, and regasify liquefied natural gas at LGN regasification plants.

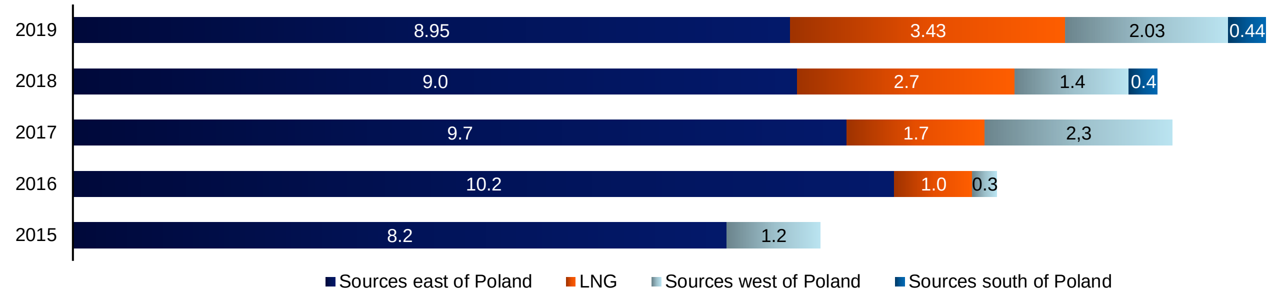
Gas imports

In 2019, PGNiG purchased natural gas mainly under the long-term agreements and contracts specified below:

- Contract with PAO Gazprom/OOO Gazprom Export, for sale of natural gas to the Republic of Poland, dated September 25th 1996, effective until 2022 (the Yamal contract);
- Contract with Qatar Liquefied Gas Company Limited (3) for sale of liquefied natural gas, dated June 29th 2009, effective until 2034 (the Qatar contract), and supplementary agreement to the long-term agreement of March 2017 (effective from the beginning of 2018 to 2034);
- Contract with Cheniere Marketing International, LLP for sale / purchase of liquefied natural gas, dated November 8th 2018, effective until 2042.

PGNiG also received gas under medium- and short-term contracts for grid deliveries and LNG supply (e.g. the five-year contract which entered into force in 2019 for nine liquefied natural gas shipments from Centrica LNG Company Limited).

Chart 14 Imports of natural gas to Poland in 2015–2019 (bcm)



In 2019, the imported gas volume was 162.9 Twh (14.9bcm). Gas purchases from countries east of Poland fell by 1.0TWh (approximately 0.1 bcm) compared with 2018. LNG deliveries increased significantly, from 29.8 Twh (2.7bcm) in 2018, to 37.6TWh (3.4 bcm) in 2019.

In 2019, PGNiG took further steps to diversify its gas supply sources and build the gas portfolio. On September 12th 2019, PGNiG executed an annex to the long-term contract for the supply of LNG with Venture Global Plaquemines LNG, LLC, dated September 28th 2018.Under the annex, the volume of LNG deliveries to PGNiG from the planned Plaquemines LNG liquefaction terminal in Plaquemines Parish, the US, was increased from 1m tonne to 2.5m tonnes annually, which corresponds to a total volume of nearly 3.4 bcm of natural gas after regasification. Following execution of the Annex, the total volume of LNG deliveries from Venture Global Plaquemines LNG, LLC and Venture Global Calcasieu Pass, LLC to PGNiG in 2023–2043 may reach 3.5m tonnes of LNG per year, i.e. over 4.7 bcm of natural gas after regasification per year. The deliveries will be made on a free-on-board basis.

PGNiG actively supports all efforts aimed at the construction of an infrastructural connection that would give Poland direct access to gas from North Sea fields. In January 2018, a contract was concluded for the provision of gas transmission services in the period from October 1st 2022 to September 30th 2037, as part of the 2017 Open Season procedure of the Baltic Pipe project, concerning gas transmission from Norway to Poland via Denmark. Conclusion of transmission contracts with transmission system operators, i.e. GAZ-SYSTEM and Energinet, with a total value of PLN 8.1bn, was the last stage of the Open Season 2017 procedure. For more information on the Baltic Pipe project, see Section 3.1.2.

Renegotiation of price terms under the contract with OOO Gazprom Export

In 2019, PGNiG continued its efforts to change the price terms under the Yamal contract, formally commenced on November 1st 2014. On June 29th 2018, the Arbitration Institute issued a partial award in the arbitration proceeding instigated by PGNiG against OOO Gazprom Export. In the partial award, issued on an ad hoc basis, the Arbitration Institute:

- Found that in November 2014 PGNiG had filed a valid and effective request to renegotiate the contract price;
- Found that the condition set forth in the Yamal contract, which entitled PGNiG to demand a reduction of the price for the gas supplied by OOO Gazprom Export under the Yamal contract had been satisfied, thus confirming that, in principle, PGNiG's request to agree on a new, lower contract price was justified; and
- Found, contrary to OOO Gazprom Export's contention, that PGNiG had the right to change the contract price within the limits of the claim, also declaring that PGNiG's initial demand regarding the new price formula was too far-reaching; the Institute also decided *ad hoc* that the issue of a new contract price would be resolved later in the proceeding.

In accordance with the provisions of the Yamal contract, the new contract price determined by the Arbitration Institute should apply with retroactive effect as of November 1st 2014.

On November 1st 2017 and December 7th 2017, PGNiG and OOO Gazprom Export, respectively, submitted further requests for renegotiation of the price terms.

Declaration of will to terminate the Yamal contract.

On November 15th 2019, PGNiG served a notice upon PAO Gazprom and OOO Gazprom Export to terminate the Yamal contract with effect from December 31st 2022 . On December 12th 2019, the Company announced that the Arbitration Institute closed the evidence-hearing procedure and expects to issue the final judgment in February or March 2020.

LNG supplies

In 2019, PGNiG received a total of 31 LNG shipments to Poland, with a total volume of 2.46m tonnes, which is ca. 37.58 TWh or 3.43 bcm of natural gas after regasification, including:

- 18 shipments under long-term contracts with Qatargas, with the volume of LNG imports from Qatar totalling 1.65m tonnes, i.e. ca. 25.08 TWh or 2.17 bcm of natural gas after regasification;
- 10 spot deliveries;
- 2 deliveries under the PGNiG Group's medium-term contract with Centrica;
- 1 shipment under a long-term contract with Cheniere.

Sale of gas by PGNiG

Customers buy gas from PGNiG at market prices, in line with the formulas and pricing mechanisms set out in the contracts. The prices in contracts executed by PGNiG are established on a case-by-case basis using a uniform, objective pricing methodology. Settlements with customers are based on pricing formulas or fixed prices linked to exchange indices.

In 2019, PGNiG successfully continued its sales strategy as a result of which it succeeded in retaining its customer base. The largest amounts of natural gas are sold in Poland to industrial customers. Major customers purchasing natural gas include: PKN Orlen S.A., Polska Grupa Energetyczna S.A., KGHM Polska Miedź S.A., ArcelorMittal Group, Grupa LOTOS S.A., and Grupa Azoty S.A.

In June 2019, Grupa Azoty S.A. served a notice extending the term of gas supply contracts executed on June 21st 2017 until September 30th 2022. The total value of the four-year contracts, i.e. covering the delivery period from October 1st 2018 to the end of September 2022, is estimated to exceed PLN 8bn.

In 2019, PGNiG's sales of high-methane grid gas in Poland amounted to 175 TWh (ca. 16 bcm). The sales volume fell year on year by 1.7%, from 172 TWh (15.7 bcm) in 2018.

Sale of gas by PST

In 2018, PST opened a branch in Poland with a view to establishing relations with customers purchasing energy in Poland and other European countries by building on existing contacts with branches of international companies.

In 2019, a separate customer portfolio was transferred from PGNiG to PST (the last contract was transferred in January 2020). During the year, PST acquired three new customers. The company became a member of the Polish Power Exchange (PPX) and opened a trading office in Warsaw.

In 2019, PST supplied gas to 20 customers and 37 delivery points in Poland.

Exports

In 2019, PGNiG continued to sell natural gas to the Ukrainian market, in cooperation with the ERU Group of Ukraine. Its 2019, the sales to Ukraine totalled 544 mcm (5.97 TWh).

PGNiG executed contracts with Ukrainian operators of gas transmission pipelines and gas storage facilities (Transmission System Operator of Ukraine LLC and JSC Ukrtransgaz). The Company monitors growth opportunities on the Ukrainian market.

Gas sold by PGNiG on the PPX

The volume of gas sold by PGNiG on the PPX in 2019 (sales with delivery dates in 2019) increased year on year by approximately 4.7 Twh to 97.8 TWh (8.91 bcm).

Small-scale LNG sales

In 2019, PGNiG developed its operations in the small-scale LNG business segment, where gas is sold in the form of LNG transported by road tankers to regasification facilities or stations with no access to the distribution network. The volume of fuel delivered to end users in the form of liquefied natural gas is growing steadily. 2,306 road tankers were loaded with LNG in Świnoujście in 2019, compared with 1,794 in 2018, and 1,523 in 2017. In 2019, the aggregate amount of LNG the Company placed on the market was 59.2 thousand tonnes, of which 39.9 thousand tonnes was sourced through Świnoujście and 20.1 thousand tonnes from Odolanów and Grodzisk Wielkopolski. The aggregate amount of LNG the Company placed on the market in 2016–2019 was 195.5 thousand tonnes, of which 107.7 thousand tonnes was sourced through Świnoujście, while 87.8 thousand tonnes from Odolanów and Grodzisk Wielkopolski.

Sale of electricity

On the electricity market, PGNiG is engaged primarily in wholesale trading. Total sales of electricity to trading companies and on the Polish Power Exchange accounted for more than 90% of its total electricity sales in 2019.

PGNiG also provided services under a commercial balancing agreement to PGNiG OD and the PGNiG TERMIKA Group.

Capacity market

Following auctions organised by Polskie Sieci Energetyczne in 2018 and 2019 (related to the implementation of the capacity market and the capacity obligation), PGNiG concluded the following agreements:

- Power plant at Wierzchowice UGSF – annual supply contracts for 2021–2024 (net capacity of 17 MW);
- Radoszyn-Lubiatów-Połęcko generating units complex – annual supply contracts for 2021–2023 (net capacity of 4.5 MW), in 2024: 3.5 MW;
- Radoszyn-Lubiatów generating units complex – annual supply contract for 2024, net capacity of 3.5 MW.

Wholesale trading propsepcts in Poland

Following the investment decisions by the Polish and Danish transmission operators, meaning that the joint Baltic Pipe project is approved, PGNiG will be able to win contracts for the supply of gas from the Norwegian Continental Shelf (from its own deposits and imported).

In the medium-term and long-term perspective, PGNiG will focus on the performance of its long-term contractual obligations concerning minimum offtake (Yamal contract) and contracted volumes of LNG, delivered on an ex-ship (Qatargas and Cheniere – from 2019 onward) and free-on-board basis (Venture Global LNG, Inc., Port Arthur LNG, LLC– planned from 2023 onward), taking into account that free-on-board contracts allow PGNiG to sell LNG on foreign markets.

If an unforeseen increase in demand for gas fuels occurs, PGNiG will purchase natural gas under short-term contracts from the neighbouring countries or on the LNG market. The planned extension of the LNG terminal in Świnoujście – to 7.5 bcm of natural gas per year at the first stage, and then to 10 bcm annually – will facilitate delivery of greater volumes of LNG to Poland.

Foreign operations

The PGNiG Group expands its business in Europe, in the wholesale and end user supply segments, through PST (wholesale) and PST Europe Sales GmbH (retail sale). As part of its business, PST holds a licence to trade in gas fuels.

PST is an active player on organised markets (exchanges) and in OTC trading. It trades with over 100 counterparties under EFET (master agreements for trading in gas and electricity) or similar standardised contracts. In order to conduct trading activities on the global LNG market, the company has established a branch in London. For more information on the London Office project, see section 4.2.2 (LNG supplies).

PST operates in Germany and in neighbouring countries: Austria, the Czech Republic, the Netherlands, on the UK gas market (NBP), and has reached operational readiness in France and Poland. PST is also registered as a forwarding operator in Denmark, Slovakia and, since 2018, in Hungary. PST is a market maker on the PEGAS exchange for the GASPOOL gas hub market area.

PST continues operations in the area of trading in futures contracts for Brent crude on the ICE Futures Europe exchange and securing LNG supplies through the ICE Futures U.S. exchange. It also sells electricity on the German market in exchange (EEX) and OTC transactions.

Chart 15 Sales of PST, including its subsidiaries, by product (in volume terms)

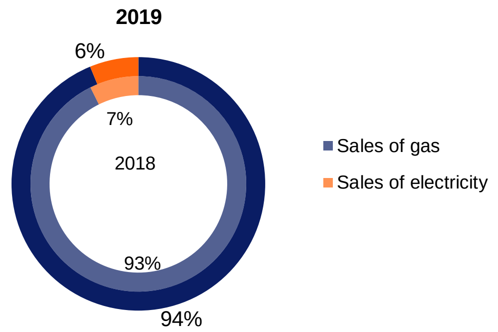
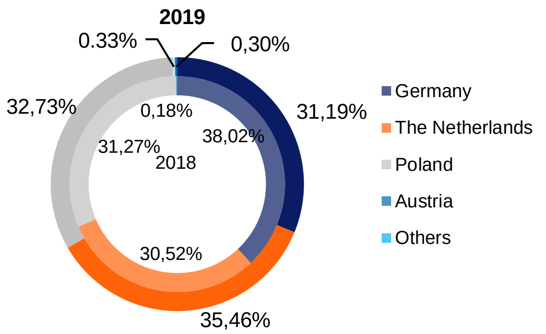


Chart 16 Sales of PST, including its subsidiaries, by country (in volume terms)



Product sales and operations in 2019

In 2019, PST sold 84.2 TWh of gas delivered by pipelines, 10.4 TWh of LNG, and 5.5 TWh of electricity, in exchange and OTC transactions. Poland is PST's largest market, accounting for 40% of its sales volumes, while the Dutch and German markets account for 32% and 27%, respectively.

PST's key contracts effective in 2019 included a contract for the provision of the ticketing service involving maintenance of mandatory gas stocks in Poland of 576 GWh (with PGNiG) and contracts for the management of Austrian gas storage capacities (a working volume of 17 GWh).

Competition

PST's main competitors are commodity trading companies (Vitol, Trafigura, Trailstone and others), which generally apply an opportunistic approach to entering the energy trading market. Their presence is seen in particular on the LNG market, where oversupply is expected in the coming years (2020–2022) because of new liquefaction capacities in the US.

PST's development prospects abroad

Apart from operations on the OTC and exchange markets, PST will expand its wholesale business to include services for municipal utilities and resellers, offering standard and structured commercial products and services related to trade (e.g. balancing group services). PST started trading in new commodities (crude oil, diesel oil) and with new markets (Henry Hub), to be able to secure prospective LNG transactions and generate margin on its own transactions.

For the purposes of long-term free-on-board supply contracts, PST commenced a tender procedure to charter two gas carriers capable of receiving and transporting the purchased LNG. The procedure is expected to be completed by the end of Q2 2020.

PGNiG's development prospects abroad

On November 29th 2019, PGNiG signed a five-year exclusive contract for the use of the low-scale LNG collection and handling station in Klaipėda. It is a major step in PGNiG's building competence and market position in this market of Central and Eastern Europe and the Baltic Sea basin. The contract with Klaipedos Nafta will take effect on April 2020.

PGNiG will also gain better access to the small-scale LNG market in the Baltic States, and increase competitiveness of its services for customers from the north-eastern Poland and Central and Eastern Europe. The commercial capabilities and relations acquired by the PGNiG Group in Klaipėda will enable smooth launch of bunkering operations and transactions at the Świnoujście terminal after it is expanded and the wharf enabling provision of this service is placed in service in 2023. Currently, the PGNiG Group bunkers ships from road tankers berthed in ports (truck-to-ship method).

4.2.3 Retail business

Retail business in Poland

On August 1st 2014, PGNiG OD was spun off from PGNiG to conduct retail sale of natural gas and provide retail customer services. PGNiG OD focuses on the sale of natural gas (purchased mainly on the PPX), electricity, compressed natural gas (CNG), and liquefied natural gas (LNG).

As part of its business, PGNiG OD holds a licence to trade in gas fuels and in electricity.

Sources of gas

High-methane gas is procured from three main sources:

- Purchase of gas on the Polish Power Exchange (PPX);
- Purchase of gas under a bilateral contract executed with PGNIG, with deliveries to a virtual trading point in the transmission network operated by GAZ-SYSTEM;
- Purchase of gas under a bilateral contract executed with PGNIG, with deliveries to a physical trading point in Słubice.

The largest share in the volume of high-methane gas purchases is attributable to transactions on the PPX. Apart from natural gas, PGNiG's purchase portfolio also includes high-methane and nitrogen-rich gas, and liquefied natural gas (LNG). Nitrogen-rich gas and LNG are purchased under bilateral contracts with PGNiG.

Sales of gas

PGNiG OD's customer base includes consumers and non-consumers (small and medium enterprises). Customers are classified into tariff groups based on the following criteria:

- Type of gas fuel received: high-methane gas or nitrogen-rich gas;
- Contractual capacity;
- Annual volume of gas taken: for customers receiving up to 110 kWh/h of gas fuel;
- Billing system – as per the billing frequency applicable to customers with a contractual capacity of not more than 110 kWh/h.

Group 1-4 retail customers purchase gas used mainly for cooking and for water and space heating, as well as in shop-floor processes. Natural gas for households is billed based on a tariff valid until January 1st 2024. In 2019, PGNiG OD applied the following gas fuel trading tariffs:

- Amendment No. 2 to PGNiG OD Tariff No. 6 – from August 10th 2018 to February 14th 2019, resulting in a 5.9% increase in gas fuel prices;

- Tariff No. 7 effective until December 31st 2019, resulting in a 2.5% increase in gas fuel prices.

In December 2019, the President of URE approved Tariff No. 8 to be effective from January 1st 2020 to June 30th 2020, which reduced gas fuel prices by 2.9%.

In 2019, PGNiG OD acquired approximately 163,000 new retail accounts in tariff groups 1–4 (both high-methane and nitrogen-rich gas). Business customers buy gas both for the purposes of their industrial processes and for heating, and are billed at prices set in the business tariff and in special offers.

Sales of other hydrocarbons

PGNiG OD offers a range of LNG and CNG products and services addressed to end users. The company's offer includes:

- Sale of CNG at CNG refuelling stations – to customers with CNG car fleets;
- Sale of CNG along with infrastructure – a comprehensive service offered by PGNiG OD, where gas fuel is delivered along with the necessary infrastructure;
- Sale of LNG fuel – to end users with own infrastructure for the receipt of LNG deliveries (transport or industry);
- Sale of LNG along with infrastructure – irrespective of how LNG is used by the end customer (transport or industry), a comprehensive service is offered where gas fuel is delivered along with the necessary infrastructure;
- LNG bunkering – a service launched in 2019, consisting in LNG ship bunkering from road tankers berthed in ports (truck-to-ship method).

As regards LNG, PGNiG OD focuses on industrial customers, while customers in the CNG segment are mainly municipal transport companies. Other CNG customers include commercial vehicles and retail customers. In 2019, 29 LNG fuel sale contracts were executed, including contracts with Synthos Dwory 7 Sp. z o.o., Miejskie Zakłady Autobusowe Sp. z o.o. of Warsaw, LOTOS Asfalt Sp. z o.o. - for the supply of LNG to a fleet of vessels.

In the case of the CNG fuel, 76 sale contracts were concluded, and the volumes sold at CNG stations in 2019 reached 20.6m Nm^3. The largest contract for the sale of CNG in 2019 was signed with Arriva for a period of eight years.

Business-to-customer sales policy (B2C)

PGNiG OD actively monitors the retail market and develops its gas offering, taking into account customers' expectations regarding competitive terms of gas sale, as well as flexibility and security of supplies. In 2019, the Company launched new products (e.g. 'Handy Andy Squad' – a home maintenance service product available in four options) and a number of other activities that increased the offer's popularity among customers.

Business-to-business sales policy (B2B)

In the B2B market in 2019, PGNiG OD continued its strategy to expand the gas fuel portfolio and improve its margin management. In the case of sales to non-consumers, in particular large and medium-sized companies, fixed-term offers are crucial. Depending on the needs of individual customers, PGNiG OD offers individual pricing, with a fixed price and a fixed term, pricing based on stock indices with the option of tranche purchases, and mixed-structure products. In 2019, non-household gas fuel customers were billed at prices set in the 'Gas for Business' tariff and in special offers. As regards discount policy, various special price offers and extra products were launched.

Gas fuel sales under emergency / standby / last resort supplier procedures

In 2019, PGNiG OD acted as an 'emergency supplier' (in connection with the Regulation of the Minister of Energy of September 21st 2018 Amending the Regulation on Specific Conditions for the Operation of the Gas System), as well as 'stand-by supplier' and 'last resort supplier' (in connection with the Act Amending the Energy Law and Certain Other Acts of November 9th 2018). In 2019, following discontinuation of gas fuel supplies by energy companies, including Energy Match Sp. z o.o., Hermes Energy Group S.A. and Orange Energia, PGNiG OD ensured undisrupted supply of gas fuel to their customers. Customers taken over from other suppliers are billed at prices set in the retail tariff of PGNiG OD (consumers) or the 'Gas for Business' tariff (non-consumers), as applicable.

Sale of electricity

PGNiG OD's customer base includes consumers and non-consumers who have concluded comprehensive service contracts for the supply of electricity or contracts for the sale of electricity. As at the end of 2019, PGNiG OD had approximately 89,000 customers on dual fuel (electricity and gas) plans, including 89% consumer accounts and 11% non-consumer accounts.

Competition

On the Polish natural gas retail market, the company competes with the largest electricity suppliers that expand their operations to include sale of natural gas. Major competitors on the gas market in 2019, and the most active ones, were: SIME Polska Sp. z o.o., Fortum Marketing and Sales Polska S.A., TAURON Polska Energia S.A., Enea S.A., Axpo Polska Sp. z o.o. and Hermes Energy Group S.A. (declared bankrupt as at 01.12.2019).

In the LNG retail market, the main competitors are: DUON Dystrybucja Sp. z o.o.; NOVATEK Polska Sp. z o.o.; CRYOGAS M&T POLAND S.A., BARTER Sp. z o.o., Shell Polska Sp. z o.o. and Gaspol S.A.

Development prospects in Poland

To enhance its revenue potential, PGNiG OD will continue to expand its balanced product portfolio to be able to offer solutions tailored to customer needs. PGNiG OD seeks to achieve synergies, beneficial to its customers, in the area of energy solutions complementing the natural gas offering. This is consequent, among other things, upon customers' growing demand for hybrid solutions encompassing RES, LNG, energy efficiency, etc. The Company builds CNG service stations, cooperates with local governments, launches complimentary products (such as road assistance packages). PGNiG OD introduces solutions based on renewable energy sources and cogeneration, supporting initiatives aimed at replacement of heat sources with low emission ones.

PGNiG OD is engaged in business development activities in the following sectors:

- heating for single-family housing;
- heat and power cogeneration, based on gas sources;
- industry (including energy for industrial processes);
- road and sea transport.

PGNiG OD promotes the use of CNG and LNG in transport as a natural solution complementary to electromobility on the way towards clean urban and heavy transport. In developing the CNG and LNG product range, PGNiG OD also focuses on LNG bunkering and increasing the share of LNG sales in the B2B segment through construction of regasification stations.

PGNiG OD continues to expand its new business line in the photovoltaic segment and in October 2019 will launch its offering for business customers.

Retail business abroad

In 2015, PST spun off its retail operations, which have since been carried out through its subsidiary, PST ES, selling gas and electricity to end users in Germany and Austria. Target customers include small and medium-sized enterprises (SMEs) and households with standard consumption profiles.

The number of customers decreased to 39 thousand as at December 31st 2019 from 43 thousand as at the end of the previous year. In 2019, PST ES executed 26.3 thousand new contracts, with deliveries scheduled to begin in 2019 and the following years confirmed under 45% of them.

Competition

PST ES's main competitors on the retail market are large companies (E.ON, RWE, EnBW, Vattenfall) and municipal utilities owned by local authorities – all fighting to maintain or increase their market share in the end customer sector.

Development prospects abroad

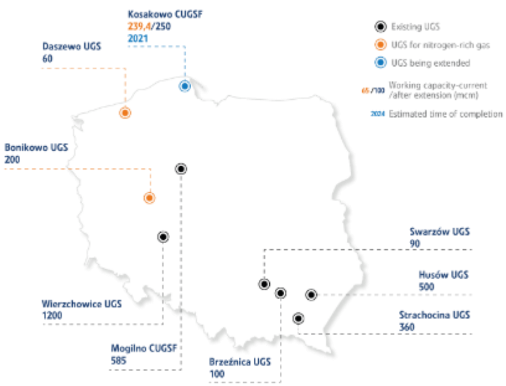
PST ES is currently in the process of restructuring which started in 2019, and is actively scanning the market in search of prospective buyers of its retail operations.

4.2.4 Storage business

The segment uses the working capacities of the Wierzchowice, Husów, Strachocina, Swarzów and Brzeźnica underground gas storage facilities, as well as the Mogilno and Kosakowo underground cavern facilities for its own needs. A part of the working capacity of the Mogilno facility which was made available on a TPA basis to GAZ-SYSTEM is not a storage facility within the meaning of the Polish Energy Law. The capacities of gas storage facilities are managed by GSP, conducting activities in the following two core areas:

- Regulated activities comprising the provision of gas fuel storage services at storage facilities owned by PGNiG, as well as operation of the Mogilno and Kosakowo underground gas storage caverns;
- Non-regulated activities comprising services related to design, construction and extension of underground gas storage facilities.

Figure 6 Underground gas storage facilities



Source: In-house analysis based on data from the Geology and Hydrocarbon Production Branch.

As part of its business, GSP holds a licence to store gas fuel in storage facilities. Settlements of gas fuel storage services with storage service customers are based on the following tariffs:

- Amended Tariff No 1/2018, effective until April 15th 2019 – in relation to the former Tariff No 1/2018, the average storage fee was increased by 0.4%.
- Tariff No 1/2019, effective from April 15th 2019 hours onwards – in relation to the previous tariff (Tariff No. 1/2018), the average storage fee rate was reduced by 6.3%;

Under an outsourcing agreement, GSP provides storage services at underground high-methane gas storage facilities owned by PGNiG.

Short-term peak fluctuations in demand for natural gas are balanced by supplies from the Mogilno and Kosakowo facilities, where gas is stored in worked-out salt caverns. The capacities of the Wierzchowice, Husów, Strachocina, Swarzów and Brzeźnica UGSFs are used to balance out changes in demand for natural gas in the summer and winter seasons, to meet the obligations under take-or-pay import contracts, to ensure the continuity and security of natural gas supplies, and to meet the obligations under gas supply contracts with customers.

GSP, in its capacity of the storage system operator, provides gas fuel storage services to storage facility users under standardised procedures, on a non-discriminatory, equal-treatment basis, so as to ensure the most efficient use of the storage capacities. Storage services are provided under standard storage service agreements (SSSA).

As at December 31st 2019, under SSSA, GSP provided a total of 166.8 thousand long-term storage capacity packages, including 68.9 thousand packages of storage services provided on a firm basis, and 97.8 thousand packages on an interruptible basis. As part of short-term storage services on an interruptible basis as at December 31st 2019, GSP allocated up to 931 storage capacity packages/flexible packages.

Third-party access (TPA) storage capacities

As at December 31st 2019, GSP had a total working storage capacity of 3,074.8 mcm, of which a total of 3,039.59 mcm was made available, on a TPA (third-party access) basis and to GAZ-SYSTEM, as part of long-term services ca. 23 mcm, out of ca. 30 mcm, of working capacity was made available as part of short-term services, on an interruptible basis, due to technical conditions. In addition, GSP allocated ca. 5 mcm of working capacity for the needs of the Mogilno CUGSF's and Kosakowo CUGSF's technological units.

Ticketing service – PGNiG

PGNiG offers a ticketing service which allows gas importers and traders to meet their gas-stocking obligations in accordance with the applicable Polish regulations. The Company performs ticketing service contracts concluded for the gas year 2019/2020 with six energy companies. The total volume of natural gas stocks maintained by PGNiG for third-party customers exceeds 370 GWh.

As part of the ticketing service, PGNiG maintains gas stocks in gas storage facilities operated by GSP.

Key investment projects and capital expenditure in the storage area

In 2019, construction of cluster B was continued at the Kosakowo CGSF with a view to obtaining additional working capacities. At the beginning of the year, the final acceptance and commissioning procedures were completed for the first three Cluster B chambers with a total working capacity of 93.9 mcm. The two other cluster B chambers are undergoing the leaching process.

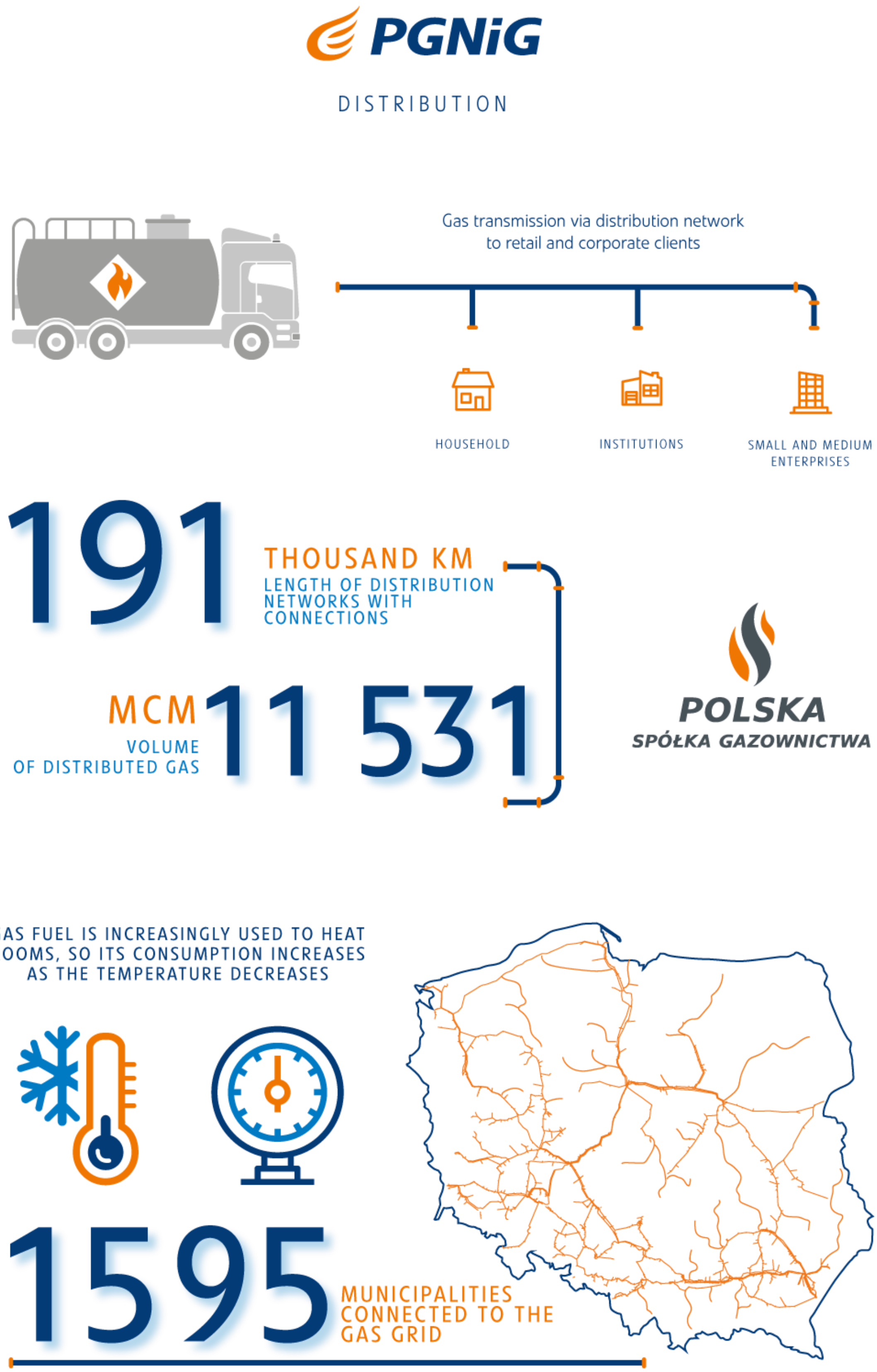
Growth prospects and future challenges in the storage area

In accordance with the schedule for the 'Kosakowo CGSF – Construction of Five Caverns, Cluster B' project, in 2020 the construction of the K-7 and K-10 chambers at the Kosakowo CGSF will be continued to expand the storage capacities. Under the project implementation agreement, the completion is scheduled for 2021. After the construction of cluster B is completed, the working capacity will have been increased to ca. 300 mcm.

GSP intends to enter foreign markets in order to grow its customer base and secure new sources of revenue. The services offered abroad will involve the preparation, execution and supervision of projects involving construction of underground gas storage facilities.

4.3 Distribution

The segment's principal business activity consists in the delivery of high-methane and nitrogen-rich gas, as well as of small volumes of coke-oven gas, over the distribution network to retail and corporate customers. The segment is also engaged in extending and upgrading the gas network and connecting new customers. Natural gas distribution is the responsibility of PSG. As the Distribution System Operator, the company operates in all regions of Poland. Being the owner of the majority of Poland's gas distribution network and gas service lines, PSG enjoys a dominant market share.



4.3.1 Key operating metrics

Table 25 Volume of distributed gas (high-methane, nitrogen-rich, propane-butane, and coke gas)

mcm	2019	2018	2017	2016	2015
Total volume of distributed gas	11,531	11,747	11,645	10,858	9,823
- including high-methane gas	9,976	9,918	9,797	9,301	8,646
- including nitrogen-rich gas	931	971	989	836	643

Table 26 Length of distribution networks

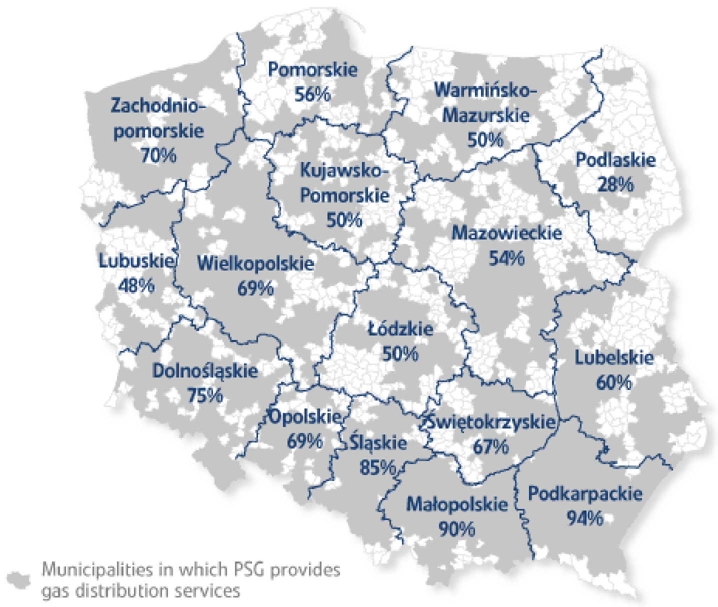
thousand km	2019	2018	2017	2016	2015
Length of distribution networks	191	186	183	180	177

In 2019, 85 new municipalities were connected to the gas grid. Thus, the geographical coverage in terms of the number of municipalities connected reached 64.4% (1,595 out of 2,477).

4.3.2 Operations in 2019

The mission of PSG as the distribution system operator is to provide gas fuel distribution services to all gas fuel consumers and traders (while ensuring that all of them receive equal treatment) on the basis of distribution agreements. In 2019, PSG executed seven distribution agreements and four Interoperator Distribution Agreements. In the same period, about 61.7 thousand customers switched to another seller.

Figure 7 Municipalities where PSG provides gas fuel distribution services

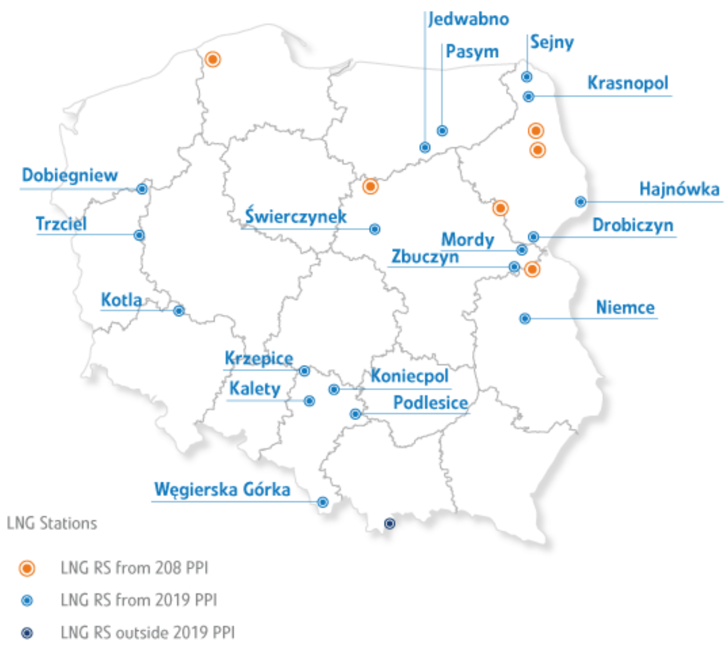


Source: In-house analysis based on PSG data.

PSG's activities resulted in the execution of over 113.5 thousand connection contracts in 2019, providing for 123.5 thousand new connections to the gas grid. In 2019, PSG planned to build over 63.4 thousand new service lines. By the end of 2019, nearly 208.5 thousand decisions defining the terms of connection were issued (up 17% year on year) and 81.2 thousand service lines with a total length of 821 km were built.

As regards growth of the LNG market, PSG continued its efforts to begin the distribution in new areas based on LNG regasification stations. In 2019, commissioning reports were issued for 19 new LNG regasification stations. As at the end of 2019, PSG supplied (via its LNG regasification stations) approximately 110 GWh of gas fuel to end users in off-grid areas, which means an increase of ca. 24% in the LNG distribution volumes relative to 2018. Concurrently, as at the end of 2019, the number of gas fuel customers in off-grid areas was nearly 21 thousand.

Figure 8 LNG regasification stations in Poland



Source: In-house analysis based on PSG data.

As part of activities designed to streamline the Polish gas system, PSG purchased gas distribution infrastructure from PGNiG, including assets comprising the high-pressure gas pipeline between KGZ Kościan and KGHM Żukowice / Polkowice (ca. 114 km) and assets comprising the high-pressure gas network in the coastal strip. (ca. 111 km).

Chart 17 Volume of gas transmitted via the distribution system (mcm)

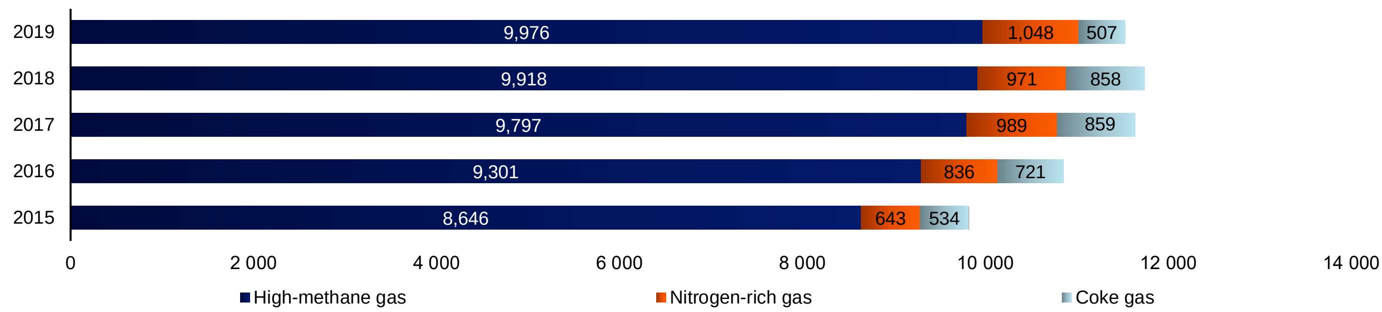
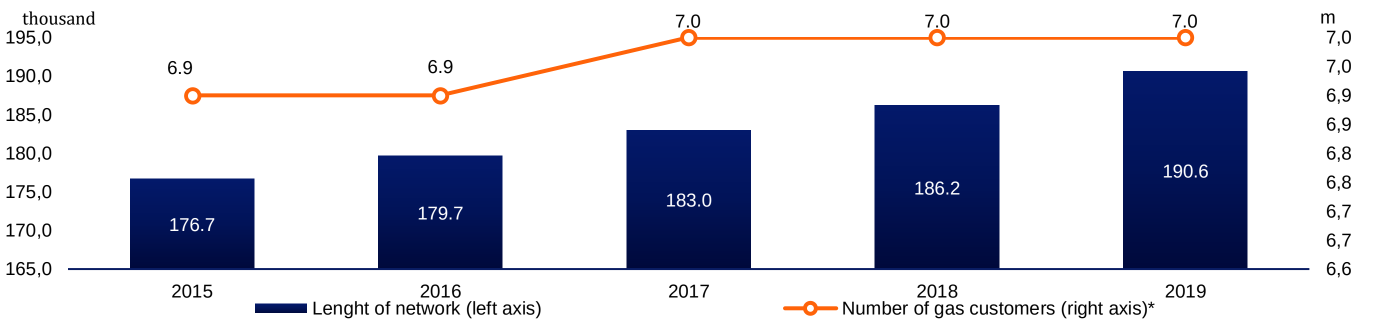


Chart 18 Length of own network, including service lines (thousand km) and number of customers (million)



** Customer − anyone receiving or drawing gas fuel under an agreement with a gas supplier.*

An important factor affecting the performance of PSG's operator obligations was the conclusion of comprehensive gas supply contracts with an emergency suppliers/last-resort supplier on behalf of and for about 25,000 end users, following the termination of gas fuel supply by Hermes Energy Group S.A., Orange Energia Sp. z o.o. and Energy Match Sp. z o.o..

PSG's operations are extensively regulated through the licensing of activities related to the distribution of gas fuels and to the provision of the liquefied natural gas regasification service. In 2019, the following licences were in force:

- Tariff No. 6, effective from March 1st 2018 to February 14th 2019, resulting in a reduction of the average distribution fee by 7.37% relative to the previous tariff.

- Tariff No. 7, effective from March 15th to December 31st 2019, resulting in a 5% reduction of the average distribution fee relative to the previous tariff.

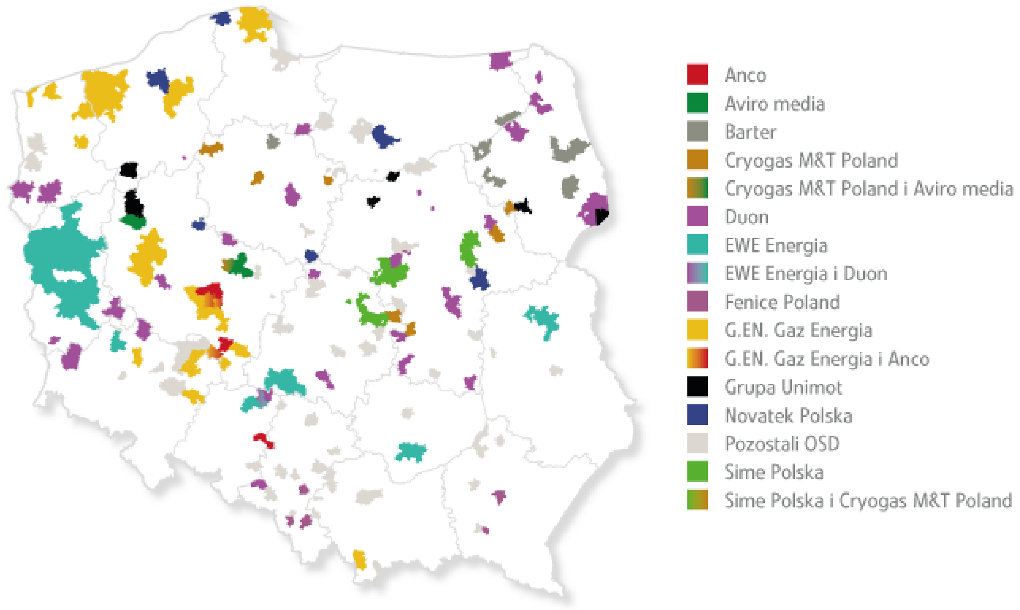
Competition

There are 52 competing DSOs (Distribution System Operators) on the Polish gas distribution market, including:

- 19 entities for whom DSO activities are their core business, including 4 entities operating in closed distribution zones,
- 33 entities engaging in DSO activities outside their core business, including 29 entities operating in closed distribution zones.

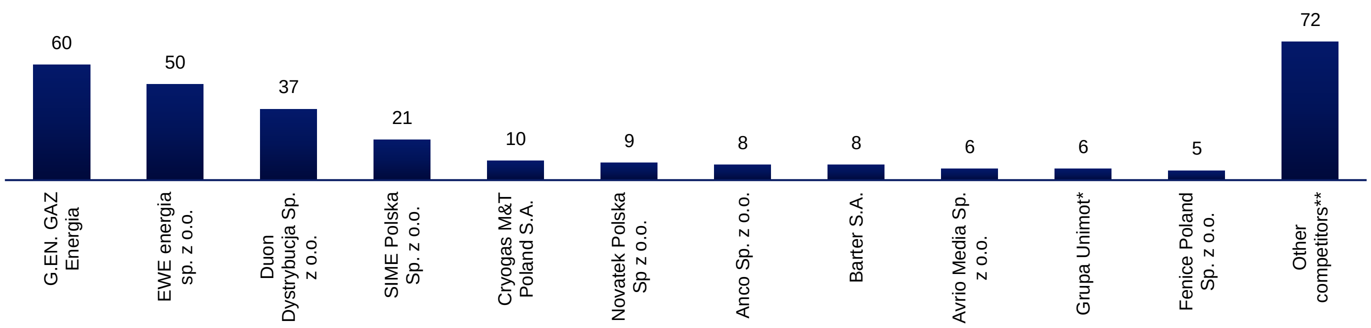
In total, competing DSOs and entities engaged in LNG regasification (without a gas distribution licence) operate in 278 municipalities; competing DSOs and PSG operate in 133 municipalities.

Figure 9 Operating areas of competitors in Poland



Source: In-house analysis based on PSG data.

Chart 19 Number of municipalities where competitors operate



** UNIMOT System Sp. z o.o. and Blue LNG Sp. z o.o.*
*** Other DSOs operating in two or fewer municipalities.*

Among companies that have the largest influence on the Polish distribution market are entities with the majority of entry points into their distribution systems, including LNG regasification stations, being independent from PSG, which operate in approximately 40% of the municipalities where PSG's has direct competitors. These include: DUON Dystrybucja Sp. z o.o.; GAZ ENERGIA Sp. z o.o., Novatek Polska. Other competitors are active on local markets or expand at smaller rates.

Key projects and investments

Capital expenditure in the Distribution segment totalled PLN 2.3bn. In 2019, PSG spent more than PLN 1,356m on network expansion and connection of new customers, including ca. PLN 186.5m on buying out assets. Another PLN 676m or so was spent on the redevelopment and upgrade of the gas network, including nearly PLN 214m on the replacement and certification of gas meters and metering systems.

In 2019, PSG pursued projects supporting implementation of the PGNiG Group Strategy for 2017−2022 in the area of distribution, aimed at putting in place technological and organisational solutions in customer service, meter reading, and billing of distribution services.

As a gas distributor, PSG additionally engages in a range of activities to combat smog and air pollution. In 2017, a number of environmental initiatives were launched, which were continued in 2019 (often in cooperation with local governments). These include:

- The 'Inactive service lines' project aimed at mobilising customers who have non-operational gas connections, especially in areas with a high level of low-stack emissions (smog);
- 'Connect, because every breath matters' – an educational and promotional project intended to raise awareness of the risks to human health presented by air pollution and to promote gas fuel as an environmentally-friendly alternative to solid fuels.

In 2019, PSG continued its efforts to secure financing under the EU 2014–2020 financial framework. As part of Measure 7.1. – Development of intelligent storage, transmission and distribution systems, Priority axis VII – Improvement of energy security, PSG entered into agreements with the Oil and Gas Institute – National Research Institute, providing for co-financing of investment projects. The expected total cost of nine projects exceeds PLN 566m, VAT inclusive (with the amount of subsidies in excess of PLN 227m). The total length of the distribution pipelines to be built or upgraded under the projects is 440 km.

In 2019, PSG continued efforts to develop the research and development area with a view to enhancing its innovativeness. The 'Innovative Idea' project was completed. Its objective was to attract innovative solutions supporting PSG's principal operations and improve the commitment of employees to its business development. Overall, 35 ideas were submitted by employees, of which 10 were honoured with awards and 2 with distinctions.

PSG actively participates in innovative programmes. Key R&D projects implemented in 2019 include:

- Pilot implementation and testing of different technologies for data transmission from gas meters with a telemetric module;
- Execution of a letter of intent with the Warsaw University of Technology with a view to preparing and implementing the first Polish experimental transmission of natural gas/hydrogen mixture via the gas network.
- Development of a mobile liquefied gas metering system which can be used at any LNG station, ensuring accurate measurement of the mass flow rate;
- As part of efforts to develop alternative fuels infrastructure – implementation of a programme to build natural gas stations and upgrade, expand or build networks necessary to connect these stations in 2019–2022. A tender procedure was announced to award a licence agreement for the natural gas fuelling service and for the operation of CNG and/or LCNG stations.

4.3.3 Growth prospects and future challenges

In 2020, PSG will continue to work towards expanding the network, increasing the number of customers, maintaining and improving the technical condition of gas pipelines, and guaranteeing operational safety. In the coming years, PSG is going to proceed with activities relating to investments in the network (construction of gas networks, also with the use of LNG technologies, connection of new customers, network upgrades) and other projects fostering growth of the gas market.

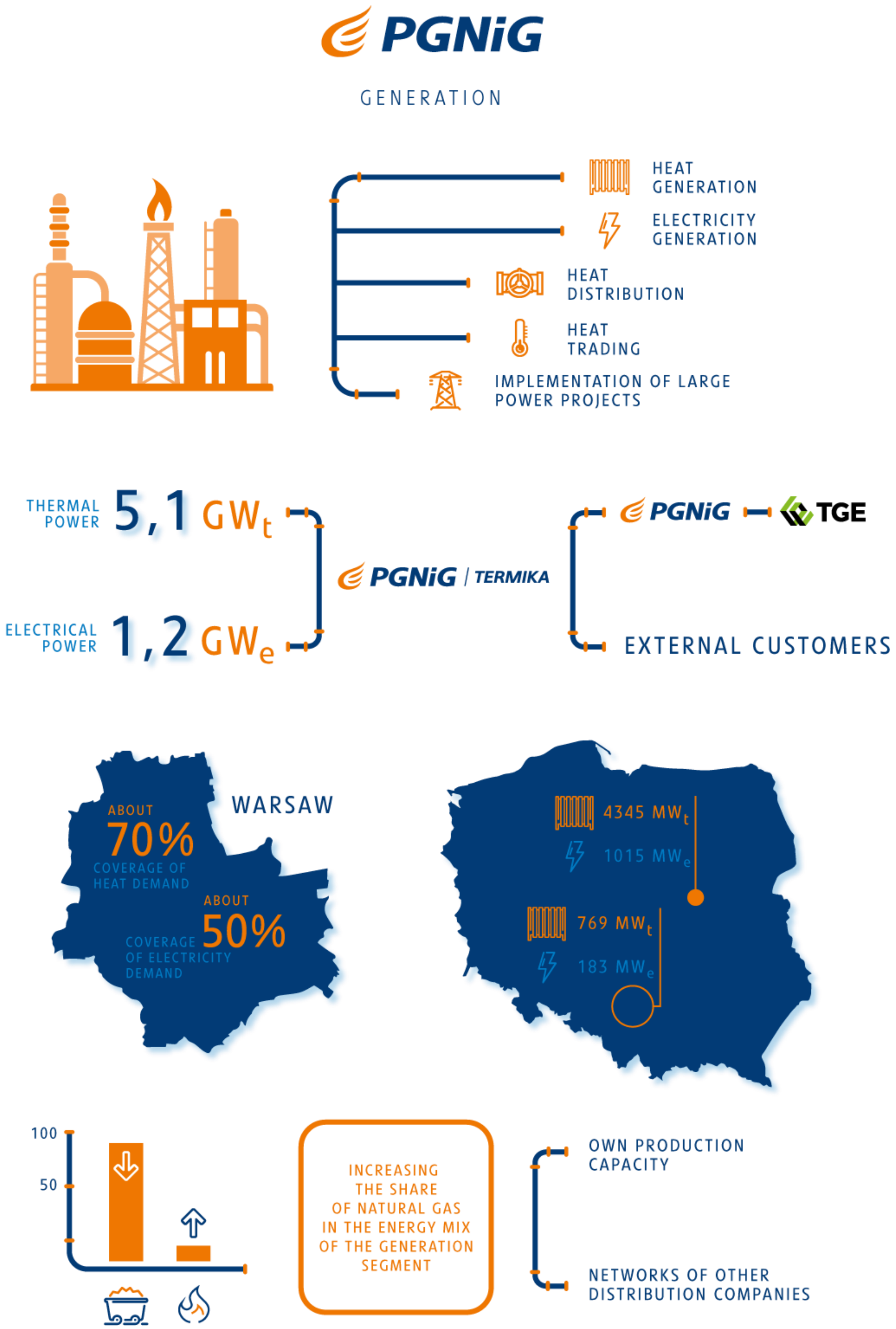
The company intends to consistently pursue new opportunities for:

- Increasing the use of gas as an environmentally friendly fuel;
- Stimulating the development of R&D&I activities and infrastructure to facilitate growth of the volumes of transported gases (including 'renewable' gases);
- Meeting the growing demand for natural gas from large and medium-sized customers (in particular cogeneration producers, manufacturing and industrial plants, service centres) and fostering development of the power generation sector;
- Further roll out of the gas distribution network and connecting new customers in the regions of Poland where the gas network is not sufficiently developed.

Moreover, PSG will embark on cooperation projects involving the PGNiG Group and fuel sector entities with a view to developing a business model which, taking into account market conditions and the state policy, will facilitate the development of alternative fuels infrastructure and will create conditions for offering adequate CNG refuelling services to vehicle users.

4.4 Generation

The segment's principal business consists in the production of heat and electricity, distribution of heat, and delivery of large natural gas-fired projects in the power sector. The competence centre at the PGNiG Group for those areas is the PGNiG TERMIKA Group, including PGNiG TERMIKA (and its subsidiaries) and PGNiG TERMIKA EP (and its subsidiaries).



4.4.1 Key operating metrics

Table 27 Volumes of heat (TJ) and electricity (GWh) sold to non-PGNiG Group customers

(TJ)	2019	2018	2017	2016	2015
Total heat sales volumes from own generation sources	39,263	40,659	42,611	39,527	36,209
at PGNiG TERMIKA	36,880	38,290	40,037	38,780	36,209
at PGNiG TERMIKA EP*	2,383	2,369	2,574	747	-
(GWh)					
Total electricity sales volumes from own generation sources	3,948	3,974	3,882	3,604	3,487
at PGNiG TERMIKA	3,493	3,535	3,593	3,466	3,487
at PGNiG TERMIKA EP*	455	439	289	138	-

** The data for 2016 represents the sales volumes generated by PEC and SEJ. As of 2017, the data represents the sales volumes generated by PGNiG TERMIKA EP (which comprises PEC and SEJ).*

Table 28 Maximum capacity by licence / plant / branch

Generating unit	Heat [MW]	Electricity [MW]	Cooling [MW]	Compressed air capacity ['000 m³/h]
PGNiG TERMIKA	4,345	1,015	-	-
Siekierki CHP plant	2,068	620	-	-
Żerań CHP plant*/**	1,300	386	-	-
Pruszków CHP plant	164	9	-	-
Kawęczyn heat plant	465	-	-	-
Wola heat plant	349	-	-	-
PGNIG TERMIKA EP	769	183	17	337
Zofiówka Branch	279	113	-	117
Moszczenica Branch	121	39	-	-
Pniówek Branch	72	14	17	123
Suszec Branch (Suszec site)	38	11	-	97
Suszec Branch (Częstochowa site)	3	3	-	-
Wodzisław Branch (Wodzisław Śląski site)	55	2	-	-
Wodzisław Branch (Niewiadom site)	3	-	-	-
Racibórz Branch (Racibórz site)	87	-	-	-
Racibórz Branch (Kuźnia Raciborska site)	4	-	-	-
Żory Branch (Żory site)	87	-	-	-
Żory Branch (Czerwionka-Leszczyny site)	15	-	-	-
Distribution Office	3	-	-	-

** At the Żerań CHP plant, two WP120 water boilers (11, 12) were permanently shut down to be decommissioned in connection with the plant's adaptation to new emission requirements.*
*** K15, K16, K17 gas boilers at the Żerań CHP plant – project not completed.*

4.4.2 Operations in 2019

PGNiG TERMIKA's business focus is on the generation and sale of heat and electricity, provision of system services, and administration of certificates of origin for electricity. The installed capacity of its generating assets is 4.3 GW of thermal power and 1 GW of electric power, which satisfies most of the heat demand on the Warsaw market and almost the entire demand of the district heating network. The company is also a producer and supplier of heat, and the owner of heat sources and an 82-kilometre long heat network in Pruszków, Komorów and Piastów. PGNiG TERMIKA is one of the largest Polish producers of electricity and heat in high-efficiency cogeneration.

PGNiG TERMIKA EP's core business is in the generation and distribution of electricity, compressed air and cooling, as well as heat generation, distribution and trading. PGNiG TERMIKA EP is the PGNiG TERMIKA Group's competence centre for commercial power generation and extraction of coal mine methane. The company operates generation assets with a total capacity of ca. 769 MWt and 183 MWe, and approximately 310 km of heat networks. It is present in the municipalities of Jastrzębie-Zdrój, Czerwionka-Leszczyny, Knurów, Racibórz, Kuźnia Raciborska, Pawłowice, Rybnik, Wodzisław-Śląski, Żory and Częstochowa, and sells its products mainly to housing cooperatives and mines.

The PGNiG TERMIKA Group takes steps to modernise its old and environmentally inefficient generation assets to meet environmental regulations, stricter industrial emissions standards and BAT (best available technology) criteria. The key investment projects underway in 2019 included the performance of the contract to construct a CCGT unit and a peak-load boiler house at the Żerań CHP plant and an investment programme to upgrade the Pruszków CHP plant. In August 2019, an environmental permit was issued for the construction a multi-fuel unit at the 75 MW Siekierki CHP plant.

In 2019, another main capacity auction was held for 2024 supplies. As a result of three main auctions held by Polskie Sieci Energetyczne in 2018 and one held in 2019, PGNiG TERMIKA and PGNiG TERMIKA EP executed the following contracts:

- CCGT unit at the Żerań 2 CHP plant: a 17-year supply contract for 2021–2037 (net capacity of 433.3 MW);
- Units No. 7 and No. 8 at the Siekierki CHP plant: annual supply contracts for 2021–2024 (total net capacity of 140 MW);
- Moszczenica CHP plant unit: annual supply contracts for 2021–2022 (net capacity of 7 MW), and for 2023 (6.4 MW);
- Wodzisław – Częstochowa CHP plant unit: annual supply contracts for 2021–2023 (net capacity of 1.2 MW);
- Moszczenica – Wodzisław CHP plant unit: annual supply contract for 2024 (net capacity of 8 MW);
- CFB unit at the Zofiówka CHP plant: an annual supply contract for 2024 (net capacity of 65.1 MW).

Furthermore, in 2018 the Stalowa Wola CHP plant (CCGT unit construction project implemented by PGNiG TERMIKA and Tauron Polska Energia S.A.) signed a seven-year supply contract for 2021–2027 (net capacity of 386 MW).

In 2019, PGNiG TERMIKA supplied heat to two municipal networks: the Warsaw heating network, owned by Veolia Energia Warszawa S.A., and its own heating network, covering Pruszków, Piastów, and Michałowice. The heat output in 2019 corresponded to the requirements set out in the annual agreement with Veolia Energia Warszawa S.A. under the multi-year contract for the sale of heat from PGNiG TERMIKA S.A. generating facilities, effective until August 31st 2028. The company also used Veolia's network to supply heat to its own end customers, based on a transmission contract (those customers are billed on different terms as they are classified in PGNiG TERMIKA's separate tariff group – 'OKW').

PGNiG TERMIKA holds licences for electricity generation, heat generation, and heat transmission. In 2019, the company applied the following tariffs for heat generated at the Żerań CHP plant, Siekierki CHP plant, Pruszków CHP plant, Wola heating plant and Kawęczyn heating plant, and for transmission and distribution of heat via the heating networks in the Pruszków area (supplied from the company's own heat generating source: Pruszków CHP plant), as well as in the Annopol, Chełmżyńska, Jana Kazimierza, Marsa Park and Marynarska areas. The following tariffs applied in 2019:

- Tariff effective from September 1st 2018 to August 31st 2019, resulting in a 0.58% increase in average prices charged by PGNiG TERMIKA S.A.;
- Tariff effective from September 1st 2019 to August 31st 2020, resulting in a 7.29% increase in average prices charged by PGNiG TERMIKA S.A.;

PGNiG TERMIKA EP holds licences for electricity generation, heat generation, heat transmission, heat trading and electricity distribution. The tariffs applicable in 2019 included:

- Tariff effective from January 1st to June 30th 2019 for heat generated at PGNiG TERMIKA EP's heat generating sources;
- Tariff effective from July 1st to December 31st 2019 for heat heat generating sources, resulting in a 3.51% increase in average prices charged by PGNiG TERMIKA EP's, and for distribution services, resulting in a 2.29% increase in average prices charged by PGNiG TERMIKA EP's. The tariff will apply until June 30th 2020;
- Tariff effective from January 1st to April 30th 2019 for electricity distribution services by PGNiG TERMIKA EP's;
- Tariff effective from May 1st 2019 to December 31st 2019 for electricity distribution services by PGNiG TERMIKA EP's. The tariff will apply until April 30th 2020.

Competition

Heat

In the area of heat generation, PGNiG TERMIKA operates on markets limited by the boundaries of two separate municipal heating networks: in the capital city of Warsaw and in Pruszków, Piastów and Michałowice. A share in the heat production in Warsaw and a share in Pruszków makes PGNiG TERMIKA a natural monopolist in these areas. With respect to heat generation, its only true competitor is Zakład Utylizacji Stałych Odpadów Komunalnych of Warsaw (ZUSOK). A significant area of competition is sales of heat to end users, where the company operates under the TPA (third-party access) rules.

Electricity

PGNiG TERMIKA sells electricity almost exclusively on the wholesale market (with an only marginal share of sales to end customers). In 2019, as in previous years, the main players on the wholesale market were three groups of companies: PGE, TAURON, and ENEA, which account for some 67% of total installed capacity and whose electricity outputs represent approximately 70% of the total domestic production (the percentage figures are given for 2018 because the annual report on the operation of the Polish National Power System is not available). The PGE Group holds the largest share in electricity generation (2018: 42.9%). Given their shares in the wholesale market, the above entities certainly have a major impact on the development of energy prices in futures contracts.

Key projects and investments

In 2019, PGNiG TERMIKA was engaged in investment projects which may significantly affect its profit or loss in the coming years. The PGNiG TERMIKA's and PGNiG TERMIKA EP's capital expenditure in 2019 totalled approximately PLN 1,628m (including PLN 493m attributable to CO_2) and was incurred to upgrade and construct generating units.

One of the key capex projects in 2019 was the construction of a 500 MW CCGT unit at the Żerań CHP plant (Żerań CCGT) Construction work was completed on all main steel and reinforced concrete structures of the key buildings and facilities comprising the CCGT unit, including the gas and steam turbine house, recovery boiler, start-up boiler house and transformer stations. Other works involved construction of auxiliary infrastructure and service lines to gas and electricity transmission networks. In view of the BAT Conclusions, steps were taken to install a catalytic flue gas deNOx (SCR) system. The planned capital expenditure totals approximately PLN 1.6bn. The commissioning of the Żerań CCGT unit, taking into account force majeure (typhoon Jebi in Japan), is expected in November 2020.

In 2019, construction and assembly work at the peak-load boiler house of the Żerań CHP plant, comprising three 130 MWt gas-fired boilers, was completed. In the third quarter of 2019, the unit's start-up was commenced.

Another project continued in 2019 was the construction of a 450 MW CCGT unit at the Stalowa Wola CHP plant. The work included building and assembly activities performed to finish the construction of the CCGT unit and a back-up heat source, in accordance with the scope of the relevant contracts. Start-up work on the unit's process systems began. The planned total capital expenditure is approximately PLN 1.4bn; the scheduled commissioning date was postponed to the beginning of Q2 2020.

As part of the Pruszków CHP plant upgrade project, in 2019 the altering of the coal feeding infrastructure and two water boilers, along with the construction of an environmental protection system, was completed. Additionally, work was continued on a detailed concept of and tender documentation for selecting contractors to carry out the investment projects envisaged for 2020-2022, including the construction of two coal-fired boilers, an oil-fired boiler house (with a light oil tank) and gas engines with a total capacity of up to 12 MWe.

Key investment projects at PTEP included:

- Project related to the supply of heat from own generation sources to the city of Rybnik;
- Modernisation of the cooling water pump rooms and compressors at the Pniówek Branch;
- Expansion and upgrade of district heating networks in Jastrzębie-Zdrój.

Capital expenditure at PTEP totalled approximately PLN 57.3m (approximately PLN 34m without CO_2) in 2019.

In 2019, PGNiG TERMIKA, via its subsidiary PGNiG TERMIKA Energetyka Rozproszona, took over the operation of the district heating system in Dęblin. Also, processes related to acquisition/district heating investment projects in Przemyśl and Śrem were carried out.

The PGNiG TERMIKA Group is actively involved in innovative programmes. Key R&D projects implemented in 2019 include:

- Start of work to draft pre-construction documentation for the photovoltaic system project at the Kawęczyn CHP plant;
- Launch of commercial and technical negotiations with the potential contractor for the project to install pulse duct collectors on boiler No. 7 at the Siekierki CHP plant to reduce dust emissions in the flue gas streams below 10 mg/Nm^3.

Equity investment in Polska Grupa Górnicza S.A. (PGG)

In 2019, PGG continued the restructuring and operational streamlining processes initiated in 2016, primarily in respect of organisational changes, transfers of economically inefficient assets to Spółka Restrukturyzacji Kopalń S.A. and revenue optimisation. As at the end of 2019, based on an impairment test of PGG shares carried out by PGNiG TERMIKA, the shares' value in use was PLN 612m. For more information, see Section 5.2.2.

4.4.3 Growth prospects and future challenges

PGNiG TERMIKA will proceed with its strategic projects and will actively seek acquisition opportunities in the power and heating area. The company intends to markedly scale up the volume of electricity sales by implementing projects aimed at building new, cost-effective generation capacities and upgrading existing sources using low-carbon technologies..

In 2020, the PGNiG TERMIKA Group will continue work on its projects, including the CCGT unit at the Żerań CHP plant, the CCGT unit at the Stalowa Wola CHP plant, construction of a peak-load boiler house at the Żerań CHP plant, construction of a 75 MWe multi-fuel unit at the Siekierki CHP plant, and preparatory work preceding construction of a CCGT unit at the Siekierki CHP plant.

Capital expenditure planned for 2020 in the area of environmental initiatives will include a programme to adapt fluidised boilers at the Żerań CHP plant to the BAT Conclusions, adaptation of the Kawęczyn heat plant to the BAT Conclusions, a programme to adapt Emitter 5 at the Siekierki CHP plant to new dust emission requirements (the programme covers the construction of a bag filter on the K11 boiler and upgrade of absorbers 1 and 2), construction of an SCR unit for the K16 boiler at the Siekierki CHP plant, and upgrade of the Pruszków CHP plant.

In December 2018, the Act on the Promotion of Electricity from High-Efficiency Cogeneration was enacted, and the entry into force of its provisions along with a secondary legislation package will allow PGNiG TERMIKA to apply for participation in a new support system that will replace the existing one, based on certificates of origin and described in the Energy Law. The applications will be filed with respect to the planned new gas-fired units of the PGNiG TERMIKA Group. Following implementation of the capacity market system, additional revenue has been secured for 2021–2037 as a result of the auctions.

PGNiG TERMIKA EP will focus its efforts on maintaining the position of a major producer and main supplier of heat in the region, and will also seek to reinforce its leading position in Poland with respect to the commercial use of methane in cogeneration systems. The tasks that the company will face in 2020 include further implementation of the project to secure heat supplies to the city of Rybnik, and the task related to the combination of the Zofiówka and Pniówek CHP plants' heating systems.

The key challenges to the PGNiG TERMIKA Group's strategic plans include:

- implementing an investment plan that will ensure compliance of generation assets with current and future environmental requirements;
- increasing heat sales and distribution volumes by acquiring district heating assets and expanding generation business across Poland;
- increasing electricity sales volume by implementing investment projects aimed at building new, cost-effective generation capacities and upgrading the existing sources with the use of low-emission technologies;
- delivering EBITDA of PLN 1bn in 2022.

4.5 Other segments

4.5.1 Operations in 2019

Corporate Centre

The main task in this area is to develop an efficient organisational and management model across the PGNiG Group. To this end, three key ambitions were set: increase involvement in and effective execution of R&D&I projects (target outlays of ca. PLN 680m), improve operational efficiency across the PGNiG Group, and enhance the Group's image.

The Corporate Centre comprises the PGNiG Head Office, comprising 16 Departments, 2 Offices, and the Central Measurement and Testing Laboratory.

PGNiG Group support companies and secondary business activities

PGNiG Technologie

PGNiG Technologie is active mainly on the domestic oil and gas market and, to a lesser extent, on foreign markets. Its business covers three areas: gas pipelines and gas infrastructure, exploration and production, and storage of gas. With regard to the first area, the company provides construction and assembly services and supplies finished products used in the construction, extension and repair of gas networks and gas infrastructure. Its operations in the exploration and production area consist in the provision of construction and assembly services as well as finished products dedicated to hydrocarbon production and exploration. As far as the storage area is concerned, PGNiG Technologie supplies products and services related to the extension, overhaul and operation of gas storage facilities.

In 2019, PGNiG Technologie provided its services to PGNiG Group companies and third parties, including: GAZ-SYSTEM, LOTOS Petrobaltic S.A., ORLEN Upstream Sp. z o.o and MHWirth AS. For PGNiG, in 2019 it constructed a unit for drying water-containing gas at the outlet of the Yamal pipeline to improve security of gas supplies from countries east of Poland.

PGNiG Serwis

The principal business of PGNiG Serwis is the provision of comprehensive finance and accounting services, HR and payroll services, ICT services, direct physical security services, technical security services, property management, and management of adjacent areas for the PGNiG Group companies. PGNiG Serwis acts as a Shared Services Centre for 15 companies of the PGNiG Group.

Gazoprojekt

PGNiG GAZOPROJEKT S.A. drafts pre-design and design documentation for the gas, fuel and energy as well as general construction sectors. Operating conditions in those sectors depend on the general situation in the economy and implementation of investment plans by the largest companies. In 2019, the market was highly saturated in terms of demand for design services, mainly from large strategic players, such as PERN S.A., OGP Gaz-System S.A. and PSG. Most of the projects involved transmission infrastructure (gas pipelines, compressor stations, fuel pipelines) and hydrocarbon production. In addition, given the developments on the liquid fuels market, considerable potential is still presented by the liquid fuels storage and distribution market.

Geovita

Geovita's business involves leisure-related activities, spa treatment services, health protection, medical rehabilitation, and provision of conference and training services. The company's facilities are located in Dąbki, Mrzeżyno, Dźwirzyno, Jadwisin near Serock, Płotki near Piła, Gronów near Łagów, Jugowice, Lądek-Zdrój, Zakopane, Wisła, Złockie near Muszyna, Krynica-Zdrój, Czarna near Ustrzyki Dolne and Kraków. In 2019, the restructuring process initiated in 2017 was continued with a view to increasing the Company's value, which also means the reduction of significant debt towards creditors. In the reporting period, the company's Management Board embarked on the divestment of unprofitable assets.

Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych (Polski Gaz TUW, mutual insurance company)

Polski Gaz TUW offers insurance cover to PGNiG Group companies, including: property, motor and third-party liability insurance, legal protection as well as insurance guarantees and health insurance. It also provides insurance cover to third parties, especially from the power sector. In 2019, the company continued cooperation with the Group companies in relation to insurance contracts.

The key project completed in the reporting period involved the establishment of Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych na Życie, a subsidiary of Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych, whose main focus in the initial period of operation will be on offering Employee Pension Plans in the form of unit-linked group life insurance. In 2019, the Financial Supervision Authority authorised Polski Gaz TUW na Życie to conduct life and health insurance operations.

PGNiG Central Measurement and Testing Laboratory (CLPB) Branch

The CLPB Branch provides services such as testing of accuracy and reliability of measurements of the quality and quantity of natural gas, testing of measuring devices and systems, as well as technical analyses, opinions and technical expert reports. It supervises measurement systems at key cross-border entry points to the transmission system, also at the LNG terminal in Świnoujście. Its services include validation of gas chromatographs for the purposes of natural gas settlements, calibration of measurement systems at gas infrastructure units, etc. In 2019, the CLPB Branch performed Europe's first validation of cryogenic fluid and LNG using cryogenic flow meters at the SMOK units in Odolanów. Key customers of the Central Measurement and Testing Laboratory are PGNiG Group companies and branches, GAZ-SYSTEM and EuroPolGaz S.A.

4.5.2 Growth prospects and future challenges

PGNiG Technologie

In 2020–2022, the company will focus on growth within its existing operating sectors, basing on the Group's investment plans. This will involve in particular activities relating to investment projects and supplies to the hydrocarbon production industry. The company will seek to build its competitive advantage through cost leadership in the sector and through diversification (quality, flexibility, pace of work). In the Oil&Gas sector growth initiatives were undertaken with a view to building new capabilities to win contracts for the construction of gas compression sets and other gas-fired heat generation infrastructure.

In addition, to supplement its existing project and order portfolios, the company will take steps to win contracts for the transmission and distribution of natural gas and to develop export sales of finished goods (Norway, Ukraine).

PGNiG Serwis

In 2020, PGNiG Serwis plans to proceed with its activities towards implementation of the Group's strategic plans. PGNiG Serwis believes that the ongoing process of streamlining and reducing the Group's operating expenses may be an opportunity for taking over ancillary activities and providing support services to more Group companies. PGNiG Serwis also intends to expand its personal and property security business, IT, property management, as well as support services related to the performance of obligations under the Waste Act.

Gazoprojekt

In 2020, Gazoprojekt will seek to continue its services for existing customers, not only within the Group but also for other leading gas and oil market companies. Projects which seem particularly interesting involve the transmission and storage of crude oil and gas, as well as expansion of gas-fired heat and electricity generating capacities. In the near future, large investment projects are also planned to be carried out in the related chemical sector. In the long term, Gazoprojekt's plans include expanding its operations on foreign markets.

Geovita

In the near future, Geovita will continue its restructuring efforts as regards cost optimisation, efficiency improvement across all business areas, and divestments of unprofitable assets.

Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych (Polski Gaz TUW, mutual insurance company)

In 2020, Polski Gaz TUW plans to develop its health insurance offering for a broad group of customers, both in and outside of the Group. The company intends to start to use PGNiG OD's customer service offices to sell insurance products, including: Gazek Opiekun Domu, i.e. insurance cover for household movables, assistance and legal protection (affinity), covering costs of legal representation and arranging and paying for legal advice. Challenges facing Poland Gaz TUW in 2020 also include operational launch of its subsidiary Polski Gaz TUW na Życie, and the taking over of the management of assets accumulated in the Group companies' Employee Pension Plans by the new company. The long-term objective of Polski Gaz TUW is to maintain and consolidate its position as the leader in the upstream insurance market and to constantly adjust its insurance offering to the Group's needs.

PGNiG Central Measurement and Testing Laboratory (CLPB) Branch

CLPB's primary objective is to maintain its position as the leading research laboratory and attestation centre for measurement systems and devices used in the natural gas industry and a natural gas quality control laboratory for all kinds of natural gas (L and E) and all their forms (CNG, LNG), as well as biogas. It supervises measurement systems at key cross-border entry points to the transmission system, also at the LNG terminal in Świnoujście. In the coming years, CLBP intends to grow its capabilities in testing hydrogen as a low-emission fuel for vehicles (there is no such laboratory in Poland, despite the emerging market for hydrogen fuel), geological analysis (porosimetry and core gas testing, analysis of liquid mineral hydrocarbons) andpreparation of the SMOK-4 unit, which will be used to certify LNG pumps at stations selling liquefied gas in Poland.

4.6 Research, development and innovation

One of the goals set in the PGNiG Group's Strategy is to step up innovation by effective implementation of R&D and innovation projects. The PGNiG Head Office oversees activities in the area of innovation (identification of new solutions, development, implementation/commercialisation) and energy efficiency, manages R&D projects and intellectual property rights, and collaborates with scientific and research centres.

4.6.1 Research and development

In 2019, out of the 57 R&D projects supervised by the Head Office, 28 were in the execution phase at the end of the year: 41 projects implemented and financed or co-financed by PGNiG (including 9 projects co-financed on a 50:50 basis by PGNiG and the National Centre for Research and Development under the INGA – Innovative Gas Industry programme) and 16 projects implemented and financed by PGNiG Group companies (including PSG: 10 projects, Geofizyka Toruń: 4 projects, PGNiG TERMIKA: 2 projects).

14 projects were completed in 2019, With approximately PLN 13.5m spent on R&D activities across the PGNiG Group. The key initiatives implemented or completed in 2019 included:

- Launch of the second (prototype) phase of the MiniDrill directional drilling project to increase natural gas production while reducing its costs;
- Launch of the Hydra Tank project to build a pilot hydrogen filling station for test purposes, and execution of a letter of intent with a selected business partner – the target supplier of the hydrogen powered car fleet;
- Completion of the contract execution process and initiation of nine projects as part of the first edition of the INGA Programme (nine contracts in total), including:
  - Exploration for coal bed methane and optimisation of its production at pre- and post-production stages (Geology and Hydrocarbon Production Branch in PGNiG);
  - Implementation of a smart customer service system using voice recognition, voice biometrics and big data analysis (PGNiG OD);
  - Development of an autonomous GC/DMS analytical system for continuous remote analysis of transported gas fuel and its additives to streamline the management of the smart gas grid (PSG).
- Successful completion of the ELIZA project, laying the foundations for the establishment of a PGNiG Group hydrogen competence building programme.

4.6.2 Innovation and business growth

In 2019, the Group companies pursued 121 innovation projects, of which 30 were completed. Capital expenditure on R&D&I activities at the PGNiG Group remained relatively unchanged compared with the previous year (approximately PLN 400m). 23 projects were underway at PGNiG, including Geo Metan II, InnVento Startup Centre, Kelvin, establishment of PGNiG Ventures, Digital Field, Smok 3D.

In the reporting period, work began to commercialise (directly and indirectly) two solutions being developed by CLPB, including: 'SMOK 3D Measurement and Settlement System for Liquefied Natural Gas', which will enable the LNG mass flow rate to be measured directly using the methods developed by CLPB. The direct measurement is intended to ultimately replace the current settlement methods, which, due to their inaccuracy, result in balancing discrepancies. Another solution concerns LNG sampling, but due to the pending patent protection procedure, more detailed information on the solution cannot be provided.

InnVento Startup Centre

In 2019, InnVento's activities focused on the following four pillars:

- Expanding a network of collaboration with professional partners specialising in the search for and acceleration of start-ups

In 2019, PGNiG and the Startup Hub Poland Foundation cooperated in the programme 'Startup Hub: Poland Prize (part of the government's programme 'Start in Poland'), with the main objective to diversify the Polish startup community. 26 innovative teams from more than a dozen countries participating in three acceleration rounds were selected from among 1,250 startups. Following the programme completion, some of the startups continue to develop their projects, including as part of the 'Fast Track' competition run by the National Centre for Research and Development, and at the same time remain ready for cooperation with PGNiG.

In 2019, cooperation under the MIT Enterprise Forum Poland acceleration programme carried on in cooperation with the Technology Enterprise Foundation was completed. Twelve startup pilot projects were conducted under the programme, involving e.g. use of drones to create orthophoto maps or monitor air pollution,, increase in oil production efficiency, or deployment of virtual reality to train employees with the use of a pressure reducing and metering station simulator.

- Support for selected startups and their business supervisors at PGNiG in pilot implementations.

Further support for startups was provided in cooperation with and as part of pilot projects at PGNiG. In 2019, eight of the projects acquired by partners were selected for implementation under accelerated or pilot project procedures.

- Promotion of the InnVento's offering and PGNIG's brand combined with intensive search for innovative startups

InnVento was a participant of approximately 40 events bringing together startup, new-tech and energy communities. Two Pitch Days were organised, during which startup representatives could present their innovative solutions to a panel of PGNiG Group experts; 10 startups presented their ideas. In addition, about 20 individual meetings were held between company experts and startups willing to start cooperation.

- Fostering innovation growth and innovation culture at the PGNiG Group

In 2019, efforts were continued to stimulate the internal potential and culture of innovation at PGNiG by organising Innovation Leaders Meetings (in the form of workshops) to exchange information and share experiences between those directly involved in developing innovation. Nine meetings organised as part of the 'Face to Face with Technology' and 'Face to Face with Innovation' cycle created an opportunity for more than 150 representatives of start-ups and business as well as PGNiG employees to explore such subjects as the use of artificial intelligence in business, protection of intellectual property rights, date governance, and use of 5G technology or space technologies in industry. The Company's employees participated in the pilot programme 'Manager of Innovation Academy' run by the Polish Agency for Enterprise Development and the Ministry of Enterprise and Technology.

Energy Efficiency

In 2019, systemic solutions were introduced as an integral part of the PGNiG Energy Policy and an ISO: 50001 Energy Management System was implemented. In order to stimulate bottom-up employee initiatives aimed at improving the Company's energy efficiency, the Management Board decided to introduced 'Rules for Reporting and Rewarding Employees' Initiatives Improving Energy Efficiency'.

Geo-Metan II

In February 2019, an agreement was signed with PGG, on cooperation in implementing a project in the KWK Ruda Ruch Bielszowice coal mine. Works related to drilling the Bielszowice-1K and Bielszowice-2H boreholes began. The Minister of the Environment issued a decision approving the plan of geological operations for the works. A co-financing request concerning the works was prepared and submitted to the State Fund for Environmental Protection and Water Management.

4.6.3 R&D&I prospects

R&D

In the coming years, the research and development area will be geared towards achievement of direct business benefits for the Company and commercialisation of the solutions that have been successfully implemented. At the same time, new business areas with a potential for enhancing the Company's competitiveness and market position will be constantly explored. These activities will be implemented over two time horizons:

Short-term horizon (until 2021):

- Strengthening the position of the PGNiG Group in hydrogen technologies, for instance by developing hydrogen fuels competence and building Poland's first accredited research laboratory qualified to perform hydrogen testing, etc.;
- Resolution of the INGA II competition;
- Transferring the MiniDrill, EcoHead and other research and development projects for commercialisation;
    - Putting forward proposals of new attractive business areas for the Group, in particular: application of photovoltaics, including in the production of 'green' hydrogen, pilot facilities for processing biogas from the existing and planned biogas plants, development of a methodology for assessing PGNiG's environmental footprint, and development of modern environmental management systems;

Medium-term horizon (2022-2023):

- Continued implementation of the PGNiG Group's 2017−2022 R&D strategy;
- Growth and expansion in the hydrogen technology market, including in P2G energy storage, hydrogen storage;
- Commercialisation of R&D projects, including the products and technologies developed on the basis of INGA projects;
- Selection of technologies/projects whose scale offers a break-through potential for the PGNiG Group, and launch of their commercialisation based on international consortia.

Innovation

In the coming years, the PGNiG Group is set to proactively acquire and implement innovation projects and efficiently deploy selected solutions. The Group's involvement in the government's 'Start in Poland' programme and in the cooperation with the startup community will continue.

Steps will be taken with a view to obtaining PN-EN ISO 50001 certification for the Energy Management System.

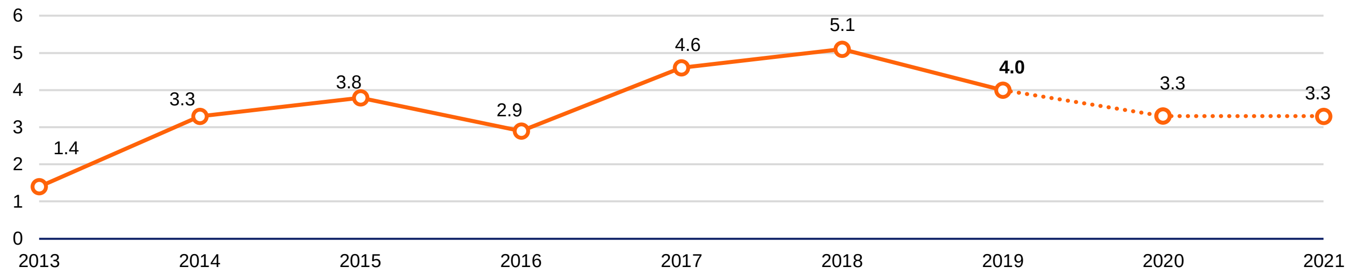
In January 2020, an agreement was signed with Jastrzębska Spółka Węglowa S.A. for cooperation on the execution of the project at KWK Budryk. In February 2020, the PGNiG Management Board decided to limit the scope and budget of the project. One borehole system at KWK Budryk will be drilled instead of the three borehole systems originally planned to be drilled in three different locations. A plan of geological operations is to be prepared and submitted to the Ministry of Climate soon, followed by preparation and submission to the National Fund for Environmental Protection and Water Management of an application for co-financing of work to be carried out at KWK Budryk.

5. Financial condition of the PGNiG Group and PGNiG in 2019

5.1 Macroeconomic environment

5.1.2 Economic situation and exchange rates

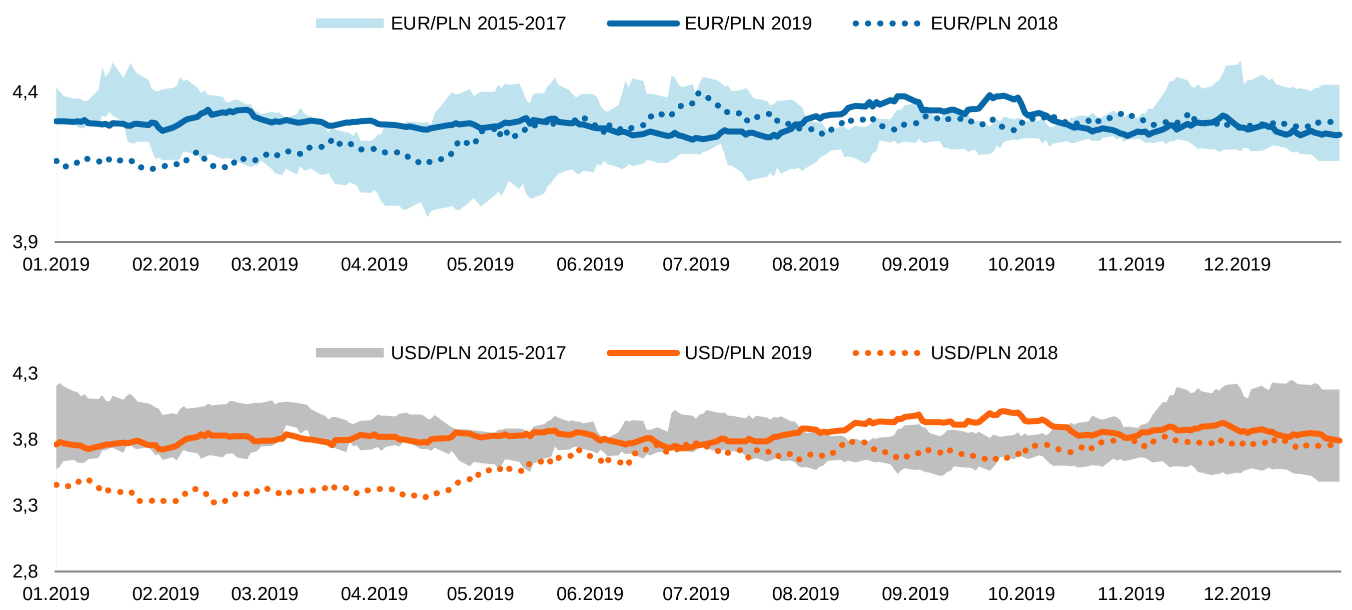
Chart 20 Gross Domestic Product yoy (%) in 2013–2019 and forecast for 2020-2021



Source: In-house analysis based on data published by the Central Statistical Office and the European Commission.

Poland's GDP growth rate for 2019 is estimated at 4.0%. In the first half of the year, it was 4.5%, supported by robust internal demand. A source of uncertainty for Poland's economic outlook is the external environment, including in particular possible disruptions in the global supply chains, which may affected Polish manufacturers. According to the European Commission's forecasts, Poland's economy is expected to expand at the rate of 3.3% in 2020. Despite the slowdown, it is set to remain among the growth leaders. Higher economic growth rates are anticipated only in the case of Malta (4.2%), Romania (3.6%) and Ireland (3.5%). In the following year, the estimate growth rate is going to be maintained at 3.3%.

Chart 21 EUR/PLN and USD/PLN exchange rates



Source: In-house analysis based on data published by the National Bank of Poland (NBP).

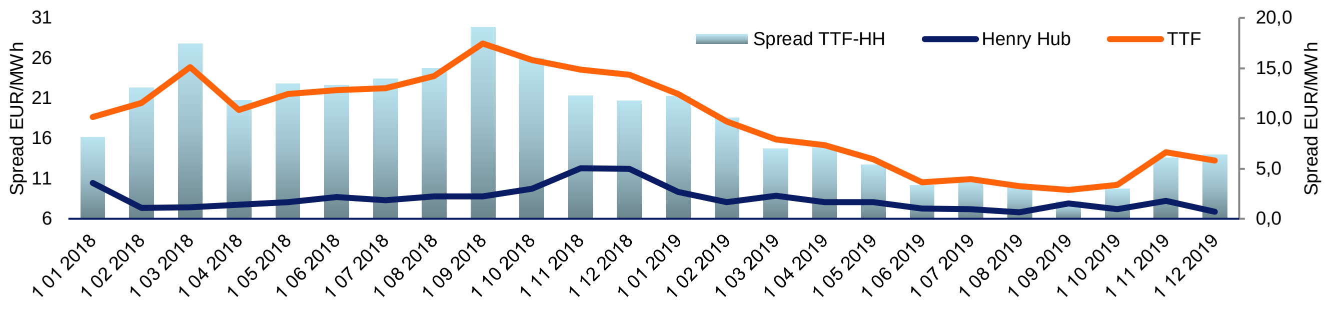
The USD and EUR exchange rates are a significant indicator for the Group, mainly because of their impact on gas procurement costs in the Trade and Storage segment. The USD/PLN exchange rate affects settlements with gas suppliers and revenue from sales of crude oil, and the EUR/PLN exchange rate is a factor driving cost of gas purchases from the western direction.

5.1.2 Trends in the natural gas market

Gas prices in Europe and globally

In 2019, prices of natural gas in Europe fell significantly relative to prices quoted at the US Henry Hub. During that period, the average price of natural gas at the Dutch TTF hub was EUR 13.58/MWh, down 40.7% yoy. Comparing the same periods, the Henry Hub natural gas prices fell by EUR 1.33/MWh, to an average of EUR 7.82/MWh. The average price of gas in the United States was down 14.6% at that time. The spread between those two trading points shrank by almost 58% last year, by EUR 8.0/MWh, to an average of EUR 5.76/MWh in 2019. The highest price spread of EUR 10.06/MWh was recorded in January.

Chart 22 Average monthly natural gas front month at Henry Hub and TTF (front month - ontract with execution date next month)

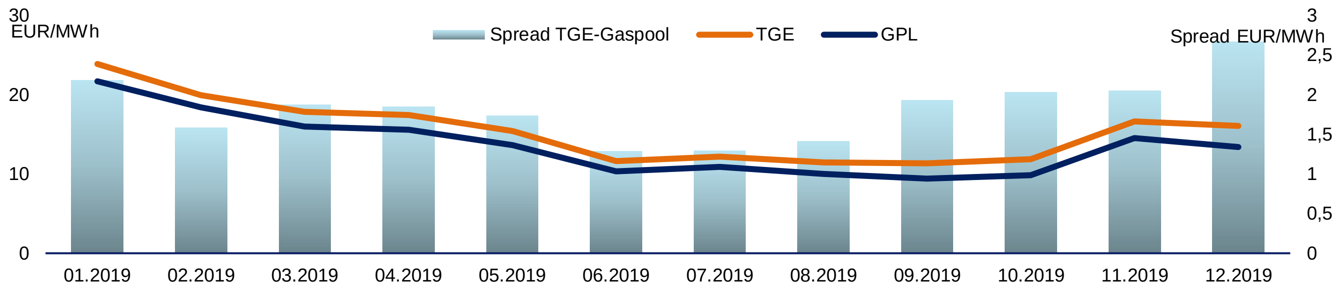


Source: In-house analysis based on NYMEX and ICE data.

Gas prices in Poland

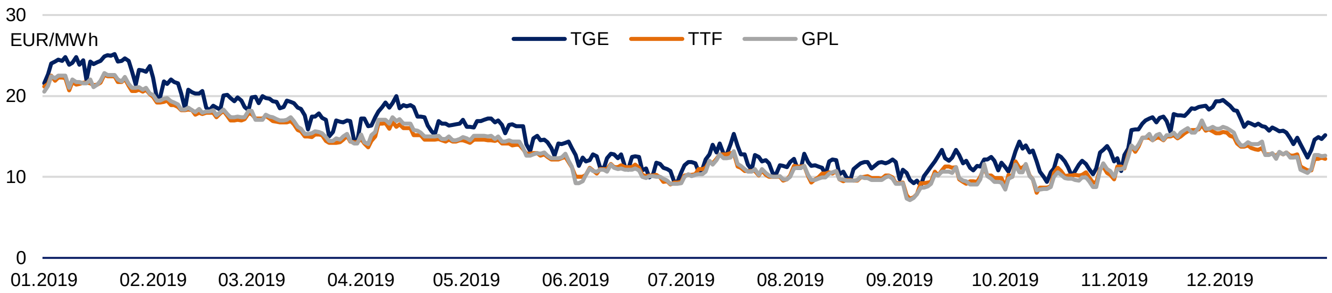
In 2019, the weighted average spot price (on the Day-Ahead and Intraday Market) of gas in Poland was PLN 72.72/MWh, down by PLN 33.30/MWh on 2018. Gas prices in Poland were strongly correlated with those in Germany and on the European markets in general. The average spread between the spot prices (for Day Ahead products) on the PPX and GASPOOL in 2019 was EUR 1.83/MWh.

Chart 23 Average monthly spot prices of natural gas in Poland and Germany in 2019



Source: In-house analysis based on PPX and EEX data.

Chart 24 Spot price of gas on PPX, TTF and GPL in 2019



Source: In-house analysis based on PPX and EEX data.

The situation on the natural gas market in Europe and globally has a bearing on the Group's financial performance, mainly due to its impact on the Trade and Storage segment, both on the cost and revenue side.

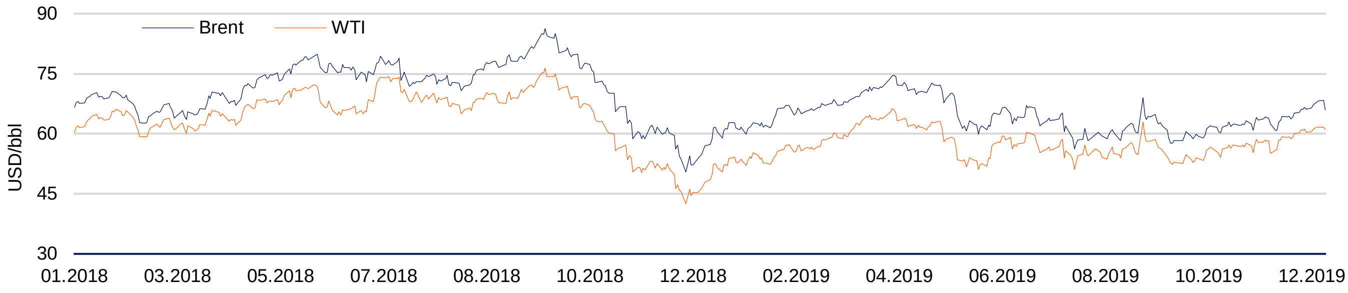
5.1.3 Trends on the crude oil market

In the first quarter of 2019, oil prices followed an upward trend. The main factor supporting the stable price growth was the imposition of sanctions on crude exports from Iran and Venezuela by the US. This made room for an increase in the market share of the US, which consistently scaled up its supply throughout the year. In the second quarter, oil prices began to move down, Driven chiefly by deteriorating economic forecasts, mainly those related to industrial production of China and the US. The trade war between the two countries depressed expectations of global economic growth and crude oil demand.

At the beginning of the third quarter, the OPEC announced introduction of new production caps for its member states, which were expected to result in aggregate supply reductions of 1.2m bbl/d. However, because of the failure by some of the countries to comply with the limits and the growing production in the US, the prices did not go up. Apart from a short period after the attack on the Saudi Abqaiq refinery, the month-ahead contracts for Brent crude fluctuated around USD 60/bbl.

In the fourth quarter of 2019, the oil price moved up. Dissatisfied with insufficient price growth and some countries' failure to respect the supply limits, the OPEC decided to increase the cuts. The fact that the US and China reached a consensus as the first part of their trade agreement also provided a stimulus for the price growth.

Chart 25 Month-ahead Brent and WTI oil prices (month-ahead - ontract with execution date next month)



Source: In-house analysis based on ICE and NYMEX data.

In 2019, the average demand for crude oil rose by 0.83% year on year, to an average of 100.78m bbl/d. Among the world's largest consumers outside the OECD (Organisation for Economic Cooperation and Development), the most pronounced increase, of 3.54%, was seen in China. Other Asian countries also recorded demand growth, on average by 2.01%. The global oil supply was reduced in 2019 by 0.11% year on year. The strongest oil output increase was recorded in the United States – by 9.13%, or approximately 1.64m bbl/d. Canada also raised its output, by 2.15%, or 0.12m bbl/d. The former Soviet Union countries did not change their supply volumes. The strongest decline in production (by 8.5%, or 0.18m bbl/d) took place in Mexico. The OPEC countries also slightly cut their output, by 5.65%, to an average of 35.2m bbl/d.

Table 29 Global oil demand

million bbl/d **Demand**	**2019**		**2018**	
	H1	**H2**	**H1**	**H2**
OECD	47.05	47.79	47.43	47.81
including United States	*20.35*	*20.65*	*20.35*	*20.65*
Non-OECD	53.08	53.63	52.06	52.60
including China	*14.53*	*14.50*	*14.05*	*13.99*
Globally – total	**100.14**	**101.42**	**99.49**	**100.41**

source: in-house analysis based on EIA data.

Table 30 Global oil supply

m bbl/d **Supply**	**2019**		**2018**	
	H1	**H2**	**H1**	**H2**
OECD	31.20	32.15	29.32	31.03
including United States	*19.14*	*19.99*	*17.13*	*18.74*
Non-OECD	69.30	68.85	70.33	71.03
including China	*4.79*	*4.79*	*4.82*	*4.75*
including FSU countries	*14.67*	*14.68*	*14.43*	*14.76*
including OPEC	*35.78*	*34.64*	*37.27*	*37.37*
Globally – total	**100.50**	**101.00**	**99.65**	**102.06**

source: in-house analysis based on EIA data.

Table 31 Crude oil supply and demand balance

m bbl/d **Surplus / deficit**	**2019**		**2018**	
	H1	**H2**	**H1**	**H2**
Globally – total	**0.36**	**-0.42**	**0.16**	**1.65**

Source: In-house analysis based on EIA data.

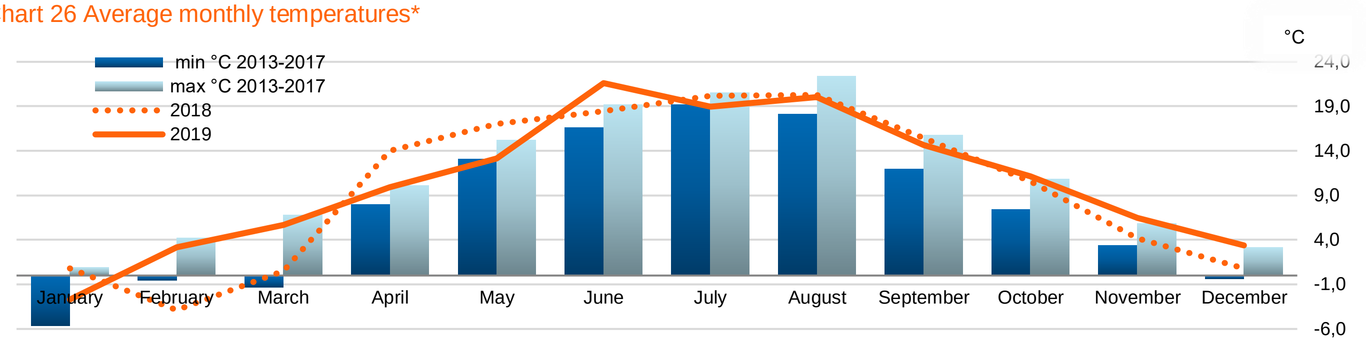
The situation on the oil market in Europe and globally has a bearing on the Group's financial performance, mainly due to its impact on the Exploration and Production segment (chiefly sales of crude produced in Norway) and the cost of gas imports in the Trade and Storage segment.

5.1.4 Average monthly temperatures

Air temperatures in the 2019 winter season were close to the highest levels seen in previous years: on average 2°°C in the first quarter and 7°°C in the fourth quarter, relative to -1°°C and 5°°C, respectively, in 2018. In the spring and summer season, temperatures stayed around 15°°C in the second quarter and 18°°C in the third quarter,° compared with 17°C and 19°°C, respectively, in 2018.

Air temperatures are an important indicator for the Group given their impact on the operating performance of the Trade and Storage and Distribution and Generation segments.

Chart 26 Average monthly temperatures*



** Reference point for temperature measurement: Rzeszów.*

Source: In-house analysis based on Wholesale Trading Branch data.

5.2 Financial condition of the PGNiG Group in 2019

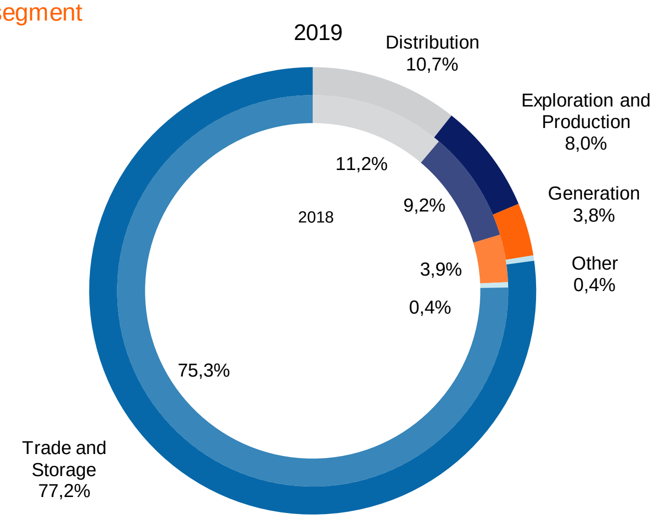
Table 32 Financial highlights of the PGNiG Group in 2017–2019

PGNiG Group	2019	2018	2017	2019/2018 change (%)	2019/2018 change
Revenue	42,023	41,234	35,685	2%	789
Total operating expenses	(39,575)	(36,839)	(31,775)	7%	(2,736)
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	5,504	7,115	6,579	(23%)	(1,611)
Depreciation and amortisation expense	(3,056)	(2,720)	(2,669)	12%	(336)
Operating profit	2,448	4,395	3,910	(44%)	(1,947)
Profit before tax	2,159	4,502	3,922	(52%)	(2,343)
Net profit	1,371	3,209	2,921	(57%)	(1,838)
Net cash from operating activities	4,938	5,814	4,816	(15%)	(876)
Net cash from investing activities	(6,152)	(4,704)	(3,863)	31%	(1,448)
Net cash from financing activities	327	237	(4,204)	38%	90
Net increase/(decrease) in cash and cash equivalents	(887)	1,347	(3,251)	(166%)	(2,234)
	Dec 31 2019	Dec 31 2018	Dec 31 2017	2019/2018 change (%)	2019/2018 change
Total assets	59,185	53,271	48,203	11%	5,914
Non-current assets	43,939	38,898	36,364	13%	5,041
Current assets, including	15,246	14,373	11,839	6%	873
Inventories	4,042	3,364	2,748	20%	678
Total equity and liabilities	59,185	53,271	48,203	11%	5,914
Total equity	38,107	36,632	33,627	4%	1,475
Total non-current liabilities	10,378	7,255	7,004	43%	3,123
Total current liabilities	10,700	9,384	7,572	14%	1,316
Total liabilities	21,078	16,639	14,576	27%	4,439

5.2.1 Discussion of the PGNiG Group's consolidated statement of profit or loss

Revenue

Chart 27 Revenue in 2018–2019 by business segment



E&P : revenue from sale of gas down PLN -1,450m (-32%) yoy, with sales volumes lower by -3% (-127 mcm); revenue from sale of crude oil and condensate down PLN -442m (-17%) yoy, with sales volumes down -14% (-200 thousand tonnes)

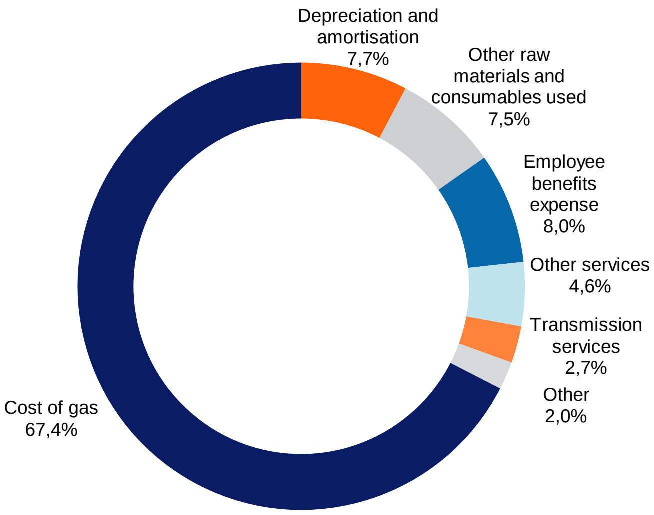
T&S: revenue from sale of gas up 3% (PLN +787m) yoy on a 6% increase in gas volumes sold to non-PGNiG Group customers and a +2.5% rise in the retail tariff prices

D gas distribution volumes down -217 mcm (-2%) yoy; revenue from distribution services down -5% (PLN -206m) yoy, with the distribution tariff prices lower by -5%

G: stable revenue from sale of heat, with average temperatures up 0.6°°C yoy, and heat sales volumes down -3%; revenue from sale of electricity generated by the segment up +25% (PLN +190m) yoy, with stable sales volumes.

Operating expenses

Chart 28 Operating expenses in 2019



Cost of gas up +7% yoy (PLN +1,745m)

Other raw materials and consumables up by PLN 458m (+18% yoy), including PLN 332m in electricity for trading purposes (+29% yoy)

Employee benefits expense 10% up (PLN +297m) yoy, driven mainly by higher employee benefits in the Distribution segment.

Cost of 10 dry wells and seismic surveys totalled PLN -259m in 2019 vs PLN -687m (31 dry wells) in 2018.

Effect of a PLN -305m write-down on gas inventories recognised in 2019 vs a PLN -21m write-down on gas inventories in 2018.

Effect of impairment losses on non-current assets: PLN -400m in 2019 vs PLN +224m reversal in 2018.

Depreciation of PLN -3,056m in 2019, PLN -347m in Norway.

EBITDA

Chart 29 Change in EBITDA in 2018–2019

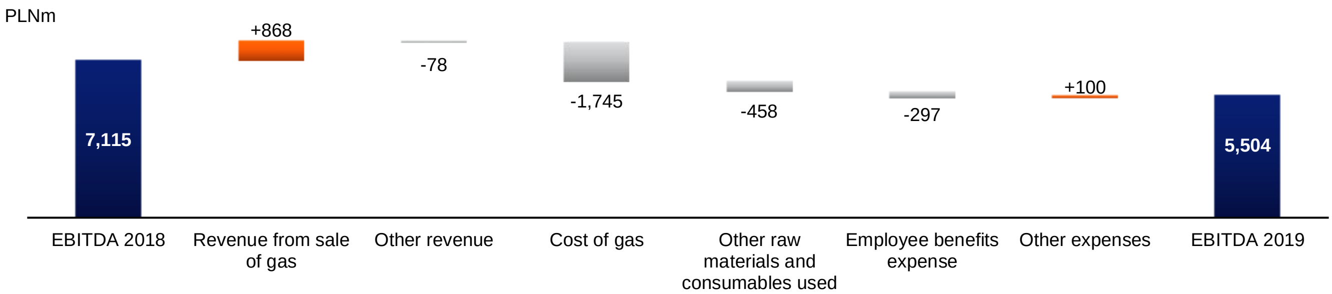
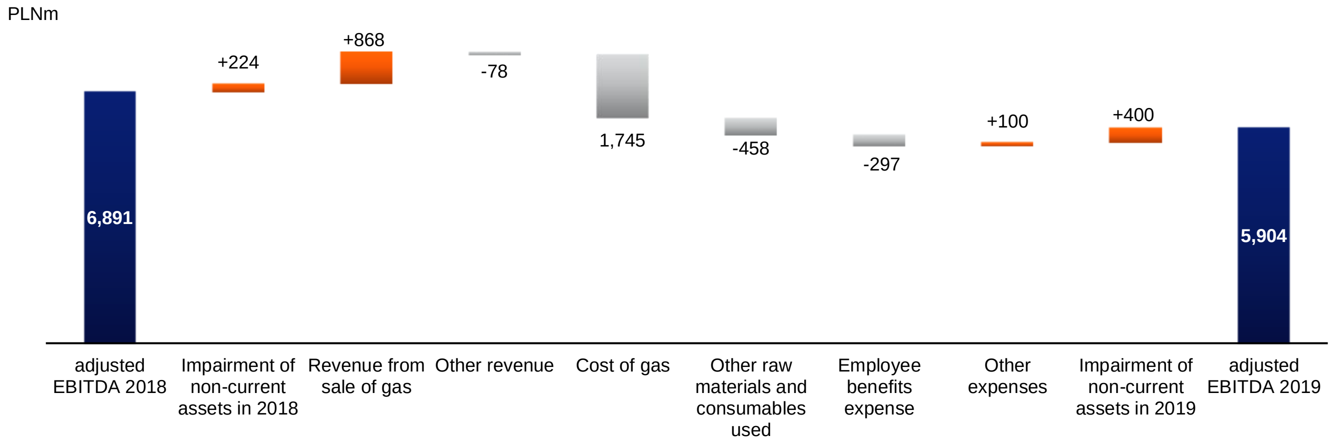


Chart 30 Change in adjusted EBITDA in 2018–2019



Net finance costs and net profit/loss

Net finance costs amounted to PLN -54m in 2019, and included mainly interest on debt (PLN -48m) and interest on lease liabilities (PLN -69m).

After profit/loss on equity-accounted investees of PLN -235m (of which approx. PLN -239m is impact of the equity valuation method on interests in PGG on the PGNiG Group consolidated net result for 2019) and tax expense of PLN -788m, the Group's net profit for 2019 was at PLN 1,371m, down by PLN -1,838m year on year.

For detailed notes on finance income and costs (Note 3.4) equity-accounted investees (Note 2.4) and income tax (Note 4.1), see the consolidated financial statements of the PGNiG Group for 2019.

5.2.2 Overview of segment results

Chart 31 Change in EBITDA: 2018 vs 2019

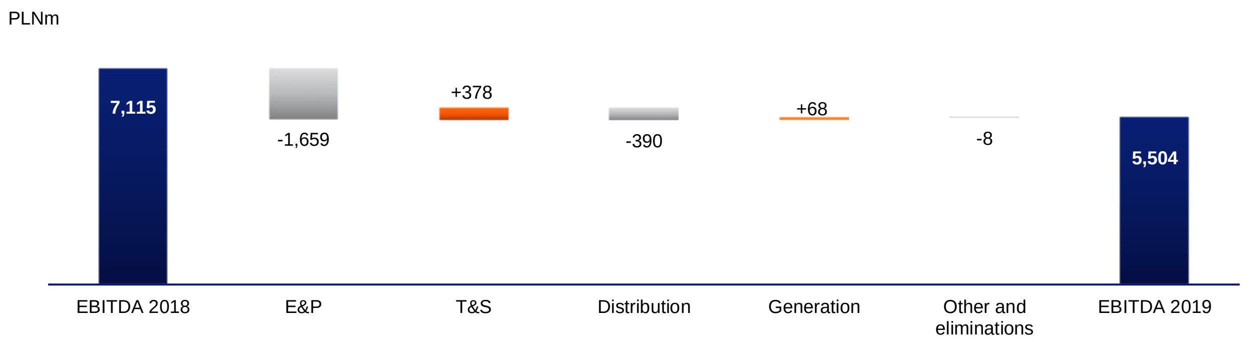
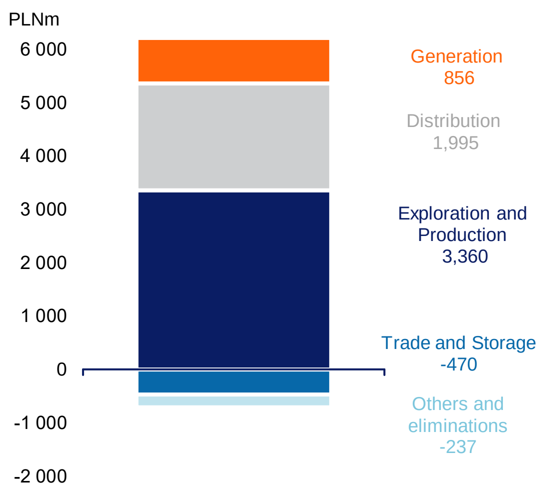


Chart 32 EBITDA in 2019 by business segment



Exploration and Production (E&P)

Table 33 Revenue in the Exploration and Production segment in 2017–2019

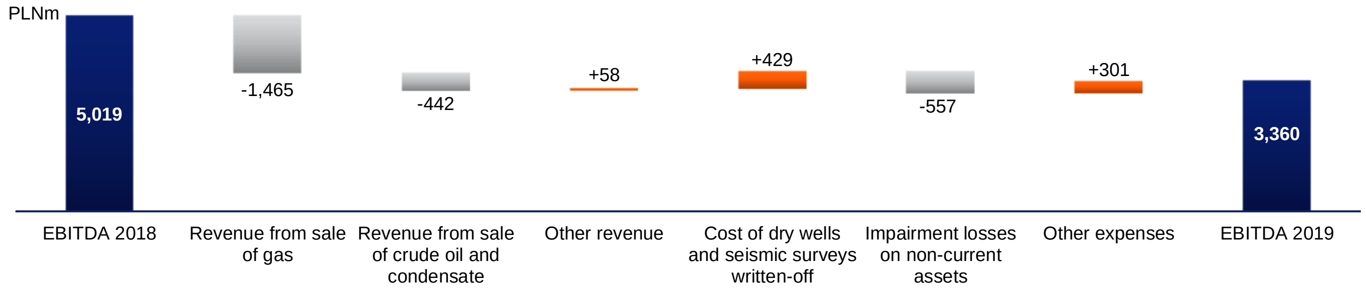
	2019	2018	2017
Revenue from non-PGNiG Group customers	3,351	3,795	3,092
Inter-segment revenue	2,471	3,876	3,026
Total revenue, including	5,822	7,671	6,119
- high-methane and nitrogen-rich gas	3,086	4,536	3,604
- crude oil, condensate and NGL	2,112	2,554	1,862
- geophysical, geological and drilling services	277	275	369

Table 34 Operating expenses in the Exploration and Production segment in 2017–2019

	2019	2018	2017*
Total expenses	(3,518)	(3,714)	(3,313)
- depreciation and amortisation expense	(1,056)	(1,063)	(1,060)
- raw materials and consumables used	(356)	(380)	(363)
- employee benefits expense	(890)	(867)	(795)
- services	(590)	(667)	(639)
- transmission services	(223)	(261)	(197)
- cost of dry wells and seismic surveys written-off	(258)	(687)	(400)
- impairment of non-current assets	(354)	203	(79)
- work performed by the entity and capitalised	488	506	481
- other expenses, net	(279)	(498)	(261)

** Data restated to ensure comparability following adoption of the new IFRS 9 and IFRS 15 with effect from January 1st 2018.*

Chart 33 Change in the E&P segment's EBITDA: 2018 vs 2019



- Revenue from sale of crude oil and condensate down PLN -442m (-17%) yoy, on lower sales volumes in Poland (-6% yoy) and Norway (-26% yoy), and a -10% decrease in the average oil price in USD (USD 64/boe).
- Oil production volumes in Norway down -16% yoy, to 440,000 tonnes.
- The segment's revenue from sale of gas down PLN -1,450m (-32%) yoy, driven by a -35% decline in gas prices on the PPX Day-Ahead Market and a -3% yoy decrease in sales volumes.
- Cost of dry wells and seismic surveys written off: PLN -258m in 2019 vs PLN -687m in 2018.
- Recognition of impairment losses on non-current assets: PLN -354m in 2019 vs reversal of PLN +203m in 2018,
- Overlift/underlift position in Norway in 2019 – effect on profit or loss for 2019: PLN -12m; overlift / underlift position reported in 2018 – effect of valuation on profit or loss for 2018: PLN -110m.

Table 35 Capital expenditure in the Exploration and Production segment in 2018–2019

Capital expenditure[1] on property, plant and equipment made by the PGNiG Group in 2019		2019	2018	2017	Performance vs CAPEX plan 2019[2]
	Exploration and Production, including:	2,508	2,232	1,214	58%
1	Norway	1,414	1,149	275	60%
2	Pakistan	136	94	100	55%
3	Libya	4	9	4	48%

1) Including capitalised borrowing costs.
2) Based on expenditure incurred and planned in 2017–2019, net of expenditure on acquisition of hydrocarbon deposits in Norway.

For more information on key investment projects and expenditure in the segment, see Section 4.1.3, Key projects and investments.

Table 36 PGNiG UN's financial performance

PGNiG UN (NOKm)	2019	2018	2017
Revenue	2,358	3,569	2,463
EBITDA	1,515	2,247	1,779
EBIT	721	1,343	872
Net profit/loss	143	157	21
Total assets	13,244	10,145	8,394
Equity	1,894	751	594

Trade and Storage (T&S)

Table 37 Revenue in the Trade and Storage segment in 2017–2019

	2019	2018	2017*
Revenue from non-PGNiG Group customers	32,415	31,038	29,932
Inter-segment revenue	835	666	563
Total revenue, including	33,250	31,704	30,496
- high-methane and nitrogen-rich gas,	29,334	29,503	28,167
- electricity	2,488	2,010	2,012

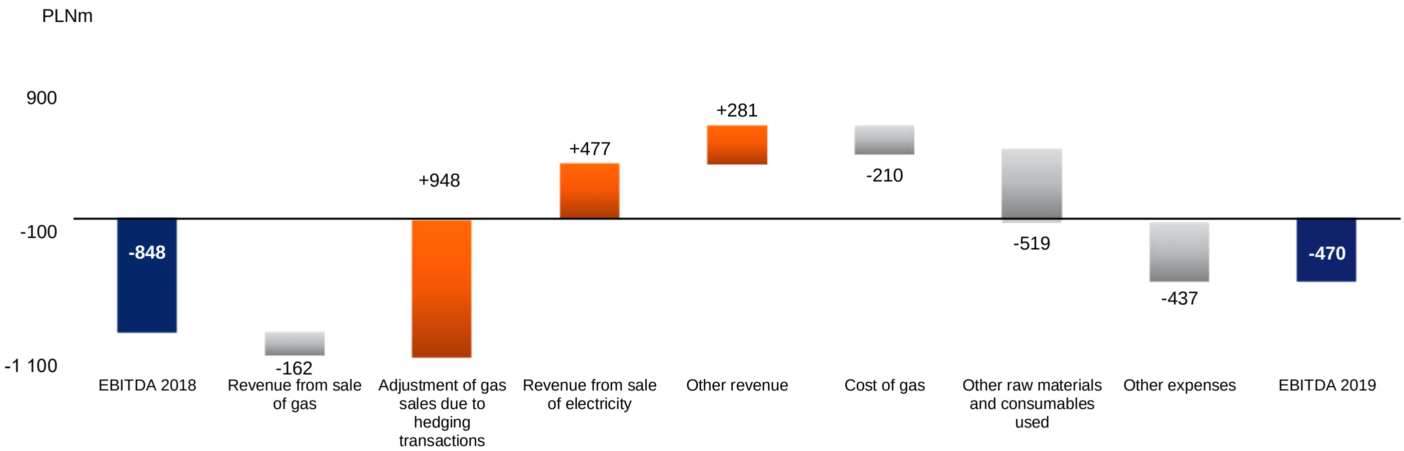
** Data reflecting the potential impact of IFRS 15.*

Table 38 Operating expenses in the Trade and Storage segment in 2017–2019

	2019	2018	2017*
Total expenses	(33,934)	(32,741)	(27,179)
- depreciation and amortisation expense	(214)	(189)	(205)
- raw materials and consumables used	(31,669)	(30,940)	(25,271)
- employee benefits expense	(401)	(384)	(326)
- services	(745)	(707)	(591)
- transmission services	(175)	(143)	(154)
- recognition and reversal of impairment losses on property, plant and equipment and intangible assets	(5)	-	(364)
- work performed by the entity and capitalised	22	29	62
- other expenses, net	(747)	(406)	(331)

** Data restated to ensure comparability following adoption of the new IFRS 9 and IFRS 15 with effect from January 1st 2018.*

Chart 34 Change in the T&S segment's EBITDA: 2018 vs 2019



- Revenue from sale of gas (including the effect of hedging transactions) up PLN 0.8bn yoy (to approximately PLN 30bn), with sales volumes up +6% yoy in the segment of non-PGNiG customers.
- Gain/loss realised on hedging instruments designated for hedge accounting: PLN +571m in 2019 vs PLN -362m in 2018.
- Lower yoy gas imports from countries east of Poland (2019: 8.95 bcm vs 2018: 9.04 bcm). Higher LNG import volumes (+0.71bcm yoy) and from western sources (2019: 2.03bcm vs 2018: 1.42bcm).
- Total revenue from sale of electricity: PLN 2.5bn, up PLN 0.5bn (+24%) yoy, with cost of energy for trading up PLN 524m (+27%) yoy.
- Gas inventory write-down up PLN -305m in 2019; in 2018, gas inventory write-down of PLN -21m. As at the end of 2019, the write-downs totalled PLN -376m.
- Effect of recognition of a provision for energy efficiency buy-out price: PLN -196m in 2019 vs PLN -69m in 2018.

Capital expenditure made in 2019 on PGNiG Group's property, plant and equipment in the Trade and Storage segment was PLN 159m, that is 72% of the planned amount. Compared with 2018, the capital expenditure increased by 47%.

For more information on key investment projects and expenditure in the segment, see Section 4.2.3. Key projects and investments.

Table 39 PGNiG OD's financial performance

PGNiG OD (PLNm)	2019	2018	2017
Revenue	10,965	9,097	11,934
EBITDA	561	76	432
EBIT	534	67	425
Net profit/loss	425	54	346
Total assets	3,445	3,183	2,549
Equity	1,188	809	1,056

Table 40 PST Group's financial performance

PST Group (EURm)	2019	2018	2017
Revenue	1,671	1,531	1,077
EBITDA	3	0	(1)
EBIT	2	0	(2)
Net profit/loss	0	(1)	(2)
Total assets	350	418	199
Equity	6	6	7

Distribution

Table 41 Revenue in the Distribution segment in 2017–2019

	2019	2018	2017*
Revenue from non-PGNiG Group customers	4,481	4,604	4,753
Inter-segment revenue	106	323	184
Total revenue, including	4,587	4,927	4,937
- distribution services	4,208	4,414	4,595

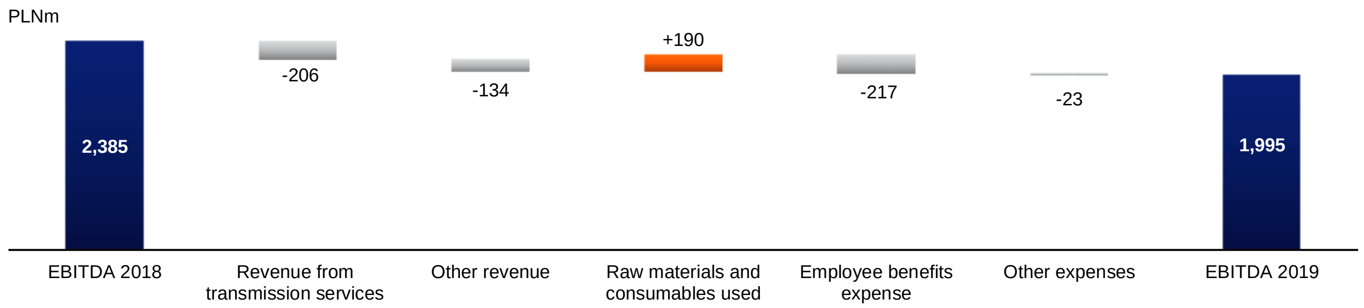
** Data reflecting the potential impact of IFRS 15.*

Table 42 Operating expenses in the Distribution segment in 2017–2019

	2019	2018	2017*
Total expenses	(3,607)	(3,469)	(3,369)
- depreciation and amortisation expense	(1,015)	(927)	(925)
- raw materials and consumables used	(246)	(436)	(365)
- employee benefits expense	(1,394)	(1,177)	(1,149)
- services	(250)	(259)	(193)
- transmission services	(655)	(635)	(641)
- recognition and reversal of impairment losses on property, plant and equipment and intangible assets	6	(2)	3
- work performed by the entity and capitalised	346	288	230
- other expenses, net	(399)	(321)	(329)

** Data restated to ensure comparability following adoption of the new IFRS 9 and IFRS 15 with effect from January 1st 2018.*

Chart 35 Change in the Distribution segment's EBITDA: 2018 vs 2019



- Stable gas distribution volumes of 11.53 bcm (-2% yoy), with average temperatures up 0.6°°C yoy.
- Revenue from distribution services down by PLN 206m (-5% yoy), mainly due to reduction in tariff prices effective from February 15th 2019 (approximately 5% down relative to former tariff).
- Net income/cost of system balancing: PLN -30m in 2019, compared with PLN -57m in 2018.
- Employee benefits expense up by PLN 217m (+18% yoy) due to higher salaries and wages and other remuneration components, i.e. bonuses and social security contributions.

Capital expenditure made in 2019 on PGNiG Group's property, plant and equipment in the Distribution segment was PLN 2,278m, that is 114% of the planned amount. Compared with 2018, the capital expenditure increased by 26%.

For more information on key investment projects and expenditure in the segment, see Section 4.3.2, Key projects and investments.

Table 43 PSG Group's financial performance

PSG Group (PLNm)	2019	2018	2017
Revenue	4,587	4,927	4,937
EBITDA	1,985	2,346	2,469
EBIT	960	1,412	1,535
Net profit/loss	700	1,121	1,250
Total assets	17,642	15,190	14,834
Equity	11,750	12,123	11,937

Generation

Table 44 Revenue in the Generation segment in 2017–2019

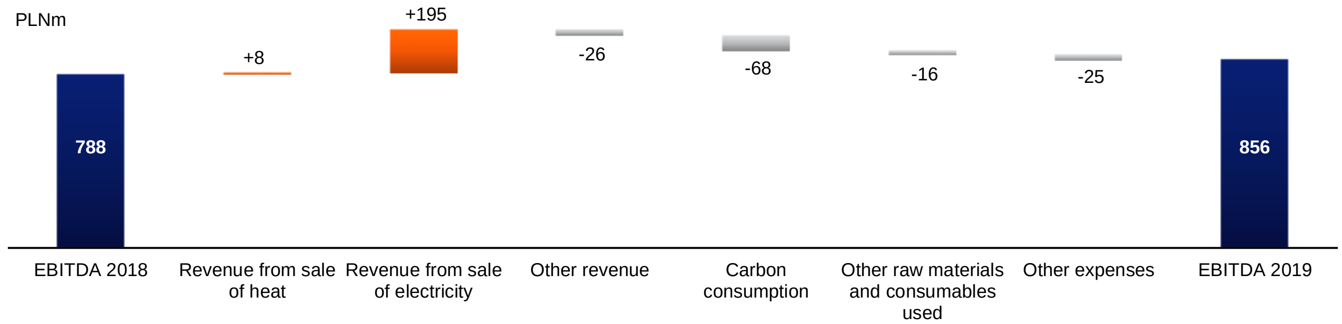
	2019	2018	2017
Revenue from non-PGNiG Group customers	1,606	1,617	1,655
Inter-segment revenue	959	770	596
Total revenue, including	2,565	2,387	2,251
- heat	1,330	1,322	1,347
- electricity	997	802	644

Table 45 Operating expenses in the Generation segment in 2017–2019

	2019	2018	2017*
Total expenses	(2,417)	(2,072)	(1,826)
- depreciation and amortisation expense	(707)	(472)	(418)
- raw materials and consumables used	(1,120)	(1,034)	(857)
- employee benefits expense	(219)	(205)	(199)
- services	(195)	(191)	(179)
- recognition and reversal of impairment losses on property, plant and equipment and intangible assets	-	16	3
- work performed by the entity and capitalised	-	1	2
- other expenses, net	(176)	(186)	(178)

** Data restated to ensure comparability following adoption of the new IFRS 9 and IFRS 15 with effect from January 1st 2018.*

Chart 36 Change in the Generation segment's EBITDA: 2018 vs 2019



- Revenue from sale of electricity generated from the segment's own sources up +25% yoy, to PLN 946m, with market prices rising and sales volumes down 3% yoy.
- Stable revenue from sale of heat (+1% yoy), at PLN 1.3bn, with higher average temperatures, lower heat sales volumes (-3% yoy) and an average increase of ca. 7.3% (as of September 1st 2019) in tariff prices for sale of heat at PGNiG TERMIKA relative to the previous tariff.
- Cost of coal up 8% yoy, to PLN 873m in 2019, and cost of biomass up PLN 16m yoy.
- Depreciation and amortisation expense up by PLN -235m yoy, mainly due to higher costs of redemption of CO_2 emission allowances.
- Sales volumes in 2019:
  - Sales of heat to non-PGNiG Group customers: 39.27 PJ.
  - Electricity from own sources: 3.95 TWh.

Capital expenditure made in 2019 on PGNiG Group's property, plant and equipment in the Generation segment was PLN 1,628m (including PLN 493m attributable to CO_2), or 88% of the planned amount. Compared with 2018, the capital expenditure increased by 169%.

For more information on key investment projects and expenditure in the segment, see Section 4.4.2. Key projects and investments.

Table 46 PGNiG TERMIKA's financial performance

PGNiG TERMIKA (PLNm)	2019	2018	2017
Revenue	2,176	2,016	1,925
EBITDA	777	687	744
EBIT	147	286	381
Net profit/loss	(89)*	208	228
Total assets	6,876	5,949	5,718
Equity	3,133	3,415	3,418

**Profit/(loss) from equity-accounted investees, including PGG S.A. - PLN -239 m*

5.2.3 Fluctuations in financial performance

The sale, distribution and storage of gas fuels, as well as cogeneration of heat and electricity, which, in addition to hydrocarbon exploration and production, constitute the principal business of the Group, are subject to significant seasonal fluctuations.

Revenue from sale of natural gas and heat in the winter season (Q1 and Q4) is substantially higher than in summer (Q2 and Q3). This is due to the seasonal changes in weather conditions in Poland, and the extent of the fluctuations is determined by temperatures – low in winter and higher in summer. Revenue from gas and heat sales is subject to much greater seasonal changes in the case of households, where gas and heat are used for heating, than in the case of industrial customers.

To ensure uninterrupted gas supplies in periods of peak demand and for reasons of security of the supplies, the underground gas storage facilities must be restocked in summer, and higher transmission and distribution capacities must be reserved for the winter season.

The performance of individual segments is also subject to significant fluctuations driven by changes in product prices. Moreover, the performance of the Exploration and Production segment reflects changes in hydrocarbon production profiles.

Chart 37 Fluctuations in PGNiG Group's revenue in 2018–2019

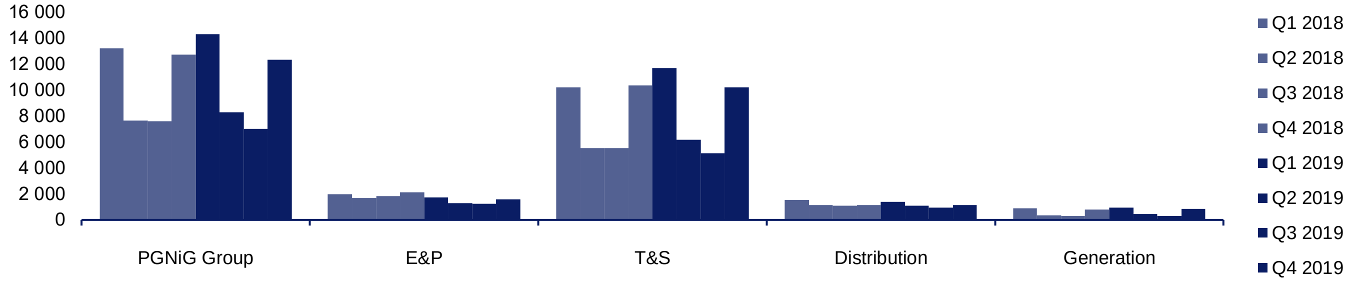


Chart 38 Fluctuations in PGNiG Group's EBITDA in 2018–2019

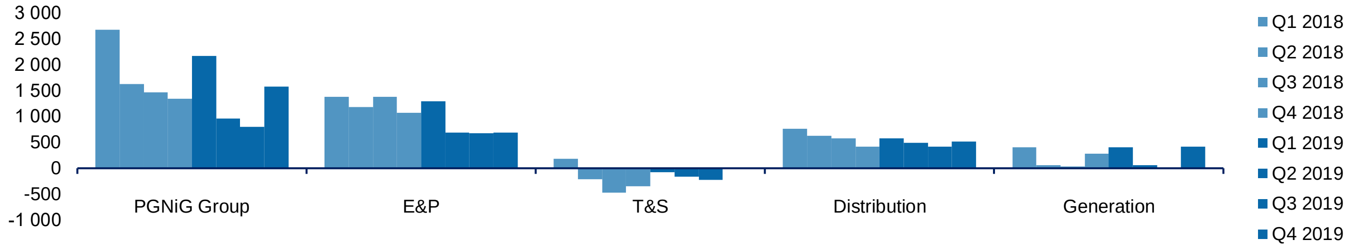


Table 47 Quarterly EBITDA and adjusted EBITDA by operating segment in 2019

	2019				
PLNm	**PGNiG Group**	**Exploration and Production**	**Trade and Storage**	**Distribution**	**Generation**
Q1 EBITDA	2,165	1,298	(71)	580	400
Adjusted Q1 EBITDA	*2,147*	*1,280*	*(71)*	*579*	*400*
Q2 EBITDA	961	692	(160)	490	62
Adjusted Q2 EBITDA	*1,201*	*898*	*(160)*	*487*	*62*
Q3 EBITDA	804	676	(221)	415	-19
Adjusted Q3 EBITDA	*756*	*630*	*(221)*	*413*	*-19*
Q4 EBITDA	1,575	694	(16)	510	413
Adjusted Q4 EBITDA	*1,801*	*906*	*(14)*	*511*	*413*

Table 47 Quarterly EBITDA and adjusted EBITDA by operating segment in 2018

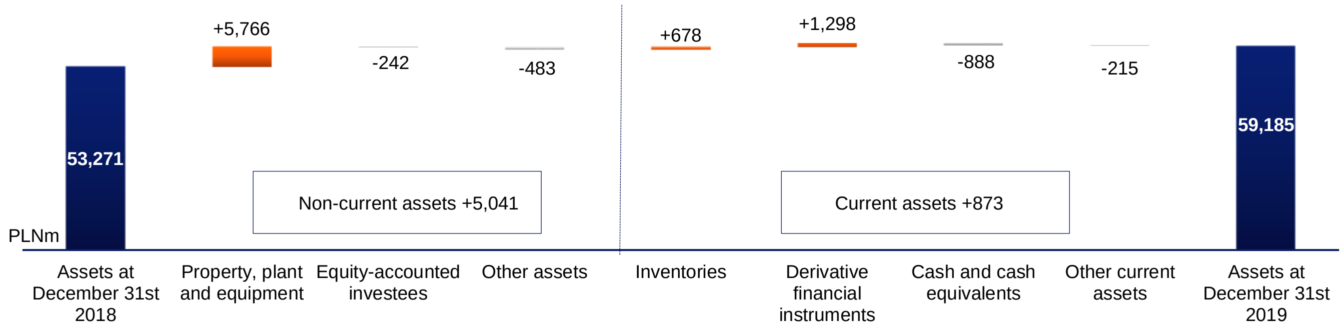
	2018				
PLNm	**PGNiG Group**	**Exploration and Production**	**Trade and Storage**	**Distribution**	**Generation**
Q1 EBITDA	2,674	1,380	179	763	401
Adjusted Q1 EBITDA	*2,433*	*1,139*	*179*	*763*	*401*
Q2 EBITDA	1,627	1,187	(209)	622	65
Adjusted Q2 EBITDA	*1,555*	*1,116*	*(209)*	*620*	*65*
Q3 EBITDA	1,468	1,376	(469)	579	34
Adjusted Q3 EBITDA	*1,329*	*1,245*	*(469)*	*579*	*34*
Q4 EBITDA	1,347	1,076	(349)	422	288
Adjusted Q4 EBITDA	*1,574*	*1315*	*(349)*	*424*	*272*

5.2.4 Discussion of the PGNiG Group's statement of financial position

As at December 31st 2019, total assets recognised in the consolidated statement of financial position were PLN 59,185m, up PLN 5,914m (10%) on the end of 2018.

Assets

Chart 38 Selected items of the statement of financial position – Assets



Property, plant and equipment represent the largest item of the PGNiG Group's assets. As at December 31st 2019, property, plant and equipment amounted to PLN 40,002m, up PLN 5,766m (17%) relative to December 31st 2018. The balance of impairment losses on those assets rose by PLN 400m year on year. Equity-accounted investees fell by PLN 242m (or -13%) year on year, mainly following valuation of the investment in Polska Grupa Górnicza S.A.

As at the end of 2019, the PGNiG Group's current assets were PLN 15,246m, having grown by PLN 873m (6%) on end of 2018, with a 23% (PLN 888m) year-on-year decrease in cash and cash equivalents. The growth in current assets was driven chiefly by a PLN 1,298m increase in financial derivatives, and a higher amount of inventories, which stood at PLN 4,042m as at the end of 2019, up PLN 678m (20%) relative to the end of 2018.

Equity and liabilities

Chart 39 Selected items of the statement of financial position – Equity and liabilities

Equity is the main source of financing of the PGNiG Group's assets. At the end of 2019, the Group's equity was PLN 38,107m, up PLN 1,475m (4%) relative to the end of 2018. The change was mainly attributable to the net profit earned in the reporting period – retained earnings grew by PLN 851m yoy, with hedging reserve up PLN 666m yoy.

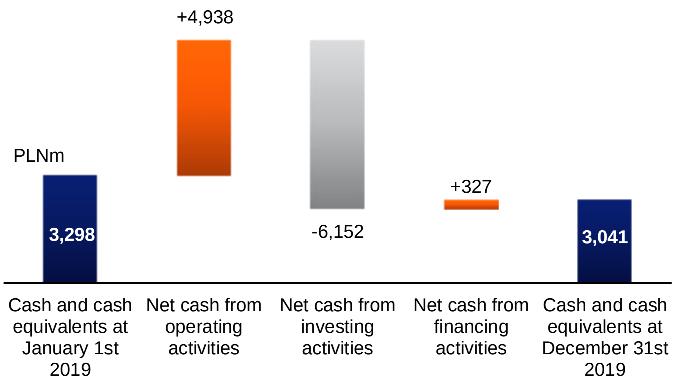
As at the end of 2019, non-current liabilities stood at PLN 10,378m, up PLN 3,123m (43%) on December 31st 2018. The change in non-current liabilities was mainly attributable to lease liabilities – effect of the application of IFRS 16 of PLN 1,036m in 2019.

As at December 31st 2019, the PGNiG Group's current liabilities amounted to PLN 10,700m, up PLN 1,316m (14%) relative to the end of 2018. The increase was mainly attributable to higher lease liabilities – effect of the application of IFRS 16 of PLN 793m in 2019, and bid bonds of PLN 463m paid in 2019.

For the full version of the consolidated statement of financial position, see The consolidated financial statements of the PGNiG Group for 2019.

5.2.5 Discussion of the statement of cash flows

Chart 40 Selected items of the statement of cash flows



PGNiG Group capital expenditure in 2019 by segment: Exploration and Production – PLN 2,446m; Trade and Storage – PLN 79m; Distribution – PLN 2,265m and Generation – PLN 1,074m

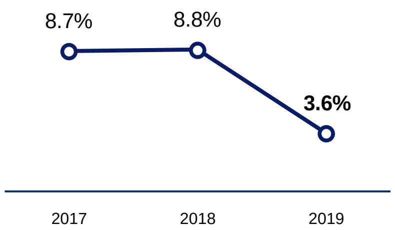
Dividends paid of PLN 636m (PLN 0.11 per share).

Lease liabilities, including non-current liabilities of PLN -1,043m and current liabilities of PLN -793m

For the full version of the consolidated statement of cash flows, see The consolidated financial statements of the PGNiG Group for 2019.

5.2.6 Profitability ratios

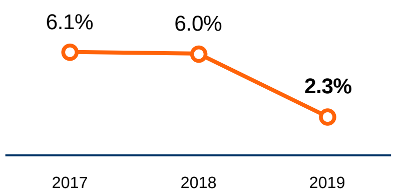
Chart 41 ROE



ROE: net profit to equity at end of period

Lower ROE, on a decrease in net profit (close to 60%) coupled with a 4% growth in equity in 2019 compared with 2018.

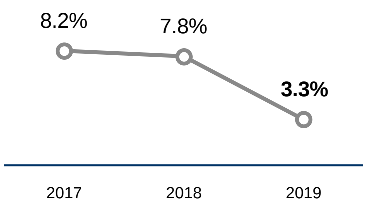
Chart 42 ROA



ROA: net profit to assets at end of period

Higher ROA, on a decrease in net profit (close to 60%) coupled with an 11% growth in assets in 2019 compared with 2018.

Chart 43 Net margin



Net margin: net profit to revenue

Lower net margin, on a decrease in net profit (close to 60%) coupled with a 2% growth in revenue compared with 2018.

5.2.7 Anticipated financial condition and trends on key product markets

PGNiG Group's anticipated financial condition

In the coming periods, the financial standing of the PGNiG Group will be materially affected by changes in the prices of hydrocarbons on global commodity markets and fluctuations in foreign exchange rates. These factors will be a material driver of the PGNiG Group's performance in the Exploration and Production and Trade and Storage segments.

Any changes in hydrocarbon prices affect revenues of the Group entities engaged in production, and determine the demand for seismic and exploration services offered by the Group companies. Rising gas and crude oil prices have a positive effect on the performance of the Exploration and Production segment. Long-term forecasts of hydrocarbon prices strongly influence projected cash flows from production assets, and as a consequence entail the necessity of revaluation of property, plant and equipment.

On the other hand, since the prices of gas purchased by PGNiG under the Yamal and Qatar contracts are linked to prices of crude oil, the effect of rising oil prices on the performance of the Trade and Storage segment is opposite to the effect that rising oil prices have on the performance of the Exploration and Production segment. Any increase in crude oil prices translates into higher cost of gas purchased by PGNiG. This correlation may change following a ruling by the Stockholm Arbitration Tribunal regarding the price formula used in the Yamal contract.

The PGNiG Group's financial results will also be influenced by the situation on the domestic currency market. Any strengthening of the złoty against foreign currencies (primarily the US dollar) will have a positive effect on the performance of the Trade and Storage segment by driving down PGNiG's gas procurement costs, although it must be noted that the effect of exchange rate fluctuations is mitigated by the PGNiG Group's hedging policy.

Another factor with a bearing on the PGNiG Group's financial condition is the President of URE's decisions on gas fuel sale and distribution tariffs and heat sale tariffs. In addition, the progressing deregulation of the gas market in Poland will continue to put pressure on the performance of the PGNiG Group's Trade and Storage companies selling gas. In view of the competition for customers, the Group offers discount schemes to customers and adjusts pricing terms to reflect market prices. These factors may have an adverse effect on the profitability of the Trade and Storage segment by eroding its margins.

However, the PGNiG Group companies have put in place a number of initiatives to improve efficiency. These initiatives focus, among other things, on optimisation of the cost base and are expected to have a positive effect on the PGNiG Group's financial results.

In the Generation segment, financial results will be considerably influenced by the support programmes for electricity produced from high-efficiency cogeneration sources and renewable sources. Changes in the market prices of CO_2 emission allowances will have an increasing effect on the PGNiG Group's financial condition in the segment. Another key driver of the segment's performance is prices of the fuels used to produce heat and electricity.

Outlook for the oil, gas, electricity and CO_2 emission allowances market

In early 2020, the United States Energy Information Administration (EIA) published its 2020 Brent crude price forecast, which puts the average month-ahead contract price for Brent at USD 64.83/bbl. Based on EIA's projections, WTI will trade at USD 59.25/bbl. EIA has explained the absence of any major price changes by pointing to the balancing of the following factors: the effects of increased supply of crude oil from non-OPEC producers and the improving outlook for global economic growth following the signing of the trade agreement between the US and China. In addition, the OPEC group stabilises the market by limiting the supply depending on the market price levels. In 2019, it imposed stricter production limits when the Brent price fell below USD 60/bbl.

In a longer term, oil prices may be driven by political factors. At the end of 2019, for the first time in history the United States became net oil exporter. Iran and Venezuela have high spare capacities but their exports are limited by sanctions. Since the sanctions were introduced, the two countries' production has fallen by 3m bbl/d in total. OPEC's output is also lower than permitted by the technical capabilities of its member states. At the OPEC meeting in December the Saudi Arabia's Minister of Energy announced that if other countries fail to meet their production quotas, Saudi Arabia would start exporting oil in maximum possible quantities. This would mean that an additional 3m bbl/d of oil would be placed on the market, producing a surplus that could lead to a situation similar to that seen in Q1 2016, when the price of Brent crude month-ahead contracts did not exceed USD 40/bbl.

The average price of Brent in 2020 could be USD 61/bbl. 2020 and the beginning of 2021 may be a period of lower prices, followed by a slow but consistent growth in the crude value for approximately 15 years, the reason being production from less and less profitable sources. The global demand for crude is expected to peak in the second half of the 2030s.

According to analysts, the price of natural gas in Europe will remain at the H2 2019 levels. Increased shale gas production in North America and Australia and launch of new units for liquefying natural gas will result in a continued rapid growth of the LNG output. In 2020, liquefaction capacities of approximately 364 TWh are planned to be put into service, of which 307 TWh will be located in the United States. An oversupply of LNG on the global market and higher volumes of Russian gas delivered to Germany will be offset by declining production in continental Europe (including from the Groningen field), periodic profitability of gas exports to Asia, and greater demand for gas in the power sector. The entry into force of the IMO 2020 regulations may also increase demand for LNG from maritime transport. Some LNG tankers use liquefied gas to power their engines, and that fuel complies with the environmental requirements provided for in the regulations. Liquefied gas may also be used as main fuel by conventional maritime transport. In view of the increasing environmental standards, further growth of this segment may be expected. Analysts estimate that in the current decade global consumption of LNG as fuel in maritime transport will rise at 23% annually, reaching 318 TWh in 2030. The strongest growth in demand for LNG will be seen in Asia, although it will be almost two times slower than in 2018–2019. Europe will continue to be a balancing market for global LNG supplies.

The price of CO_2 emission allowances (EUAs) will largely depend on the final provisions of the agreement on the withdrawal of the United Kingdom from the European Union, the ratio of the natural gas price to coal price, and the pace of economic growth in Europe. In 2019, the EUA price growth was mitigated by the risk of UK's exit from the European Union Emissions Trading System (EU ETS) during the term of contracts held by UK companies. This scenario would result in a large oversupply of EUAs in the continental part of Europe, driving a strong price decline. Currently, it is considered most likely that the UK will leave the EU ETS at the end of 2020, so the supply of contracts for 2021 would reflect the lower demand. In such a case, the price of CO_2 emission allowances will depend on the coal price to gas price ratio. Generation of one unit of electricity from natural gas results in the release of carbon dioxide into the atmosphere in an amount that is on average more than two times smaller than in the case of coal-fired generation, so low gas prices may lead to reduced demand for EUAs, and thus to the price remaining at the levels seen in the second half of 2019 (approximately EUR 25).

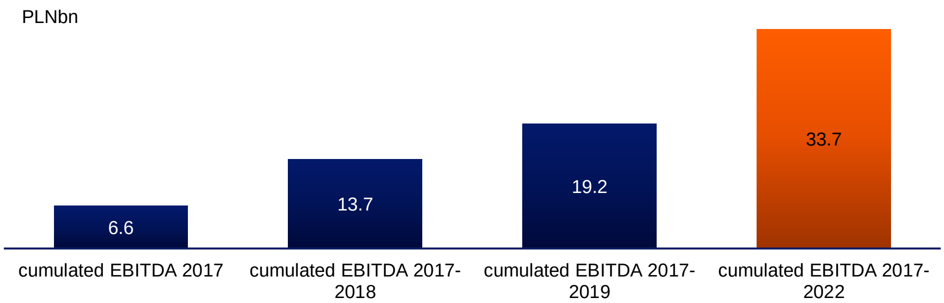
Based on analysts' forecasts, in 2020 electricity prices in Poland will not be higher than the average prices in 2019. The launch of new generation capacities at the power plants in Żerań and Stalowa Wola (gas-fired generation) and Jaworzno (coal-fired generation), connection of the Polish system to the European Single Intraday Coupling Market (SIDC/XBID), and development of the RES market are expected to prevent price growth. Increasing popularity of photovoltaic technologies may lead to a change in price seasonality patterns, as the largest amounts of energy from solar sources are generated in the second and third quarters of the year, when the prices generally reach their highs.

5.2.8 Publication of financial and operating forecasts

The Company does not publish performance forecasts.

In the strategy released in 2017, the Company announced its plans to generate cumulative Group EBITDA of approximately PLN 33.7bn in 2017–2022 thanks to an investment programme. As at the end of 2019, cumulative EBITDA reached PLN 19.2bn, representing 57% of the target to be achieved by 2022.

Chart 44 PGNiG Group's cumulative EBITDA in 2017–2022



On July 31st 2019, PGNiG published its oil and gas production forecasts for 2019–2021.

Table 48 Natural gas production forecast for 2019–2021*

bcm	2019	2019 – actual	2020	2021
Poland	**3.9**	**3.8**	**3.9**	**4.0**
Other countries, including:	**0.7**	**0.7**	**0.9**	**1.2**
- Norway	*0.5*	*0.5*	*0.5*	*0.7*
- Pakistan	*0.2*	*0.2*	*0.4*	*0.5*
Total	**4.6**	**4.5**	**4.8**	**5.2**

* *Converted to gas with a calorific value of 39.5 MJ/m³.*

Production of natural gas in Poland, Norway and Pakistan remained stable owing to, among other things, the tie-in of new wells.

The planned tying-in of the Ærfugl field in Norway will increase the output after 2020.

Table 49 Crude oil production forecast, including condensate and NGL, for 2019–2021

thousand tonnes	2019	2019 – actual	2020	2021
Poland	**778**	**776**	**747**	**733**
Other countries, including:	**475**	**440**	**611**	**671**
- Norway	*475*	*440*	*611*	*671*
Total	**1,253**	**1,216**	**1,358**	**1,404**

Crude oil production in Poland is gradually declining due to natural depletion. Similar developments are taking place in Norway, where production volumes were additionally affected by technical problems in the Vilje and Vale fields.

On the other hand, the planned launch of extraction from the Skogul and Ærfugl fields in 2020 and from the Duva field in 2021 will significantly increase the production volumes in 2020–2021.

5.2.9 Management of financial resources and liquidity of the PGNiG Group

Borrowings and debt securities

On June 24th 2019, PGNiG entered into an agreement terminating the PLN 7bn and PLN 1bn Note Programmes, replacing them with a PLN 10bn syndicated loan agreement with a five-year availability period. The Company intends to use the facility to finance the day-to-day operations and capital expenditure of PGNiG and other companies the PGNiG Group.

Table 50 PGNiG Group's key credit facility agreements as at December 31st 2019

Bank	Maximum debt amount under the agreement (million)	Currency	Interest rate type	Facility type	Maturity date
Syndicate of eight banks	450	USD	variable	working capital/ investment facility	Jun 30 2026
Bank Gospodarstwa Krajowego	271	PLN	variable	long-term facility	Aug 27 2027
Bank Gospodarstwa Krajowego	45	PLN	variable	investment facility	Dec 31 2023
Pekao S.A.	20	PLN	variable	overdraft facility	Jun 27 2025
Deutsche Bank	35	EUR	variable	short-term working capital overdraft facility	on demand

PKO Bank Polski	20	EUR	variable	short-term working capital overdraft facility	Mar 31 2020
Bank Gospodarstwa Krajowego Pekao S.A. ING Bank Śląski S.A. PKO BP S.A. Caixa Bank S.A. Polish Branch BNP Paribas Bank Polska S.A. Societe Generale S.A. Santander Bank Polska S.A. Intesa Sanpaolo S. P. A	10,000	PLN	variable	syndicated loan	Jun 24 2024

For detailed information on loans advanced by PGNiG to its subsidiaries and other related entities, see Note 7.4 to The separate financial statements of PGNiG S.A. for 2019.

Issues of securities and use of proceeds

In 2019, the PGNiG Group could issue bonds and notes under three programmes. For detailed information on the effective terms and utilisation of the programmes, as well as debt under securities in issue, see Note 5.2 to The consolidated financial statements of the PGNiG Group for 2019.

As at December 31st 2019, PGNIG had no outstanding debt under notes or bonds issued to other PGNiG Group members.

Financial instruments

Table 51 Key financial assets by category

		2019				2018			
Balance-sheet item	Item referenced in Note	Financial assets at amortised cost	Financial assets at fair value through profit or loss	Financial instruments designated for hedge accounting	Total	Loans and receivables at amortised cost	Financial assets at fair value through profit or loss	Financial instruments designated for hedge accounting	Total
Receivables	Trade receivables	4,511	-	-	4,511	4,864	-	-	4,864
Derivative financial instruments		-	1,539	1,088	2,627	-	928	390	1,318
Cash and cash equivalents		3,037	-	-	3,037	3,925	-	-	3,925
Total		**7,548**	**1,539**	**1,088**	**10,175**	**8,789**	**928**	**390**	**10,107**

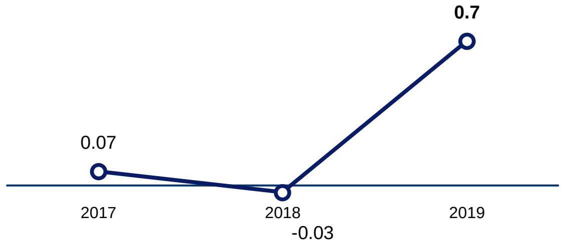
Table 52 Key financial liabilities by category

		2019				2018			
Balance-sheet item	Item referenced in Note	Financial liabilities at amortised cost	Financial liabilities at fair value through profit or loss	Financial instruments designated for hedge accounting	Total	Financial liabilities at amortised cost	Financial liabilities at fair value through profit or loss	Financial instrument s designated for hedge accounting	Total
Financing liabilities	Bank borrowings	4,893	-	-	4,893	1,385	-	-	1,385
	Debt securities	-	-	-	-	2,298	-	-	2,298
Trade and tax payables	Trade payables	1,608	-	-	1,608	1,411	-	-	1,411
Derivative financial instruments		-	991	305	1,296	-	802	358	1,160
Total		**6,501**	**991**	**305**	**7,797**	**5,094**	**802**	**358**	**6,254**

For detailed information on financial instruments, see Note 7.1 to The consolidated financial statements of the PGNiG Group for 2019.

Debt ratios

Chart 45 Net debt/EBITDA

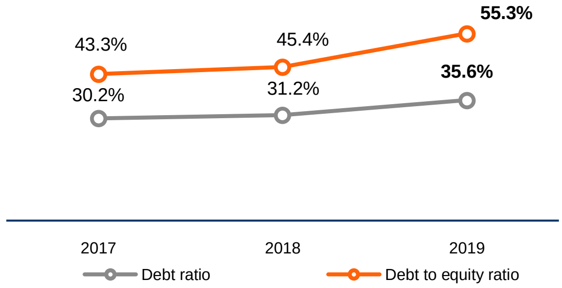


Net debt is defined as the total amount of existing bank borrowings (both short-term and long-term), debt securities, lease liabilities and liabilities under non-bank borrowings, less cash and cash equivalents and cash classified as non-current assets.

For the purposes of the PGNiG Group's debt analysis the Management Board uses the net debt/EBITDA ratio. In accordance with the Strategy, this ratio should not exceed 2.0.

The higher level of the ratio in 2019 was mainly attributable to an increase in lease liabilities (PLN 1.8bn in 2019 vs PLN 19m in 2018) and a significant increase in capital expenditure (PLN 6.6bn in 2019 vs PLN 4.9bn in 2018), with EBITDA down by PLN 1.6bn year on year.

Chart 46 Debt ratio Debt to equity ratio



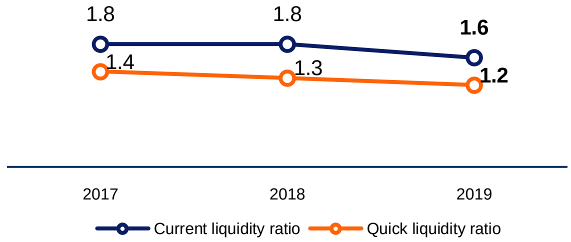
Debt ratio: total liabilities to total equity and liabilities

Debt to equity ratio: total liabilities to equity

The growth of the ratios in 2019 was attributable to an 82% year-on-year increase in debt (including lease liabilities), with an 11% increase in equity and liabilities and 4% yoy increase in equity.

Liquidity ratios

Chart 47 Current ratio and quick ratio



Current ratio: current assets to current liabilities (net of employee benefit obligations, provisions and deferred income)

Quick ratio: current assets less inventories to current liabilities (net of employee benefit obligations, provisions and deferred income)

As liabilities grew at a higher rate year on year than current assets, in 2019 the current ratio reached 1.6, compared with 1.8 in 2018, and the quick ratio stood at 1.2, compared with 1.3 in 2018.

Assessment of financial resources management and the feasibility of investment plans

The PGNiG Group actively manages its financial resources by optimising both its debt structure and financing costs. PGNiG Group companies adapt the form of financing to its purpose (operating or investing activity) and to its term. The forms of financing available to PGNiG Group companies include credit facilities, finance leases and intra-Group loans advanced by PGNiG.

An important tool improving the efficiency of financial resources management is the liquidity management system in which the balances of specified bank accounts of PGNiG and its subsidiaries can be aggregated (cash pooling). Thanks to the cash pooling system within the Group, cash of entities with excess liquidity is used to finance the operations of entities recording cash deficits. The result is improved efficiency of cash management within the PGNiG Group, but also a material reduction in interest expenses incurred by companies financing their cash deficits through the system.

While assessing the efficiency of financial resources management, a noteworthy fact is the optimum diversification of the portfolio of financial institutions. It should also be noted that, thanks to the diversity of available financing sources and liquidity management tools at the PGNiG Group, the Group companies are able to timely fulfil their financial obligations.

The Group has a stable financial position, with cash flows and available sources of financing enabling it to carry out its planned investment projects. The PGNiG Group manages its capital expenditure structure depending on the market situation, and focuses on the most efficient investment projects. For information on key investment projects planned for the coming years, see Section 2.3.3 , Capital expenditure in 2020.

Sureties, guarantees and other contingent assets and liabilities

As at December 31st 2019, the PGNiG Group's most material off-balance-sheet item was contingent liabilities of PLN 4.6bn, as disclosed in the consolidated financial statements (December 31st 2018: PLN 4.3bn).

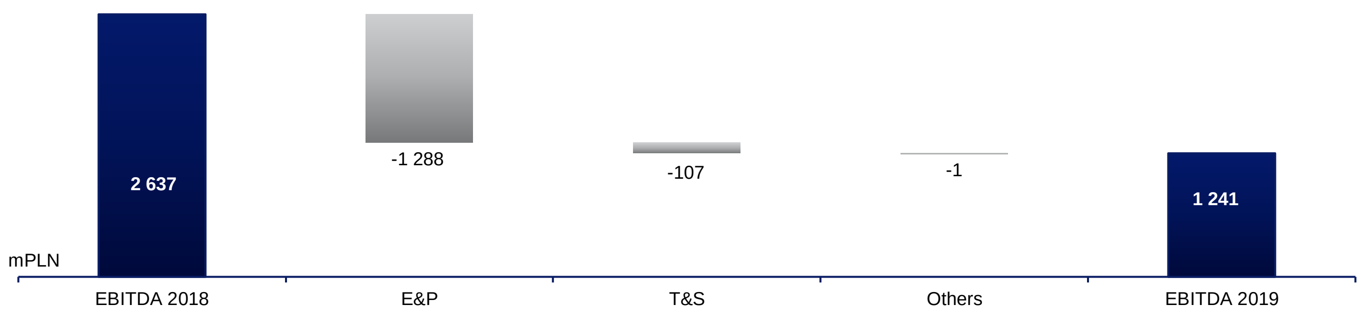
5.3 Financial condition of PGNiG in 2019

Table 53 PGNiG's financial data for 2017–2019

PGNiG	2019	2018	2017	2019/2018 change	2019/2018 change (%)
Revenue	22,615	22,344	19,061	271	1%
Total operating expenses, including	(22,229)	(20,505)	(17,967)	(1,724)	8%
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	1,241	2,637	1,869	(1,396)	(53%)
Depreciation and amortisation expense	(856)	(798)	(766)	(58)	7%
Operating profit	386	1,839	1,094	(1,453)	(79%)
Profit before tax	1,989	3,677	2,290	(1,688)	(46%)
Net profit	1,748	3,289	2,034	(1,541)	(47%)
Net cash from operating activities	1,989	2,658	862	(669)	(25%)
Net cash from investing activities	(2,256)	644	(88)	(2,900)	(4.5)
Net cash from financing activities	(52)	(138)	(4,017)	86	(62%)
Net increase/(decrease) in cash and cash equivalents	(319)	3,164	(3,243)	(3,483)	(1.1)
	Dec 31 2019	Dec 31 2018	Dec 31 2017	2019/2018 change	2019/2018 change (%)
Total assets	41,044	36,993	33,447	4,051	11%
Non-current assets	28,885	25,742	24,234	3,143	12%
Current assets, including	12,159	11,251	9,213	908	8%
Inventories	3,230	2,691	2,231	539	20%
Total equity and liabilities	41,044	36,993	33,447	4,051	11%
Total equity	30,618	28,833	26,033	1,785	6%
Total non-current liabilities	3,315	2,551	2,288	764	30%
Total current liabilities	7,111	5,609	5,126	1,502	27%
Total liabilities	10,426	8,160	7,414	2,266	28%

In 2019, PGNiG reported EBITDA of PLN 1,241m, down PLN 1,396m year on year.

Chart 48 Change in PGNiG's EBITDA: 2018 vs 2019



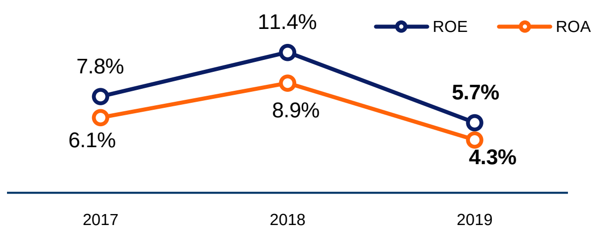
The year-on-year decline in EBITDA (down PLN 1,288m) in the Exploration and Production segment was attributable to a lower result on sales of high-methane gas and crude oil, driven by lower prices on commodity exchanges (TTF, PPX, Brent), as well as smaller volumes of crude oil production and sales. The segment's EBITDA was also affected by the change in impairment losses on property, plant and equipment and property, plant and equipment under construction forming part of exploration and evaluation assets.

EBITDA in the Trade and Storage segment fell PLN -107m year on year, driven by a lower result on sales of high-methane gas, due to lower commodity prices on exchange markets. The segment's EBITDA was also affected by a change in gas inventory write-downs.

Financial ratio analysis

Profitability

Chart 49 ROE and ROA

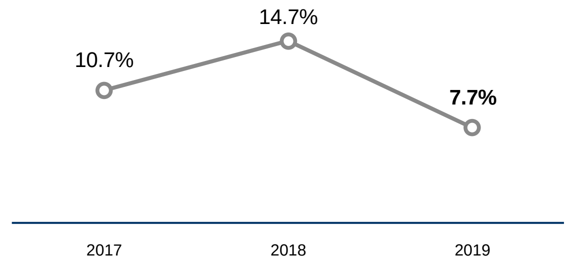


ROE: net profit to equity at end of period

ROA: net profit to assets at end of period

The decrease in ROE and ROA in 2019 was due to year-on-year decline in net profit.

Chart 50 Net margin

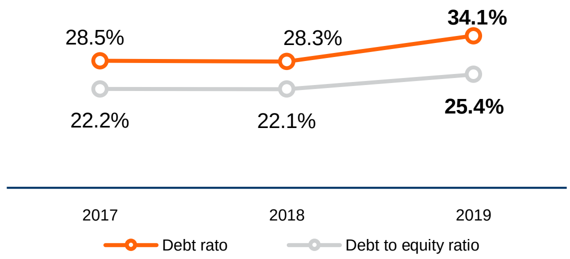


Net margin: net profit to revenue

The lower net margin in 2019 was caused by the year-on-year decrease in net profit and a PLN 680m rise in impairment losses.

Debt ratios

Chart 51 Debt ratio and debt to equity ratio



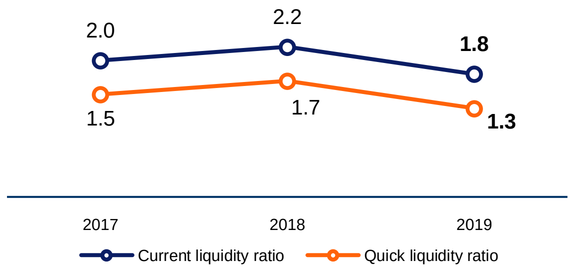
Debt ratio: total liabilities to total equity and liabilities

Debt to equity ratio: total liabilities to equity

In 2019, the ratios increased, driven by higher liabilities, including in particular trade payables, and borrowings and debt securities.

Liquidity ratios

Chart 52 Current ratio and quick ratio



Current ratio: current assets to current liabilities (net of employee benefit obligations, provisions and deferred income)

Quick ratio: current assets less inventories to current liabilities (net of employee benefit obligations, provisions and deferred income)

The decrease in the ratios in 2019 was attributable to higher current liabilities, mainly trade payables and borrowings and debt securities.

Table 54 PGNiG's capital expenditure in 2018–2019

	Capital expenditure* on property, plant and equipment made by PGNiG in 2019				**Performance vs CAPEX plan**
		2019	**2018**	**2017**	**2019**
I.	Exploration and Production, including:	997	989	867	83%
1	Exploration	614	764	475	73%
	including expenditure on dry wells	109	*99*	*60*	98%
2	Production	384	225	392	100%
II.	Trade and Storage	93	87	47	92%
1	Trade	62	0	3	100%
2	Storage facilities used by the Trade and Storage segment	31	87	43	78%
III.	Other segments	49	138	134	29%
IV.	Total capital expenditure (I+II+III)	1,140	1,213	1,047	76%

** Including capitalised borrowing costs.*

6. Corporate governance

6.1 Adopted code of corporate governance

6.1.1 Statement of compliance with corporate governance standards

In 2019, the Company was in compliance with the set of corporate governance standards laid down in the 'Best Practice for GPW Listed Companies 2016' (the "Code of Best Practice"), adopted by the WSE Supervisory Board in its Resolution No. 26/1413/2015 of October 13th 2015.

The amended text of the Code is available on the Warsaw Stock Exchange's corporate governance website at www.gpw.pl/dobre-praktyki and on the Issuer's website at www.pgnig.pl/pgnig/lad-korporacyjny/dobre-praktyki

6.1.2 Information on non-compliance with corporate governance principles

In 2019, the Company did not comply with two principles and two recommendations of the Code of Best Practice. Reasons for the non-compliance are presented below.

Table 55 Reasons for non-compliance with principles and recommendations of the Code of Best Practice

Name	Reason for non-compliance
Disclosure Policy and Investor Communications – I.Z.1.15	The Company believes there is no need to define a diversity policy for its key managers. The key criteria taken into account in the process of recruitment and selection of candidates to positions in the Company's key governing bodies are mainly professional experience and education.
Management Board and Supervisory Board – II.Z.7	An Audit Committee operates within the Company's Supervisory Board as a standing committee. Pursuant to the Best Practice for WSE Listed Companies, the Company should apply the rules laid down in Annex I to Commission Recommendation of February 15th 2005 on the role of non-executive or supervisory directors of listed companies and on the committees of the (supervisory) board. The Company has complied with all the requirements which guarantee the Audit Committee's involvement in the supervision of the Company's business other than: • The rule laid down in Section 4.3.2 of Annex I, pursuant to which the management should inform the audit committee of the methods used to account for significant and unusual transactions where the accounting treatment may be open to different approaches. Given the way in which the Audit Committee currently operates, the Company does not consider it necessary to introduce very detailed rules to regulate its operation i.e. the rule laid down in Section 4.3.2 of Annex I. The Company will take appropriate steps in the future, if justified by the actual manner of operation of the Audit Committee.
General Meeting, Shareholder Relations – IV.R.2	The Company has decided not to comply with the recommendation, as its Articles of Association currently do not provide for shareholders' participation in a General Meeting using electronic communication means. In accordance with the Commercial Companies Code, bringing that recommendation into effect would require a relevant amendment to the Company's Articles of Association. The Company does not rule out making such amendments in the future.
Remuneration − VI.R.4.	The Company follows recommendation VI.R.4 on the remuneration levels of the Management Board members and key managers. The recommendation cannot be implemented by the Company with respect to members of its Supervisory Board, as their remuneration is regulated by generally applicable laws, namely the Act on Rules for Remunerating Persons Managing Certain Companies of June 9th 2016 (Dz.U. of 2017, item 2190).

6.1.3 Shareholders with major direct or indirect holdings of Company shares

In 2019, the State Treasury, represented by the Minister of State Assets (ul. Krucza 36/Wspólna 6, 00-522 Warsaw), was the only shareholder holding more than 5% of the Company's share capital.

Table 56 Company shareholding structure as at December 31st 2019

	Number of shares	Ownership interest	Number of votes at the General Meeting	Percentage of total voting rights at the General Meeting
State Treasury	4,153,706,157	71.88%	4,153,706,157	71.88%
Other shareholders	1,624,608,700	28.12%	1,624,608,700	28.12%
Total	5,778,314,857	100.00%	5,778,314,857	100.00%

6.1.4 Holders of shares conferring special control rights; description of the special control rights

Pursuant to the Articles of Association, as long as the State Treasury holds Company shares, the State Treasury, represented by the minister competent for matters pertaining to energy, has the right to appoint and remove one member of the Supervisory Board.

Further, pursuant to the Articles of Association, the State Treasury (as a shareholder) approves in writing: (i) any changes to the material provisions of existing trade contracts for natural gas imports to Poland, as well as execution of such contracts, and (ii) the implementation of any strategic investment projects or the Company's involvement in investment projects which may, permanently or temporarily, impair the economic efficiency of the Company's business activities, but which are necessary to ensure Poland's energy security.

Irrespective of the State Treasury's ownership interest in the Company, the State Treasury has the right to demand that the General Meeting be convened and that particular matters be placed on its agenda.

6.1.5 Restrictions on voting rights at PGNIG S.A.

Under PGNiG's Articles of Association, the voting rights of the Company's shareholders have been restricted so that no shareholder (except as specified below) can exercise at a General Meeting more than 10% of the total voting rights existing as at the date of the General Meeting, with the proviso that this restriction is deemed non-existent for the purposes of determining the obligations of buyers of major holdings of shares. The voting rights restrictions do not apply to shareholders who were holders of shares conferring more than 10% of total voting rights at the Company on the date of the General Meeting's resolution imposing the restrictions, and to shareholders acting together with shareholders holding shares conferring more than 10% of total voting rights under agreements on voting in concert.
For the purpose of the voting rights restriction, votes of shareholders bound by a parent-subsidiary relationship are aggregated and if the aggregated number of votes exceeds 10% of total voting rights at the Company, it is subject to reduction.

6.1.6 Restrictions on the transfer of ownership rights to Company securities

Under Art. 13.24 of the Act on State Property Management of December 16th 2016 (Dz.U. of 2016, item 2259, as amended), Company shares held by the State Treasury may not be disposed of.

6.1.7 Rules governing amendments to the Company's Articles of Association

Pursuant to the Commercial Companies Code and the Company's Articles of Association, amendments to the Articles of Association are introduced by virtue of resolutions adopted by the General Meeting with the required majority of votes, and must be recorded in the business register. Any amendment to the Articles of Association must be submitted by the Management Board to the registry court within three months from the date on which the General Meeting adopted the resolution introducing the amendment.

The consolidated text of the Articles of Association is drawn up by the Management Board and then approved by the Supervisory Board.

On September 17th 2019, the procedure to register amendments to the Company's Articles of Association made by Resolution No. 6/2019 of the PGNIG S.A. Extraordinary General Meeting of August 21st 2019 was completed.

General Meeting of PGNIG S.A..

6.1.8 Operation and principal powers of the PGNIG S.A. General Meeting, shareholder rights and the procedures for exercising those rights

The General Meeting operates in accordance with the provisions of the Commercial Companies Code, the Articles of Association and the Rules of Procedure for the General Meeting. The Rules of Procedure for the General Meeting include in particular the rules of conducting meetings and adopting resolutions. The Rules of Procedure for the General Meeting are available on the Company's website at www.pgnig.pl. On January 23rd 2019, the Extraordinary General Meeting passed a resolution to amend the Rules of Procedure for the General Meeting.

6.1.9 Convening and cancelling the General Meeting

The Annual General Meeting is convened by the Management Board once a year, no later than within six months from the end of a financial year.

Shareholders representing at least 50% of the share capital or at least 50% of the total voting power may convene an Extraordinary General Meeting.

The Supervisory Board may convene an Annual General Meeting if the Management Board fails to do so within the time limit specified in the Commercial Companies Code or the Articles of Association, or an Extraordinary General Meeting, if the Supervisory Board deems it advisable.

General Meetings are convened by publishing a notice on the Company's website and in any other form prescribed for the purposes of current disclosures under the Act on Public Offering, Conditions Governing the Introduction of Financial Instruments to Organised Trading, and Public Companies. The notice should be published at least 26 days before the date of the General Meeting.

The General Meeting convened on the initiative of the Management Board may be cancelled by the Management Board for a good reason.

6.1.10 Description of key powers of the General Meeting

The General Meeting is the Company's constitutive body. In addition to any matters related to the Company's operations and matters specified in applicable laws, the General Meeting resolves on:

- Review and approval of the financial statements for the preceding financial year and the Directors' Report on the Company's operations;
- Approval of performance of duties by members of the Company's governing bodies;
- Distribution of profit or coverage of loss;
- Determination of the dividend record date or a decision on payment of dividend in instalments;
- Appointment and removal of Supervisory Board members;
- Review and approval of the Group's consolidated financial statements and the Directors' Report on the Group's operations for the preceding financial year;
- Suspension of members of the Management Board from their duties, or their removal from office;
- Disposal or lease of the Company's business or its organised part, or creation of limited property rights therein;
- Increase in or reduction of the Company's share capital;
- Issue of convertible bonds or bonds with pre-emptive rights, issue of subscription warrants;
- Acquisition of the Company's own shares for the purpose of offering them to the Company's employees or to persons who were employed by the Company or its related entities for at least three years;
- Mandatory buy-back of shares;
- Creation, use and liquidation of capital reserves;
- Use of statutory reserve funds;
- Merger, transformation or demerger of the Company;
- Amendments to the Company's Articles of Association and changes in its business profile;
- Definition of the rules and amounts of remuneration of Supervisory Board members and the rules of remuneration of Management Board members.

6.1.11 Shareholder rights at General Meetings and the procedures for exercising those rights

Participation in the General Meeting

The rules of participation in the General Meeting are set out in the Rules of Procedure for the General Meeting, available on the Company's website at http://pgnig.pl/lad-korporacyjny/walne-zomadzenie/regulamin.

Below is a summary of key provisions of the Rules.

- Each shareholder of the Company has the right to participate in General Meetings.
- Only persons who have been the Company's shareholders for at least 16 days prior to the date of the General Meeting (the record date for participation in the General Meeting) are entitled to attend the General Meeting. The record date for participation in the General Meeting is the same for the holders of rights under bearer shares and under registered shares.
- Holders of rights under registered shares or provisional certificates as well as pledgees and usufructuaries holding voting rights are entitled to participate in the General Meeting, provided that they are entered in the share register on the record date for participation in the General Meeting.
- Shareholders may participate in the General Meetings and exercise their voting rights in person, through a representative or through a proxy.
- At the General Meeting, the Management Board is required to provide shareholders – at their request – with information on the Company if such information is needed to assess an item on the Meeting's agenda. The Management Board may refuse to

provide information if this could adversely affect the Company, its affiliate, or its subsidiary company or cooperative, especially through disclosure of any technical, trade or organisational secrets.

- A shareholder may require that a list of shareholders be sent to him/her free of charge by email, may inspect the book of minutes or demand to be given copies of the resolutions of the General Meetings certified as true copies by the Management Board.
- During the General Meeting, any shareholder taking part in the General Meeting may submit procedural motions.
- The Company's Articles of Association do not provide for the possibility of participating in the General Meeting by means of electronic communication (including speaking at the General Meeting by means of electronic communication), or of exercising voting rights by postal ballot or by means of electronic communication.

Voting at the General Meeting

- One share confers the right to one vote at the General Meeting.
- Votes at the General Meeting are cast in an open ballot. A secret ballot is ordered when voting on the election or removal from office of members of the Company's governing bodies or on appointment of its liquidator, on bringing members of the Company's governing bodies or its liquidator to account, and on personnel matters. Furthermore, a secret ballot is ordered if at least one shareholder present or represented at the General Meeting so demands.

6.2 Management and supervisory bodies at PGNIG S.A. and their committees

6.2.1 Management Board

Composition of the Management Board as at January 1st 2019:

- Piotr Woźniak − President of the Management Board
- Maciej Woźniak – Vice President, Trade
- Łukasz Kroplewski – Vice President, Development
- Michał Pietrzyk – Vice President, Finance
- Radosław Bartosik − Vice President, Operations
- Magdalena Zegarska – Vice President.

On January 16th 2019, the Supervisory Board removed Radosław Bartosik from the PGNIG S.A. Management Board and from the position of Vice President for Operations. On March 14th 2019, the Supervisory Board appointed Robert Perkowski, with effect from March 18th 2019, to the PGNIG S.A. Management Board and to the position of Vice President for Operations, for a joint term of office ending on December 31st 2019.

Composition of the Management Board as at December 31st 2019:

- Piotr Woźniak − President of the Management Board
- Maciej Woźniak – Vice President, Trade
- Łukasz Kroplewski – Vice President, Development
- Michał Pietrzyk – Vice President, Finance
- Robert Perkowski – Vice President, Operations
- Magdalena Zegarska – Vice President.

Following expiry of the fifth joint term of office of the PGNIG S.A. Management Board on December 31st 2019m, on January 9th 2020 the Supervisory Board removed the following persons from the Management Board:

- Piotr Woźniak − President of the Management Board
- Michał Pietrzyk – Vice President, Finance
- Robert Perkowski – Vice President, Operations
- Maciej Woźniak – Vice President, Trade
- Łukasz Kroplewski – Vice President, Development

On the same day, the following persons were appointed for a joint three-year term of office ending on January 10th 2023, with effect from January 10th 2020:

- Jerzy Kwieciński – as President of the Management Board
- Robert Perkowski – as Vice President, Operations
- Jarosław Wróbel – as Vice President, Trade

and with effect from January 15th 2020:

- Przemysław Wacławski – as Vice President, Finance
- Arkadiusz Sekściński – as Vice President, Development

Jerzy Kwieciński – President of the PGNiG S.A. Management Board

Jerzy Kwieciński graduated from the Faculty of Materials Engineering of the Warsaw University of Technology and holds a doctoral degree in Technical Science. He also completed a postgraduate course for managers at the Warsaw School of Economics and an international Master of Business Administration programme at the University of Antwerp, the University of Staffordshire, the Free University of Brussels and the University of Warsaw. Jerzy Kwieciński has experience in academic work and research and development activities, gained at the Warsaw University of Technology and as a visiting professor at Brunel University of West London.

Mr Kwieciński has more than 30 years of international experience in strategic planning, management of large organisations, programmes and projects in the public, private, non-governmental and scientific research sectors, including the energy industry.

In 1993–2004, he was employed with the European Commission Representation Office in Poland, where he managed programmes and projects financed by the European Union and participated in the preparation of Poland for EU membership. In 2004–2005, he was President of Europejskie Centrum Przedsiębiorczości Sp. z o.o., and in 2008–2015 served as Vice President of its Management Board. In 2005, Mr Kwieciński became Undersecretary of State at the Ministry of Regional Development headed by Minister Grażyna Gęsicka, where he coordinated the national development policy and cohesion policy, as well as the work on the National Development Strategy for 2007–2015 and the National Cohesion Strategy for 2007–2013.

In 2008–2015, he served as President of the Management Board of JP Capital Group Sp. z o.o., which specialises in the preparation and implementation of projects and innovations, including formation and operation of start-ups. At that time, he also ran the European Entrepreneurship Centre Foundation. In 2015, Mr Kwieciński was appointed Secretary of State at the Ministry of Development.

Since 2015, he has been a member of the National Development Council established by President Andrzej Duda.

In November 2015, he was appointed First Deputy of Deputy Prime Minister Mateusz Morawiecki at the Ministry of Development in the government led by Prime Minister Beata Szydło. From January 2018, he was Minister of Investments and Development in the government of Prime Minister Mateusz Morawiecki, and from September 2019 he also served as Minister of Finance; he held the two posts until November 15th 2019. He was involved in the preparation and implementation of the Sustainable Development Strategy adopted by the Polish government and implementation of the cohesion policy.

President of the Management Board:

- manages the work of the Management Board and coordinates the work of Management Board members in all areas of the PGNiG Group's activity,
- supervises and coordinates the Company's operations, including with respect to:
  - internal control and audit functions,
  - development and oversight of implementation of the PGNiG Group's Strategy,
  - HR strategies, pay schemes and working time, employment and payroll policies,
  - corporate governance within the PGNiG Group and optimisartion of the PGNiG Group's structure,
  - security of the facilities, protection of classified information and personal data,
  - acquisition of foreign upstream assets,
  - taking part in the development of the regulatory policy in cooperation with public administration authorities, EU authorities and industry organisations,
  - the Company's information policy and corporate communication,
  - planning and implementation of the Company's trade policy, particularly in the areas of natural gas and electricity sales, execution and settlement of contracts for the sale of natural gas and electricity, and natural gas imports policy, including with respect to the diversification of supply sources.

Robert Perkowski – Vice President, Operations

Robert Perkowski is an economist (PhD in Economics) and member of the local government. He completed a post-graduate course in Management Analytics at Instytut Organizacji i Zarządzania w Przemyśle ORGMASZ (ORGMASZ Institute of Industry Organisation and Management), where he also completed International Doctoral Studies. His PhD programme was opened and conducted at the Institute of Economics of the Polish Academy of Sciences. He also completed a full-time MA programme at Independent University of Business and Public Administration in Warsaw, majoring in Marketing and Management, and in Finance and Banking. He has written more than a dozen research articles.

Mr Perkowski started his professional career in 2001 as an intern at the financial department of Dacon Corp. LTD at Queen's University in Canada. In 2002, he started working at the Ministry of Justice, where he was responsible for preparing draft financial plans for the Prison Service' salaries and wages. In 2006–2018, he was Mayor of the town of Ząbki. He also served as President of the Polish Local Governments Association (Związek Samorządów Polskich), in which he provided training services, and was a member of municipality and county councils.

On March 14th 2019, the Supervisory Board resolved to appoint Robert Perkowski as Vice President of the PGNiG Management Board for Operations.

Vice President for Operations supervises and coordinates the Company's functioning, including with respect to:

- corporate social responsibility (CSR),
- the Company's and the PGNiG Group's procurement strategy,
- management of the Company's assets other than network assets, extraction assets and underground gas storage facilities,
- management of the Company's non-production assets, including property,
- creation and implementation of the sponsorship policy and building the Company's image in Poland and abroad,
- cooperation with transmission and distribution system operators,
- policy, objectives and programmes related to hydrocarbon exploration and production in Poland and abroad,
- overseeing all licensing processes related to hydrocarbon exploration, appraisal and production, as well as storage of waste matter in rock mass and non-reservoir storage of substances in accordance with the geological and mining law,
- operations of the Geology and Hydrocarbon Production Branch, excluding management of underground gas storage assets.

Arkadiusz Sekściński – Vice President, Developmen

Arkadiusz Sekściński holds a PhD in social sciences (political science) from the University of Warsaw. He was the organiser of the Internal Security study programme focusing on Energy Security, and a lecturer in such subjects as "Poland's Energy Policy", "Energy Policies of Contemporary Countries", "Renewable Energy Sources" and "Planning and Financing Investment Projects in the Energy Sector". Author of research articles in Polish and English. He is now attending an MBA Energy programme at Lazarski University.

He held a scholarship from the Foundation for the Development of the Education System (University of Bergen, Norway), the Leonardo da Vinci Programme (the Białystok Province Regional Office, Brussels, Belgium), the Socrates – Erasmus Programme (Kapodistrian University of Athens, Greece).

Mr Sekściński started his professional career in the energy sector in 2007, working as a consultant in companies providing advisory services to businesses operating in the heat and power sector. From 2011, he served as director and member of the Management Board of the Polish Wind Energy Association. In 2016, he joined PGE Energia Odnawialna S.A. where, as Vice President and acting President of the Management Board, he supervised investment projects, innovation, operation of generation assets, communication, human resources and security. He served as president of special purpose vehicles responsible for the construction of onshore wind farms and development of wind farm projects in the Baltic Sea. He was also Head of the Photovoltaic Development Programme at the PGE Group.

Arkadiusz Sekściński is employed at University of Warsaw as assistant professor.

Vice President for Development supervises and coordinates the Company's operations with respect to:

- innovation and growth projects involving PGNiG S.A.,
- analysing and monitoring opportunities to obtain EU funding for the Company's operations,
- oversight of standardisation activities at the Company,
- development of technical assumptions, rules, norms and standards for the gas area,
- operations of the PGNiG Central Measurement and Testing Laboratory.

Przemysław Wacławski – Vice President, Finance

Przemysław Wacławski is a graduate of the Faculty of Management of the AGH University of Science and Technology in Kraków. Currently, he is taking the international FLEX Executive MBA course at MIP Politecnico di Milano in Italy, specialising in Digital Transformation.

In 2002–2006, he worked for Ernst & Young Audit, where he was engaged in such areas as financial auditing and due diligence processes. Between June 2006 and September 2010, he served as Head of Controlling Department and Head of Investment and Sales for the Balkan Market at Tele-Fonika Kable S.A. From October 2010, he was Member of the Management Board for Finance, and from February 2011 to May 2013 – President of the Management Board of TF Kable Fabrika Kablova Zajecar d.o.o. of Serbia. Between February 2013 and September 2018, Mr Wacławski served as Head of the Controlling Department at Tele-Fonika Kable S.A. During that period, he also sat on the Management Boards of the Tele-Fonika Kable Group's foreign companies.

In October 2018, he was appointed Member of the Management Board for Finance at Unipetrol a.s., where he was in charge of the finance, supply chain management and IT divisions. He also supervised the Unipetrol Group's finance division.

Vice President for Finance supervises and coordinates such areas of the Company's operations as:

- implementation of the Company's strategic economic and financial objectives,
- preparation and implementation of the Company's business plan,
- economic and financial evaluations and analyses of expansion and investment projects,
- planning and overseeing financial aspects of the investment policy,
- implementation and development of accounting procedures,
- defining the rules of and overseeing the preparation of financial statements,
- investor relations,
- IT management.

Jarosław Wróbel – Vice President

Jarosław Wróbel completed MA studies and a postgraduate doctoral course at the University of Economics in Katowice. He also completed a postgraduate course at the Faculty of Electrical Engineering of the Warsaw University of Technology as well as an Executive MBA programme (University of Gdańsk and RMS Erasmus University) and a Post-MBA programme (University of Gdańsk and Swiss Business School).

With the energy sector since 1992. From 1993 to 1999, he worked for Elektrociepłownia Będzin S.A., where he was responsible for the development and implementation of a restructuring programme as well as for the preparation and execution of the first capital privatisation in the Polish power industry via the Warsaw Stock Exchange ('IPO of the Year 1998' award).

With PGNIG S.A. since 2002. In 2003−2013, he served as Vice President for Economic Matters at Górnośląska Spółka Gazownictwa Sp. z o.o. Author and sponsor of the programme to implement an integrated platform for process support based on ERP and CIS solutions at Górnośląska Spółka Gazownictwa Sp. z o.o. Then he carried out projects for fuel and power sector companies as well as for IT companies. One of the creators of the IT/OT model for the PGNiG Group.

Between January 8th and March 1st 2016, Mr Wróbel served as Member of the Management Board of Polska Spółka Gazownictwa Sp. z o.o., and from March 2nd 2016 to February 16th 2018 – as President of the company's Management Board.

Under his leadership, the Company developed and implemented a strategic package of changes for the Polish gas distribution industry for 2016–2022, and won the Polish Quality Award in the category of large economic organisations in 2017.

In the period from April 17th 2018 to January 9th 2020, Mr Wróbel was President of the Management Board of ORLEN Południe S.A. One of the creators and sponsor of the programme to construct a modern biorefinery at ORLEN Południe S.A., based on the Trzebinia and Jedlicze refineries, serving as a competence centre in biocomponents and biofuels for the ORLEN Group.

The Vice President of the Management Board supervises and coordinates such areas of the Company's operations as:

- natural gas and crude oil production,
- underground waste disposal,
- CO_2 storage,
- underground storage of substances,
- natural gas denitrification,
- production of helium, liquefied natural gas (LNG), propane-butane gas mixture, hydrocarbon condensate and liquid foam,
- operations of PGNIG S.A. Branches in Odolanów, Sanok and Zielona Góra, and of the Well Mining Rescue Station in Kraków,
- management of the Company's underground gas storage assets,
- building relations with the distribution system operator and the storage system operator.

Magdalena Zegarska – Vice President of the Management Board

Magdalena Zegarska graduated from the University of Environmental Sciences in Radom. She completed an MBA oil and gas course and holds a certificate of completion of studies in Management of Large Enterprises from the School of Management and Marketing of the Business Initiatives Association in Warsaw. She took numerous training programmes and courses in psychology of team management, as well as a course for supervisory board members, completed with a passed exam before the State Treasury Commission. From 2011 to 2014, she was Secretary of the Employee Council of the second term of office, and from 2010 to 2014 – Secretary of the Coordination Committee of the NSZZ Solidarność trade union at PGNiG. In 2014−2017, she served as Member of the PGNiG Supervisory Board, the Supervisory Board Secretary and Deputy Chair of the Audit Committee. She joined PGNiG in 1998 as an employee of Mazowiecka Spółka Gazownictwa and then worked at the Mazovian Trading Division. From 2013, she held various positions at the Retail Trading Department, Infrastructure Department and Asset and Administration Department of the PGNiG Head Office. At the Asset and Administration Department she was Deputy Director. Since January 2016, she has been Representative of the PGNiG Management Board for the Quality, Health, Safety and Environment (QHSE) Management System. From April 2016 to March 2017, she served as Deputy Director of the QHSE Department, delegated to direct the work of the Department. She has received honorary awards for outstanding service to the Oil Mining and Gas Sector and the Mazovian Trading Division. She holds the title of Grade III Mining Director and Grade II Mining Director.

On February 27th 2020, she was appointed by the Supervisory Board as Vice President of the Management Board.

Vice President of the Management Board elected by Company employees supervises and coordinates the Company's operations with respect to:

- occupational health and safety, fire protection,
- cooperation with trade unions, the Employee Council and other employee organisations where their operations relate to the Company and the PGNiG Group,
- issue of shares to eligible Company employees.

Rules governing the appointment and removal of members of the management board; powers of members of the management, in particular the power to make decisions on the issuance or buy-back of shares

Pursuant to the Articles of Association, individual members of the Management Board or the entire Management Board are appointed and removed by the Supervisory Board. A member of the Management Board is appointed following a recruitment and selection procedure carried out pursuant to applicable provisions of the Articles of Association and in compliance with the requirements for candidates laid down in Art. 22 of the Act on State Property Management of December 16th 2016 (Dz.U. of 2016, item 2259, as amended). The procedure does not apply to Management Board members elected by employees.

As long as the State Treasury holds Company shares and the Company's annual average headcount exceeds 500, the Supervisory Board appoints to the Management Board one person elected by the employees, to serve for the Management Board's term of office. A person is considered a candidate to the Management Board elected by the employees if, during the election, 50% of valid votes plus one were cast in favour of that person, with the reservation that the election results are binding on the Supervisory Board if at least 50% of the Company's employees participated in the election.

Management Board members are appointed for a joint term of three years.

A member of the Management Board may resign from their position by delivering a notice to that effect to the Company, represented by another Management Board member or commercial proxy, with copies to the Chairman of the Supervisory Board and the minister competent for matters pertaining to energy. The resignation must be submitted in writing, or will otherwise be ineffective towards the Company.

The Management Board member elected by the employees may also be removed upon a written request submitted by at least 15% of the Company's employees. The Supervisory Board orders the voting and its results are binding on the Supervisory Board if at least 50% of the Company's employees participate in the ballot, and if the percentage of votes cast in favour of the removal is not lower than the majority required for the election of a member of the Management Board by the employees.

Pursuant to the Articles of Association, decisions on the issuance or buy-back of shares are adopted by the Company's General Meeting.

Rules governing the operation of the Management Board

The Management Board manages the Company's affairs and represents the Company in and out of court. The powers and responsibilities of the Management Board involve management of all of the Company's affairs, other than those which the law or the Company's Articles of Association reserve for the General Meeting or the Supervisory Board. In particular, the Management Board is responsible for preparing business plans, including investment plans, the strategy for the Company and the PGNiG Group, as well as long-term strategic plans, and submitting them to the Supervisory Board for approval.

The operation of the Management Board is defined in its Rules of Procedure, adopted by the Management Board and approved by the Supervisory Board. The Rules of Procedure for the Management Board are available on the Company's website at www.pgnig.pl/lad-korporacyjny/zarzad/regulamin.

Management Board meetings and resolutions

In 2019, the Management Board held 51 meetings and passed 690 resolutions.

6.2.2 Supervisory Board and its committees

Composition of the PGNIG S.A. Supervisory Board as at January 1st 2019:

- Bartłomiej Nowak – Chairman of the Supervisory Board
- Piotr Sprzączak – Deputy Chairman of the Supervisory Board
- Sławomir Borowiec – Secretary of the Supervisory Board
- Piotr Broda – Member of the Supervisory Board
- Andrzej Gonet – Member of the Supervisory Board
- Mieczysław Kawecki – Member of the Supervisory Board
- Stanisław Sieradzki – Member of the Supervisory Board
- Grzegorz Tchorek – Member of the Supervisory Board.

On August 22nd 2019, pursuant to Art. 35.1 of the Company's Articles of Association, the Minister of Energy appointed Mr Roman Gabrowski to the Supervisory Board.

Composition of the PGNIG S.A. Supervisory Board as at December 31st 2019:

- Bartłomiej Nowak – Chairman of the Supervisory Board
- Piotr Sprzączak – Deputy Chairman of the Supervisory Board
- Sławomir Borowiec – Secretary of the Supervisory Board
- Piotr Broda – Member of the Supervisory Board
- Roman Gabrowski – Member of the Supervisory Board
- Andrzej Gonet – Member of the Supervisory Board
- Mieczysław Kawecki – Member of the Supervisory Board
- Stanisław Sieradzki – Member of the Supervisory Board
- Grzegorz Tchorek – Member of the Supervisory Board.

Supervisory Board and its committees

Bartłomiej Nowak – Chairman of the Supervisory Board

Bartłomiej Nowak completed management courses at the Kozminski University in Warsaw and is a graduate of the Faculty of Law and Administration of the University of Warsaw. Since 2009, he has held the degree of Doctor of Laws - European University Institute, and since 2013 - a Habilitated Doctor degree from the Institute of Legal Sciences of the Polish Academy of Sciences. Bartłomiej Nowak specialises in energy law, business law, competition law, and EU law. In 2007–2009, he worked for Directorate-General for Transport and Energy of the European Commission and as an adviser to the President of the Polish Energy Regulatory Office (URE). In 2010–2014, he served as an adviser to the Kancelaria Domański Zakrzewski Palinka sp.k. law firm and member of the Supervisory Board of PTE WARTA S.A. Since 2009, he has worked for the Leon Kozminski University of Warsaw, initially as Assistant Professor and then Professor at the Law College, as well as Vice-Rector for Economic and Social Studies. Member of the Scientific Council of the National Centre for Nuclear Research.

Bartłomiej Nowak has submitted a statement to the effect that he meets the independence criteria stipulated under Art. 129 of the Polish Act on Statutory Auditors, Audit Firms, and Public Oversight dated May 11th 2017 and under Commission Recommendation 2005/162/EC of February 15th 2005.

Piotr Sprzączak – Deputy Chairman of the Supervisory Board

Piotr Sprzączak is a graduate of the Maria Curie-Skłodowska University of Lublin and the National School of Public Administration of Warsaw. He began his professional career in 2011 at the Oil and Gas Department of the Ministry of Economy, and then the Ministry of Energy. He is currently Head of the Infrastructure Department at the Ministry of Energy. As part of his job duties, he participates in the negotiation of EU legal acts, including amendments to the gas directive and the regulation concerning measures to safeguard security of gas supply, and in the development of the regulatory environment through the 'Clean Energy for All Europeans' package. He coordinates activities related to international cooperation and Poland's membership in the European Union and in international energy organisations and agreements. In 2011−2014, he was involved in preparing and updating the assessment of risk related to security of gas supplies, a prevention plan and an emergency response plan.

Sławomir Borowiec – Secretary of the Supervisory Board

Sławomir Borowiec graduated from the AGH University of Science and Technology in Kraków (Faculty of Drilling, Oil and Gas) in 1992. In the same year he joined Zielonogórski Zakład Górnictwa Nafty i Gazu. In 2001, he graduated from The Jacob of Paradyż University of Applied Sciences in Gorzów Wielkopolski − Institute of Management and Finance, where he completed studies in Management and Marketing. In 2014, he earned a degree from the Koszalin University of Technology, where his principal field of study was Accounting − Accounting of Business Entities. At present, he is Head of the Centre for Oil and Gas Production Facilities. Mr Borowiec is also a licensed Mine Operations Manager. In 2002, he passed an examination for candidates to supervisory boards of state-owned companies and in 2010 he received the title of Grade II Mining Director.

Piotr Broda – Member of the Supervisory Board

Piotr Broda is a graduate of the Faculty of Foreign Trade of the Warsaw School of Economics and holder of an Executive MBA degree from the University of Minnesota. He gained professional experience working in leading financial institutions. In 1991, he joined Bank Austria Creditanstalt S.A. of Warsaw. He was Deputy Director of the Treasury Department (1995–1998), and then Director of the Treasury Department and Chairman of the Assets and Liabilities Committee (1998–2000). In November 2000, he took the position of Investment Team Manager at Allianz S.A., and in 2002 was appointed Deputy Director of the Financial Investments Office at PZU S.A. Mr Broda continued his career with the PZU Group as Director of the Debt and Derivative Instruments Office and Vice President of the Management Board of PZU Asset Management S.A. (2008–2011) and Vice President of the Management Board of PZU TFI S.A. (2009–2013). For over four years (2013–2017), he served as Member of the Management Board of TFI BGK S.A. Since July 2018, he held the post of Chief Financial Officer at ElectroMobility Poland S.A. He has long-standing experience as a member of supervisory boards, having served in that capacity in 2002–2004 at PZU Asset Management S.A. and PZU NFI Management S.A., in 2005–2006 at Lentex S.A., and in 2006–2007 at Jago S.A. He has authored a number of publications concerned with finance as an expert cooperating with the Sobieski Institute.

Piotr Broda has submitted a statement to the effect that he meets the independence criteria stipulated under Art. 129 of the Polish Act on Statutory Auditors, Audit Firms, and Public Oversight dated May 11th 2017 and under Commission Recommendation 2005/162/EC of February 15th 2005.

Roman Gabrowski – Member of the Supervisory Board

Roman Gabrowski is a graduate of the Faculty of Electrical Engineering at the Wrocław University of Technology, where he specialised in applied automation, and the Wałbrzych Higher School of Management and Enterprise, where his principal field of study was strategic management. He additionally completed post-graduate studies in management of state-owned energy companies organised by the Warsaw University of Technology, and studies in business finance management at the Wrocław University of Economics (Faculty of Management and Computer Science). Mr Roman Gabrowski has gained professional experience working in managerial roles in the power industry, including entities of the Tauron Group. In 1993−1997, he served as Chairman of the Supervisory Board of ZE Wałbrzych S.A. In 1998−2002, he held the position of President of the Management Board at ZE Wałbrzych S.A., and in 2007−2008 at EnergiaPro Gigawat (currently Tauron Obsługa Klienta). In 2016–2019, he was President of the Management Board of Tauron Ekoenergia. He also sat on the Supervisory Boards of various companies, including Jeleniogórskie Elektrownie Wodne (currently Tauron Ekoenergia) and Tauron Ekoserwis.

Andrzej Gonet – Member of the Supervisory Board

Andrzej Gonet graduated with honours from the Faculty of Drilling, Oil and Gas of the AGH University of Science and Technology in Kraków in 1975. He was then employed at the Faculty and in 1980 he defended with honours his doctoral thesis. In 1989, he was awarded a post-doctoral degree (*doctor habilitatus*) in science. In 1998, he was awarded professorship and is now employed as a full professor at the AGH University of Science and Technology. He has completed several post-graduate programmes run by the AGH University of Science and Technology, Jagiellonian University and Polish Academy of Sciences, as well as a course for candidates to supervisory boards of state-owned companies. He was a member of the Supervisory Boards of ZUN Sp. z o. o. of Krosno (2000–2002) and PNiG Sp z o. o. of Kraków (2011–2013). Andrzej Gonet has authored or co-authored over 300 publications, 260 unpublished research papers, 29 approved and submitted patents and 8 licences. He is a certified environmental impact assessment expert of the Kraków Province Governor, expert of the Polish Association of Oil and Gas Industry Engineers and Technicians, and has extensive professional experience gained in Poland and abroad. He has been a consultant and reviewer of many scientific papers and research projects. He is a member of the Drilling and Borehole Mining Section of the Mining Committee of the Polish Academy of Sciences. Throughout his professional career he has held various positions, including head of the Drilling Department, Deputy Director of the Institute of Drilling, Oil and Gas, two terms of office as Vice-Dean and Dean of the Faculty of Drilling, Oil and Gas of the AGH University of Science and Technology, which position he held for three terms. In addition, Andrzej Gonet was a co-founder of the PWSZ Krosno State College, where he has served as Vice-Rector and Rector.

Mieczysław Kawecki – Member of the Supervisory Board

Mieczysław Kawecki is a graduate of the AGH University of Science and Technology in Kraków, Master of Science in Engineering, with principal field of study: well operation. He completed post-graduate studies in underground gas storage, and graduated in Environment Protection in Economy from the AGH University of Science and Technology in Kraków. Mieczysław Kawecki is a licensed mine operations manager and Grade I Mining Director. He started his professional career in 1976 at Sanocki Zakład Górnictwa Nafty i Gazu, working at the Wańkowa crude oil extraction facility. In 1984, he was appointed manager of a new crude oil and natural gas extraction facility in Lublin, and in 1986 he became manager of the Wielopole crude oil extraction facility. From 1991 to 2017, he worked as manager of the Strachocina Underground Gas Storage Facility. Since 2017, Mieczysław Kawecki has managed the Underground Gas Storage Department of PGNiG's Sanok Branch. He is President of the Management Board of the Sanok Branch of the Polish Association of Oil and Gas Industry Engineers and Technicians (SITPNiG). In 1990–1992, he was a member of the Works Council at Sanocki Zakład Górnictwa Nafty i Gazu and a delegate to the General Assembly of Delegates of PGNiG Warszawa. He was a member of the Works Council of the 6th and 7th terms of office at PGNiG Warszawa from 1994 until it was transformed into a company. Until 1998, he was a member of the consulting group at PGNiG. From 2003 to 2005, Mieczysław Kawecki served as Chairman of the KADRA Trade Union at the Sanok Branch, and member of the Union Coordination Committee. He was a member and then Secretary of the Supervisory Board of PGNiG in 2005–2014.

Stanisław Sieradzki – Member of the Supervisory Board

Stanisław Sieradzki completed studies in stratigraphic and exploratory geology at the University of Wrocław. He also completed post-graduate studies in oil and gas engineering at the AGH University of Science and Technology in Kraków. Stanisław Sieradzki has worked for PGNiG since 1986, first as independent geologist, then specialist geologist in the Operational Geology Department, and later as Head of the Deposit Appraisal and Documentation Department at PGNiG's Sanok Branch. Upon establishment of the Geology and Hydrocarbon Production Unit, he was appointed Head of the Project Design Centre in Sanok. Currently, Mr Sieradzki holds the position of Deputy Head of the Project Design Department in Jasło, Sanok office. His work to date has focused chiefly on crude oil and natural gas exploration. Stanisław Sieradzki has received a number of qualifications, including a licence from the Minister of the Environment to perform, supervise and manage category 1 geological work in: exploration for and appraisal of crude oil and natural deposits; he is also a qualified senior technical supervisor of geological operations and mining geologist at facilities extracting mineral deposits through boreholes, licensed by the President of the State Mining Authority. He is also a certified internal management system auditor.

Grzegorz Tchorek – Member of the Supervisory Board

Grzegorz Tchorek graduated from the Faculty of Management of the University of Warsaw. In 2007, he received PhD degree and started working as an associate professor at the Faculty of Management of the University of Warsaw and as an adviser at the National Bank of Poland (from 2009). As an expert, he currently focuses on evaluating competitiveness of countries and businesses, global supply chains, and advancement of low-carbon technologies in Poland. He conducts research projects in the fields of electromobility, gas mobility, shared mobility and hydrogen technologies.

Grzegorz Tchorek has submitted a statement to the effect that he meets the independence criteria stipulated under Art. 129 of the Polish Act on Statutory Auditors, Audit Firms, and Public Oversight dated May 11th 2017 and under Commission Recommendation 2005/162/EC of February 15th 2005.

Powers of the PGNIG S.A. Supervisory Board

The Supervisory Board exercises ongoing supervision of the Company's activities in all areas of its operations, and presents its opinions on all matters submitted by the Management Board for consideration to the General Meeting. The powers and responsibilities of the Supervisory Board include in particular:

- Assessment of the Directors' Report on the Company's operations and of the financial statements for the preceding financial year, in terms of their consistency with the accounting books, supporting documentation, and the actual state of affairs;
- Assessment of the Management Board's proposals concerning distribution of profit or coverage of loss;
- Submission to the General Meeting of written reports on results of the activities referred to in items 1 and 2;
- Assessment of the consolidated financial statements with respect to their consistency with the accounting books, supporting documentation, and the actual state of affairs, as well as assessment of the Directors' Report on the Group's operations, and reporting to the General Meeting on the results of these assessments;
- Appointment of an auditor to audit the financial statements;
- Approval of business plans, including investment plans;
- Approval of the strategy for the Company and the PGNiG Group and long-term strategic plans;
- Adoption of detailed rules governing the Supervisory Board's operation;
- Approval of the consolidated text of the Articles of Association, drawn up by the Company's Management Board;
- Approval of the Rules of Procedure for the Management Board;
- Appointment and removal of Management Board members;
- Definition of rules and amounts of remuneration for Management Board members, unless applicable mandatory provisions of law state otherwise.

Rules governing the operation of the Supervisory Board

The Supervisory Board operates in accordance with the rules set out in the Commercial Companies Code, the Articles of Association and the Rules of Procedure for the Supervisory Board. The Rules of Procedure for the Supervisory Board have been adopted by a Supervisory Board resolution and are available on the Company's website at http://pgnig.pl/lad-korporacyjny/rada-nadzorcza/regulamin.

The Company's Supervisory Board consists of five to nine members appointed by the General Meeting. One Supervisory Board member should meet the independence criteria specified in the Articles of Association. As long as the State Treasury holds Company shares, the State Treasury, represented by the minister competent for matters pertaining to energy, has the right to appoint and remove one member of the Supervisory Board. If the Supervisory Board consists of up to six members, two members are appointed from among persons elected by the Company's employees and employees of all of its subsidiaries; if the Supervisory Board consists of seven to nine members, three members are appointed from among candidates elected by the employees.

Supervisory Board members are appointed for a joint term of office lasting three years.

Supervisory Board meetings are convened by the Chairman or Deputy Chairman of the Supervisory Board any time the Company's interest so requires, but no less frequently than once every two months.

The Supervisory Board or its members delegated to individually perform certain supervisory functions are authorised to supervise all areas of the Company's activity, and in particular to examine all of the Company's documents, demand that the Company's Management Board and employees produce reports and explanations, or review the Company's assets.

The Supervisory Board may appoint standing or ad hoc committees (established as needed), to act as the Supervisory Board's collective advisory and opinion-forming bodies.

Committees of the Supervisory Board

In 2019, there was one committee operating at the Company – the Audit Committee.

Composition of the Audit Committee of the PGNiG Supervisory Board in 2019:

- Grzegorz Tchorek – Chairman of the Audit Committee
- Piotr Broda − Deputy Chairman of the Audit Committee
- Bartłomiej Nowak – Member of the Audit Committee.

In 2019, the composition of the Audit Committee did not change.

The Audit Committee is composed of at least three Supervisory Board members, of whom at least one has expertise and competence in accounting or auditing of financial statements.

All members of the Audit Committee submitted statements to the effect that they meet the independence criteria stipulated in Art. 129 of the Polish Act on Statutory Auditors, Audit Firms, and Public Oversight, of May 11th 2017, and Commission Recommendation 2005/162/EC of February 15th 2005. Two members of the Audit Committee have expertise and competence in accounting or auditing of financial statements:

Grzegorz Tchorek, Chairman of the Audit Committee, holds an MA in business management and marketing. He graduated from the Faculty of Management of the University of Warsaw, and holds a PhD in Economics in Management earned at the Faculty of Management of the University of Warsaw.

Piotr Broda, Deputy Chairman of the Audit Committee, is a graduate of the Warsaw School of Economics and holds an MA in economics/ foreign trade, with a specialisation in financial markets.

Bartłomiej Nowak, Member of the Audit Committee, has the expertise and skills required in the industry in which the Company operates. He holds a PhD in law from the Polish Academy Sciences (Institute of Legal Sciences), in business law, and a PhD in law from EUI FLORENCE. He was an adviser to the President of the Energy Regulatory Office (URE) in 2007−2009 and worked for Directorate-General for Transport and Energy of the European Commission in 2007–2008.

Rules governing the operation of the Audit Committee and its powers

The Audit Committee operates within the Supervisory Board as a standing committee, advising the Supervisory Board on matters for which the Board is responsible. Meetings of the Audit Committee are held as needed, but at least once every six months, and are convened by the Chair of the Committee. Every six months, the Audit Committee submits reports on its activities to the Supervisory Board. Each report is made available to the Company's shareholders at the next General Meeting.

The Audit Committee's responsibilities include in particular those set out in Art. 130 of the Act on Statutory Auditors, Audit Firms, and Public Oversight, of May 11th 2017, e.g.

- monitoring of:
  - the financial reporting process;
  - effectiveness of the internal control and risk management systems and the internal audit function, including with regard to financial reporting,

  - performance of financial audit tasks, including the audit of financial statements performed by an audit firm, with account taken of all conclusions and findings from an inspection of the audit firm by the Polish Audit Oversight Commission;
- oversight and monitoring of the statutory auditor's and the audit firm's independence in the context of fee caps on permitted non-audit services provided to the audited Company;
- informing the Supervisory Board or other supervisory or control body of the Company of the audit findings and explaining how the audit contributed to the reliability of the Company's financial reporting and what role the Audit Committee played in the audit;
- assessing the auditor's independence and approving the provision of permitted non-audit services by the auditor;
- developing a policy for selection of an audit firm to perform audits;
- developing a policy for the provision of permitted non-audit services by the audit firm, its related entities, or members of its network;
- establishing an audit firm selection procedure for the Company;
- submitting to the Supervisory Board or other supervisory or control body, or the governing body referred to in Art. 66. 4 of the Accounting Act of September 29th 1994, a recommendation referred to in Art. 16.2 of Regulation (EU) No 537/2014, in accordance with the policies referred to in items e and f;
- submitting recommendations to ensure the reliability of the financial reporting process at the Company.

Audit Committee meetings and resolutions

In 2019, the Audit Committee held six meetings and passed eight resolutions. At three of its meetings, the Audit Committee met with the auditor.

Rules for cooperation with audit firm

Following election made by the PGNiG Supervisory Board on December 20th 2018, PKF Consult Sp. z o.o. Sp.k. was appointed as the auditor to audit and review the financial statements of PGNiG S.A. and some of the subsidiaries as well as the consolidated financial statements of the PGNiG Group. The agreement was concluded on April 12th 2019 and covers the years 2019–2020.

In 2019, the audit firm provided the following permitted non-audit services to PGNiG S.A.:

- Review of the quarterly separate and consolidated financial statements for the periods ended March 31st 2019 and September 30th 2019.
- Review of the interim separate and consolidated financial statements for the six months ended June 30th 2019.
- Review, for the needs of banks providing financing to PGNiG, of agreed procedures concerning financial covenants specified in the credit facility agreements signed by PGNiG, as well as bond subscription agreements and the terms and conditions of such bonds – for the 12 months ended December 31st 2018 and June 30th 2019.

On January 23rd 2020, the Audit Committee submitted a recommendation to the PGNiG Supervisory Board concerning selection of an audit firm to perform audits for PGNiG and selected companies of the PGNiG Group for 2021–2022; the recommendation met the conditions set forth in Art. 130.2. of the Act on Statutory Auditors.

The Audit Committee also stated that the recommendation had been prepared following the procedure to select an audit firm, carried out by PGNiG in accordance with the provisions of the Public Procurement Law of January 29th 2004 (consolidated text: Dz.U. of 2019, item 1843), and the procedure meets the criteria set out in Art. 130.3 of the Act on Statutory Auditors, Audit Firms, and Public Oversight of May 11th 2017 (Dz.U. of 2019, item 1421).

6.3 Remuneration of members of the governing bodies

6.3.1 PGNiG's remuneration policy

The key internal document governing the remuneration policy at PGNiG is the Collective Bargaining Agreement concluded with the trade unions on July 15th 2009. The remuneration system is additionally governed by internal rules implemented at individual organisational units and agreements with trade unions.

In line with the adopted remuneration policy, base pay rates are based on job grading. The rate depends on the qualifications required for a given job, type of work performed and professional experience.

The policy also provides for additional components of remuneration, the most important of them being: awards and bonuses, St. Barbara's Day awards, jubilee awards, retirement severance payments and annual bonuses.

6.3.2 Incentive scheme

At PGNiG, a bonus scheme is in place whose key components include:

- MBO (Management By Objectives) bonus, which applies to management positions responsible for achieving PGNiG's key objectives. The amount of an MBO bonus depends on the quality and progress in the achievement of allocated objectives;
- Discretionary periodic bonus, which covers the remaining employees and is granted on a quarterly basis, based on discretionary assessment of an employee's performance by their superior;
- Discretionary task bonus, earmarked for employees excelling in their work for the Company (a special account placed at the disposal of the PGNiG Management Board);

- Discretionary project bonus, earmarked for employees who have been involved in the execution of project work; the bonus amount depends on the quality and progress in the execution of specific projects.

6.3.3 Employee benefits

PGNiG has in place an Employee Pension Plan within the meaning of the Act on Employee Pension Plans of April 20th 2004 (Dz.U. No. 116, item 1207). Every employee who has continuously worked for the Company for at least three months is eligible for the plan.

6.3.4 Remuneration policy for members of the management and supervisory bodies of PGNiG

On September 9th 2016, the Company's General Meeting passed Resolution No. 9/VIII/2016 on the rules of remuneration for members of the Supervisory Board of PGNiG. Pursuant to the resolution, the monthly remuneration of Supervisory Board members equals the average monthly remuneration in the business sector (net of bonuses paid from profit) in the fourth quarter of the previous year.

Table 57 Remuneration of members of the management and supervisory bodies of PGNiG in 2019

	January 1st 2019–December 31st 2019		
Full name	Total remuneration, additional benefits and bonuses paid and due in 2019 for holding key positions at PGNiG , including VAT	Total remuneration for holding key positions at subordinated entities in 2019, including VAT	Total remuneration in 2019
	(PLN '000)		
Total remuneration of Management Board members, including:	9,503	291	9,794
Piotr Woźniak − President of the Management Board	1,984	154	2,138
Łukasz Kroplewski – Vice President of the Management Board	1,846	-	1,846
Michał Pietrzyk – Vice President of the Management Board	1,843	137	1,980
Maciej Woźniak – Vice President of the Management Board	1,848	-	1,848
Robert Perkowski – Vice President of the Management Board	698	-	698
Magdalena Zegarska – Vice President of the Management Board	1,284	-	1,284
Persons no longer in office as at December 31st 2019:	965	14	979
Radosław Bartosik − Vice President of the Management Board[1)]	965	14	979
Commercial Proxy	620	54	674
Violetta Jasińska-Jaśkowiak – Commercial Proxy	620	54	674
Total remuneration of Supervisory Board members, including:	695	-	695
Sławomir Borowiec	86	-	86
Piotr Broda	81	-	81
Andrzej Gonet	82	-	82
Mieczysław Kawecki	79	-	79
Bartłomiej Nowak	92	-	92
Stanisław Sieradzki	81	-	81
Piotr Sprzączak	86	-	86
Grzegorz Tchorek	79	-	79
Gabrowski Roman	29	-	29
Total remuneration of members of the management and supervisory bodies	11,783	359	12,142

1) Served as member of the Management Board until January 16th 2019

Table 58 Remuneration of members of the management and supervisory bodies of PGNiG in 2018

	January 1st–December 31st 2018		
Full name	Total remuneration, additional benefits and bonuses paid and due in 2018 for holding key positions at PGNiG, including VAT	Total remuneration for holding key positions at subordinated entities in 2018, including VAT	Total remuneration in 2018
	(PLN '000)		
Total remuneration of Management Board members, including:	5,410	428	5,838
Piotr Woźniak − President of the Management Board	955	154[1)]	1,109
Radosław Bartosik − Vice President of the Management Board	894	137[1)]	1,031
Łukasz Kroplewski – Vice President of the Management Board	896	-	896
Michał Pietrzyk – Vice President of the Management Board	891	137[1)]	1,028
Maciej Woźniak – Vice President of the Management Board	887	-	887
Magdalena Zegarska – Vice President of the Management Board	887	-	887
Persons no longer in office as at December 31st 2018:	86	-	86
Waldemar Wójcik [2)]	86	-	86
Commercial Proxy	576	34	610
Violetta Jasińska-Jaśkowiak – Commercial Proxy	576	34	610
Total remuneration of Supervisory Board members, including:	662	-	662
Sławomir Borowiec	86	-	86
Piotr Broda	79	-	79
Andrzej Gonet	81	-	81
Mieczysław Kawecki	80	-	80
Bartłomiej Nowak	91	-	91
Stanisław Sieradzki	80	-	80
Piotr Sprzączak	85	-	85
Grzegorz Tchorek	81	-	81

Total remuneration of members of the management and supervisory bodies	6,734	462	7,196

1) All remuneration for service on the Supervisory Board of EUROPOL GAZ S.A. will be paid to the bank account of a non-profit organisation entered in the list approved by the PGNiG Supervisory Board.

2) Served as Member of the Management Board until March 6th 2017.

6.4 Internal control and risk management systems used by the Company in the process of preparation of financial statements and consolidated financial statements

The Company's internal control system consists of:

- Group-wide uniform accounting policies on measurement, recognition and disclosure in accordance with the International Financial Reporting Standards (IFRS), as well as unified templates for separate and consolidated financial statements;
- Internal control mechanisms, including separation of duties, multi-stage data verification, accuracy reviews of data received, independent checks, etc;
- Internal operating procedures implemented under Orders of the President of the Management Board;
- Definition of accounting, financial reporting and tax settlement responsibilities at the Company, in the task book and in relevant rules approved by the Management Board and the Supervisory Board;
- Definition of rules on supervision of the flow of financial and accounting documents, including review of the documents in terms of form, substance and accounting correctness;
- Recording of economic events in an integrated finance and accounting system configured in compliance with the accounting policies in place at the Company, containing controls and checks ensuring data consistency and integrity, such as integrity checks, hardware checks, operating checks, and authority checks;
- An IT system supporting the consolidation process, enabling the Group to streamline the consolidation process at the level of financial and management reporting, and speed up the preparation of consolidated reports;
- Uniform rules and procedures for consolidating financial data, ensured through the use of unified reports, automatic validations of the consistency and completeness of reported data, as well as two-stage authentication and approval in the data consolidation system;
- Formalised procedure for the preparation of financial statements (scheduled tasks with individual deadlines and persons responsible);
- Multi-stage review and authorisation process for financial statements, involving the Supervisory Board;
- Assessment of current reporting risk by the PGNiG Group's Internal Audit and Control Department and the Security Department;
- Independent review of financial statements for reliability and accuracy by an independent external auditor;
- Progressive development of the Group's internal procedures and regulations designed to ensure uniformity of the reporting processes and their continuous improvement.

At the centre of the accounting and financial reporting controls is a fully integrated financial and accounting system. The system checks recorded transactions for correctness, but also identifies which users have entered and approved individual transactions. Access to financial information is restricted by an authorisation system. Access authorisation is granted based on an employee's function and responsibilities, and is subject to stringent controls.

An additional level of control was introduced to oversee the Group's financial statements by assigning the preparation of the Company's financial statements and the Group's consolidated financial statements to two separate Departments at the Company's Head Office; the financial statements are entered in the integrated IT system with the accounts of other consolidated entities. Data undergoing consolidation is automatically checked for correctness by automatic validation systems and is subject to logical verification procedures carried out by dedicated Group employees.

The PGNiG Group's accounting policies ensure compliance of the Company's accounting procedures and financial statements with the relevant regulations, in particular with the IFRS. The accounting policies are regularly updated to ensure their continuing compliance with amended regulations. The most recent update to the accounting policies was made in 2019.

To further mitigate the risks associated with financial reporting, financial statements are verified by an independent auditor every three months. The Company's auditor selection procedures ensure the auditor's independence in performing its duties (auditors are selected by the Supervisory Board acting on the Audit Committee's recommendation) and high standards of auditing services.

Full-year financial statements are audited, whereas Q1, H1 and Q3 statements are reviewed. The results of both processes are presented by the auditor to the Management Board and to the Supervisory Board's Audit Committee.

In its operations, the Company manages its overall financial security using dedicated liquidity, financial risk, budget drafting and control management systems.

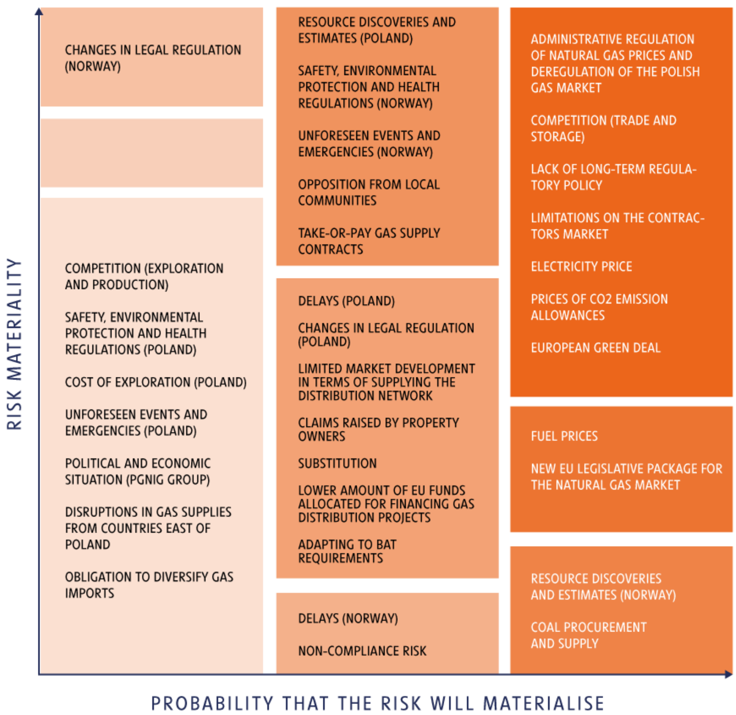
The financial reporting process is properly structured and includes controls to minimise the risk of error. It is also subject to ongoing management review, as well as periodic internal and external audits, which significantly protects the Company from serious irregularities in reporting.

6.5 Risk management

Based on an annual review of the internal control and risk management systems, the PGNiG Group does not operate a comprehensive corporate risk management system. At the PGNiG level, risk management processes are formalised and defined for key business areas. Risks are identified, addressed and assessed in accordance with the methodologies and assessment scales adopted in respective business areas. Risk management processes in particular areas are based on internally developed risk models and records, and risk management processes are identified and submitted for assessment to representatives of individual organisational units (management staff).

However, the Company recognises the need to develop a comprehensive and integrated risk management system. At the strategic level, the Company is pursuing a process mapping project across the PGNiG Group. It is expected that the project will also cover the defining and structuring of a process integrating risk management at the PGNiG Group level.

Figure 10 Risk matrix



Operational risks

Key: Risk materiality level: low ●○○ ; medium ●●○ ; high ●●●
Probability that the risk will materialise: low ●○○; medium ●●○ ; high ●●●
Yoy change in the risk level: increase ↗; decrease ↘; no change →

Table 59 Scope of changes and impact of material operational risks on the PGNiG Group

Risks	Risk description
Resource discoveries and estimates Poland ●●● ●●○ → Norway ●○○ ●●● →	The main risk inherent in exploration activities is the risk of failure to discover hydrocarbons, i.e. exploration risk. This means that not all identified leads and prospects actually have deposits of hydrocarbons which can qualify as an accumulation. In addition, the actual quantity and quality of accumulated hydrocarbons may differ from estimates. If the results of successful exploration in the form of new reserves do not balance production from existing fields, the recoverable reserves in the PGNiG Group's fields will gradually decrease as the production continues. Reserves estimates and production projections may be erroneous due to imperfections inherent in the applied equipment and technology, which affect the quality of the acquired geological information. Irrespective of the methods applied, data on the volume and quality of commercial reserves of crude oil and natural gas is always an estimate. Actual production, income and expenses relating to a given deposit may significantly differ from estimates. The weight of this risk is further increased by the fact that in the full business cycle the period from start of exploration to the launch of production from a developed field takes six to eight years, while the production lasts from 10 to 40 years. Formation characteristics determined at the stage of preparing the relevant documentation are reviewed after production launch. Any downward adjustment of the reserves or production volumes may lead to lower revenue and adversely affect the PGNiG Group's financial performance.
Competition in the Exploration and Production segment in Poland: ●○○ ●○○ ↘ In the Trade and Storage segment ●●● ●●● →	Both in Poland and abroad there is a risk of competition from other companies seeking licences for exploration and appraisal of hydrocarbon deposits, although it should be noted that this risk has significantly diminished in the Polish market over the past year. Certain competitors of PGNiG, especially those active globally, enjoy strong market positions and have greater financial resources than those available to the Group. Thus, it is probable that such companies would submit their bids in tender procedures and be able to acquire promising licences, offering better terms than PGNiG could offer given its financial and human resources. This competitive advantage of oil majors is particularly important on the international market. Competitors seek to increase gas fuel sales by offering competitive prices of the fuel or dual fuel (gas and electricity) deals. A noteworthy development is also the growing activity of large energy companies on the Polish natural gas market.

	Given the prevailing trend in supplier switch numbers (according to URE data), the number of people switching energy supplier should increase in the coming years.
Delays Poland ●●○ ●●○ ↘ Norway ●●○ ●○○ ↘	Under the applicable Polish laws and regulations, the process of obtaining a licence for exploration and appraisal of crude oil and natural gas reserves lasts from one to one and a half years. In foreign markets such procedures may even take up to two years from the time the winning bid is awarded until the actual contract is ratified. All these factors create the risk of delays in the start of exploration work. The formal and legal obstacles, beyond PGNiG's control, include those related to: • local governments' failure to approve local zoning plans or amendments to those already approved; • obstacles in having investment projects incorporated into the local zoning plans; • requirement to obtain and comply with administrative or other formal and legal decisions, including environmental decisions or building permits; • amendments to the current investment project; • difficulties in obtaining the landowners' consent for access to the area. These factors materially delay investment activities and entering the area to commence construction work. Further, PGNiG's obligation to comply with the Public Procurement Law frequently protracts tender procedures. A protracting project exacerbates the risk related to estimation of capital expenditure.
Safety, environmental protection and health regulations Poland ●○○ ●○○ ↘ Norway ●●● ●●○ →	The need to ensure compliance with environmental laws in Poland and abroad may significantly increase the PGNiG Group's operating expenses. Currently, the Group incurs significant capital expenditure and costs to ensure compliance of its operations with the ever more complex and stringent regulations concerning safety and health at work, as well as environmental protection. Offshore upstream operations carry a significant risk of environmental pollution resulting from oil spills. The risk is monitored on an ongoing basis, and field operators have implemented a number of barriers and technical solutions to mitigate the risk.
Cost of exploration Poland ●○○ ●○○ ↘	Capital intensity of an exploration project depends on prices of energy and materials. Cost of exploratory work is especially sensitive to steel prices, which are passed onto prices of casing pipes and production tubing used in drilling. An increase in prices of energy and materials translates into higher costs of exploratory work. Profitability of foreign exploration projects also depends to a significant extent on prices of oil derivative products and on exchange rates. To reduce drilling costs, in 2011 PGNiG introduced the daily rate system into its procedure for selecting drilling contractors and paying for their work.
Unforeseen events and emergencies Poland ●●○ ●○○ → Norway ●●● ●●○ ↗	Hydrocarbon deposits developed by the PGNiG Group are usually located at great depths, which involves extremely high pressures and, in many cases, the presence of hydrogen sulfide. Consequently, the risk of hydrocarbon blowout or leakage is very high, which in turn may pose a threat to people (employees and local population), the natural environment and production equipment. In Norway, PGNiG UN keeps records of all risks related to upstream operations as they arise. All risks are reviewed every three months by an interdisciplinary team of experts. A set of preventive measures is assigned to each risk, designed to reduce the probability and impact of potential accidents.
Changes in legal regulation Poland ●●○ ●●○ → Norway ●●● ●○○ →	In some countries, exploration and production activities may be hindered by frequent and unexpected changes in legislation, which may give rise to particularly serious risks in countries with authoritarian regimes. The risk is low in Norway, given the country's stable legal regime governing the oil industry operations.
Political and economic situation PGNiG Group ●○○ ●○○ ↘	Some countries where the PGNiG Group is conducting exploration and production activities are threatened by conflicts and terrorist attacks, which may lead to limitation, suspension or even discontinuation of such activities. The PGNiG Group's operations are also exposed to the risk of social or political unrest in some regions. Changes of governments may result in withholding issuance of petroleum licences. Those countries are also at risk of internal conflicts and civil unrest due to poverty and demographic issues. If these risks materialise, the Company's operations may be limited, suspended or discontinued. In certain countries, operations of exploration companies may be hindered by the absence of adequate infrastructure, which may be an obstacle in transporting equipment, personnel and materials to the sites. Problems may also arise in providing supplies and ensuring appropriate health care. These risks may lead to limitation or suspension of the Company's exploration activities.
Opposition from local communities ●●● ●●○	In 2019, there were protests from residents of the areas where drilling work was being conducted. The reasons for the local communities' complaints included noise emitted by the drilling equipment, increased vehicle traffic and road destruction, as well as concerns about pollution of the natural environment (water, soil). Protests result in delays or suspension of drilling work, prolongation of administrative procedures and damage to the Company's image. In order to minimise the risk, the locations of wells are reviewed in terms of potential conflicts and dedicated information campaigns are conducted. It is increasingly more common that local communities expect to receive direct benefits.
Administrative regulation of natural gas prices and deregulation of the Polish gas market ●●● ●●● →	Gas trading on the exchange market has been excluded from the tariff regime. Prices of gas paid by end users have also been gradually liberalised as the process of deregulation advances. The first customer groups in respect of which the tariff requirement will be disapplied are wholesale and business customers. As regards gas trading on the Polish Power Exchange or direct sales to customers at prices similar to those quoted on the exchange, there is a risk that revenues from such sales will be lower than gas procurement costs due to the growing disconnect between the market prices of gas and of petroleum products, to which gas prices under the long-term import contracts continue to be linked. As a consequence, revenue is subject to forecasting risk. Inaccurate estimates of costs (particularly the cost of gas purchase) may result in a risk of miscalculation of selling prices and charges, which may adversely affect financial results. Dependence of PGNiG OD's revenue on tariffs approved by the President of URE is the key factor affecting the company's regulated business. Tariffs are crucial to the company's ability to generate revenue that would cover its reasonable costs and deliver a return on the capital employed. Currently, a significant portion of that revenue depends on the selling prices of gas fuel and is regulated. Inaccurate estimates of demand for gas (affecting the accuracy of projected purchase volumes) and changes in prices of gas purchased on the Polish Power Exchange, which cannot be accurately projected, may have an adverse effect on the financial performance of PGNiG OD.

Disruptions in gas supplies from countries east of Poland ●○○ ●○○ ↘	In 2019, there were no disruptions in gas supplies from across Poland's eastern border. However, due to the continuing fragile situation in Ukraine and the nearing expiry of the transit agreement between PAO Gazprom and NAK Naftogaz Ukraine at the end of 2019, there was a risk of limitations or suspension of natural gas supplies. PGNIG S.A. made preparations in case of suspension of gas supplies as of January 1st 2020. Eventually the transit agreement between Russia and Ukraine was signed and the continuity of gas supplies was maintained.
Take-or-pay gas supply contracts ●●● ●●○ ↗	PGNiG is a party to long-term take-or-pay contracts for gas supply to Poland, and takes care to duly discharge its obligations under those contracts. Assuming that PGNiG's customer portfolio remains unchanged, the volume of gas imports specified in the take-or-pay contracts will allow the Company to optimise its gas purchases under long-term and spot contracts, including for LNG. If PGNiG loses its market share, there is a risk that the Company would be forced to look for new ways to utilise the surplus volumes of gas in its portfolio.
Market development limitations in terms of supplying the distribution network ●●○ ●●○ ↗	Limitations at the entry points to the distribution system result from the limitations of the supply network and the insufficient capacity of gas stations. Consequently, the possibility of connecting new customers and gas network roll-out may be limited. In addition, end users may switch to direct or substitute competitors.
Absence of a long-term regulatory policy ●●● ●●● →	The risk is related to the lack of URE's approval for freezing the tariff prices. If the risk materialises, it may bring about reductions in tariff rates and difficulties in having each subsequent tariff approved. A protection against materialisation of this risk is the development of a regulatory and econometric model, subsequently agreed with URE.
Claims raised by property owners ●●○ ●●○ →	The risk arises from failure to secure a permanent legal title to property at the stage of project execution and property owners' higher awareness of the related legal aspects. The consequences of materialisation of the risk include excessive (above market prices) claims made by property owners, increase in litigation, litigation costs, claims for removal or alteration of infrastructure, as well as provisions and claims related to extra-contractual use of property.
Substitution ●●○ ●●○ →	The substitution risk is associated with a potential lower cost of using alternative fuels and with unavailability or insufficient capacity of the gas network. The risk may arise from the inability to use a wide range of marketing tools due to the nature of the business (separation of distribution and sales operations), from the direction of changes in the national energy policy, and from fuel prices on commodity exchanges. Materialisation of the substitution risk may result in constraints for the roll-out of the programme to connect new areas to the gas network or may affect revenue and volume growth. It may also impair the efficiency of the networks built.
Lower amount of EU funds allocated for financing gas distribution projects ●●● ●●● ↗	This risk may result from fund allocation priorities set by the institutions responsible for distribution of EU funding. Unfavourable fund allocation may result in unavailability of financing for submitted projects or in low efficiency of such projects.
Limitations on the contractors market ●●● ●●●	This risk may result from an insufficient number of qualified contractors, deteriorated competitiveness in the contractors market, and increase in the cost of labour, materials and services. Should this risk materialise, implementation of planned investment processes may be slower than expected.
Electricity price ●●● ●●● ↗	The volatility of electricity prices is one of the key risks affecting the Company's financial performance. Towards the end of 2019, there was a strong decline in electricity prices on the wholesale market. Sales of electricity are conducted by the Company in accordance with certain rules limiting exposure to periodic price volatility. In 2019, the adverse impact of lower prices on the results was mitigated by forward sales.
Acquired CO_2 emission allowances ●●● ●●● →	The Company purchases CO_2 emission allowances in quantities representing the difference between actual emissions and the emissions covered by free allowances it receives. In 2019, the prices of emission allowances were less volatile, after a significant increase in 2018. Purchases of CO_2 emission allowances are made subject to specific rules, in particular with respect to the time horizon of the purchase transactions and focus on performance.
Fuel prices ●●○ ●●● ↘	In 2019, the main feedstock used for generation purposes by PGNiG TERMIKA was coal, followed by biomass. The volatility of coal prices on the Polish market was not high in 2019, and in addition the Company used coal purchased under contracts executed in previous periods. Matching the timing of sales of electricity and certificates of origin with the timing of fuel purchases makes it possible to partly to mitigate the adverse impact of rising fuel prices on the Company's financial performance.
Coal procurement and supply ●○○ ●●● ↘	Coal is purchased by the Company mostly under contracts executed in advance to ensure that strategic coal stocks are maintained above the level required by the Regulation of the Minister of Economy. Coal transport services are purchased in accordance with the Public Procurement Law. The Company monitors and forecasts the performance of its contracts and the mandatory stock volumes.
Adapting to BAT requirements ●●○ ●○○ →	With installations adapted to meet the requirements expressly stated in the Industrial Emissions Directive (IED), the next step will be to ensure compliance with emission limits imposed under the decision establishing the BAT Conclusions for large combustion plants. The deadline for compliance is August 17th 2021 or, where an IED derogation applies to an installation, the end date of the relevant derogation period. An investment plan has been developed for the Company to ensure that the emission and technology requirements defined in the BAT Conclusions are duly met. The process of obtaining amendments to integrated permits in connection with the adaptation to the BAT requirements is in the final stage. Also, the implementation of the BAT Conclusions is monitored on an ongoing basis and any doubts as to their interpretation are clarified.

Regulatory risks

Table 60 Scope of changes and impact of significant regulatory risks on the PGNiG Group

Risks	Risk description
Obligation to diversify gas imports ●○○ ●○○ ↘	The Council of Ministers' Regulation of April 24th 2017 on the minimum level of diversification of foreign sources of gas supplies prescribes the maximum share of gas imported from a single country in total gas imports in a given year. In 2017–2022, the share may not exceed 70%. In view of the solutions adopted in the Regulation, the regulatory risk of its breach is low, as is the probability of its materialisation.
European Green Deal ●●● ●●●	At the time of the issue of the Communication on the European Green Deal, a very ambitious climate agenda of the new European Commission was presented. The Communication explicitly states that the European Commission will seek to phase out financing of fossil fuel infrastructure and to reduce the use of fossil fuels in the long term, in line with the climate neutrality objective.
New EU legislative package for the natural gas market ●●○ ●●●	The European Commission is currently carrying out analyses to identify regulatory gaps for the natural gas sector. The potential new gas package is to consist of regulations on the operation of the natural gas market in the European Union, and rules designed to accelerate the decarbonisation of the EU's natural gas sector. In this respect, a proposal of regulations is expected which will probably provide for preferential treatment of decarbonised/renewable gases.

Non-compliance risk

Table 61 Scope of changes and impact of non-compliance risk on the PGNiG Group

Non-compliance risk ●○○ ●●○	PGNiG has an organisationally and functionally separated Compliance unit. In line with the compliance risk management model, each area at risk of non-compliance was assigned a dedicated compliance risk area manager (leader), who is in charge of ensuring that compliance standards are met. Compliance risks (risks of breaching compliance standards) may arise in various areas and may materialise: • Immediately as fines, damages, compensation or other liabilities the Company may be required to pay, • as damage to the Company's image, which could also have its financial implications; • In the Company's operations and as a factor affecting the value for stakeholders, including shareholders. • As part of anti-corruption measures, the Company put in place the Anti-Corruption and Gift Policy of the PGNiG Group. In addition, the Ethics and Compliance Management System of the PGNiG Group was adopted, as a result of which the ethics and compliance areas were integrated in the Compliance Department. The Transparency Policy for Managers was introduced, with the principal objective of eliminating the risk of conflicts of interest and lack of transparency in decision-making processes within the Group. In 2019, the PGNiG Group revised and implemented the PGNiG Group's Code of Ethics, which is based on four values of the PGNiG Group: quality, reliability, responsibility and partnership. The Procedure for Reporting Cases of Misconduct and Handling the Reports at PGNIG S.A. was also adopted, setting out the rules for reporting violations of laws, procedures and ethical standards by employees, as well as the procedure for handling such reports. In 2019, the Company's compliance risk mapping process was carried out. The risk was assessed for individual areas of the compliance risk, while globally it was found to be low and medium.

Financial risks

PGNiG and the PGNiG Group are exposed to financial risks, including in particular:

- Credit risk ›For more information, see Note 7.3.1 to The consolidated financial statements of the PGNiG Group,
- Market risk ›For more information, see Note 7.3.2 to The consolidated financial statements of the PGNiG Group,
- Liquidity risk ›For more information, see Note 7.3.3 to The consolidated financial statements of the PGNiG Group.

7. PGNiG Group's non-financial statement

Pursuant to Art. 49b.9 of the Accounting Act of September 29th 1994, the Company announces that the PGNiG Group's non-financial statement is published as a separate document forming an integral part of the 2019 consolidated annual report, and will be available at http://www.en.pgnig.pl.

8. Additional information on the PGNiG Group

8.1 Agreements executed by PGNiG Group companies

8.1.1 Agreements material to the operations of the PGNiG Group

Agreements material to the operations of the PGNiG Group executed in 2019 included:

- Agreement on the acquisition of interests in the King Lear and Duva fields by PGNiG UN (for more information, see Section 4.1.3),
- Extended agreement with Grupa Azoty (for more information, see Section 4.2.2),
- Annex to the LNG supply contract with Venture Global Plaquemines LNG, LLC (for more information, see Section 4.2.2),
- Notice of termination of the Yamal Contract with effect from December 31st 2022 (for more information, see Section 4.2.2).

8.1.2 Material related-party transactions

In 2019, PGNiG and its subsidiaries did not enter into any material related-party transactions other than on an arm's length basis. For detailed information on related-party transactions, see Note 8.6 to The consolidated financial statements of the PGNiG Group for 2019.

8.2 Court proceedings

Table 62 Court proceedings

Parties to the proceedings	Subject of the dispute	Description of the case
Proceedings with respect to the obligation to sell natural gas through commodity exchange Parties to the proceedings: PGNiG, President of URE	failure to meet the exchange sale requirement in 2013 and 2014	On May 25th 2016, the President of URE instigated ex officio proceedings to impose a financial penalty on PGNiG for its failure to meet the exchange sale requirement in 2013. On June 17th 2016, acting under Art. 56.6a of the Energy Law, the Company filed a request for the President of URE to refrain from administering the penalty. As at the date of this Report, the proceedings were not concluded by the President of URE. On October 10th 2018, the Competition and Consumer Protection Court granted PGNIG S.A.'s appeal and reduced the administrative fine for failure to meet the exchange sale requirement in 2014 from PLN 15m to PLN 5m, and also cancelled the costs of first instance proceedings between the parties. On December 11th 2018, the Company appealed against this judgment.
Anti-trust proceedings instigated on December 28th 2010 Parties to the proceedings: PGNiG, President of UOKiK	alleged abuse by PGNiG of its dominant position on the domestic natural gas wholesale market, which consisted in inhibiting trade in natural gas against the interests of trading partners or consumers and in impeding the development of market conditions necessary for the emergence or development of competition by refusing to sell gas fuel under a comprehensive supply contract to a business entity that intended to resell the gas	On June 8th 2017, the Court of Appeals in Warsaw reversed the ruling of the Competition and Consumer Protection Court of May 12th 2014 and remanded the case for re-examination by that court. On October 10th 2019, the Competition and Consumer Protection Court again upheld the decision of the President of UOKiK and again imposed a fine on the Company, changing its amount to PLN 5,508,000. The Company filed an appeal with the Court of Appeals on November 28th 2019.
Anti-trust proceedings instigated on April 3rd 2013 Parties to the proceedings: PGNiG, President of UOKiK	alleged abuse by PGNiG of its dominant position on the domestic wholesale and retail gas fuel market, which consisted in impeding the development of market conditions necessary for the emergence or development of competition by: limiting the ability of business customers to reduce the contracted volumes of gas fuel and capacity, limiting the ability of business customers to resell gas fuel, requiring that business customers define the maximum volume of gas fuel purchased for resale in the contract, refusing to grant wholesale customers the right to a partial change of supplier.	On September 20th 2018, PGNiG filed a cassation appeal. In a letter dated October 10th 2018, the President of UOKiK replied to the cassation appeal. On January 22nd 2020, the Supreme Court dismissed the Company's cassation appeal relating to the imposition of a fine of PLN 10.4m and the costs of proceedings awarded to the President of UOKiK in the amount of PLN 360.

Proceedings concerning the OPAL pipeline Parties to the proceedings: PGNiG, General Court of the European Union PST, General Court of the European Union	inadmissibility of complaint; award of injunctive relief (administration of injunctive relief)	The complaint and the request for injunctive relief have been filed with the General Court of the European Union against the European Commission's decision of October 28th 2016 whereby the Commission allowed a revision to the exemption of the OPAL pipeline from the common gas market regulations (especially with respect to the Third Party Access (TPA) principle), in accordance with the text of the administrative decision issued by the German regulator – Federal Network Agency (Bundesnetzagentur), subject to modifications referred to in the Commission's decision. On December 4th 2019, the Court of Justice of the European Union dismissed the appeals lodged by PST and PGNiG, upholding the decision of the General Court of the EU and referring only to formal issues and not to the substantive analysis of the case. On December 4th 2019, the Court of Justice of the European Union also dismissed the appeal lodged by the Republic of Poland in the PST case, indicating that the decision of the General Court of the EU is irrelevant to the case initiated based on the Republic of Poland's complaint under Case No. T-883/16. The complaint and the request for injunctive relief filed with the Higher Regional Court of Düsseldorf (Oberlandesgericht Düsseldorf) are primarily against the administrative settlement between the German regulator, OPAL Gastransport GmbH & Co. KG, OAO Gazprom and OOO Gazprom Export, specifying the revised conditions for exemption of the OPAL pipeline from the common gas market regulations (in particular the TPA principle). On January 9th 2019, the German Federal Network Agency (Bundesnetzagentur) resumed proceedings concerning a previous decision issued in 2009 on the terms of the regulatory exemption of the Opal gas pipeline, and at the same time it suspended the proceedings. On January 28th 2019, PGNiG and PST filed a request to join in the proceedings. In its reply of February 25th 2019, the German regulatory authority stated that the request would be examined after the pending court proceedings had been closed. On September 13th 2019, the Federal Network Agency (Bundesnetzagentur) obliged the transmission system operator Opal Gastransport GmbH's to reduce gas flows in the Opal pipeline, thus responding to the judgment of the General Court of the EU of September 10th 2019 in Case No. T-883/16 initiated by the complaint of the Republic of Poland, declaring invalidity of the European Commission's decision of October 28th 2016 on the rules for using the Opal pipeline.

8.3 Detailed description of the PGNiG Group's structure and its changes

As at December 31st 2019, the PGNiG Group comprised 35 business entities, including:

- PGNiG as the parent,
- 32 production, trade and service companies and 2 mutual insurance companies, including:
    - 19 direct subsidiaries of PGNiG,
    - 15 indirect subsidiaries of PGNiG,

The parent

Name	Polskie Górnictwo Naftowe i Gazownictwo Spółka Akcyjna
Registered office	ul. Marcina Kasprzaka 25, 01-224 Warsaw, Poland
Court of registration	District Court for the Capital City of Warsaw, 16th Commercial Division (currently the Company is entered in the Business Register maintained by the District Court for the Capital City of Warsaw, 12th Commercial Division of the National Court Register)
National Court Register (KRS) No.	0000059492
Website	www.pgnig.pl
Investor Relations	ri@pgnig.pl

8.3.1 Detailed structure of the PGNiG Group

Table 63 List of the PGNiG Group subsidiaries as at December 31st 2019

No.	Company name	Share capital [in PLN, unless stated otherwise]	Value of shares held by PGNiG [in PLN, unless stated otherwise]	PGNiG's ownership interest (%, direct holdings)	PGNiG Group's ownership interest (%, direct and indirect holdings)
	Subsidiaries – first tier				
1	PGNiG GAZOPROJEKT S.A.	4,000,000	3,749,000	94%	94%
2	EXALO Drilling S.A.	981,500,000	981,500,000	100%	100%
3	GEOFIZYKA Kraków S.A. w likwidacji (in liquidation)	64,400,000	64,400,000	100%	100%
4	GEOFIZYKA Toruń S.A.	75,240,000	75,240,000	100%	100%
5	Geovita S.A.	113,407,782	113,407,782	100%	100%
6	Gas Storage Poland Sp. z o.o.	15,290,000	15,290,000	100%	100%
7	PGNiG Obrót Detaliczny Sp. z o.o.	625,307,815	625,307,815	100%	100%
8	PGNiG Serwis Sp. z o.o.	9,995,000	9,995,000	100%	100%
9	PGNiG Technologie S.A.	272,727,240	272,227,240	100%	100%
10	PGNiG TERMIKA S.A.	1,740,324,950	1,740,324,950	100%	100%
11	Polska Spółka Gazownictwa Sp. z o.o.	10,488,917,050	10,488,917,050	100%	100%
12	PGNiG Supply & Trading GmbH	EUR 10,000,000	EUR 10,000,000	100%	100%

13	PGNiG Upstream Norway AS	1,100,000,000 NOK	1,100,000,000 NOK	100%	100%
14	PGNiG Upstream North Africa B.V.	EUR 20,000	EUR 20,000	100%	100%
15	GAS-TRADING S.A.	2,975,000	1,291,350	43.41%	79.58%[2)]
16	PGNiG Ventures Sp. z o.o.	1,240,000	1,240,000	100%	100%
17	PGNiG SPV 6 Sp. z o.o.	51,381,000	51,381,000	100%	100%
18	PGNiG SPV 7 Sp. z o.o.	250,000	250,000	100%	100%
19	Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych	40,000,000	40,000,000	100%	100%
	Subsidiaries – second tier				
20	PGNiG TERMIKA Energetyka Przemysłowa S.A.	370,836,300	370,836,300	-	100%[9)]
21	GAZ Sp. z o.o.	300,000	300,000	-	100%[3)]
22	PSG Inwestycje Sp. z o.o.	81,131,000	81,131,000	-	100%[3)]
23	Oil Tech International F.Z.E.	USD 20,000	USD 20,000	-	100%[4)]
24	EXALO DRILLING UKRAINE LLC	EUR 20,000	EUR 20,000	-	100%[4)]
25	PST Europe Sales GmbH	EUR 1,000,000	EUR 1,000,000	-	100%[5)]
26	Ośrodek Badawczo-Rozwojowy Górnictwa Surowców Chemicznych CHEMKOP Sp. z o.o.	3,000,000	2,565,350	-	85.51%[6)]
27	CIFL Sp. z o.o.	1,360,000	1,360,000	-	100%[7)]
28	Gas-Trading Podkarpacie Sp. z o.o.	6,670,627	5,257,524	-	78.82%[8)]
29	PGNiG Serwis Doradztwo Ubezpieczeniowe Sp. z o.o.	5,000	5,000		100%[1)]
30	PGNiG TERMIKA Energetyka Rozproszona Sp. z o.o.	13,550,000	13,550,000		100%[9)]
31	Zakład Gospodarki Mieszkaniowej Sp. z o.o.	1,806,500	1,806,500	-	100%[4)]
32	Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych na Życie	20,000,000	20,000,000	100%	100%[12)]
	Subsidiaries – third tier				
33	XOOL GmbH	EUR 500,000	EUR 500,000	-	100%[10)]
34	SEJ-Serwis Sp. z o.o.	200,000	200,000	-	100%[11)]

1) PGNiG's interest held indirectly through PGNiG Serwis Sp. z o.o.
2) PGNiG's direct interest is 43.41%, with a 36.17% interest held indirectly through PGNiG SPV 6 Sp. z o.o.
3) PGNiG's interest held indirectly through Polska Spółka Gazownictwa Sp. z o.o.
4) PGNiG's interest held indirectly through EXALO Drilling S.A.
5) PGNiG's interest held indirectly through PGNiG Supply & Trading GmbH.
6) PGNiG's interest held indirectly through Gas Storage Poland Sp. z o.o.
7) PGNiG's indirect interest is 100%: 99.98% is held through PGNiG SPV 6 Sp. z o.o. and 0.02% through PGNiG Ventures Sp. z o.o.
8) PGNiG's interest held indirectly through GAS TRADING S.A.
9) PGNiG's interest held indirectly through PGNiG TERMIKA S.A.
10) PGNiG's interest held indirectly through PGNiG Supply & Trading GmbH and PST Europe Sales GmbH.
11) PGNiG's interest held indirectly through PGNiG TERMIKA S.A. and PGNiG TERMIKA Energetyka Przemysłowa S.A. (100%).
12) PGNIG 's interest held indirectly through Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych.

8.3.2 Other ownership interests and organisational links

Table 64 List of the PGNiG Group jointly controlled entities and associates as at December 31st 2019

No.	Company name	Share capital	Value of shares held by PGNiG	PGNiG's ownership interest (%, direct holdings)	PGNiG Group's ownership interest (%, direct and indirect holdings)
	Jointly controlled entities and associates – first tier				
1	SGT EUROPOL GAZ S.A.	80,000,000	38,400,000	48.00%	51.18%[1)]
2	PFK GASKON S.A.	13,061,325	6,000,000	45.94%	45.94%
3	ZWUG INTERGAZ Sp. z o.o.	4,700,000	1,800,000	38.30%	38.30%
4	Dewon ZSA	UAH 11,146,800	UAH 4,055,205.84	36.38%	36.38%
	Jointly controlled entities and associates – second tier				
5	Zakład Separacji Popiołów Siekierki Sp. z o.o.	10,000,000	7,000,000	-	70%[2)]
6	Elektrociepłownia Stalowa Wola S.A.	28,200,000	14,100,000	-	50%[2)]
7	Polska Grupa Górnicza S.A.	3,916,718,200	800,000,000	-	20.43%[2)]
8	Polimex-Mostostal S.A.	473,237,604	78,000,048	-	16.48%[3)]
	Jointly controlled entities and associates– third and fourth tier				
9	Śląskie Centrum Usług Wspólnych Sp. z o.o.	10,835,000	2,213,591	-	20.43%[4)]
10	Górnośląska Spółka Brokerska Sp. z o.o.	55,000	11,237	-	20.43%[5)]

1) PGNiG's direct interest is 48.00%, with an indirect interest held through GAS-TRADING S.A.
2) PGNiG's interest held indirectly through PGNiG TERMIKA S.A.
3) PGNiG's interest held indirectly through PGNiG Technologie S.A.
4) PGNiG's interest held indirectly through PGNiG TERMIKA S.A. and Polska Grupa Górnicza S.A.
5) PGNiG's interest held indirectly through PGNiG TERMIKA S.A., Polska Grupa Górnicza S.A. and Śląskie Centrum Usług Wspólnych Sp. z o.o.

Equity investments outside the group of related entities

In 2019, the PGNiG Group made no material equity investments outside the group of related entities. As at the end of 2019, the total par value of PGNiG's equity interests held outside the group of related entities was PLN 21.3m. As at the end of 2019, the total par value of the PGNiG Group's (PGNiG's and the PGNiG Group companies') equity interests held outside the group of related entities was PLN 51.4m.

8.3.3 Changes in the PGNiG Group structure

Table 65 Changes in the PGNiG Group shareholding structure in 2019

Transaction type/Company	Transaction date	% of total voting rights after the transaction
Share capital increase		
PGNiG Upstream Norway AS	Oct 7 2019	100%
PGNiG Ventures sp. z o.o.	Dec 31 2019	100%
Change of company name		
From PGNiG SPV 5 Sp. z o.o. to PGNiG Ventures Sp. z o.o.	Dec 31 2019	100%
Company formation		
Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych na Życie	Nov 22 2019	100%
Other changes		
Liquidation – PGNiG Finance AB i likvidation	Apr 4 2019	0%
Deletion from the National Court Register – Przedsiębiorstwo Inwestycyjne GAZOTECH Sp. z o.o.	May 24 2019	0%
Termination of legal existence – Sahara Petroleum Technology Llc w likwidacji (in liquidation)	Sep 16 2019	0%

8.4 PGNiG treasury shares and shares in PGNiG Group companies held by members of the management and supervisory bodies

Table 66 PGNiG shares held by members of its management and supervisory bodies as at December 31st 2019

Full name	Position	Number of shares/voting rights as at Dec 31 2018	Par value of shares (PLN)	Number of shares/voting rights as at Dec 31 2019	Par value of shares (PLN)
Mieczysław Kawecki	Member of the Supervisory Board	9,500	9,500	9,500	9,500
Stanisław Sieradzki	Member of the Supervisory Board	17,225	17,225	17,225	17,225

As at the date of this Report, PGNiG was not aware of any agreements which could lead to future material changes in the equity interests held in the Company by its existing shareholders. In 2019, the Company did not acquire any of its own shares.

8.5 Employee share option plans control system

On June 26th 2008, the disposal by the Minister of State Treasury of one PGNiG share in accordance with general trading rules triggered the eligible employees' rights to acquire a total of up to 750,000,000 PGNiG shares free of charge. First share transfer agreements were executed on April 6th 2009 and the eligible employees' rights to acquire PGNiG shares free of charge expired on October 1st 2010. As at December 31st 2019, nearly 60 thousand eligible employees acquired 728,294 thousand shares. The Company shares acquired by eligible employees free of charge were subject to a lock-up until July 1st 2010, while trading in shares acquired free of charge by members of the Company's Management Board was restricted until July 1st 2011.

As at December 31st 2018, 728,293,842 PGNiG shares, representing 12.60% of the share capital and total voting rights at the General Meeting, were distributed among 59,256 of the 61,516 eligible employees.

8.6 Events subsequent to the reporting date

January 2020
• January 9th: appointment of the President and members of the Management Board by the PGNiG Supervisory Board • January 9th: satisfaction of the condition precedent to the agreement whereby PGNiG UN purchased an interest in the Duva field from Pandion Energy
February 2020
• February 25th: Notice of Extraordinary General Meeting of PGNIG to be held on March 25th 2020 • February 27th: Appointment of Ms Magdalena Zegarska as Vice President of the PGNiG Management Board

Definitions

Abbreviations and acronyms	Meaning
Proper names of companies and branches	
PGNiG, the Company, the Issuer	PGNiG S.A. as the parent of the group of companies
PGNiG Group	the PGNiG Group consisting of PGNiG SA as the parent and the subsidiaries
CLPB	PGNiG Central Measurement and Testing Laboratory Branch
ECSW	Elektrociepłownia Stalowa Wola S.A.
EXALO	EXALO Drilling S.A.
Gazoprojekt	PGNiG GAZOPROJEKT S.A.
Geofizyka Kraków	GEOFIZYKA Kraków Sp. z o.o. w likwidacji (in liquidation)
Geofizyka Toruń	GEOFIZYKA Toruń Sp. z o.o.
GEOVITA	GEOVITA S.A.
GSP	Gas Storage Poland Sp. z o.o.
PGG	Polska Grupa Górnicza S.A.
PGNiG OD	PGNiG Obrót Detaliczny Sp. z o.o.
PGNiG Technologie	PGNiG Technologie Sp. z o.o.
PGNiG TERMIKA	PGNiG TERMIKA S.A.
PGNiG TERMIKA EP	PGNiG TERMIKA Energetyka Przemysłowa S.A.
PGNiG UN	PGNiG Upstream Norway AS
PGNiG UNA	PGNiG UPSTREAM NORTH AFRICA B.V.
Polski Gaz TUW	Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych
PSG	Polska Spółka Gazownictwa Sp. z o.o.
PST	PGNiG Supply & Trading GmbH
PST ES	PST Europe Sales GmbH
Names of institutions, capital market entities and energy markets	
EIA	*Energy Information Administration* (US)
EEX	*European Energy Exchange AG* (Germany)
Henry Hub	Hub /price area in the United States
GASPOOL	*GASPOOL Balancing Services GmbH* – hub/price area in Germany
GAZ-SYSTEM	Operator Gazociągów Przesyłowych GAZ-SYSTEM S.A.
WSE	Warsaw Stock Exchange (Giełda Papierów Wartościowych w Warszawie S.A.);
KRS	National Court Register
NCG	*NetConnect Germany GmbH & Co. KG* – hub/price area in Germany
NBP	*National Balancing Point* – hub/price area in the UK
LNG terminal	the President Lech Kaczyński LNG Terminal in Świnoujście
POLPX	Polish Power Exchange (Towarowa Giełda Energii S.A.)
TTF	*Title Transfer Facility* – hub/price area in the Netherlands
URE	Polish Energy Regulatory Office
Units of measure	
bbl	1 barrel of crude oil
boe	barrel of oil equivalent;
km	linear kilometre
LNG	liquefied natural gas
Nm3	normal cubic meter of gas
MWt	1 megawatt thermal
MWe	1 megawatt electrical
NGL	natural gas liquids - gas composed of molecules heavier than methane: ethane, propane, butane, isobutane, etc.
PJ	1 petajoule
TWh	1 terawatt hour
Economic and financial metrics	
EBIT	earnings before interest and taxes
EBITDA	earnings before interest, taxes, depreciation and amortisation
Adjusted EBITDA	EBITDA adjusted for impairment losses on non-current assets
EV	enterprise value
P/BV	price/book value
P/E	price/earnings
ROA	return on assets
ROE	return on equity
Net margin	net profit to revenue
Other	
HP	heat plant
CHPP	CHP plant
SFG	Storage Facilities Group
SF	storage facilities
CGSF	cavern gas storage facility
NWZ	Extraordinary General Meeting (of a joint stock company)
NZW	Extraordinary General Meeting (of a limited liability company)
UGSF	underground gas storage facility
WZ	General Meeting of Shareholders (of a joint stock company)
ZW	General Meeting of Shareholders (of a limited liability company)
Currencies used	
PLN	amounts expressed in the Polish zloty
euro, EUR	amounts expressed in the euro
US dollar, USD	amounts expressed in the US dollar
NOK	amounts expressed in the Norwegian crown
SEK	amounts expressed in the Swedish crown
UAH	amounts expressed in the Ukrainian hryvnia

Converters

Converters	1 bcm of natural gas	1m tonnes of crude oil	1m tonnes of LNG	1 PJ	1 mboe	1 TWh
1 bcm of natural gas	1	0.90	0.73	38	6.45	10,972
1m tonnes of crude oil	1,113	1	0.81	42.7	7.5 - 7,8*	11.65
1m tonnes of LNG	1.38	1.23	1	55	8.68	14.34
1 PJ	0,026	0.23	0,019	1	0.17	0.28
1 mboe	0.16	0,128 - 0,133*	0.12	6.04	1	1.70
1 TWh	0,091	0,086	0.07	3.6	0.59	1

** The converter is different for crude oil produced in Poland and Norway.*

Table

List of Charts

List of Figures

9. Representation of the PGNiG Management Board and authorisation of the report

The Management Board of PGNiG represents that to the best of its knowledge this Directors' Report on the operations of PGNiG S.A. and the PGNiG Group gives a fair view of the Company's and the Group's condition and includes a description of key threats and risks.

PGNiG Management Board:

President of the Management Board	Jerzy Kwieciński	*Signed with qualified electronic signature*
Vice President of the Management Board	Robert Perkowski	*Signed with qualified electronic signature*
Vice President of the Management Board	Arkadiusz Sekściński	*Signed with qualified electronic signature*
Vice President of the Management Board	Przemysław Wacławski	*Signed with qualified electronic signature*
Vice President of the Management Board	Jarosław Wróbel	*Signed with qualified electronic signature*
Vice President of the Management Board	Magdalena Zegarska	*Signed with qualified electronic signature*

Warsaw, March 10th 2020

Translation

This document is an English version of the original Polish version. In case of any discrepancies between the Polish and English version, the Polish version shall prevail.