PGNiG

Polskie Górnictwo Naftowe i Gazownictwo S.A.

Directors' Report on the operations
of PGNiG Group and PGNiG S.A. for 2021

2021

THE PGNIG GROUP **IN 2021**

PLN 70 bn
IN REVENUE

PLN 6.0 bn
IN NET PROFIT

PLN 101.6 bn
IN TOTAL ASSETS

PLN 15.6 bn
IN EBITDA

3.
POLAND'S THIRD LARGEST COMPANY LISTED ON THE WSE*

24.5 thousand
EMPLOYEES

PLN 11.6 bn
IN EBIT

PLN 36.4 bn
IN MARKET CAPITALISATION

PLN 25.7 m
IN AVERAGE DAILY TRADING VALUE

* IN TERMS OF MARKET CAPITALISATION AS AT DECEMBER 31ST 2021.

EXPLORATION AND PRODUCTION

PLN 13,530 m
EBITDA

1,080.1 m boe
OIL AND GAS RESERVES

1.4 m tonnes
CRUDE OIL, CONDENSATE AND NGL PRODUCTION

200+
NUMBER OF PRODUCTION LICENCES

5.4 bcm
NATURAL GAS PRODUCTION

TRADE AND STORAGE

PLN -1,702 m
EBITDA

11.6 bcm
VOLUME OF GAS SOLD VIA EXCHANGE

33.5 bcm
VOLUME OF THE GROUP'S GAS SALES (TO NON-PGNIG GROUP CUSTOMERS)

16.1 bcm
NATURAL GAS IMPORTS

3.2 bcm
SEGMENT'S OWN STORAGE CAPACITIES

DISTRIBUTION

PLN 2,893 m
EBITDA

1 697
NUMBER OF MUNICIPALITIES WITH ACCESS TO GAS SUPPLIES

7.4 m
NUMBER OF CUSTOMERS

13.1 bcm
VOLUME OF GAS DISTRIBUTED (IN NATURAL UNITS)

200.7 thousand km
DISTRIBUTION NETWORK LENGTH (INCLUDING CONNECTIONS TO END CUSTOMERS)

GENERATION

PLN 1,134 m
EBITDA

6.0 GW_t
THERMAL POWER

41.2 PJ
HEAT OUTPUT

1.8 GW_e
ELECTRIC POWER

3.5 TWh
ELECTRICITY OUTPUT

Financial highlights of the PGNiG Group and PGNiG

Table 1 Financial highlights of the PGNiG Group for 2020 and 2021

Key data from the consolidated financial statements	PLNm		EURm	
	12 months ended December 31st 2021	12 months ended December 31th 2020	12 months ended December 31st 2021	12 months ended December 31th 2020
Revenue	69,964	39,197	15,284	8,761
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	15,593	13,009	3,406	2,908
Operating profit (EBIT)	11,562	9,585	2,526	2,142
Profit before tax	10,982	9,025	2,399	2,017
Net profit attributable to owners of the parent	6,014	7,340	1,314	1,641
Net profit	6,014	7,340	1,314	1,641
Total comprehensive income attributable to owners of the parent	3,240	6,285	708	1,405
Total comprehensive income	3,240	6,285	708	1,405
Net cash from operating activities	3,470	14,118	758	3,155
Net cash from investing activities	(8,092)	(6,254)	(1,768)	(1,398)
Net cash from financing activities	8,628	(3,653)	1,885	(816)
Net cash flows	4,006	4,211	875	941
Basic and diluted earnings per share (in PLN and EUR, respectively)	1.04	1.27	0.23	0.28

Key data from the consolidated financial statements	PLNm		EURm	
	As at December 31st 2021	As at December 31st 2020	As at December 31st 2021	As at December 31st 2020
Total assets	101,576	62,871	22,085	13,624
Total liabilities	57,197	18,746	12,436	4,062
Non-current liabilities	20,107	11,666	4,372	2,528
Current liabilities	37,090	7,080	8,064	1,534
Total equity	44,379	44,125	9,649	9,562
Share capital	5,778	5,778	1,256	1,252
Weighted average number of ordinary shares (million)	5,778	5,778	5,778	5,778
Book value per share and diluted book value per share (PLN/EUR)	7.68	7.64	1.68	1.65
Dividend per share declared or paid (PLN and EUR)	0.21	0.09	0.05	0.02

Table 2 Financial highlights of PGNiG for 2020 and 2021

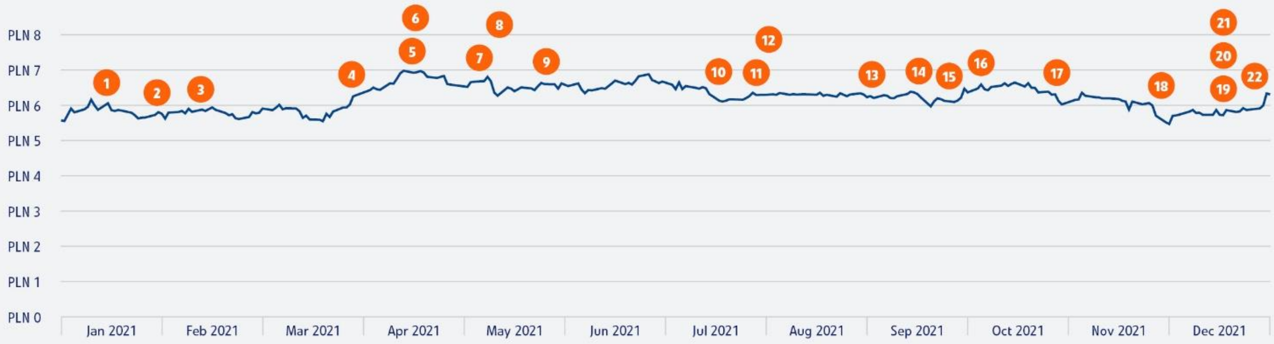
Key data from the separate financial statements	PLNm		EURm	
	12 months ended December 31st 2021	12 months ended December 31th 2020	12 months ended December 31st 2021	12 months ended December 31th 2020
Revenue	36,768	21,237	8,032	4,747
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	6,693	8,714	1,462	1,948
Operating profit (EBIT)	5,849	7,895	1,278	1,765
Profit before tax	6,264	8,490	1,368	1,898
Net profit	5,121	6,909	1,119	1,544
Total comprehensive income	2,327	5,900	508	1,319
Net cash from operating activities	(2,607)	9,394	(570)	2,100
Net cash from investing activities	361	(2,794)	79	(624)
Net cash from financing activities	8,714	(3,591)	1,904	(803)
Net cash flows	6,468	3,009	1,413	673
Earnings and diluted earnings per share attributable to holders of ordinary shares (PLN/EUR)	0.89	1.20	0.19	0.27

Key data from the separate financial statements	PLNm		EURm	
	As at December 31st 2021	As at December 31st 2020	As at December 31st 2021	As at December 31st 2020
Total assets	69,690	43,746	15,152	9,480
Total liabilities	34,120	7,516	7,418	1,629
Non-current liabilities	7,270	3,871	1,580	839
Current liabilities	26,850	3,645	5,838	790
Equity	35,570	36,230	7,734	7,851
Share capital and share premium	7,518	7,518	1,635	1,629
Weighted average number of shares (million) in the period	5,778	5,778	5,778	5,778
Book value per share and diluted book value per share (PLN/EUR)	6.16	6.27	1.34	1.36
Dividend per share declared or paid (PLN and EUR)	0.21	0.09	0.05	0.02

Table 3 Average exchange rates

Average EUR/PLN exchange rates quoted by the NBP	December 31st 2021	December 31st 2020
Average exchange rate for period	4.5775	4.4742
Exchange rate at end of period	4.5994	4.6148

CALENDAR OF EVENTS **2021**



Q1

1 **JANUARY 13TH**
President of URE's decision leading to a 3.6% increase in PSG Distribution Tariff prices and network rates

2 **JANUARY 29TH**
Expiry of exclusive negotiation period for acquisition of TAURON Ciepło Sp. z o.o.

3 **FEBRUARY 10TH**
PGNiG's withdrawal from participation in acquisition of CEZ's Polish assets

4 **MARCH 25TH**
Execution of a conditional agreement for the acquisition of INEOS E&P Norge AS by PGNiG UN

Q2

5 **APRIL 14TH**
UOKiK's clearance of the establishment of joint venture CCGT Ostrołęka by PGNiG, PKN ORLEN and Energa

6 **APRIL 15TH**
President of URE's decision leading to a 5.6% increase in the price of gas fuel in PGNiG OD Retail Tariff

7 **MAY 5TH**
Signing of a letter of intent with ORLEN Południe concerning a possible joint project in biomethane

8 **MAY 12TH**
Conclusion of cooperation agreement between PKN ORLEN, Grupa LOTOS, PGNiG and the State Treasury – Minister of State Assets, regarding the scenario for PKN ORLEN's acquisition of control over Grupa LOTOS and PGNiG

9 **MAY 25TH**
PGNiG Management Board's recommendation regarding payment of dividend of PLN 0.21 per share from 2020 profit

Q3

10 **JULY 16TH**
President of URE's decision leading to a 12.4% increase in the price of gas fuel in PGNiG OD Retail Tariff

11 **JULY 27TH**
Execution of agreements setting out the key terms and conditions of amendments to the contracts for supply of liquefied natural gas from Venture Global LNG

12 **AUGUST 2ND**
Execution of a letter of intent concerning potential disposal by the Tauron Group to the PGNiG Group of its equity interest in ECSW

13 **SEPTEMBER 2ND**
Execution of amendments to the contracts for supply of liquefied natural gas from Venture Global LNG, increasing the volume of deliveries to PGNiG to 7.4 bcm per year

14 **SEPTEMBER 16TH**
President of URE's decision leading to a 7.4% increase in the price of gas fuel in PGNiG OD Retail Tariff

15 **SEPTEMBER 24TH**
Satisfaction of conditions precedent and conditions for the acquisition by PGNiG Upstream Norway AS of control over INEOS E&P Norge AS under the relevant agreement

Q4

16 **OCTOBER 8TH**
Submission by PGNiG to the President of UOKiK of an application constituting a notification of intended concentration in connection with the planned acquisition of control of PGNiG by PKN ORLEN

17 **OCTOBER 28TH**
Submission of a letter amending the request to renegotiate the contract price of natural gas supplied by PAO Gazprom and OOO Gazprom Export

18 **NOVEMBER 29TH**
Execution of an amendment to the investment agreement on general rules of cooperation in the construction of Ostrołęka C Power Plant

19 **DECEMBER 17TH**
President of URE's decision leading to an 83.7% increase in the price of gas fuel in PGNiG OD Retail Tariff

20 **DECEMBER 17TH**
Execution of credit facility agreements with Bank Gospodarstwa Krajowego, PKO Bank Polski S.A. and CaixaBank S.A. Polish Branch for a total amount of PLN 2.7 bn

21 **DECEMBER 17TH**
President of URE's decision leading to a 3.6% increase in PSG Distribution Tariff prices and network charges

22 **DECEMBER 21ST**
PGNiG's withdrawal from participation in acquisition of CEZ's Polish assets

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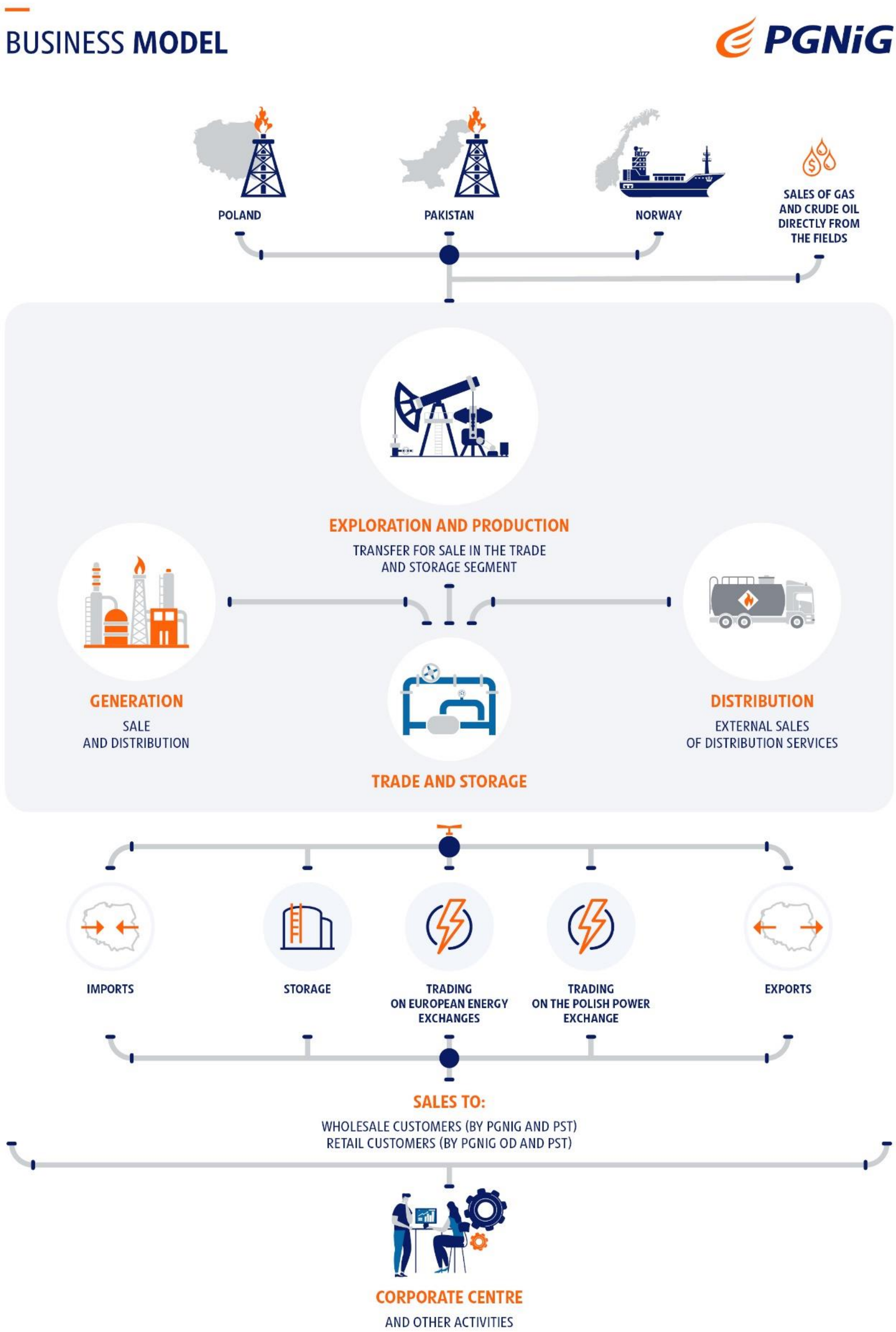
1. Business model and organisation of the PGNiG Group

1.1 PGNiG Group's business and business model

Figure 1 PGNiG Group’s business model

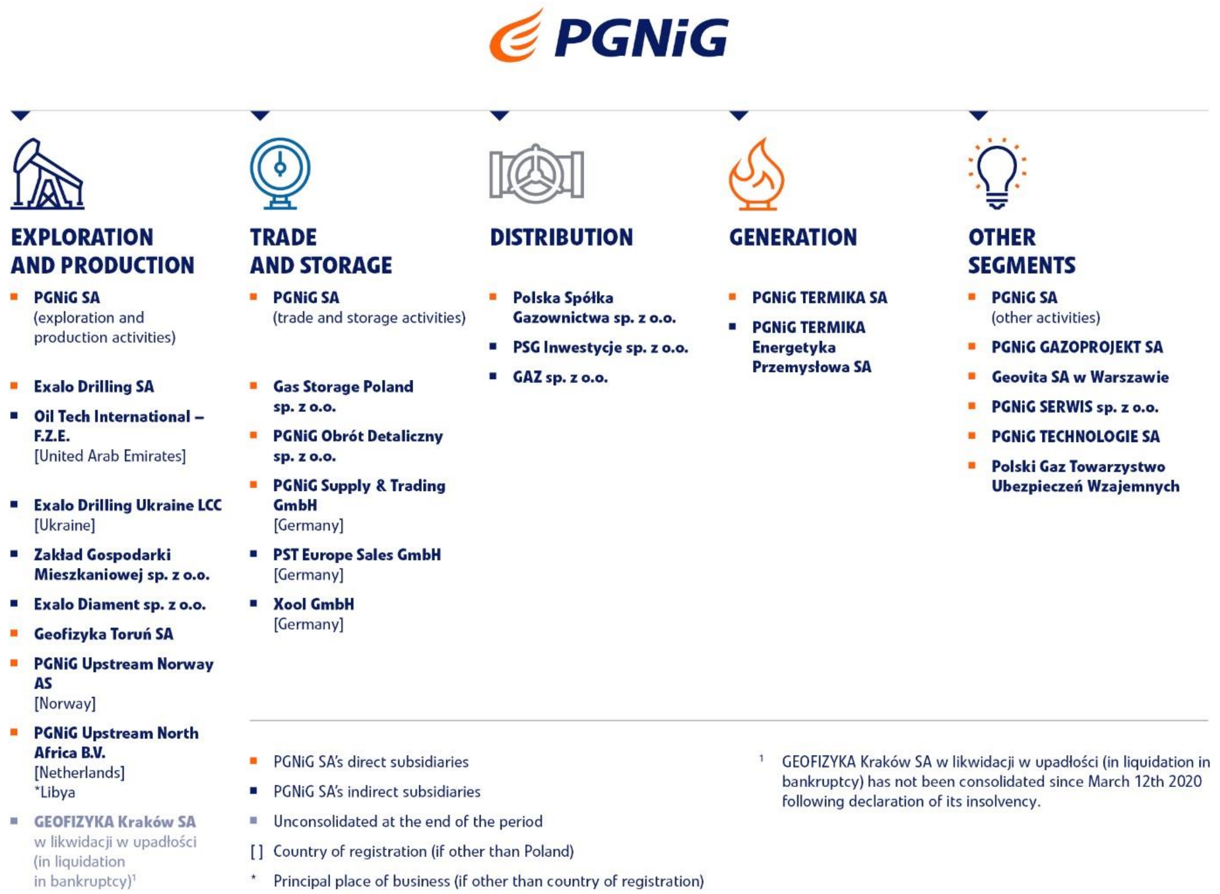


(in PLN million, unless stated otherwise)

1.2 Organisation of the PGNiG Group

As at December 31st 2021, PGNiG (the parent) and 23 subsidiaries were consolidated using the full method. 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 PGNiG shareholding structure and shares on the WSE

1.3.1 Shareholding structure

As at December 31st 2021, the share capital of PGNiG was approximately PLN 5.78bn.

Table 4 Shareholding structure as at December 31st 2021

Shareholders	Number of shares/voting rights as at December 31st 2020	Percentage ownership/voting interest in the Company as at December 31st 2020	Change in 2021	Number of shares/voting rights as at December 31st 2021	Percentage of share capital/voting rights at GM as at December 31st 2021
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%

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

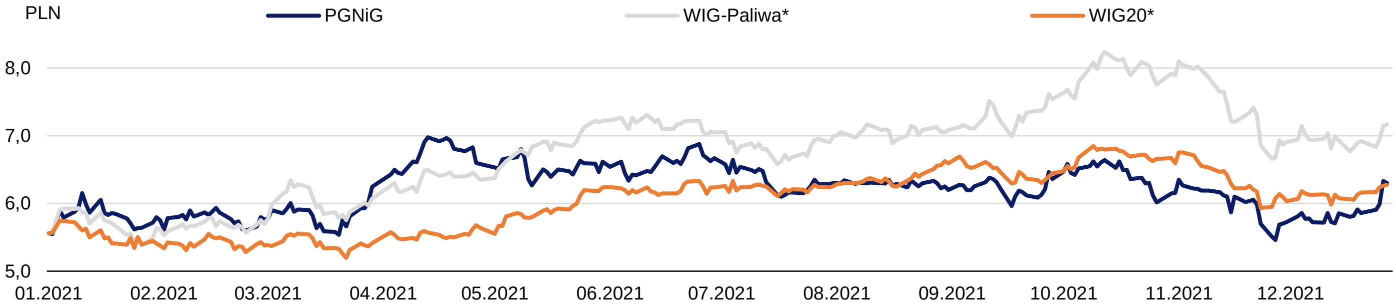
1.3.2 Price performance of the PGNiG shares

Since September 23rd 2005, the PGNiG shares have been listed in the continuous trading system of the main market on the Warsaw Stock Exchange. The issue price per share in the Company's public offering was PLN 2.98. In 2021, PGNiG shares were included in the following indices: WIG, WIG20, WIG30, WIG-Poland, WIG-ESG, WIGdiv, WIG-PALIWA sectoral index and WIG. MS-PET macrosectoral index.

(in PLN million, unless stated otherwise)

In 2021, the annual rate of return on Company shares, net of dividend, was 13%. Over the same period, the sectoral index WIG PALIWA and the blue-chip index WIG20, yielded rates of return of 29% and 13%, respectively. The PGNiG share price movements ranged from -12% (the lowest closing price of PLN 5.46 on November 30th 2021) to +12% (the highest closing price of PLN 6.98 on April 14th 2021) relative to the 2021 average closing price of PLN 5.46. To compare, the range of movements of the WIG20 index was from -14% (year low of 1,876.85 points on March 25th 2021) to +14% (year high of 2,472.33 points on October 12th 2021) relative to the 2021 average.

Chart 1 PGNiG share price vs WIG20 and WIG-Paliwa in 2021



Source: WSE – Warsaw Stock Exchange.
** Rebased to PGNiG share price.*

1.3.3 Stock exchange indicators

Table 5 PGNiG share data for 2017–2021

Key metrics	Unit	2021	2020	2019	2018	2017	2021/2020 change (%)
Net profit attributable to owners of the parent	PLNm	6,014	7,340	1,371	3,209	2,923	-16%
Earnings per share[1]	PLN	1.04	1.27	0.24	0.56	0.51	-16%
Share price at the close of the last session of the year	PLN	6.3	5.54	4.33	6.91	6.29	14%
Average stock price in the year[2]	PLN	6.2	4.4	5.59	6.12	6.33	41%
Number of shares outstanding	million shares	5,778	5,778	5,778	5,778	5,778	-
Capitalisation at year end	PLNm	36,401	32,023	25,019	39,928	36,346	14%
Average daily trading volume	million shares	4.15	5.83	5.02	3.9	3.5	-29%
Average daily trading value	PLNm	25.75	24.45	27.62	24.2	21.7	5%
Dividend[3]	PLNm	1,213	520	1,040	-	1,156	133%
Stock ratios[2]							
P/E at average share price	-	5.79	3.46	23.56	11.02	12.52	67%
P/E at year end	-	5.89	4.36	18.25	12.44	12.44	35%
P/BV at year end	-	0.36	0.73	0.66	1.09	1.08	-51%
EV/EBITDA	-	2.54	2.69	5.22	5.58	5.59	-6%
Dividend per share[3]	PLN	0.21	0.09	0.18	-	0.2	133%

Source: WSE – Warsaw Stock Exchange (Giełda Papierów Wartościowych w Warszawie S.A.)
1) Attributable to holders of ordinary shares in the parent.
2) Share price at close.
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 PGNiG Investor Relations

In 2021, in the performance of its disclosure obligations, PGNiG published 52 current reports, including reports on: amendments to trade contracts, execution of letters of intent, acquisition and merger processes, administrative decisions, as well as operating and financial results.

The Company held four public teleconferences (for analysts and investors) and press conferences following each release of its periodic reports. It also prepared an integrated report for 2020, presenting a wealth of information on the oil and gas market and the PGNiG Group growth initiatives. In 2021, representatives of PGNiG held close to 30 meetings with investors and stock analysts, mostly in the form of video conferences.

As part of the 'Best Annual Report 2020' competition, in October 2021 PGNiG was ranked among the 'Best of the Best' group of entities whose financial reporting is a benchmark and may serve as an example of good practices in communication with stakeholders. The competition was organised by the Institute of Accountancy and Taxes.

INVESTOR CALENDAR **2022**

Q1

JANUARY 10TH–11TH 2022
Citi – Citi's Emerging Europe Conference

MARCH 22ND–24TH 2022
BM PKO BP – CEE Capital Markets Conference 2022

MARCH 24TH 2022
Issue of the annual report for 2021

Q2

APRIL 20TH–22ND 2022
Raiffeisen CENTROBANK, RCB's Investor Conference, Zürs 2022

MAY 19TH 2022
Issue of the Q2 2022 report

Q3

AUGUST 18TH 2022
Issue of the H1 2022 report

SEPTEMBER 5TH–6TH 2022
BM Pekao BP – 19th Annual Emerging Europe Investment Conference

Q4

NOVEMBER 17TH 2022
Issue of the Q3 2022 report

DECEMBER 5TH–9TH 2022
Wood&Company – 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.

Table 6 Dividend from net profits for 2014–2020

	2020	2019	2018	2017	2016	2015	2014
Dividend for financial year (PLNbn)	1.21	0.52	1.04	-	1.16	1.06	1.18
Dividend per share (PLN)	0.21	0.09	0.18	-	0.2	0.18	0.2
Average annualised share price (PLN)	4.4	5.59	6.12	6.33	5.16	5.94	4.85
Dividend yield*	4.77%	1.61%	2.94%	-	3.88%	3.03%	4.12%

** Dividend yield – dividend per share divided by the average annual share price.*

On July 9th 2021, the Annual General Meeting of PGNiG, acting in line with the recommendation of the PGNiG Management Board of May 25th 2021, resolved to distribute PLN 6,908,548,870.60, comprising PGNiG S.A.'s net profit for 2020 of PLN 6,908,551,193.11 and accumulated loss brought forward of PLN 2,322.51 resulting from correction of prior period, as follows:

- PLN 1,213,446,119.97 was to be distributed to the Company's shareholders as dividend (PLN 0.21 per share);
- PLN 5,695,102,750.63 was to be transferred to PGNiG's statutory reserve funds.

The Annual General Meeting of PGNiG also set the dividend record date for July 19th 2021 and the dividend payment for August 3rd 2021.

Since its IPO, PGNiG has paid a total dividend of PLN 1.29 per share. The absolute rate of return on the shares since the IPO, including dividends, was 155% as at the end of 2021.

(in PLN million, unless stated otherwise)

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	**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 a sharp rise in oil prices, higher gas prices and expansion of the LNG market

The second half of 2021 saw unprecedented rises in natural gas prices across the markets. At its peak, the spot price was 18.3x higher than the average price of 2020 and 12.6x higher than the average price of 2019. On December 21st 2021, the price of gas at TTF reached a record high of EUR 180/MWh. Other factors behind the price increases included a decline in gas production from European fields (in the UK, Netherlands and Norway) and strong demand for LNG (especially on the Chinese and Brazilian markets).

In 2021, natural gas prices in Europe rose on average by 385% year on year (based on prices recorded at TTF, THE/GPL, NBP and POLPX), from EUR 9.5/MWh in 2020 to EUR 46.12/MWh. At the end of the winter season and beginning of the second quarter of 2021, temperatures were below the seasonal average, which drove up gas demand, depleting gas stocks held in storage. At the same time, high demand for LNG on Asian markets caused some supplies to be redirected from Europe to Asia. In the second half of 2021, the level of gas stocks in Europe was still low, which – coupled with a lower gas output (reduced production from the Groningen field) and lower supply of Russian gas to Europe, led to a further increase in gas prices. A dramatic increase in its prices on the European market toward the year's end and a decline in demand from Asia led to more LNG shipments entering Europe, as a result of which the supply of regasified LNG began to recover. However, this was accompanied by a shut-off of Russian gas supplies to Germany via the Yamal pipeline, as well as limited gas flows via Ukraine.

The global consumption of natural gas in 2021 rose relative to 2020, fuelled by the economic recovery after the pandemic-induced stagnation and by the harsh winter. The supply fell short of demand, which sent the market prices of natural gas soaring.

As in the previous year, LNG infrastructure was expanded globally to increase both export and import capacities. In 2021, the PGNiG Group increased its LNG imports compared with 2020. By participating in the global LNG market, PGNiG is able to optimise its long-term gas portfolio and to cover its requirements in the event of increased demand or reduction of pipeline supplies, such as the one which took place in 2021 when Gazprom, the main supplier of gas from across Poland's eastern border, cut down the volume of supplies.

In 2021 the average spot price of Brent crude was USD 71/bbl, compared with USD 42/bbl in 2020. The price increases were mainly triggered by the economic recovery following the global coronavirus pandemic. After vaccination campaigns were launched in many regions around the world, pandemic-related restrictions were lifted and mobility returned to near normal levels from before the pandemic. The increase in global demand for crude oil outstripped a short-term spike in production, causing a shrinkage in worldwide oil stocks. Uncertainty over further development of the pandemic was reflected in oil price volatility, especially at the end of 2021.

In January and February 2022, gas prices stabilized below EUR 80/MWh. The aggression of the Russian Federation against Ukraine on February 24, 2022 caused a very rapid increase in prices and significant volatility. On March 7, 2022, prices reached an all-time high of EUR 354/MWh.

For more information, see section 3.3.

- 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 2021, 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 east of Poland – in 2021, LNG already accounted for more than 25% of the total gas import portfolio, while imports from Russia fell to some 60%.

In view of the Yamal contract expiring after 2022, it is particularly important for the PGNiG Group to develop alternative routes for natural gas supplies to Poland, mainly from the northern direction via the planned Baltic Pipe gas link. 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.

- Policy and regulatory changes

The regulatory environment in which the PGNiG Group operates is periodically subject to substantial changes, in particular with respect to taxation of hydrocarbon production, the exchange sale requirement and reduction of CO_2 emissions.

The EU climate policy and international commitments to bring down greenhouse gas emissions and ultimately move away from fossil fuels towards zero-carbon technologies in the energy mix are unfavourable to the natural gas sector.

'Fit for 55', a package of legislative changes announced by the European Commission in mid-July 2021, is intended to reduce carbon emissions from the European economy by at least 55% by 2030. If these proposals are implemented into law in their current form, they will have a number of adverse consequences for the PGNiG Group pushing up the cost of fossil fuels.

The proposed gas package, intended to accelerate decarbonisation of the gas sector, would bring about major changes with respect to fossil gas, which would be ultimately replaced with renewable counterparts, such as hydrogen and biomethane, initially blended with natural gas and then in pure form.

In mid-December 2021, the European Commission presented a legislative package aimed to decarbonise the gas sector by facilitating the use of RES and low-carbon gases. The role of natural gas in the energy transition will largely depend on how the sector responds to the new gas package and changing market reality.

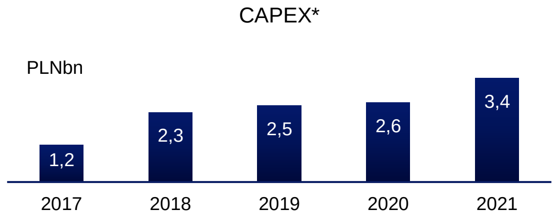
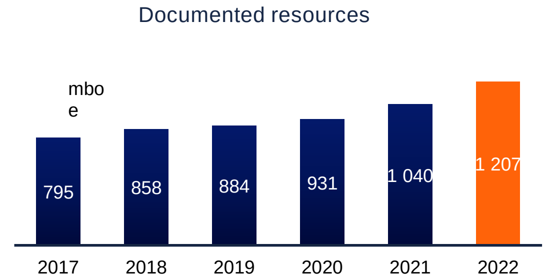
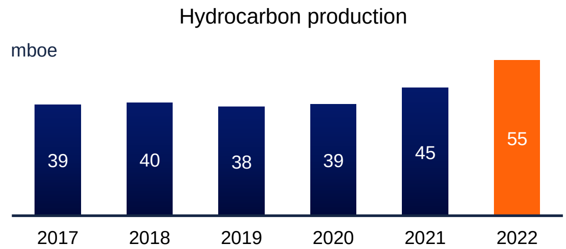
2.3 PGNiG Group Strategy for 2017−2022 with an Outlook until 2026

The PGNiG Group's Strategy for 2017–2022 with an Outlook until 2026 was adopted 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 implements an ambitious investment programme, which is to lay foundations for a long-term and stable growth in value.

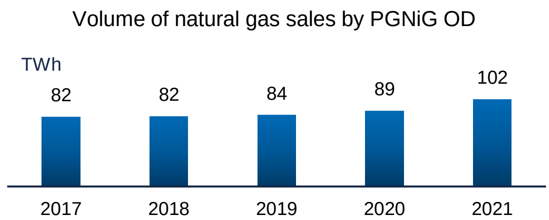
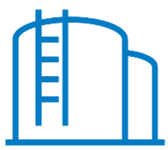
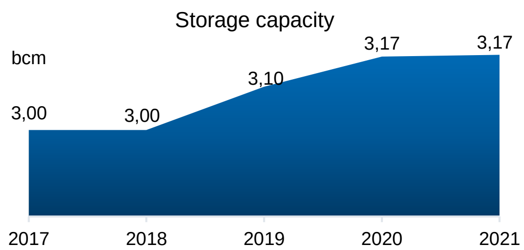
(in PLN million, unless stated otherwise)

2.3.1 Objectives and ambitions for 2017−2022 Implementation of the Strategy in 2017–2021

Table 7 Objectives, ambitions and implementation of the Strategy in 2017-2021

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.*

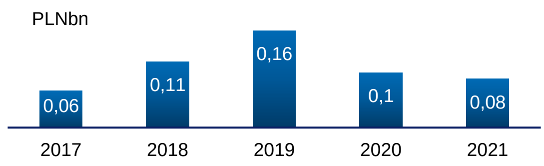
Segment	Ambitions	Objectives	Execution
Trade and Storage 	Retail: Maintain current market position and maximise margins	Maximise retail margins while maintaining the total volume of retail gas sales at ca. 67–69 TWh/year	
Trade and Storage 	Storage: Ensure availability of storage capacities	Ensure availability of storage capacities adjusted to actual demand and improve storage efficiency	

Trade and Storage

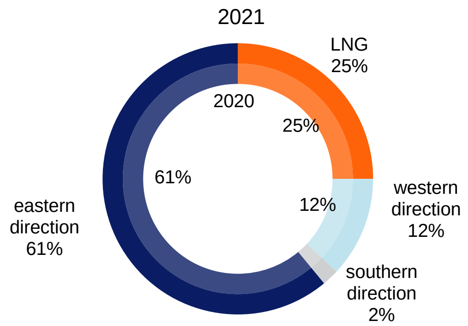
Wholesale trade: Diversified and competitive gas supply portfolio

Build a diversified and competitive gas supply portfolio beyond 2022
Increase total volume of natural gas sales by ca. 7%

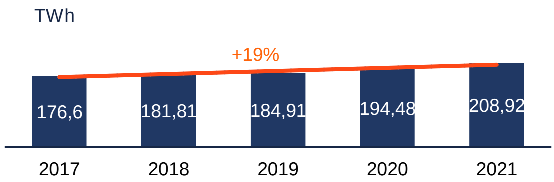
CAPEX



Gas imports structure



Volume of natural gas sales by PGNiG OD

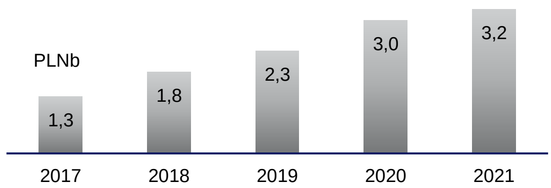


Distribution

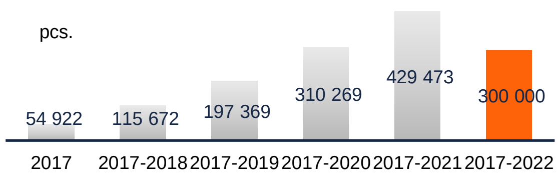
Step up gas network roll-out in Poland

Construct more than 300 thousand new gas service lines
Increase gas distribution volumes by ca. 16%

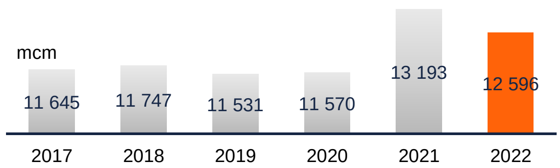
CAPEX



Number of new gas service lines



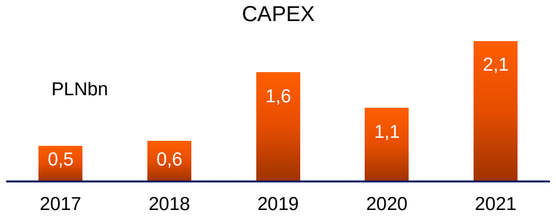
Volume of distributed gas:

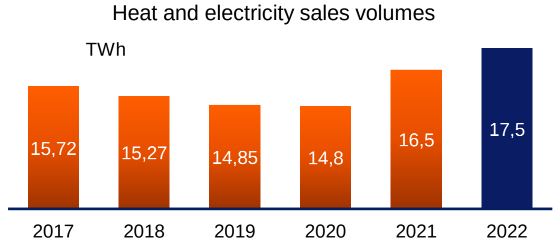


Generation

Increase energy generation volumes

Increase power and heat sales volumes by ca. 20%

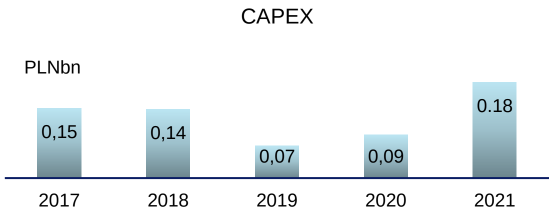


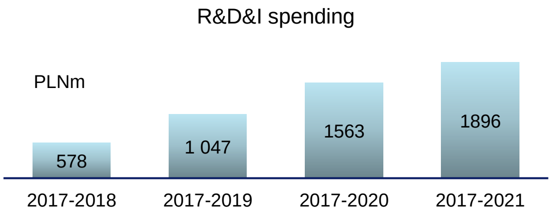


Corporate Centre

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 2017–2021 totalled PLN 30.6bn, representing approximately 90% of the 2017−2022 CAPEX plan.

Exploration and Production

In 2021, implementation of the Strategy in terms of building a base of documented hydrocarbon reserves, developing the discovered domestic deposits, and producing hydrocarbons from Polish fields proceeded as planned.

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 2021, PGNiG UN took steps to significantly ramp up production and improve operating performance (thus pursuing its strategic objective) through investments, i.e. the acquisition of INEOS E&P Norge AS (completed at the end of September 2021), completion of investment works and launch of production from Duva, Ærfugl and Ærfugl Nord, launch of investment works on the Tommeliten Alpha field and third development phase on Ormen Lange, preparation of development concepts for the King Lear, Alve Nord, Fogelberg, Cape Vulture and Shrek deposits, and further works on currently producing fields. In addition, there are yearly APA rounds (Awards in Predefined Areas), where the company can bid for more licence interests.

In 2021, exploration and production work within the Kirthar licence area in Pakistan was carried out as planned. PGNiG also acquired a 25% non-operator interest in the Musakhel exploration licence, where work completed in 2021 included the acquisition and interpretation of gravimetric data.

Trade and Storage

Wholesale

In view of the expiry of the Yamal contract in 2022, the Group seeks to achieve real diversification of its gas supply portfolio. In this respect, the Group's key activities include:

- Supporting the Baltic Pipe project by entering into transmission contracts – 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;
- Developing LNG trading and logistic competencies on the global market – this will help the PGNiG Group create a more flexible gas supply portfolio beyond 2022 as the Group 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.
- 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 2021, PGNiG successfully continued its sales strategy and retained the customer base.

In 2021, PGNiG's sales of high-methane grid gas in Poland amounted to 198.5 TWh (ca. 18.1 bmc), up by 7.5% relative to 184.7 TWh (ca. 16.8 bcm) in 2020. The Group intends to continue efforts to strengthen its presence in the markets of Central and Eastern Europe, including the Ukrainian market, one of the most promising in the region. Given the prevailing market situation and high levels of gas in Ukrainian storage facilities, gas was not imported into Ukraine from the west for a major part of 2021 and the Company's trading activities in that country focused on transactions to purchase/sell gas held in Ukrainian underground storage facilities.

In response to the significant growth of market demand, in 2021 PGNiG continued to very dynamically grow its small-scale LNG business, where gas is sold in the form of LNG transported by road tankers to regasification facilities 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.

Retail

In implementing the Strategy guidelines, a number of initiatives, projects and operational activities are 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.

To achieve the strategic objectives set out in the defined areas, PGNiG OD carries out projects and operational activities in the following areas: new billing system, development of the product offer (including LNG bunkering services, photovoltaic solutions, additional/non-energy products) and development of customer service tools.

In 2021, the Company's market situation was largely driven by post-pandemic economic changes combined with an unprecedented surge in gas prices on European markets, with which the prices quoted on the Polish Power Exchange (POLPX) are correlated. In particular, strong fluctuations in the prices of fuels and energy carriers on wholesale markets had an adverse effect on PGNiG's ability to deliver its commercial policy targets in terms of margins and net profit.

Storage

In 2021, GSP had been working on the construction of the Kosakowo CUGSF, comprising five chambers in Cluster B, which were filled with gas and put into operation in September 2021 (the project was finally completed in December 2021).

In addition, as part of the H 2020 project, GSP prepared feasibility studies for an underground hydrogen storage facility at the Mogilno CUGSF and for a project involving large-scale hydrogen storage at salt caverns of the Kosakowo CUGSF. Another feasibility study prepared in 2021 related to possible construction of storage chambers dedicated to underground tankless storage of biomethane, including a process unit at the Mogilno CUGSF.

Distribution

Working towards its strategic objectives, PSG continued activities which in 2021 led to the execution of more than 119.3 thousand connection contracts and supply of 13.14 bcm of natural gas to customers. By the end of 2021, over 260 thousand decisions defining the terms of connection were issued (an increase of 17% year on year) and 119,2 thousand service lines with a total length of 1,133.7 km were built.

The 'Programme for accelerating investments 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, 32 new municipalities were connected to the gas distribution network (217 in total since the Programme was launched). In addition, the distribution network is being extended to underserved areas, and gas is supplied to customers using the liquefied natural gas (LNG) off-grid technology. In 2021, 31 newly constructed LNG regasification plants were commissioned by PSG and two more were purchased from PGNiG S.A.

In addition, PSG was implementing projects to build CNG stations. By the end of 2021, 20 CNG stations, including two LCNG stations, were commissioned.

(in PLN million, unless stated otherwise)

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 business across Poland.

The PGNiG TERMIKA Group is taking steps to upgrade its old and environmentally inefficient generation assets to meet environmental regulations, stricter industrial emissions standards, the BAT (best available technology) criteria and requirements of the climate policy. The key investment projects underway in 2021 included the performance of the contract to construct a CCGT unit and a peak-load boiler house at the Żerań CHP plant (placed in service in December 2021), an investment programme to upgrade the Pruszków CHP plant (execution phase) and a programme to upgrade the Kawęczyn heat plant (contract award phase). Work is being continued on the project to construct a multi-fuel unit at the Siekierki CHP plant. In 2021, the project was revised in terms of its target fuel mix and a decision was made to fully depart from coal.

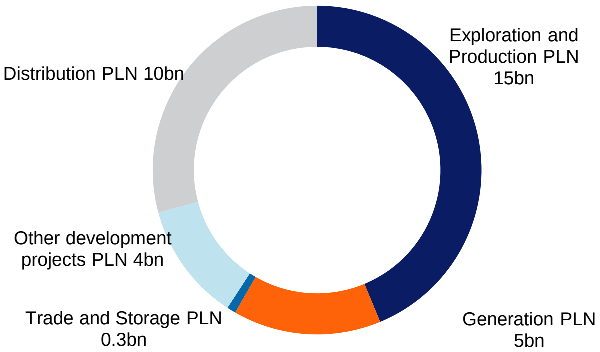
Other growth projects

In 2021, the PGNiG Group monitored the implementation of 106 R&D&I projects. The total amount of expenditure incurred by the Group on the projects was approximately PLN 332m. In 2021, innovation and development projects were underway, competencies in the following key areas gradually developed: Renewable energy sources, Alternative fuels, Energy Efficiency, and InnVento Startup Centre.

2.3.2 Investment projects in 2017−2022

The Strategy assumes that the total CAPEX will 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 2 Planned CAPEX in 2017−2022*



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

2.3.3 Capital expenditure in 2022

The Group intends to maintain a high level of capital expenditure in 2022. 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.

Table 8 Planned capital expenditure* on the PGNiG Group's property, plant and equipment in 2022

PGNiG Group's planned capital expenditure* on property, plant and equipment

		2022
I.	Exploration and Production, including:	3,533
1	Poland (PGNiG)	1,208
2	Norway	2,120
3	Pakistan	134
4	Other	71
II.	Trade and Storage**	858
III.	Distribution	3,152
IV.	Generation	2,995
V.	Other segments	279
VI.	Total capital expenditure (I-V)	10,817

** Including capitalised borrowing costs. Planned expenditure does not include expenditure on potential acquisitions.*
*** Including the cost of charter of LNG vessels, in accordance with IFRS R16.*

Exploration and Production

Working towards its strategic objective of increasing total hydrocarbon production, in 2022 PGNiG will continue to develop and tie in wells in Poland at the Zielona Góra and Sanok Branches. In 2022, PGNiG plans to produce in Poland 3.8 bcm of natural gas (measured as high-methane gas equivalent), the same as in 2021, and 0.677m tonnes of crude oil and condensate.

PGNiG UN will also work towards ensuring stable and predictable long-term gas supplies to Poland. These include both support for the construction of infrastructure to physically bring Norwegian gas to Poland and potential acquisitions of production and/or pre-production assets on the Norwegian Continental Shelf. The company will continue to produce hydrocarbons as a licence partner in the Skarv, Ærfugl, Ærfugl Nord, Morvin, Vilje, Vale, Gina Krog, Skogul, Kvitebjørn, Ormen Lange, Alve, Marulk, Duva, Tambar Øst and Valemon fields, while developing the Tommeliten Alpha field. Development of the Shrek, Alve Nord, Fogelberg and King Lear fields is at the concept phase.

Appraisal and production work is scheduled for 2022 in Pakistan to finish drilling the Rehman-8 well, drill the Rizq-4 well and tie in the Rehman-8 production well. In parallel with the drilling campaign, the PGNiG Pakistan Branch will work on expanding the capacity of the production infrastructure. As part of continued exploration efforts, the Pakistan Branch plans to acquire 2D seismics and start drilling the Rayyan-1 exploration well.

In 2022, another licence area held by PGNiG, i.e. Musakhel, is to undergo a seismic survey to inform a decision whether to drill the first exploration well.

In addition to the work planned for the Kirthar and Musakhel licence areas in 2022, steps are being taken to identify and possibly acquire further attractive assets in Pakistan.

For more information, see section 4.1.5.

Trade and Storage

As regards wholesale, PGNiG has secured long-term regasification and transmission capacities to cover import requirements of the Polish wholesale market. After the expiry of the Yamal contract at the end of 2022, gas will be imported based on a diversified portfolio of purchase contracts and in cooperation with the PGNiG Group companies active on the European wholesale and LNG markets and strengthening the Group’s position as a gas producer on the Norwegian Continental Shelf.

To achieve strategic objectives and face challenges posed by the fast evolving situation on the gas market, PGNiG Obrót Detaliczny (PGNiG OD) is carrying out a number of operational activities and projects designed to maintain and improve the effectiveness and efficiency of processes critical to customer service.

PGNiG OD will carry on with projects improving the efficiency of sales and customer service, such as development of the CRM and Contact Center, remote customer service tools, product offering, for instance instalment sales of commodity products, continuation of the Stop Smog project, whose scope will include extended cooperation with the National Fund for Environmental Protection and Water Management in 2022 to support households switching to gas heating systems (the company is planning to launch a pilot offering of heating equipment (gas-fired boilers, heat pumps) under its own and partnership sales models), expansion of the CNG and LNG infrastructure (CNG stations, LNG bunkering services, cryogenic tankers) and development of a new business line (solar photovoltaic systems).

Additionally, in 2022 PGNiG OD will be involved in all measures forming part of the anti-inflation shield and dedicated solutions to protect gas fuel customers. This will prompt the company to identify priorities for many other projects and operations or to reconsider the ongoing projects, such as those involving the development of critical ICT systems.

Notwithstanding temporary restrictions caused by the pandemic and the crisis related to energy market prices, PST will continue to develop its business especially in LNG trading, procurement of gas from the North Sea and Norwegian Sea area and gas trading in Central and Eastern European markets.

As for storage, with the commissioning of five chambers in Cluster B at the end of 2021, 10 storage chambers with a working capacity of 299.7 mcm are active at the Kosakowo CUGSF. GSP plans to expand its storage business, in particular storage of energy (in the form of hydrogen), hydrogen, biomethane, compressed air and liquid fuels, in order to broaden its customer base and secure new revenue streams. The offered services will include preparation, execution and supervision of underground energy and fuels storage projects and subsequent offering of the storage capacities. In 2022, GSP will continue working on hydrogen, biomethane, compressed air and LPG storage projects. Moreover, as part of non-regulated activities, a new service will be continued in 2022 relating to the operation of a gas drying system in Mikanowo.

For more information, see section 4.2.

Distribution

In the short term, PSG is taking steps which, through the roll-out of the gas network and connection of end customers (mainly as part of "network densification", i.e. connection of new service lines to the existing gas network), are part of the anti-smog measures. In parallel, PSG participates in the 'Connect, because every breath matters' campaign.

In the medium term, PSG takes steps to convert, modernise and build a new gas network in order to maintain the security and continuity of gas fuel supplies and the long-term capacity to connect new industrial customers, including in particular district heating accounts below 50 MW.

The company recognises business potential in the development of the market for new renewable gas products and the target volumes of these gases to be transported, which can offset (to an extent dependent on economic and regulatory factors) the declining significance of natural gas in the energy mix of the 'Green Deal' economy. Therefore, PSG is conducting multi-faceted analyses to prepare the gas infrastructure for the distribution of renewable gases.

PSG also engages in cooperation with other entities to develop a business model which, taking into account the prevailing market conditions and the policy of the state, will enable the development of alternative fuel infrastructure and create conditions to offer vehicle users a viable CNG refuelling option.

The company will complete all projects to build CNG filling stations (planned projects, i.e. 23 CNG filling stations, including two LCNG facilities). For more information, see section 4.4.3.

Generation

PGNiG TERMIKA S.A. will proceed with its strategic projects and will actively seek acquisition opportunities in the power and heating sector. 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 2022, the company will continue work on several projects, including the construction of a peak-load boiler house at the Żerań CHP plant (phase 2), preparations for the construction of a 75 MWe multi-fuel unit and preparations for the construction of a CCGT unit at the Siekierki CHP plant.

Capital expenditure planned for 2022 in the area of environmental initiatives will cover adaptation of the Kawęczyn heat plant to the BAT conclusions, upgrade of the Pruszków CHP plant, upgrade of absorbers 1 and 2 at the Siekierki CHP plant, a programme to reduce noise generated by the plants and upgrade of the sanitary sewage system.

PGNiG TERMIKA S.A. will pursue an investment programme, including upgrades to its existing generation assets, aimed at building new high-efficiency and cost-effective generation capacity using low- and zero-emission technologies adapted to increasingly stringent environmental requirements. Steps will be taken to expand the company's business and R&D&I projects focusing on the use of hydrogen in the energy sector, the construction of heat and electricity batteries, the increased use of renewable energy sources in power generation as well as the use of Power-to-Heat technologies.

For more information, see section 4.4.3.

Other growth projects

In 2022, efforts will be made to step up development of the PGNiG Group's hydrogen technologies, to continue working on digitalisation of the business and to apply new solutions to PGNiG's core business, especially in the Exploration and Production and Storage areas. Priority will be given to the completion of ongoing R&D&I projects and to the commercialisation of further products. At the same time, new business areas that can increase the competitiveness of companies and strengthen their market position will be constantly analysed. New projects will also be gradually identified and pursued in key development areas: Renewable Energy Sources (including development of photovoltaic offering and construction of own RES portfolio), alternative fuels and energy efficiency. For more information, see section 4.5.2.2.

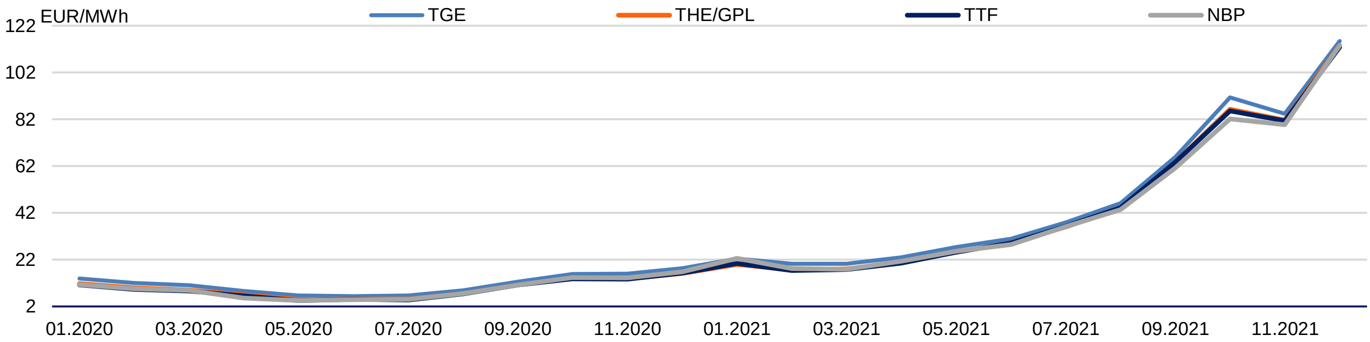
3. Business environment

3.1 Market environment in 2021

3.1.1 Gas market in Europe and globally

In 2021, natural gas prices in Europe rose on average by 385% year on year (based on prices recorded at TTF, THE/GPL, NBP and POLPX), from EUR 9.5/MWh in 2020 to EUR 46.12/MWh. The highest price hikes were seen in the Netherlands (TTF), averaging 393%, while the lowest were recorded in Poland (about 327%).

Chart 3 Average monthly spot prices of natural gas at selected European hubs



Source: In-house analysis based on ICE data.

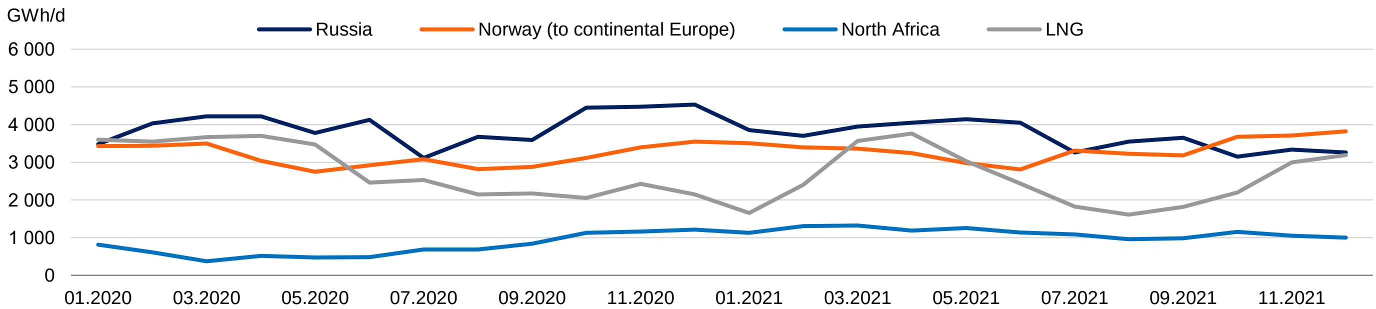
In the first quarter and at the beginning of the second quarter of 2021, temperatures fell and remained below the seasonal average in NWE, which drove up gas demand for heating purposes and, consequently, extended the period in which gas was withdrawn from storage facilities, heavily depleted after winter. The period also saw high demand for LNG from Asian markets, which offered higher prices, making the Pacific region more attractive to LNG suppliers than Europe and prompting partial diversion of supplies. In 2021, LNG imports to Europe fell again year on year, by 7.5 bcm (6.4%), while supplies to Asia rose by nearly 30 bcm year on year.

In the second half of 2021, gas stocks in European storage facilities continued at an all-time low, further aggravated by a very narrow winter–summer price spread and lack of Gazprom's gas injections into storage. Price growth was also supported by declining volumes of gas produced in Europe due to production constraints in Groningen, Europe's largest field, and primarily due to dwindling supply of Russian gas via pipelines other than Nord Stream. The total volume of gas piped from east of Poland fell 8% year on year. In addition, production constraints in the UK and more numerous than usual overhauls and failures of production assets in Norway increased gas shortage in Europe during summer.

As from the beginning of the winter season, the prices soared again, setting new records to reach an average of EUR 113/MWh in December. During that period, the average price of natural gas at the Dutch TTF hub was six times higher than in the same period of 2020. The price rises were additionally supported by higher electricity generation from gas-fired sources as the weather was not conducive to generating high electricity volumes from renewables.

An unprecedented increase in its prices on the European market toward the year's end and a decline in demand from Asia led to more LNG shipments entering Europe, as a result of which the supply of regasified LNG began to recover. However, this was accompanied by a shut-off of Russian gas supplies to Germany via the Yamal pipeline, as well as limited gas flows via Ukraine. In the last months of 2021, gas was supplied to Hungary from the Balkans via the South Stream pipeline, rather than via Ukraine as before. As a consequence, a drop in the volume of Russian gas supplies to North-Western Europe (to liquid European hubs) was much higher than a drop in total supplies to Europe.

Chart 4 Main sources of gas imports to Europe



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

The total volume of natural gas imported to Europe in 2021 was 3,901 TWh, of which 34% (1,337 TWh, 120.3 bcm) came from Russia. The volume of pipeline gas imports from Russia (excluding imports to Turkey) in 2021 fell by 10% (from 1,489 TWh, 152.4

(in PLN million, unless stated otherwise)

bcm in 2020). Norway was the second largest supplier of gas in Europe, with 1,224 TWh (110.2 bcm) or 31% of total gas supply. Imports from North Africa were 413 TWh (37.1 bcm, 11% of total supplies), while LNG deliveries to European terminals were 928 TWh (83.5 bcm, 24% of the imported volume).

LNG

Global LNG trade increased by 7.5% year on year, to over 522 bcm of regasified gas. The year-on-year increase of 36 bcm was driven by a sharp rise in gas prices after falling to lows in 2020. The largest increase in exports in 2020–2021 was again in the United States, by 36.4 bcm, while the largest increase in imports in percentage and value terms was in China, by 15.8 bcm (17.2%) compared with 2020. There was also a strong increase in demand for LNG, especially from North and South Americas. The increase was attributable, among other things, to droughts in Brazil, whose energy system relies largely on hydropower plants. Due to water shortages, Brazil had to import large volumes of LNG from the United States.

Table 9 LNG demand and supply in 2020 and 2021, in bcm, after regasification

Supply	**2021**	**2020**	**Change (%)**
Europe	0.47	4.28	-88.99%
including Norway	0.47	4.28	-88.99%
Asia and Pacific	223.10	216.95	2.84%
including Australia	109.77	104.31	5.23%
North and South America	112.82	85.10	32.58%
including United States	98.22	65.56	49.81%
Africa	58.36	54.67	6.75%
Middle East	128.15	125.50	2.12%
including Qatar	106.90	105.47	1.35%
Globally	522.90	486.48	7.49%
Demand	**2021**	**2020**	**Change (%)**
North and South America	28.73	19.64	46.28%
Europe	110.64	118.20	-6.40%
Middle East	9.90	9.70	2.06%
North-East Asia	302.35	273.13	10.70%
including China	107.58	91.79	17.20%
Globally	519.82	488.57	6.40%

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

3.1.2 Gas market in Poland

The growing demand for natural gas in Poland is met by domestic production and imports. Gas is transported to Poland via a transmission network, with LNG-derived gas additionally fed into the national transmission system 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 2021 (excluding gas fuel supplied on the OTC and POLPX markets) was ca. 206.4 TWh. Relative to 2020, the volume increased by 13.3 TWh, or 6.9% year on year.

The increase in gas consumption in 2021 was attributable to higher consumption by customers connected to the distribution network (up 11.4% year on year), driven, among other things, by a rapid increase in the number of new gas service lines built by PSG in previous years, especially in 2021 (more than 119 thousand). Another factor behind the increase was the average air temperature in the first and the fourth quarters of 2021, which was 2.3°C lower than the year before.

In 2021, consumption of gas by customers connected to the transmission network declined by 4.4%, due mainly to lower consumption from the industrial sector in the fourth quarter of 2021 as a result of the continuing record high gas prices in Europe.

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

The Baltic Pipe

The Baltic Pipe 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 the markets of Denmark and Poland. 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. Environmental decisions, planning permits and construction permits for individual elements of the planned infrastructure have been obtained. The construction work is expected to take place between 2020 and 2022. Gas transmission is scheduled to commence on October 1st 2022.

On May 31st 2021, the Danish Environmental and Food Appeals Board repealed the Danish Environmental Protection Agency's permit of July 12th 2019 to build the Baltic Pipe gas link on land across Denmark. Development work in West Funen, East Jutland and on the power grid feeding the Everdrup compressor station was halted until a new environmental permit is obtained. According to Energinet, the whole project will be completed some three months behind schedule. However, it will be able to provide a part of the agreed transmission capacity starting from October 1st 2022. The full transmission capacity is expected to be made available at the end of 2022.

LNG terminal

In May 2020, PGNiG signed a contract with Polskie LNG of the GAZ-SYSTEM group for the reservation of additional regasification capacities under the Open Season procedure in view of the expansion of the President Lech Kaczyński LNG Terminal in Świnoujście. Under the agreement, the Company reserved capacity of approximately 1.2 bcm of gas per annum in 2022–2023 (transitional service) and approximately 3.3 bcm of gas per annum in 2024–2038 (basic regasification service), which together with the previously reserved capacity of 5 bcm of gas per annum will increase the import capacity to 6.2 bcm in 2022 and to 8.3 bcm of gas per annum as from 2024. In addition, PGNiG reserved additional services to be provided in the period specified for the main regasification service.

Imports

In 2021, the volume of gas imported to Poland rose by 190.77 TWh year on year (an increase of 5%), with supplies from the eastern direction rising by 11.8%, while supplies from the EU fell by 9.5%. Most of the imports (about 58%) came from the eastern direction.

(in PLN million, unless stated otherwise)

Table 10 Gas flows at Poland's gas grid entry/exit points

Entry/exit point (in TWh)	2021	2020	Change (%)
Supplies from EU	38.39	42.4	-9.5%
including Lasów, Gubin (GCP)	6.07	7.34	-17.2%
including Cieszyn	4.43	3.6	23.1%
including Mallnow	27.88	31.46	-11.4%
Supplies from across Poland's eastern border	111.50	99.77	11.8%
including Drozdovitse	43.69	40.89	6.9%
including Teterovka	1.20	0.9	32.8%
including Kondratki	27.86	27.54	1.2%
including Vysokoye	38.75	30.44	27.3%
LNG regasification	40.88	39.59	3.3%
Exports to Ukraine (mainly Hermanowice)	0.83	15.5	-94.7%
Total imports	190.77	181.76	5.0%
Net imports	189.94	166.26	14.2%

Source: In-house analysis based on ENTSOG data.

In 2021, the volume of gas regasified at the LNG terminal in Świnoujście increased slightly compared with 2020.

In 2021, PGNiG received a total of 19 LNG shipments under the long-term contracts with Qatargas. The volume of LNG imports from Qatar amounted to approximately 1.75m tonnes, i.e. approximately 26.58 TWh or 2.42 bcm of natural gas after regasification. In 2021, PGNiG purchased gas under 12 spot contracts, its volume totalling 0.81m tonnes, i.e. ca. 12.36 TWh or 1.13 bcm of natural gas after regasification. In 2021, gas was purchased under spot contracts with the US. The deliveries were made with the support from the London LNG trading office (PST). In 2021, PGNiG also took delivery of LNG shipments under a long-term contract with Cheniere Marketing International and a medium-term contract with Centrica.

In 2021, PGNiG imported 35 shipments of LNG via the LNG terminal in Świnoujście, with a total volume of 2.83m tonnes, i.e. approximately 3.94 bcm of regasified natural gas.

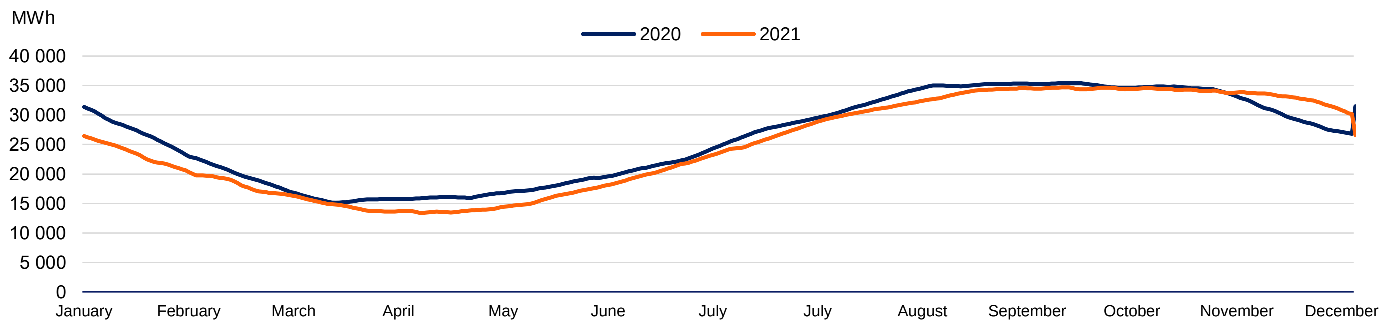
Gas storage

In 2021, the average daily withdrawal of gas from Polish UGSFs over the withdrawal periods (January–March, October–December) was 96 GWh, a decrease of 86 GWh on the previous year. In the summer season (April-September) of 2021, gas was injected into storage at an average rate of 114 GWh/day, that is 8 GWh/day less year on year.

At the end of 2021, Polish gas storage facilities were filled to approximately 84% of capacity, a 10pp increase on year-end 2020. However, other European markets saw much lower gas stocks at storage facilities: in Germany, the storage facilities were filled to a mere 54% of capacity, compared with 73% as at the end of 2020; in the Netherlands – 36% of capacity, 33pp less year on year, and in Austria – 35% of capacity vs 77% the year before.

The reason for the decline was a significant depletion of gas stocks held in storage facilities owned by Gazprom, mainly in Germany and in Central and Eastern Europe. The pattern of injections and withdrawals from those storage facilities in 2021 differed significantly from that seen in previous years.

Chart 5 Levels of gas in storage in Poland in 2020–2021

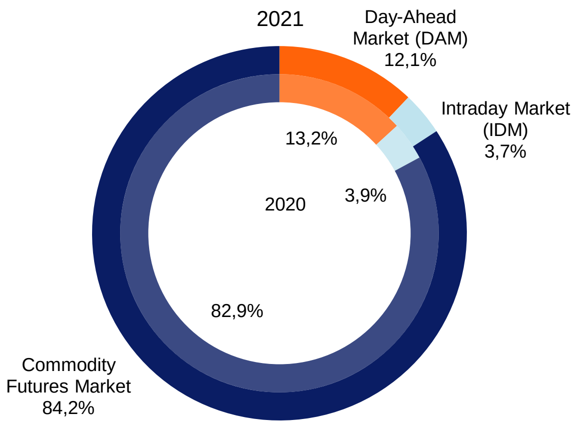


Source: In-house analysis based on the operators' data.

(in PLN million, unless stated otherwise)

Polish Power Exchange

Chart 6 Contracts traded on the POLPX in 2020 and 2021

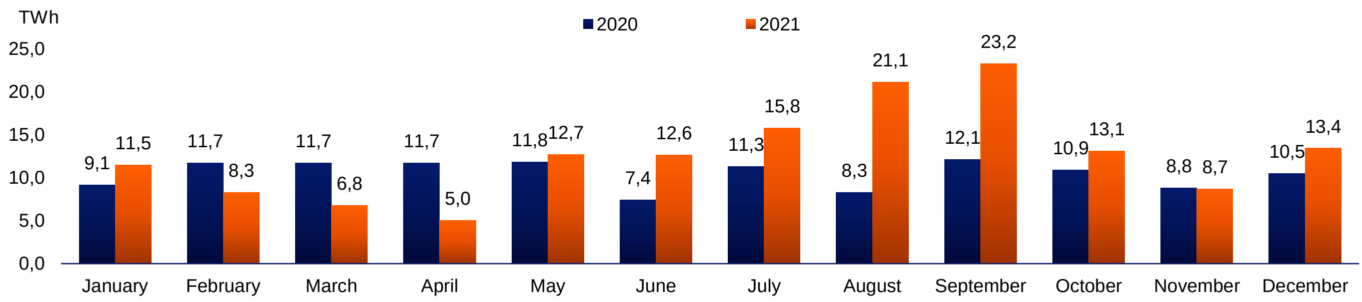


Source: In-house analysis based on PPX data.

PGNiG is the leader of gas trading on the POLPX. According to POLPX data, in 2021 the total gas trading volume was 180.8 TWh, of which 152.2 TWh was traded on the commodity futures market (RTT). This means that almost 84% of gas trades in 2021 were executed under contracts with maturities of a year, season (summer, winter), quarter, month, and week.

In 2021, 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 19.6% relative to 2020. Record high trading volumes in 2021 were seen both on the Day-Ahead Market and the Intraday Market, at 21.8 TWh (a 9.5% increase year on year) and 6.8 TWh (a 15.2% increase year on year), respectively; the volume on RTT also increased, by 21.4% year on year.

Chart 7 Commodity futures (RTT) trading volume on the POLPX in 2020 and 2021 (TWh)



Source: In-house analysis based on PPX data.

3.2 Regulatory environment in 2021

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 11 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	A comprehensive Act Amending the Energy Law was passed in May 2021. The key amendments: (i) introduced the obligation for the President of URE to approve a storage facility code, (ii) clarified the rules governing the operation of closed distribution areas, (iii) set out the rules governing the operation of electricity storage facilities, (iv) introduced a ban on the conclusion of off-premises contracts, (v) clarified certain aspects related to the provision of security for licensed operations, (vi) introduced a systemic solution for smart metering, (vii) introduced the definition of production site pipelines, and enabled energy companies to adjust their activities accordingly. Additionally, in December 2021 an Act Amending the Energy Law was passed, enabling energy companies to submit for approval a tariff calculated on the basis of a portion of reasonable costs, and to cover in subsequent years those reasonable costs which were not covered by that tariff.	The above changes will have either a positive or neutral effect on the PGNiG Group's business.
Act on Emergency Stocks	In 2021, no major amendments were made to the Act.	
Act on Electromobility	A comprehensive Act Amending the Act on Electromobility was passed in December 2021. The Amending Act provides for: (i) detailed rules for the operation of publicly available electric vehicle charging stations, (ii) rules for	None of the above changes will affect the PGNiG Group's business.

	the installation of charging points in multi-apartment buildings, (iii) rules for ensuring safety in LNG bunkering operations (obligation to prepare a risk assessment, bunkering plans and to ensure that personnel have the required qualifications), (iv) development of the hydrogen market, (v) clarification of the rules for inspections performed by the Office of Technical Inspection (UDT) and Office of Transport Inspection (TDT) and (vi) changed rules for the creation of low-carbon transport zones.	
Energy Efficiency Act	The Energy Efficiency Act was amended in April 2021. The key amendments include: (i) imposition of obligations under the Energy Efficiency Act on entities marketing liquid fuels; (ii) removal of exemption from efficiency-related obligations for non-energy consumption of natural gas; (iii) introduction of a new opportunity to fulfil the obligation, i.e. non-repayable funding schemes.	The changes have a neutral or positive effect on the PGNiG Group's business.
Capacity Market Act	The Capacity Market Act was amended twice in 2021. The amendment enacted in May 2021 clarified the rules on shortening the terms of capacity contracts and modified the rules regarding calculation of fines for non-fulfilment of the capacity obligation, while the June 2021 amendment enabled a change of the energy generation technology.	The amendments related to shortening the terms of capacity contracts and to the calculation of fines for non-fulfilment of the capacity obligation have a positive effect on the PGNiG Group; the remaining changes are neutral.
Act on the Promotion of Electricity from High-Efficiency Cogeneration	The amendment to the Act on the Promotion of Electricity from High-Efficiency Cogeneration, enacted in May 2021, streamlined the auction process.	The effect of the amendment is neutral to activities of the PGNiG Group.
Diversification Regulation	In 2021, the Diversification Regulation was not amended.	
System Regulation	In 2021, the System Regulation was not amended.	
Tariff Regulation	In 2021, the Tariff Regulation was not amended.	

3.2.2 European regulatory environment

Table 12 Changes in European regulations

	Scope of the changes	Effect of the changes on the PGNiG Group
Gas Directive (Directive 2009/73/EC) Gas Regulation (Regulation 715/2009)	On December 15th 2021, the European Commission presented legislative proposals to reduce the EU gas market's emissions by fostering and promoting the use of renewable and low-emission gases, including biomethane and hydrogen. The Commission proposed regulations to create the hydrogen market. New directives and regulation on common rules for the internal markets in renewable and natural gases and in hydrogen are to be adopted ([COM(2021) 803] and [COM(2021) 804] respectively), amending Gas Directive 2009/73 and Gas Regulation 715/2009. The key elements of the proposed regulations include: (a) support for development of the low-emission and renewable gas sector and reduction of tariff discounts related to security of LNG supply and storage facilities; (b) better accessibility of the market and networks for low-emission and renewable gases; (c) emergence of the internal hydrogen market and changes in the internal market for gas/all methane based gases (natural gas, renewable gases, synthetic gases); (d) enhanced cooperation, also on network development (among sectors and operators, and in geographic terms); (e) implementation of regulations governing long-term contracts; (f) strengthening of consumers' position on the market; (g) oversight functions of the Commission.	The proposed changes will significantly affect the PGNiG Group's business through a stronger focus on decarbonisation, in particular by phasing out natural gas in favour of renewable and low-emission gases (including biomethane and hydrogen).
Security of Gas Supply Regulation (2017/1938)	The European Commission's legislative proposal amending the Gas Regulation (Regulation 715/2009) also includes amendments to the Security of Gas Supply Regulation (Regulation 2017/1938). The proposed changes will affect mainly: the regional stockholding obligation; a compensation mechanism under the 'solidarity	The proposed provisions may affect the security of supply and necessitate changes in

(in PLN million, unless stated otherwise)

	clause'; a framework for voluntary joint purchase of strategic stocks by Transmission System Operators.	the national system of mandatory stockholding.
European funds	• European Regional Development Fund (ERDF) and Cohesion Fund (CF) In 2021, the ERDF/CF Regulation was finally adopted by the European Parliament and the Council. In its final version, the regulation provides for the possibility to finance from the ERDF/CF, under certain conditions, investments in the use of natural gas. Fossil fuels have been excluded from the support, except for situations where district heating systems are switched from solid fuels to natural gas; extension/modernization of natural gas networks on condition that the investment adapts the network to the use of renewable and low-emission gases; clean vehicles within the meaning of Directive 2009/33/EC. Hydrogen, biomethane and RES projects as well as Carbon Capture and Storage / Carbon Capture and Utilisation (CCS/CCU) technologies will be eligible for funding. • Just Transition Fund (JTF) The regulation establishing the Just Transition Fund was adopted in 2021 by the European Parliament and the Council. The Fund will not support investment in the production, processing, transport, distribution, storage or combustion of fossil fuels and is limited to coal regions. Hydrogen, biomethane and RES projects as well as CCS/CCU technologies will be eligible for funding. • Recovery and Resilience Facility (RRF) The RRF Regulation was finally adopted in 2021 by the European Parliament and the Council. Support will be available for replacement of district heating systems (transition from coal to gas), distribution and transport of natural gas to replace coal, high-efficiency co-generation and district heating. Hydrogen, biomethane and RES projects as well as CCS/CCU technologies will also be eligible for funding. • InvestEU In 2021, the regulation establishing the InvestEU programme was adopted by the European Parliament and the Council. In the Sustainable Infrastructure window, sustainable investments in energy infrastructure will be supported. Priority will be given to RES projects, but support for natural gas infrastructure has not been explicitly excluded from the scope of support. It may potentially include investments in high-efficiency cogeneration, alternative fuel infrastructure and critical infrastructure. Hydrogen, biomethane and RES projects as well as CCS/CCU technologies will also be eligible for funding. • Connecting Europe Facility (CEF) The regulation establishing the CEF was adopted in 2021 by the European Parliament and the Council. 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. The CEF is designed to support infrastructure projects that form part of the so-called supply corridors allowing diversification of natural gas supplies to the European Union.	The regulations adopted in 2021 provide for conditional funding of investments in the natural gas sector and support for RES as well as low-emission and renewable gases (hydrogen, biomethane).
European Green Deal (EGD)	• European climate legislation The European Climate Law, a regulation establishing the framework for achieving climate neutrality, was adopted in 2021, setting a binding objective of EU's climate neutrality by 2050. The regulation also sets a more ambitious target to reduce greenhouse gas emissions by 55% by 2030, relative to 1990. Moreover, under the regulation, the European Commission is required to propose an intermediate reduction target for 2040. • TEN-E Regulation A provisional political agreement in trilogue was reached by the EC, EP and the EU Council on December 14th 2021 to revise the TEN-E Regulation [COM (2020) 824]. The revision aims to support the development of infrastructure designed to pursue the EGD objectives, including new eligibility criteria for Projects of Common Interest (PCI), aligned with the EGD objectives. The key changes include: (1) end of financial support for natural gas and oil infrastructure; (2) possibility of granting a PCI status –	

during the transitional period (until December 31st 2029) – to projects that use the existing natural gas infrastructure for transport and storage of hydrogen or blend of hydrogen and natural gas or biomethane. Such projects will retain eligibility for financing until December 31st 2027; (3) inclusion of hydrogen infrastructure into the scope of the regulation; (4) inclusion of Projects of Mutual Interest (PMI) into the scope of the regulation, as long as they are likely to be beneficial for the EU as a whole; (5) allowing projects already included in the 5th PCI list and approved for consideration by a competent authority to benefit from the accelerated permit granting procedure for a period of four years after the regulation comes into force.

- Amendment of the Energy Performance of Buildings Directive (EPBD)

On December 15th 2021, the European Commission presented a revision proposal for the Energy Performance of Buildings Directive – EPBD [COM(2021) 802]. It is an integral part of the European Green Deal, intended to contribute to the achievement of the EU's climate neutrality objective. The proposed amendments seek to improve the energy performance of buildings and reduce CO_2 emissions from buildings in EU Member States by introducing a zero emissions requirement for new buildings, starting from 2030 (2027 for buildings occupied or owned by public authorities); accelerating renovation of existing buildings through the implementation of national renovation plans aligned with the integrated national energy and climate plans, and submitted to the European Commission for an opinion; and by promoting the use of smart technologies in buildings and solutions for electromobility. Building renovation plans must encompass roadmaps to phase out the use of fossil fuels for heating purposes. In its official statements the Commission declares that fossil fuels should be abandoned by 2040. Moreover, under the proposal, Member States will be permitted to subsidise fossil-fuel boilers only until the end of the current Multiannual Financial Framework (MFF), i.e. until the end of 2027.

‘Fit For 55’ package

On July 14th 2021, the European Commission announced the ‘Fit for 55’ legislative package on climate and energy, designed to facilitate the targeted reduction in CO_2 emissions of at least 55% by 2030, compared with 1990 levels. It consists of 13 legislative proposals, some of them being revisions to existing regulations and some covering new areas. The ‘Fit for 55’ package will force transformation in the key sectors of the economy, particularly on the part of fossil fuels producers, distributors and consumers. Negotiations of the ‘Fit for 55’ package are estimated to take two years. Although various effective dates are being considered for individual laws covered by the package, some of them are expected to be in force from January 1st 2023 onwards. It is very likely that in order to meet the emission reduction targets for greenhouse gases and other pollutants, investment projects involving gas infrastructure will have to allow the blending of natural gas with renewable or low-emission gases already before 2030.

- Proposal for a directive restructuring the Union framework for the taxation of energy products and electricity (ETD)

[COM(2021) 563 final], indexing the current tax rates for energy products. Significant increase in the tax rates for fossil fuels is proposed, including the minimum levels of taxation of natural gas used for heating by business users. The proposal gives Member States freedom to grant conditional exemptions or reductions in the level of taxation prescribed by the directive. However, these tax reductions should respect the minimum levels of taxation set out in Annex I to the ETD, in particular as regards cogeneration and the use of energy products for heating and electricity generation by households or for local public passenger transport.

- Carbon Border Adjustments Mechanisms (CBAM)

The proposal [COM(2021) 564 final] establishes a carbon border adjustment mechanism to be rolled out in the EU, with adjustment payments planned to be collected from 2026 onwards. According to the proposal, the CBAM would cover the GHG emissions embedded in the goods referred to in Annex I to the proposal. Goods to be covered by the CBAM during the first phase include: electricity, cement, iron, steel, fertilizers and unwrought aluminium. The emissions to be regulated by the CBAM include carbon dioxide, nitrous oxide and perfluorocarbons embedded in the listed goods. The CBAM aims to encourage the implementation of emission trading

The final version of the ‘Fit for 55’ package is expected to be ambitious and costly and will require key sectors of the economy, including manufacturers, suppliers and customers for fossil fuels, to undergo transformation.

A rise in gas prices driven by the EU’s climate policy, affecting the PGNiG Group’s core business involving production and distribution of natural gas, seems unavoidable.

Support mechanisms for new technologies reducing GHG emissions and improving energy efficiency provide an opportunity to receive support and raise capital to finance climate friendly projects.

systems in third countries. In particular, a removal of a third country providing support for the establishment of new generation capacity that emits more than 550g of CO_2 of fossil fuel origin per kWh of electricity from the list of countries exempt from the application of the CBAM, may discourage third countries from investing in gas cogeneration units. The reduction in the number of free emission allowances in the EU ETS may have an adverse effect on the competitiveness of manufacturers of goods covered by the CBAM, who are trading partners of the PGNiG Group. Consequently, the supply of the PGNiG Group fuels may decline.

- Revision of the Directive establishing the EU Emissions Trading System (EU ETS)

The Commission's proposal [COM(2021) 551] provides, among other things, for a one-off reduction in the number of allowances and a significant increase of the linear reduction factor (LRF) from the current 2.2% to 4.2% per year. This is the key instrument of the directive, which will accelerate growth in prices of CO_2 emission allowances. As a result of the proposed regulations, including the increase of the LRF, free allocation of emission allowances will be reduced. The proposal also provides for inclusion of the maritime sector in the EU ETS and the creation of a self-standing ETS for building and road transport sectors, with a separate pool of allowances, where regulated entities (defined as entities responsible for the release for consumption of fuels which are used for combustion in the sectors of buildings (for heating of business, institutional, and household buildings) and road transport) would be responsible for surrendering allowances. Phasing out of free allocations is proposed for the sectors to be included in the CEBAM to prevent carbon leakage. Additional funding is planned for the Modernisation Fund to finance the energy transition. However, according to the new rules, no funding will be provided for fossil fuels (including natural gas) investments.

- Revision of the Energy Efficiency Directive (EED);

The key objective of the proposed EED revision [COM(2021) 558 final] is to increase the level of energy efficiency ambition by at least 9% in 2030 compared with the level of efforts under the 2020 Reference Scenario (the current ambition level being at least 32.5%), so that the Union's final energy consumption amounts to no more than 787 Mtoe (down by 36%) and the Union's 2030 primary energy consumption amounts to no more than 1,023 Mtoe in 2030 (down by 39%). The proposal sets thresholds for energy-efficient district heating and cooling systems. The new requirements pose risks related to the use of natural gas in the energy generation sector.

- Revision of the Promotion of Energy from Renewable Sources Directive (RED)

The RED proposal [COM(2021) 557 final] sets a target to increase, by 2030, the share of energy from renewable sources from 32% to 40%. To this end, the following sector targets have been set for Member States: (1) increasing the share of renewable energy in the amount of energy produced for the industrial sector by 1.1% per year by 2030; (2) increasing the share of renewable energy in the heating and cooling sector by at least 1.1% per year (an annual average calculated for the periods 2021-2025 and 2026-2030); (3) increasing the share of energy from renewable sources and of the use of waste heat and cold in the heating and cooling sector by at least 2.1% per year (an annual average calculated for the periods 2021-2025 and 2026-2030); (4) ensuring, by 2030, a 50% share of renewable hydrogen in renewable fuels of non-biological origin used to produce energy for the industrial sector and as a substrate.

- Proposal for a regulation on the use of renewable and low-carbon fuels in maritime transport

The proposal [COM(2021) 562 final] imposes limits on the greenhouse gas (CO_2, CH_4, N_2O) intensity for ships arriving at, staying within or departing from ports under the jurisdiction of a Member State and the obligation to use on-shore power supply or zero-emission technology in ports under the jurisdiction of a Member State. Additional emission reduction obligations may limit the use of natural gas in maritime transport. New obligations concerning review and measurement of ship emissions are provided for in the proposal, imposing additional administrative burden on fleet owners and operators, which may adversely affect the PGNiG Group companies.

(in PLN million, unless stated otherwise)

	The requirements regarding emissions and the use of port infrastructure at berth will contribute to the growth of the low-emission and renewable gas sector. • Proposed revision of the regulation setting the CO_2 emission performance standards for new passenger cars and new light commercial vehicles The proposal [COM(2021) 556 final] sets a new emission reduction target for passenger cars and light commercial vehicles for 2035, which would in fact ban the registration of new cars emitting CO_2. The ban on the registration of new cars with internal combustion engines from 2035 onward may adversely affect the return on investments in CNG or LNG fuelling infrastructure. The proposal aims to promote the zero-emission vehicle market, which may include hydrogen or biogas vehicles (bioLNG or bioCNG) satisfying the relevant technical requirements. Growing demand for such vehicles may contribute to the growth of the hydrogen market and development of hydrogen distribution and storage infrastructure. • Proposed revision of the Alternative Fuels Infrastructure (AFIR) Directive The AFIR proposal [COM(2021) 559 final] provides for a change of the legal form of the law from a directive to a regulation. The proposed regulation introduces a new category of fuels for a transitional phase – 'alternative fossil fuels' – which covers LNG, CNG, and LPG. The proposal sets the following targets concerning infrastructure: (1) a minimum number of publicly accessible hydrogen refuelling stations put in place by December 31st 2030; (2) an appropriate number of publicly accessible refuelling points for LNG put in place, at least along the TEN-T core network by January 1st 2025; (3) an appropriate number of refuelling points for LNG put in place at TEN-T core maritime ports by January 1st 2025. • Regulation establishing a Social Climate Fund The Social Climate Fund [COM(2021) 555 final] aims to address negative social consequences of the inclusion of the buildings and road transport sectors into the ETS. Initiatives to be financed from the fund include: renovation and decarbonisation of buildings, support for increasing energy efficiency, providing access to zero and low-emission vehicles and bicycles and to free public transport, development of zero and low-emission mobility and transport services. The fund budget is EUR 76.2bn, of which EUR 12.7bn is planned to be allocated to Poland.	
Delegated Regulation 2021/2139 to mitigate and adapt to climate change Supplementing Delegated Regulation to mitigate and adapt to climate change	On June 4th 2021, the European Commission adopted Delegated Regulation required by Regulation (EU) 2020/852 of the European Parliament and of the Council (the 'taxonomy') establishing the technical criteria for climate change mitigation and climate change adaptation. The provisions of the regulation entered into force on January 1st 2022. On February 2nd 2022, the European Commission agreed on a supplementary delegated act to address climate change mitigation and adaptation. It introduces specific criteria for activities involving natural gas and nuclear energy. It provides for the possibility of inclusion of natural gas as a transitional technology in the EU taxonomy, subject to the conditions laid down in the act. The supplementary delegated act will enter into force if no objection is raised by the European Parliament or the Council within four (or possibly six) months of its formal adoption by the European Commission (which has not yet occurred).	The supplementary delegated act may have a moderately positive effect on the PGNiG Group given the inclusion of natural gas as a transitional fuel in the EU taxonomy. On the other hand, the stringent eligibility criteria for new investment projects may impede recognition of the PGNiG Group's projects as environmentally sustainable.
Regulation on methane emissions reduction in the energy sector.	On December 15th 2021, the European Commission published a proposal for a regulation of the European Parliament and of the Council on methane emissions reduction in the energy sector [COM(2021) 805]. The draft regulation lays down rules for the measurement, reporting and verification of methane emissions in the energy sector in the Union, as well as the abatement of those emissions, including: - Obligation to submit leak detection and repair (LDAR) surveys, to immediately repair leaks of 500 ppm (parts per million) or more, and to regularly check the repaired components. - Ban on venting except in the case of defined emergencies and requirements concerning flares and their replacement. The regulation applies to oil and fossil gas upstream exploration and production, gas transmission, distribution, underground storage and liquid gas (LNG) terminals, to operating underground and surface coalmines, closed and abandoned underground	The proposals set out in the draft regulation on methane emissions reduction may involve challenges for the PGNiG Group. As the obligations related to leak detection, quantification and repair (LDAR) and to venting and combustion in flares are very stringent, compliance may be difficult.

(in PLN million, unless stated otherwise)

	coal mines, as well as to active and plugged wells in earth layers resulting from mining operations. The regulation also lays down rules on tools ensuring transparency of methane emissions from imports of fossil energy into the Union.	
Guidelines on State aid for climate, environmental protection and energy (CEEAG)	On December 21st 2021, the European Commission approved the Guidelines on State aid for climate, environmental protection and energy (CEEAG) – [C(2021) 9817 final]. Pursuant to the Guidelines, support for natural gas can only be approved if compliance with the EU climate objectives for 2030 and 2050 is demonstrated. Energy infrastructure (natural gas, biogas – including biomethane or renewable gas of non-biological origin) may be supported. It is possible to support hydrogen energy infrastructure involving newly constructed assets or assets converted from natural gas to hydrogen ('repurposed'), or a combination of the two. The natural gas production sector was considered to be energy-intensive and eligible for aid in the form of electricity price abatements.	The new Guidelines on State aid for climate, environmental protection and energy restrict the scope of financing gas-related projects. The Guidelines also support projects involving the use of renewable and low-emission gases, including biomethane and hydrogen.
NC CAM Regulation	In 2021, the NC CAM Regulation was not amended.	
TAR NC Regulation	In 2021, the NC TAR Regulation was not amended.	

3.3 Changes in the PGNiG Group's environment in early 2022

3.3.1 Situation on the gas market in 2021 and early 2022 in the wake of Russia's invasion of Ukraine

In 2021, there was a sharp rise in the prices of natural gas in the European Union. The increase was driven by Gazprom's policy to cut down gas supplies and insufficient stocks of gas held in underground storage facilities in the European Union ahead of the winter season. Despite a 14% year-on-year increase in demand (in the first half of 2021), imports from Russia into the EU in October and November 2021 fell 25% on the year before. The volume of gas stored in the EU was at its lowest since 2013: in early December, it was 29% below the level recorded in the past two years). The price increase was also generated by a post-pandemic economic recovery and rising prices of the EU's ETS allowances. Gas prices were also affected by increased supplies to Asia (mainly China). As a consequence, the prices of natural gas across European exchanges in the third and fourth quarters of 2021 reached record highs.

Thanks to an increase in LNG supplies to Europe since December 2021 and the relatively mild winter, gas prices on the Amsterdam futures market began to steadily inch down, stabilising in January and February 2022. Until Russia's invasion of Ukraine, the prices remained below EUR 80/MWh. However, what we have seen since February 24th 2022 are the spiralling and highly volatile prices. By March 7th 2022, they rose to EUR 227/MWh (by 284%). A local peak recorded on March 7th 2022 was EUR 354/MWh.

3.3.2 Sanctions against the Russian Federation

In response to the Russian Federation's military attack on Ukraine, the international community, including the United States, the European Union and individual countries, such as the United Kingdom, imposed a barrage of economic and financial sanctions as well as entry restrictions on some Russian nationals. The sanctions were imposed on specific activities or specific entities, including a number of Russian and Belarusian banks (among them the Central Bank), financial institutions, and representatives of the public administration, the military and business.

Sanctions imposed by the EU

The EU's first sanction package on the Russian Federation was imposed after Russia's President signed, on February 21st 2022, a decree on the recognition of 'independence and sovereignty' of the Donetsk and Luhansk territories, of which the Ukrainian government had lost control, issued an order to deploy Russian armed forces and a decision of February 24th 2022 authorising the entrance of Russian troops into the territory of Ukraine.

Initially, the sanctions included visa restrictions and asset freezes for those Duma members who had voted in favour of the independence of the two separatist republics, as well as a ban on dealings in Russian debt issued by the Central Bank and Government of the Russian Federation. In addition, sanctions for violating the territorial integrity of Ukraine were imposed on 27 individuals and legal entities. Irrespective of the sanction measures, another important move was the suspension of the Nord Stream 2 certification process following withdrawal of the energy minister's positive opinion regarding the impact of its certification on gas supply security.

Following the Russian military invasion of Ukraine, i.e. after February 24th 2022, the European Union extended the sanction package to cover Russian bonds, securities and financial instruments. Selected institutions were prohibited from providing specialised financial messaging services used to transmit financial data (so-called 'SWIFT'). A prohibition was imposed on all transactions related to the management of reserves and assets of the Central Bank of the Russian Federation and on accepting deposits in excess of EUR 100 thousand from Russian nationals.

Sanctions imposed by the US

Following recognition by the Russian Federation of the independence of the separatist regions, the United States imposed on that country the first round of sanctions covering, among others, Nord Stream 2 AG and its Managing Director Matthias Warnig.

After Russia had invaded Ukraine, i.e. after February 24th 2022, the US extended the sanction package, imposing further restrictions on the Russian financial markets. Among the sanctioned entities were the Russian Central Bank and commercial banks. As regards the energy sector, the sanctions imposed on Gazprom, Gazprom Neft, Gazprombank, Transneft and other entities restricted their ability to borrow money. Other restrictions concerned the export of technologies, including crude oil processing technologies. They also covered individuals, including representatives of the public administration, the military and business. The US also introduced a ban on imports of Russian crude oil, liquefied natural gas, coal and other commodities.

3.3.3 Reaction of commodity and currency markets to Russia's attack on Ukraine and resulting sanctions

Commodities

Commodities, with several exceptions, have experienced strong price increases since Russia's invasion and sanctions implemented against entities established in or controlled by the Russian Federation and individuals involved in the exercise of authority. Both Russia and, to a certain extent, Ukraine are significant suppliers of commodities for the global economy, and so the current situation caused by the armed conflict has triggered an abrupt spike in commodity prices and significant turbulence on the energy markets.

Given the global importance of crude oil as a production factor for the entire economy, its prices are the first to rise. From February 24th to March 8th 2022, crude oil prices surged 36% (from USD 95 to 129/bbl).

As mentioned above, a range of economic sanctions have been imposed on Russia in response to its aggression on Ukraine, concerning mainly banks and financial institutions. Sanctions imposed before March 10th 2022 did not prevent the transfer of commodities and exclusion from the SWIFT system did not cover Sberbank or Gazprombank, as they were involved in energy supply transactions to the European Union. Consequently, Russian commodities worth hundreds of millions of euro have been imported into Europe every day since Russia's invasion of Ukraine, the transfers being even higher than before war driven by increased demand from customers, who fear a reduction or complete stoppage of deliveries as the military conflict escalates. In view of the uncertain supply situation, further sharp price fluctuations are to be expected on the exchanges over the coming weeks.

The United States, United Kingdom and Canada have already decided to impose a full embargo on Russian crude oil. Some European Union countries (including Poland) have also declared their readiness to immediately stop all imports of Russian commodities. On the other hand, other EU countries are against the imposition of such far-reaching sanctions, being largely dependent on Russian raw materials and justifying their decisions with concerns about the risk of plunging into a severe economic recession if supplies are cut off. Given that member states cannot see eye to eye on this matter, it is unlikely that such sanctions will be imposed by the European Union.

At the same time the Russian market is being increasingly isolated, as a number of oil companies have abandoned their operations and all projects conducted in Russia. Plans to divest Russian assets have already been announced by BP, Shell, Equinor and Exxon, among others. The World Bank has suspended all its programmes in Russia and Belarus. In response to the war in Ukraine and the market's uncertainty over future gas supplies to Europe, many supply diversification and energy transition projects have been fast-tracked. The chancellor of Germany announced that the country had plans to build two regasification terminals. On March 4th 2022, Kreditanstalt für Wiederaufbau (KfW), Gasunie and RWE signed a Memorandum of Understanding concerning an LNG terminal project in Brunsbüttel. In the long term, it should therefore be expected that the current conflict will accelerate Europe's energy transition and the process of overcoming its current dependence on Russian energy supplies. This direction was also outlined in the

Communication from the European Commission ‘REPowerEU: Joint European Action for more affordable, secure and sustainable energy’ (COM(2022) 108), published on March 8th 2022.

Currencies

In view of the current geopolitical developments investors have been turning to safe haven assets, including the strongest convertible global currencies. Since the outbreak of the war in Ukraine, the value of the Russian rouble has plummeted (relative to the US dollar) (by approximately 50%). The armed conflict has also had its toll on the value of the Polish currency, which is placed in the same basket as other Eastern European currencies. Despite currency interventions by the National Bank of Poland, since February 24th 2022 the Polish złoty has lost 13% relative to the US dollar (at the end of March 8th 2022, the exchange rate was 4.51), 8.4% against the euro (4.91) and nearly 12% against the Swiss franc (4.86).

3.3.4 Legislative changes in Poland to address high gas prices

December 10th 2021 and January 29th 2022 saw the entry into force of legislative measures for the protection of certain categories of end users from significant rises in gas fuel prices attributable to the accumulation of a number of market factors, including supply disruptions caused by the dominant gas supplier to the EU. The Act of December 7th 2021 Amending the Energy Law allows sellers of gas fuel to households to take advantage of a mechanism whereby the price tariff approved by the President of URE can cover only a part of the cost of gas fuel purchase with recovery of the actually incurred cost spread over three consecutive years from the end of the effective period of the tariff approved under these regulations. The mechanism was applied by PGNiG Obrót Detaliczny sp. z o.o., whose tariff will remain in effect until the end of 2022.

The Act of January 26th 2022 on Special Measures to Protect Gas Fuel Customers in View of the Situation on the Gas Market, provides for the following mechanisms:

a) A compensation mechanism for natural gas sellers:

- Compensation in respect of gas sales to households to cover the difference between the actual cost of gas supply to tariff customers and revenue derived from tariff prices, and in respect of other vulnerable customers – the difference between the price applied on January 1st 2022 and the tariff price.
- The compensation is settled by dedicated entity Zarządca Rozliczeń S.A. (as in the case of electricity compensation) and financed from the sale of carbon dioxide emission allowances and the COVID-19 Fund.

b) Extension of the list of entities covered by tariff protection:

- Tariff protection has been extended until December 31st 2023 to cover customers performing public service tasks (such as hospitals, schools, nurseries, pre-schools, night shelters, etc.).
- Clarification of the scope of tariff protection afforded to customers providing gas fuel (or gas-derived heat) to households in multi-apartment buildings (such as housing communities, cooperatives and other collective entities).

c) Possibility of providing the ticketing service also by the Government Agency of Strategic Reserves:

- In parallel to the existing methods of holding gas stocks (either on one’s own or by using services provided by other energy companies, such as PGNiG).
- Conclusion of a ticketing service agreement with the Government Agency of Strategic Reserves will involve transfer to the State Treasury, for a consideration, of existing gas stocks and associated storage capacities.

d) Introduction of State Treasury guarantees for energy companies:

- Possibility for the State Treasury to guarantee bank loans or bond issues to ensure continuity of the comprehensive service provided to households by the last resort supplier of gas fuels (PGNiG OD) and of natural gas supplies to Poland by PGNiG S.A.

e) Changes in the methods of providing non-cash collateral by members of the Commodity Exchange Clearing House (IRGiT):

- Extension of the effective period and scope of the temporary arrangements for the provision of non-cash collateral until March 31st 2023 (currently until June 30th 2022).

f) Possibility for the State Treasury to grant loans to energy companies:

- The solution enables the State Treasury to grant loans to the last resort supplier of gas fuels, as referred to in Art. 62c.1 of the Energy Law (i.e. PGNiG OD), so it can secure the continuity of gas fuel sales to households (including funds for balancing, purchase and settlement of purchased gas fuel) and to the entity discharging the obligation to sell a portion gas fed into the national transmission system through the exchange market (PGNiG S.A.) so it can guarantee the supply of natural gas to Poland (including funds for purchase and settlement of gas fuels, and for transmission, storage, distribution and gas fuel storage services).
- The total amount of such loans may not exceed PLN 20bn.

3.3.5 Assessment of the impact of changes in external environment on the PGNiG Group's operations in 2022

The unprecedented surge in commodity prices since September 2021 and the level of price tariffs approved for the fourth quarter of 2021 and for 2022 have caused the cash requirements of PGNiG Group companies to rise as a result of an increase in liabilities under gas purchases, high volumes of gas stocks held in underground storage facilities, and increased margin requirements for gas trading exchange and financial transactions.

In December 2021, PGNiG entered into three new credit facility agreements with Bank Gospodarstwa Krajowego, PKO Bank Polski S.A. and CaixaBank S.A. Poland Branch, increasing its ability to mobilise short-term finance for a period of nine months by a total of PLN 2.7bn. Further short-term credit facility agreements were executed in January 2022 with Societe Generale SA Polish Branch (for PLN 750m) and in February 2022 with a bank syndicate of Bank of China Limited, acting through Bank of China Limited Luxembourg Branch, and Bank of China (Europe) S.A., acting through Bank of China (Europe) S.A. Polish Branch (for PLN 1.2bn), with Deutsche Bank Polska S.A. (for PLN 400m) and with Credit Agricole Bank Polska S.A. (for PLN 200m). As a result, as at the date of this Report, PGNiG SA had access to sources of financing totalling PLN 15.25bn.

The Company is monitoring the price and regulatory environment and will take further steps if needed to increase the available sources of financing.

It is keeping a close eye on how the situation is developing and remains in contact with institutions responsible for international financial flows. The PGNiG Group's financial performance and liquidity will depend on the evolution of commodity prices following the imposition of the sanction regime, which, depending on their scope, may result in reduced supplies to Europe. If any sanctions affecting the settlement of gas supplies are imposed, PGNiG will adapt to the applicable regulations.

PGNiG is also monitoring the situation related to natural gas supplies to the Polish transmission system. Since the beginning of 2022, natural gas has been supplied from across Poland's eastern border in quantities nominated by PGNiG SA.

The Company has a diversified natural gas portfolio based on its own production sources and import contracts. Thanks to the reserved transmission capacity, PGNiG can source natural gas from various directions, including via the LNG Terminal in Świnoujście, from the west and south of Poland. Depending on its balancing needs, the Company books additional interconnector capacities and makes supplementary purchases of gas.

In addition, PGNiG holds stocks of natural gas in underground storage and maintains emergency stocks, which remain at the disposal of the Minister of Energy.

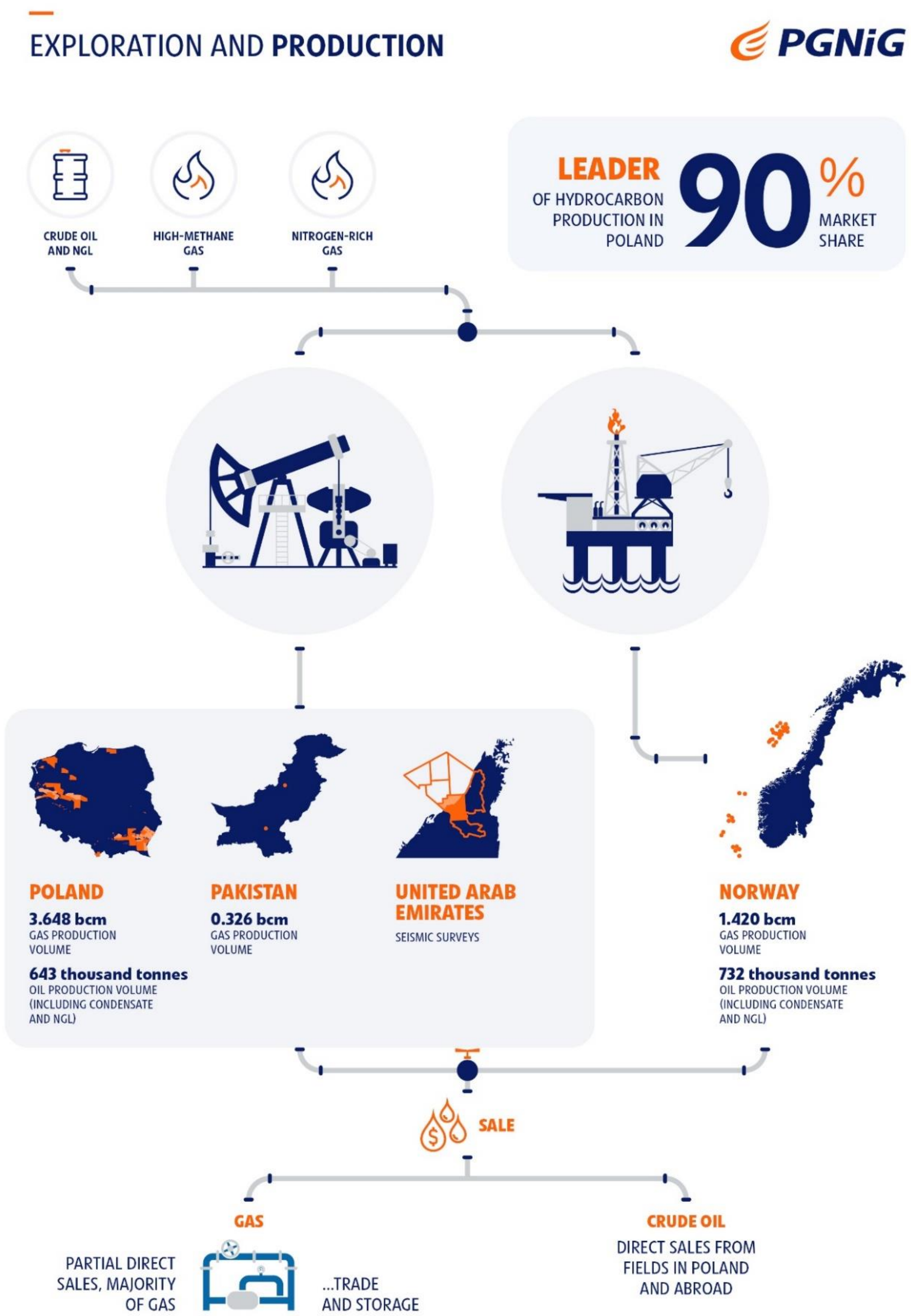
The PGNiG Group's priority is to ensure continuous gas supplies to customers in and outside of Poland.

In Ukraine the PGNiG Group operates through the PGNiG SA Representative Office in Kiev, the Exalo Drilling Group (Exalo Drilling Ukraine LLC) and LLC Karpatgazvydobuvannya (exploration and production activities carried out in cooperation with ERU Management Services). As at the date of this Report, the value of assets engaged in Ukraine did not represent a material part of the Group's total assets. Employees of the PGNiG Group and their families have been evacuated from areas at risk of being affected by the military conflict. The PGNiG Group is actively involved in the provision of humanitarian aid.

4. Operating activities in 2021

4.1 Exploration and Production

The segment's operations consist in exploring for and extracting natural gas and crude oil from deposits, starting from geological surveys, geophysical research and drilling, to development and production of hydrocarbons from gas and oil fields. Its core activities are carried out in Poland, Pakistan, the United Arab Emirates and on the Norwegian Continental Shelf, while support activities are conducted worldwide. The segment also relies on storage capacities available at the Bonikowo and Daszewo UGSFs.



(in PLN million, unless stated otherwise)

4.1.1 Key operating metrics

Table 13 Volumes of PGNiG Group's natural gas production by country in the Exploration and Production segment

mcm	2021 PGNiG Group	2021 PGNiG	2020 PGNiG Group	2020 PGNiG	2019 PGNiG Group	2018 PGNiG Group	2017 PGNiG Group
Poland	3,648	3,648	3,746	3,746	3,815	3,808	3,839
high-methane gas (E)	1,284	1,284	1,337	1,337	1,337	1,296	1,315
nitrogen-rich gas (Ls/Lw as E equivalent)	2,364	2,364	2,409	2,409	2,478	2,512	2,524
Other countries	1,746	326	773	295	674	738	697
Norway (high-methane gas (E))	1,420	0	478	0	481	538	548
PGNiG Pakistan Branch (nitrogen-rich gas (Ls/Lw as E equivalent))	326	326	295	295	193	200	149
TOTAL (measured as E equivalent)	5,394	3,974	4,520	4,041	4,489	4,546	4,536

Table 14 Volumes of E&P segment's natural gas sales to non-PGNiG Group customers by country

mcm	2021 PGNiG Group	2021 PGNiG	2020 PGNiG Group	2020 PGNiG	2019 PGNiG Group	2018 PGNiG Group	2017 PGNiG Group
Poland	667	667	667	667	679	684	676
high-methane gas (E)	23	23	25	25	25	26	30
nitrogen-rich gas (Ls/Lw as E equivalent)	644	644	642	642	654	658	646
Other countries	318	318	296	289	192	199	149
Norway (high-methane gas (E))	0	0	7	0	0	0	0
PGNiG Pakistan Branch (nitrogen-rich gas (Ls/Lw as E equivalent))	318	318	289	289	192	199	149
TOTAL (measured as E equivalent)	985	984	963	956	871	883	825

Table 15 Crude oil* production volumes at the PGNiG Group (including fractions) in the Exploration and Production segment

thousand tonnes	2021 PGNiG Group	2021 PGNiG	2020 PGNiG Group	2020 PGNiG	2019 PGNiG Group	2018 PGNiG Group	2017 PGNiG Group
Crude oil production*	1,376	643	1,324	709	1,216	1,345	1,257
in Poland	643	643	709	709	776	818	787
in Norway	732	0	615	0	440	527	470

** Including condensate and NGL*

Table 16 Crude oil* sales volumes at the PGNiG Group (including fractions) in the Exploration and Production segment

thousand tonnes	2021 PGNiG Group	2021 PGNiG	2020 PGNiG Group	2020 PGNiG	2019 PGNiG Group	2018 PGNiG Group	2017 PGNiG Group
Crude oil production*	1,376	643	1,324	709	1,216	1,345	1,257
in Poland	643	643	709	709	776	818	787
in Norway	732	0	615	0	440	527	470

** Including condensate and NGL*

Table 17 Production volumes of other products in the Exploration and Production segment

thousand tonnes	2021 PGNiG Group	2021 PGNiG	2020 PGNiG Group	2020 PGNiG	2019 PGNiG Group	2018 PGNiG Group	2017 PGNiG Group
Propane-butane	37	37	36	36	39	39	37
LNG	22	22	20	20	20	21	22
mcm							
Helium	3	3	3	3	3	3	3

Table 18 Sales volumes for other products to non-PGNiG Group in the Exploration and Production segment

thousand tonnes	2021 PGNiG Group	2021 PGNiG	2020 PGNiG Group	2020 PGNiG	2019 PGNiG Group	2018 PGNiG Group	2017 PGNiG Group
Propane-butane	37	37	36	36	39	39	37
LNG	16	16	12	12	14	17	17
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. The PGNiG structure includes three leading domestic branches, located in Sanok, Zielona Góra and Odolanów, and two foreign branches: the Operator Branch in Pakistan and the branch in the United Arab Emirates.

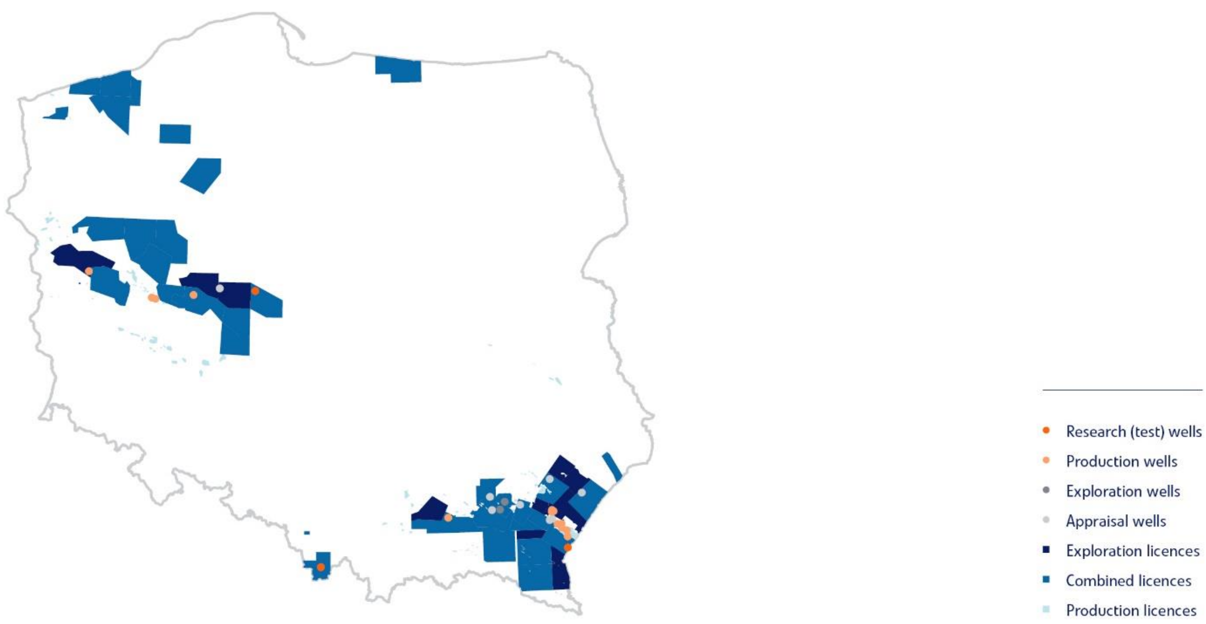
Licences in Poland

As at December 31st 2021, PGNiG held 200 licences, including 188 production licences, three underground waste storage licences and nine underground gas storage licences. In 2021, the Company received three investment decisions in connection with the transition to the production phase, i.e. investment decisions to produce crude oil and associated natural gas. In 2021, PGNiG was granted two new production licences (Miłosław, Miłosław E), nine licences were amended, and three were terminated (Grabina Nieznanowice Liplas hor., Grodzisk-26 and Zielin). At the end of 2021, PGNiG also held 47 licences: 11 licences for exploration for and appraisal of oil and gas deposits and 36 combined licences (for exploration, appraisal and production).

In the reporting period, two licences were relinquished (the Murowana Goślina-Kłecko combined licence for exploration, appraisal and extraction and the Międzyrzecze licence for exploration, appraisal and production of coal bed methane). Two new combined licences were secured, namely Lubycza Królewska and Krotoszyn. In 2021, 70 proceedings were conducted at the Polish Ministry of Climate and Environment for obtaining / amending licences and approving plans of geological operations. Currently, 39 administrative procedures are still pending.

Operations under licences held by PGNiG

Figure 4 PGNiG's licences and wells in 2021



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

In 2021, PGNiG continued crude oil and natural gas exploration and appraisal projects in the Carpathian Mountains, Carpathian Foothills, Przedsudecka Monocline, and Polish Lowlands, both on its own and jointly with partners. Out of the 26 boreholes drilled in 2021, the target depth was reached by 22, including: one test, three exploration, six appraisal and 12 production wells.

As at the end of 2021, formation test results were obtained from 22 wells (four exploration, eight appraisal and ten production wells). The 22 wells with known formation test results included 17 which returned positive results (including one exploration, six appraisal and ten production wells) and five dry wells (including three exploration wells and two appraisal wells) that did not yield an industrial flow of hydrocarbons. In addition, one test well (due to their research nature, such wells are not subject to reservoir classification) was abandoned.

In 2021, workovers, formation tests and decommissioning operations were also performed on wells drilled in previous years, including on: seven test wells (including five abandoned wells: Gilowice-3K, Gilowice-4H, Gilowice-1, Międzyrzecze-3, Orzesze-1, with formation tests completed on two wells: Kramarzówka-1K, Kramarzówka-3), four exploration wells (including three abandoned wells and one well on test production), and three appraisal wells (of which one was abandoned and two had formation tests completed and were awaiting further work.)

In 2021, three new fields were brought on stream at the Sanok Branch of PGNiG: Jastrzębiec (Jastrzębiec-2 and Jastrzębiec-3 wells – as part of a long-term production test), Wielgoszówka (Wielgoszówka-1K well – as part of test production), Kramarzówka (Kramarzówka-3H and Kramarzówka-1K wells) and six wells on the already producing fields: two wells on the Pruchnik-Pantalowice field (Pruchnik-36 and Pruchnik-37K – as part of a long-term production test), and four wells on the Przemyśl field (Przemyśl-287K, Przemyśl-289K, Przemyśl-290 and Przemyśl-15 – as part of a long-term production test).

In 2021, a total of 11 wells were tied in at the Sanok Branch. In the Zielona Góra Branch region, a new field Wielichowo W (Wielichowo-8 well) and one well on the Brońsko field (Brońsko-30) were brought on stream.

(in PLN million, unless stated otherwise)

In 2021, after the expiry of the relevant licences, production from the Grabina Nieznanowice Liplas hor., Grodzisk-26 and Zielin).

Table 19 PGNiG's hydrocarbon production sites

No. of production facilities	Sanok	Zielona Góra
Gas production facilities	18	10
Oil production facilities	5	1
Oil and gas production facilities	11	7
Total	34	18

Operations in licence areas conducted with partners

In 2021, in its licence areas PGNiG cooperated with other entities, including: LOTOS Petrobaltic S.A. and ORLEN Upstream Sp. z o.o.

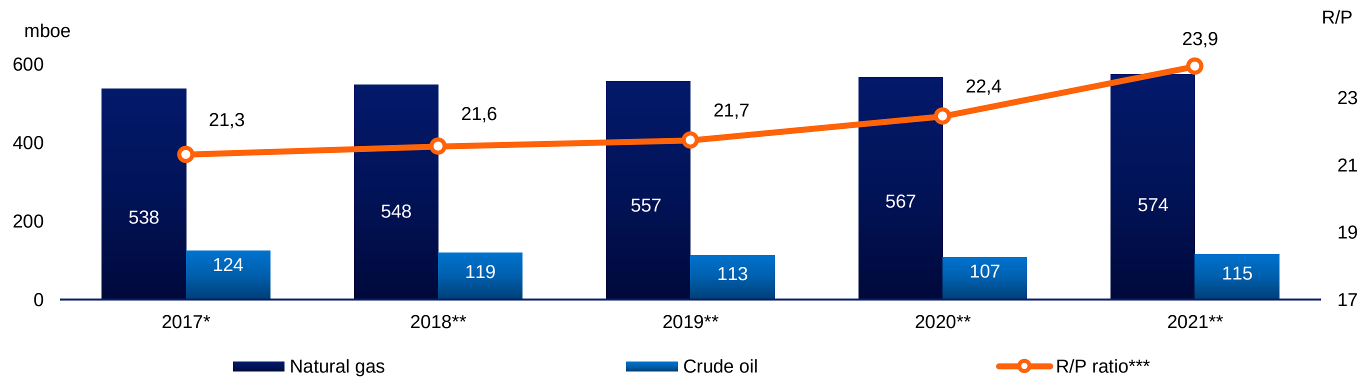
Under licences held by PGNiG, work was continued in the following areas:

- Płotki – under the joint operations agreement dated May 12th 2000; licence interests: PGNiG (operator) – 51%, ORLEN Upstream Sp. z o.o. – 49%. The Bystrzek-1 exploration well was drilled, yielding negative reservoir results in Rotliegend formations; the well was abandoned. Work was carried out on the development of the Grodzewo-1 well. Work on the development of the Chwalęcin-1K well continued. Preparations for the drilling of the Rogusko-1K well started;
- Poznań – under the joint operations agreement dated June 1st 2004; licence interests: PGNiG (operator) – 51%, ORLEN Upstream Sp. z o.o. – 49%. The drilling of the Miłosław-7H appraisal well commenced;
- Sieraków – under the joint operations agreement dated June 22nd 2009; licence interests: PGNiG (operator) – 51%, ORLEN Upstream Sp. z o.o. – 49%. Tests on the Sieraków 2H well were completed;
- Górowo Iławieckie – under the agreement on joint operations of December 31st 2014; licence interests: PGNiG (operator) – 51%, LOTOS Petrobaltic S.A. – 49%. The agreement was terminated by LOTOS Petrobaltic S.A. by a letter of June 1st 2021. In accordance with the letter from the Ministry of Climate dated December 22nd 2021 amending the Górowo Iławeckie licence, PGNiG S.A. became the sole owner of the Górowo Iławeckie licence.

Recoverable reserves

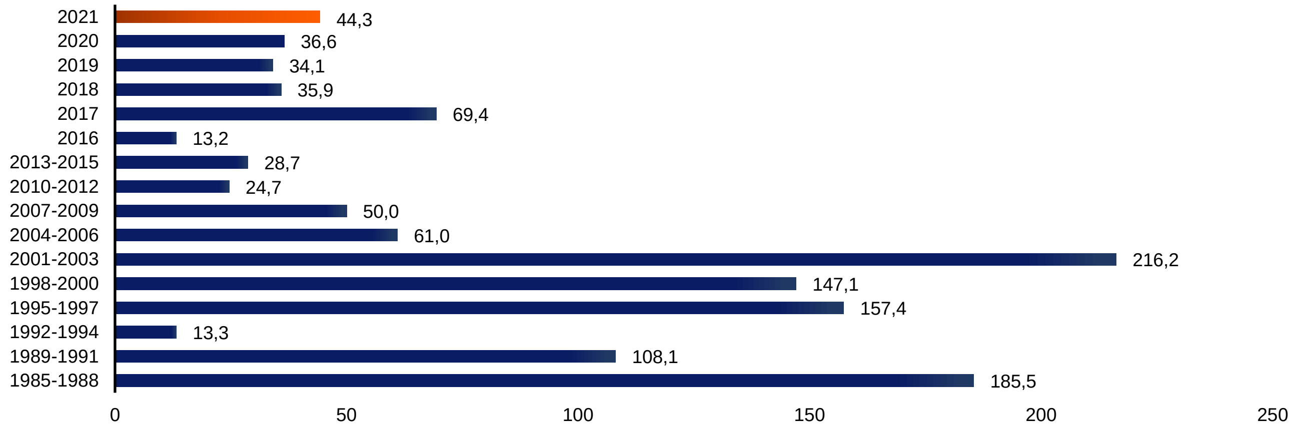
As at December 31st 2021, the total recoverable reserves (including reserves covered by geological prospecting documentation as well as clearance documentation submitted to the Ministry of Climate and Environment, pending approval by the Minister) were 15.7 million tonnes of crude oil (approximately 115.4 mboe) and 89.1 bcm of natural gas (high-methane gas equivalent) (ca. 574.3 mboe).

Chart 8 Recoverable reserves documented by PGNiG in Poland in 2017–2021 and the R/P ratio (mboe)***



** Includes reserve increase specified in the documentation approved by the Commission for Mineral Resources, pending approval by the Minister.*
*** Including reserves covered by the submitted geological prospecting documentation and clearance documentation, pending approval by the Minister.*
**** Ratio of the hydrocarbon reserves to the production volume.*

Chart 9 Recoverable reserves documented by PGNiG in Poland in 1988−2021 (mboe)



** Increase in recoverable reserves in 2020, including verification documentation.*

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, yielding also such products as LNG, gaseous and liquid helium, and liquid nitrogen. Other commercial products derived from crude purification include sulfur and propane-butane.

As regards trading in crude oil extracted in Poland, in 2021 PGNiG continued its trading partnership with major Polish and foreign players in the fuel sector. Crude oil was delivered by rail to ORLEN Południe S.A.'s Trzebinia Production Plant and the Grupa LOTOS refinery in Gdańsk. Supplies to ORLEN Południe S.A.'s Jedlicze Production Plant were delivered by road. Crude oil was also supplied, via the PERN pipeline, to TOTSA TOTAL ENERGIES TRADING S.A. PGNiG sells crude oil at market prices.

Competition

Domestic production of natural gas in Poland in 2021 was approximately 40.5 TWh, of which 0.5 TWh was produced by competitors of PGNiG. Competitors' share in the production of natural gas in Poland is approximately 1.2%.

Key projects and investments in Poland

In 2021, PGNiG's capital expenditure in the Exploration and Production segment (in Poland) was approximately PLN 668m. The key exploration / appraisal / research projects in 2021 included:

- drilling of the Rycerka Dolna 1 and Lisiniec 1 test wells;
- drilling of the Miłosław 7H and Kulno 3 appraisal wells;
- drilling of the Brońsko 31H and Brońsko 32 production wells;
- drilling of the Chałupczyn 1 and Zabiała 2 exploration wells.

PGNiG's capital expenditure on exploration activities in Poland was approximately PLN 351m. The key projects in 2021 included:

- development of the following wells: Przemyśl 15, 287K, 289K, 290K, 291, 292, 316 and 318;
- development of the Jastrzębiec 2, 3 wells;
- development of the Wielgoszówka 1 well;
- development of the Pruchnik 36, 37K well;
- installation of a compressor unit at the Wola Różaniecka Gas Processing Facility – Tarnogród Gas Production Site;
- installation of a compressor unit at the Łukowa Gas Processing Facility – Tarnogród Gas Production Site;
- installation of compressor unit at the Dzików Gas Processing Facility – Lubaczów Gas Production Site;
- development of the Wielichowo-8 well;
- development of the Brońsko-30 well.

4.1.3 Foreign operations

Norway

Figure 5 PGNiG UN licences and fields

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

PGNiG Upstream Norway holds interests in production and exploration/production licences on the Norwegian Continental Shelf in the Norwegian Sea and in the North Sea. Together with its partners, the company is producing hydrocarbons from the Skarv, Ærfugl, Ærfugl Nord, Morvin, Vilje, Vale, Gina Krog, Skogul, Kvitebjørn, Valemon, Duva, Ormen Lange, Marulk and Alve fields, while developing the Tommeliten Alpha field and implementing the third development phase on the Ormen Lange field. Nearing completion is the work on development concepts for the Shrek, Alve Nord, Cape Vulture, Fogelberg and King Lear fields. In addition, PGNiG UN holds interests in the Tambar Øst field, from which production has temporarily been suspended, and the Nyhamna terminal, where gas is finally separated from the well streams of Ormen Lange and other fields. Within the other licence areas, PGNiG UN is engaged in exploration projects and working to ensure stable and predictable 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 3.2.2.

In 2021, the company produced a total of 732 thousand tonnes of crude oil with condensate and NGL (measured as tonnes of crude oil equivalent), and 1.4 bcm of natural gas from its producing fields. The production volumes were higher than in 2020, mainly as a result of the acquisition of INEOS on September 30th and the launch of production from the Duva, Ærfugl and Ærfugl Nord fields (phase 2).

2021 saw the launch of development work on the Tommeliten Alpha field and the third development phase on Ormen Lange, where PGNiG UN is a partner. The respective field operators are ConnocoPhilips and Shell. First oil from the Tommeliten Alpha field is expected in 2024, and an increase in production from the Ormen Lange field is expected following completion of the third development phase in 2025.

In late September 2021, PGNiG UN completed the acquisition of INEOS E&P Norge AS. INEOS E&P Norge AS ("IEPN") held interests in 22 licences on the Norwegian Continental Shelf covering, among others, three production fields (Alve, Marulk and Ormen Lange), and owned the Nyhamna gas terminal. The estimated volume of hydrocarbon resources attributable to IEPN's licence interests as at the effective transaction date was approximately 117 mboe (as at January 1st 2021), of which over 94% were natural gas resources. Following the transaction, PGNiG UN's estimated average gas output in Norway may increase by some 1.5 bcm per annum over the next five years. In addition, PGNiG UN will acquire a portfolio of exploration licences in which IEPN was the operator under six licences.

The contractual purchase price for IEPN was agreed at USD 615m (PLN 2,275m) with the effective transaction date set on January 1st 2021. The final purchase price was reduced by revenue earned by IEPN in the period from the effective transaction date, i.e. January 1st 2021, to the date on which PGNiG UN acquired operational control of IEPN (September 30th 2021), and amounted to approximately USD 323m (PLN 1,289m).

(in PLN million, unless stated otherwise)

As a result of the transaction to acquire IEPN, in 2021 PGNiG UN also achieved a significant increase in proven reserves, from 214 mboe at the beginning of the year to 309 mboe at the end of 2021. The increase in reserves, in addition to the acquisition described above, was also driven by the recognition of reserves of the Fogelberg field and the re-evaluation of reserves at the other fields held by PGNiG UN.

In January 2021, another APA 2020 (Awards in Pre-defined Areas) round was concluded, as a result of which PGNiG UN obtained interests in four exploration licences:

- the PL146B licence (extension of the King Lear field). The licence operator is Aker BP (77.8%), with the remaining interest held by PGNiG UN (22.2%).
- the PL1088 licence located in the North Sea in the immediate vicinity of the PL146 licence (King Lear). The ownership structure is identical to the ownership structure of the King Lear project. The licence operator is Aker BP (77.8%), with the remaining interest held by PGNiG UN (22.2%). The work programme includes geological and geophysical surveys with the decision whether to drill an exploration well to be made within the next two years.
- the PL1123 licence, in which PGNiG obtained a 30% interest, located near the Skarv field on the Norwegian Sea. The operator is ConocoPhillips (a 40% interest) and the other partner, apart from PGNiG UN, is Aker BP (30%). Also in this case, the shareholders have two years to decide whether to drill an exploration well.
- the PL1124 licence, in which PGNiG UN received 11.9175% interest, is located in the Norwegian Sea in the immediate vicinity of the Skarv field. Aker BP became the operator on the licence (a 23.835% interest), and the other partners are Equinor (36.165%) and Wintershall Dea (28.0825%). The interest holders have two years to decide whether to drill an exploration well.

All four licence areas are located close to the existing production and pipeline infrastructure, so if a decision to proceed with their development is made, the process will be simpler and faster. All four licences are also located in the immediate vicinity of the fields where PGNiG UN is already present (Skarv and King Lear). In the case of commercial discoveries, their potential tie-back to Skarv and King Lear would offer additional synergies in the form of incremental revenue derived from the provision of access to the existing infrastructure of the Skarv and King Lear fields.

In January 2022, another APA 2021 (Awards in Predefined Areas) round was concluded, as a result of which PGNiG UN obtained interests in four exploration licences:

- the PL941B licence area (extension of the 941 licence area), located near the Skarv field. The licence operator is Aker BP (80%), with the remaining interest held by PGNiG UN (20%). The consortium have two years for a drill or drop decision.
- the PL1055C licence, which is an extension of the PL1055 and PL1055B licences, located near the Ormen Lange field. The licence operator is PGNiG UN (holding a 60% interest) and Shell is the sole partner (with a 40% interest). A drill or drop decision for the Tomcat prospect, which extends within the area covered by all the three licences (PL1055/PL1055B/PL1055C), is due in February 2022.
- the PL1135 licence, in which PGNiG obtained a 70% interest, located in the North Sea, some 45 km east of the King Lear field. PGNiG UN will act as the operator of the licence, while LOTOS Norge will be the sole partner. The interest holders have two years to decide whether to drill an exploration well.
- the PL1136 licence, in which PGNiG obtained a 50% interest, located in the south-eastern part of the North Sea. PGNiG UN acts as the operator of the licence, with Equinor as the sole partner (with a 50% interest). The interest holders have one year to decide whether to drill an exploration well.

Jointly with its partners, PGNiG UN also continued work in other exploration licence areas. In the second half of 2021, PGNiG UN was involved in the drilling of two wells. Under the PL939 licence, in which PGNiG UN holds a 30% interest, the company drilled an exploration well discovering a new deposit (Egyptian Vulture), located in the vicinity of the Åsgard and Tyrihans fields. At present, the resources of the discovery and the viability of their commercial development are being assessed. A second well was drilled within the PL937 licence area (obtained as part of the acquisition of INEOS), in which the company holds a 65% interest. As it had encountered no hydrocarbons, the well was classified as dry and the related capital expenditure was written off in 2021.

As at December 31st 2021, PGNiG UN held interests in 58 exploration and production licences on the Norwegian Continental Shelf, in eight of them as the operator. At the beginning of 2022, the number of licences grew to 62 following the APA 2021 licensing round.

Table 20 PGNiG UN deposits as at December 31st 2021

Licence	Operator	Interest	Type of deposit	Type of licence	Planned activities
PL19G (Tambar Øst)	Aker BP	34% (5.44% interest in the project)	Oil field	Production	Planned restart of production
PL029B (Gina Krog)	Equinor	20% (11.3% interest in the project)	Oil and gas field	Exploration/production	Production, exploration
PL029C (Gina Krog)	Equinor	29.63% (11.3% interest in the project)	Oil and gas field	Exploration/production	Production, exploration
PL036D (Vilje)	Aker BP	24.24%	Oil field	Production	Production
PL044 (Tommeliten Alpha)	ConocoPhilips	30% for exploration (42.1978% interest in Tommeliten Alpha)	Gas and condensate field	Exploration/development	Exploration, start of development

(in PLN million, unless stated otherwise)

PL036 (Vale) PL249 (Vale)	Spirit	24.24%	Gas and condensate field	Production	Production
PL122 (Marulk) PL122B (Marulk) PL122C (Marulk) PL122D (Marulk)	Var Energi	30%	Gas field	Production	Production
PL127C (Alve Nord)	Aker BP	11.92%	Gas and condensate field	Development	Preparation of a development concept
PL146 (King Lear) PL146B (King Lear) PL333 (King Lear)	AkerBP	22.20%	Gas and condensate field	Exploration/development	Final work on a development concept
PL134B (Morvin) PL134C (Morvin)	Equinor	6%	Oil field	Production	Production, exploration
PL159B (Alve) PL159G (Alve)	Equinor	15%	Oil and gas field	Production	Production/development
PL157F (Osprey)	Equinor	7.50%	Gas field	Appraisal	Assessment of development potential
PL193 (Kvitebjorn) PL193B (Kvitebjorn) PL193C (Kvitebjorn)	Equinor	6.45%	Gas and condensate field	Production	Production, exploration
PL193D (Valemon)	Equinor	6.45% (3.225% in the project)	Gas and condensate field	Production	Production, exploration
PL208 (Ormen Lange)	PGNiG UN (Project operator – Shell)	45% interest in the licence (14.0208% interest in the project)	Gas field	Exploration/production/development	Exploration/production/development
PL250 (Ormen Lange)	Shell	9.44% (14.0208% interest in the project)			
PL212 (Skarv) PL212B (Skarv) PL262 (Skarv)	AkerBP	15% (11.9175% interest in the project)	Oil and gas field	Exploration/production	Production, exploration
PL261C (Skarv)		11.92%			
PL212E (Ærfugl Nord)	AkerBP	15%	Gas and condensate field	Production	Production
PL433 (Fogelberg)	Spirit	20%	Gas and condensate field	Appraisal	Preparation of a development concept
PL460 (Skogul)	Aker BP	35%	Oil field	Production	Production
PL636 (Duva) PL636C (Duva)	Neptune	30%	Gas and condensate field	Production	Production
PL636B	Neptune	30%		Exploration	Decision on drilling to be made in June 2022
PL838 (Shrek)	Aker BP	35%	Oil field	Appraisal	Preparation of a development concept
Op.PL838B	PGNiG UN	40%		Exploration	Decision on drilling to be made by March 2023
PL937 (Fat Canyon) PL937B (Fat Canyon)	PGNiG UN	65%		Exploration	Licence relinquished in March 2022
PL939 (Egyptian Vulter)	Equinor	30%	Oil and gas field	Appraisal	Assessment of development potential of the discovery made in 2021
PL941 (Gronlifielet)	AkerBP	20%		Exploration	A decision was made to drill an exploration well in 2022
PL997 (Wheeljack)	Shell	30%		Exploration	Decision on drilling to be made by March 2023
PL1009 (Warka) PL1009B (Warka)	ConocoPhilips	35%		Appraisal	Drilling of appraisal well planned
PL1013 (Rafiki) PL1013B (Rafiki)	Petrolia	40%		Exploration	In March 2022 a decision was made to drill an exploration well
PL1017 (Copernicus)	PGNiG UN	50%		Exploration	A decision was made to drill an exploration well in 2022
PL1055 (Tomcat) PL1055B (Tomcat)	PGNiG UN	60%		Exploration	DoD* decision initially planned for February 2022. Decision making. Decision expected to be delayed by several months
PL1064 (Peder)	ConocoPhilips	30%		Exploration	Well to be drilled in 2022
PL1065 (Skua)	Var Energi	30%		Exploration	Licence relinquished in February 2022
PL1088 (Timon South)	Aker BP	22.20%		Exploration	DoD decision* in February 2023
PL1101 (Wamba)	OMV	30%		Exploration	DoD decision* in February 2023
PL1103 (Condor)	Wintershall	30%		Exploration	DoD decision* in February 2023
PL1111 (Picual)	PGNiG UN	60%		Exploration	DoD decision* in February 2023
PL1123 (Nise South)	ConocoPhilips	30%		Exploration	DoD decision* in February 2023
PL1124 (Nise)	Aker BP	11.92%		Exploration	DoD decision* in February 2023

Table 21 Hydrocarbon reserves on the Norwegian Continental Shelf, by licence, in mboe as at December 31st 2021

LP	Licence	Crude oil	Natural gas	NGL	Total reserves
1	Skarv & AErfugl	4.99	23.57	5.33	33.88
2	Aerfugl Nord	0.23	2.15	0.33	2.72
3	Morvin	0.68	0.47	0.20	1.35
4	Gina Krog	3.81	8.17	1.36	13.35
5	Vilje	3.33	-	-	3.33
6	Vale	0.25	0.43	-	0.68
7	Skogul	1.75	0.07	-	1.82
8	Tommeliten Alpha	15.31	41.58	1.85	58.74

(in PLN million, unless stated otherwise)

9	King Lear	14.80	21.44	3.48	39.72
10	Duva	5.83	11.81	2.73	20.37
11	Alve Nord	0.50	2.07	0.46	3.04
12	Shrek	2.96	1.94	0.43	5.32
13	Kvitebjorn	1.78	8.60	0.39	10.78
14	Valemon	0.21	1.33	0.02	1.56
15	Fogelberg	0.77	7.65	1.48	9.90
16	Ormen Lange	3.04	91.44	-	94.48
17	Marulk	0.15	2.37	0.42	2.94
18	Alve	0.39	3.53	1.08	4.99
19	Tambar Ost	0.02	0.00	0.00	0.03
	Total reserves	60.81	228.61	19.58	309.00

Producing fields

The Skarv and Ærfugl fields came on production in December 2012 and 2020, respectively. Both fields are tied back to the Skarv FPSO floating platform, which has a long assumed service life – the platform is an attractive production and transportation hub for further discoveries in the region.

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 by tankers (with intermediate reloading at sea). 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. Given the high gas prices at the beginning of the fourth quarter of 2021, a decision was made to temporarily halt gas injection into the field, which has helped optimise the project's profitability.

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.

The Vale field is a gas and condensate field discovered in the North Sea in 1991. Despite downtimes that occurred in 2018–2020, output from the Vale field is expected to rise in the coming years as a result of recent investments made in the Heimdal platform.

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

Skogul is on oil field situated in the North Sea near the Vilje field. The development plan covered drilling one well connected to the subsea facilities of the Vilje field, and then using the existing infrastructure, including the Alvheim FPSO platform. Production started in the first quarter of 2020.

The Kvitebjørn field was discovered in 1994 and the decision to develop the asset was made in 2000. Production started in 2004. The development involved construction of a dedicated rig with a permanently drilling unit. This allows more wells to be drilled as part of further development of the field.

The Valemon field was discovered in 1985 and the investment decision was approved in 2011. Production started in 2015. The development consisted of erecting an unmanned platform with a simplified separation system. Pre-separated oil is transported to the Kvitebjørn platform, while gas is delivered to the Heimdal platform. At present, due to the planned decommissioning of the Heimdal platform, a project is underway to divert gas for further processing to the Kvitebjørn platform.

Duva is an oil and gas field located in the northern part of the North Sea. It was discovered in 2016, the investment decision was made in 2019 and production started in August 2021. The development concept is based on a subsea template with three oil wells and one gas well, tied back to the Gjøa platform. Oil is transported from the Gjøa platform through Troll Oil Pipeline II to the Mongstad terminal, while gas is carried through the FLAGS system to the UK St Fergus terminal.

Ærfugl Nord (formerly Snadd Outer) is a condensate and gas field discovered in 2012. The field development decision was made in 2018, and production started in November 2021. The development is based on one well tied back through the Ærfugl gas pipeline to the Skarv FPSO. The condensate output is shipped by tankers directly from the Skarv FPSO, while gas is transferred to the Kårstø terminal.

Ormen Lange is the second largest gas field in Norway after Troll, located in the southern part of the Norwegian Sea. The field was discovered in 1997 and the decision to develop the asset was made in 2004. Production started in September 2007. The field development is divided into phases. In 2021, the third development phase was launched, consisting in the installation of compressor units on the seabed to enable more efficient recovery of the field's reserves in the future. Extracted hydrocarbons are transported to the Nyhamna terminal, where they are separated into gas and condensate. Interests in the field were acquired by PGNiG UN along with shares in the Nyhamna terminal in 2021 as part of the acquisition of INEOS E&P Norge AS.

Marulk is a gas field located in the Norwegian Sea. The deposit was discovered in 1992, the investment decision was made in 2010, and production started in 2012. The field was developed with a subsea template tied back to the Norne FPSO, from which oil is taken by tankers and gas is shipped to the Kårstø terminal. Interests in the field were acquired by PGNiG UN as part of the acquisition of INEOS E&P Norge AS.

Alve is a gas and oil field discovered in 1990. The investment decision was made in 2007 and the field came on production in 2009. The development concept is based on three wells connected to a subsea template, as in the case of Marulk tied back to the Norne FPSO. Interests in the field were acquired by PGNiG UN as part of the acquisition of INEOS E&P Norge AS.

Tambar Øst is an oil field located in the southern part of the North Sea, 2 km away from the Tambar field. It was discovered, developed and brought on production in 2007. The development concept is based on one well drilled from the subsea template of the Tambar project. Crude oil produced from the field is initially separated on the Ula platform and then transferred via the Ekofisk infrastructure to the Teeside terminal. Production from the field was temporarily discontinued, and is currently expected to be resumed in 2024.

Deposits in the phase of development or selection of development concept

Tommeliten Alpha is a gas and condensate discovery 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.

King Lear is a gas and condensate discovery located in the North Sea. In 2021, a field development concept was selected, which will involve a tie-back to the Valhall platform. A final investment decision is expected in 2022. At present, production is expected to start in 2027.

Shrek is an oil discovery 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. The operatorship was transferred to Aker BP for the duration of the development phase. A final investment decision is due in 2022, while production is expected to commence in 2025.

Alve Nord was discovered in 2011. At present, work on the field development concept is being conducted by Aker BP as the project operator. A final investment decision is due in 2022, while production is to commence in 2025.

Fogelberg is a condensate and gas discovery located in the Norwegian Sea, north-east of the Morvin field. In 2021 the field development concept was selected, which should enable a final investment decision to be made in 2022. At present, production is expected to start in 2026.

Exploration/appraisal prospects

Warka is an oil prospect located in the immediate vicinity of the Skarv FPSO. The deposit was proven through an exploration well drilled in 2020 by ConocoPhilips. According to preliminary calculations, the recoverable reserves of the Warka field within the PL1009/1009B licence areas are approximately 50–189 mboe. At present, drilling of an appraisal well is planned to confirm commercial viability of the discovery.

Alve Nord East/Cape Vulture is a deposit located within the PL127C, PL128 and PL128D licence areas. In 2022, unitisation of the licences is to be negotiated for the field to be developed. PGNiG UN holds interests only in the PL127C licence. PGNiG UN's involvement in the planned development of the field will depend on the negotiated terms of the unitisation.

Egyptian Vulture is a discovery made in 2021 in the vicinity of the Tyrihans deposit. At present, the viability of its commercial development is being assessed. The possibility of drilling an appraisal well is also being considered. PGNiG UN holds a 30% interest in the discovery.

Sales of hydrocarbons

Crude oil is sold directly from the fields to Shell International Trading and Shipping Company Ltd (crude from the Skarv Unit, Vilje, Vale, Skogul, Kvitebjørn, Valemon, Ærfugl Nord 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 PGNiG Group company.

Changes in the regulatory environment

2021 is the second year in which temporary uplifts to support the oil industry in the economic downturn caused by COVID-19 apply. In 2021, as in 2020, the uplifts apply for all investment projects. From 2022 onwards, only new investment projects approved between June 2020 and December 2022 will be subject to tax credits.

Temporary changes to the tax system include:

- direct expensing of development capital expenditure incurred under the special petroleum tax regime (56%) in the year in which the expenditure was made;
- uplift for the directly expensed investments of 24% of the investment – in the investment year (previously the uplift was 20.8%, spread over four years);
- the direct expensing and the uplift apply for all costs incurred in 2020 and 2021 and for all expenditure on new projects approved for execution (until the end of 2022);
- refund to oil producers of the tax value of losses for income years 2020 and 2021. The refund is paid in bi-monthly tranches, starting from August 2020.

These amendments significantly affect the profitability of investment projects and accelerate the return on invested funds. The regulations have a positive effect on the rate of return on projects and the liquidity of PGNiG UN. They also encourage new investments on the Norwegian Continental Shelf.

In addition, at the end of August 2021 the Norwegian ministry in charge of the taxation system proposed amendments to the special petroleum tax. The key elements of this proposal are as follows:

- investment costs are to be expensed immediately in the tax base, replacing the current six-year tax depreciation and four-year uplift;
- the rate of the special petroleum tax is to be raised to 71.8%, while the normal income tax is to be deductible against the special petroleum tax base. Combined, these changes are intended to keep the marginal tax rate unchanged at 78%;
- the tax value of special petroleum tax losses is to be fully offset in cash in the following year;
- any losses under the ordinary income tax regime carried forward between years will be free of interest accrued to increase the tax shield as a result of the losses carried forward;
- the amendments will not apply to investments covered by the provisional tax rules introduced in 2020.

At present, the proposal is still pending approval. The Company believes that the proposed changes are neutral from the perspective of the rate of return on its current and future investment projects.

At the same time, the Company does recognise the positive impact of the proposed tax regime on its financial charges. In the case of projects for which a final investment decision is to be taken after 2022, the proposed amendments will significantly accelerate returns on invested capital, and investment projects will consequently represent a lower financial burden for investors.

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. 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%. In addition, PGNiG acquired a 25% non-operator interest in the Musakhel exploration licence. The other shareholders are PPL as the operator, with a 37.2% interest, as well as Oil and Gas Development Company Limited (OGDCL) and Government Holding Private Limited (GHPL), with 35.3% and 2.5% interests, respectively.

Reserves as at the end of 2021 (nitrogen-rich gas converted to high-methane gas, attributable to PGNiG) reached approximately 6.31 bcm (40.7 mboe), including the Rehman field with 4.68 bcm (30.1 mboe) and the Rizq field with 1.64 bcm (10.6 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 ten wells in 2020, was approximately 326 mcm of gas (measured as high-methane gas equivalent). As part of the Rehman field development, drilling of the Rehman–8 well was launched, and preparation work for drilling the Rizq–4 well is also under way. The Rehman-7 well was plugged, as the flow of gas was non-commercial. In total, approximately 3.3 km were drilled in the Rehman–8 well in 2021.

As part of the continuing exploration work within the Kirthar licence area in 2021, the Pakistan Branch and the Geology and Hydrocarbon Production Branch completed the interpretation of a 3D seismic profile of the Rayyan prospect and 2D seismic profile of the W2 prospect.

In 2021, acquisition and interpretation of gravimetric data was completed within the Musakhel licence area.

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.

In 2021, intensive work was undertaken to process and interpret seismic data, whose acquisition in Block 5 was completed in May 2020. As a result of the analytical work, the existing geological structures and potential hydrocarbon accumulations were identified, and the location of the first exploration well was determined. In addition, preparatory work was carried out relating to market research and the outsourcing of well drilling services. The drilling project plan was drawn up and approved by the partners. As part of the acquisition work, resource analysis and economic modelling of the viability of Block 7 investment in Ras Al Khaimah were carried out, as well as the possibility to commence seismic acquisition work within other blocks in the emirate of Ras al Khaimah. The PGNiG Branch in UAE is also engaged in ongoing negotiations concerning the acquisition of exploration rights in other emirates.

Ukraine

PGNiG and ERU Management Services signed an agreement providing for the purchase by PGNiG of a controlling 85% interest in Ukraine's Karpatgazvydobuvannya, the sole holder of the Byblivska licence located in Western Ukraine, in an area adjacent to the Polish border. Karpatgazvydobuvannya holds a licence to explore for and produce hydrocarbons in the western part of the Lviv Oblast. In terms of geology the area is an analogue of Przemyśl, Poland's largest natural gas field operated by PGNiG for more than 60 years. Its attractiveness and potential have been confirmed through PGNiG's preliminary analyses of geological and geophysical data.

Libya

Due to mounting safety issues in Libya in early second half of 2014, PGNiG UN gave notice of force majeure to the National Oil Corporation (NOC). In October 2020, a ceasefire agreement was signed between the parties to the conflict and universal presidential and parliamentary elections were announced to be held in December 2021, and the unification of Libyan governmental institutions was also declared. Due to late announcement of the legal basis for the presidential election and the unexpectedly high number of candidates, the election date was first postponed to January 2022 and then to a later unspecified time.

The Company continuously monitors political developments in Libya, particularly the security of its operations in the country. Taking advantage of the 2021 stabilisation of the political situation in Libya, PGNiG UN took preparatory steps to resume its exploration works as soon as the force majeure is revoked: between May and October 2021, three reconnaissance trips were made to the Tripoli area, during which a meeting was held with the management of National Oil Corporation and representatives of Zallaf, the company conducting exploration and appraisal work within a licence area adjacent to CA113.

Key projects and investments abroad

PGNiG's total expenditure on its upstream operations abroad was approximately PLN 68.7m, of which capital expenditure incurred in Pakistan in 2021 reached approximately PLN 64.4m and in the United Arab Emirates – PLN 4.3m.

2021 was a record year for PGNiG UN in terms of its capital expenditure, which was approximately NOK 5.56bn (ca. PLN 2.52bn). Net of acquisitions, capital expenditure in Norway was approximately NOK 2.84bn (PLN 1.29bn). In 2021, PGNiG UN took steps to significantly ramp up production and enhance its operating performance by investing in:

- acquisition of INEOS E&P Norge AS;
- completion of investment works and launch of production on the Duva, Ærfugl and Ærfugl Nord fields;
- launch of investment works on the Tommeliten Alpha field and the third development phase on Ormen Lange;
- preparation of development concepts for the King Lear, Alve Nord, Fogelberg, Cape Vulture and Shrek deposits;
- further investment works on currently producing fields.

4.1.4 Activities supporting the segment in Poland and abroad

Geophysical, geotechnical, geological and drilling services and seismic surveys

Geofizyka Toruń S.A. is a supplier of innovative geophysical, geotechnical and geological and drilling solutions to the multi-utility and RES sectors in Poland and abroad. In 2021, the company engaged in the following activities:

- acquisition of seismic data in Poland, Croatia, Ireland, Colombia and Mozambique;
- processing and interpretation of seismic data for partners from Poland, Australia, Belgium, Bulgaria, the Netherlands, Colombia, Mexico, Norway, Rwanda, Ukraine and the United Arab Emirates;
- well logging and interpretation of well geophysical measurements in Poland and Germany;
- geotechnical, geological and drilling services, and engineering geophysical works in Poland.

In connection with its principal business activity, Geofizyka Toruń also engaged in R&D and innovation work through a number of innovation projects for the energy and RES sectors. The company has implemented, among other projects, the SeaBed Research (SBR) technology and smart energy management based on renewable energy sources (Eco Processing Center).

Geofizyka Toruń also delivered contracts for the PGNiG Branch in Ras Al Khaimah in the United Arab Emirates, and for PGNIG UN.

In Poland, in 2021 the company was engaged mainly in the services delivered to the PGNiG Geology and Hydrocarbon Production Branch (GHPB). In addition, Geofizyka Toruń executed orders for Exalo Drilling S.A., Gas Storage Poland Sp. z o.o., Lotos Petrobaltic S.A., ORLEN Upstream Sp. z o.o., PGE EJ1 Sp. z o.o. and other companies in Poland.

In 2021, the company completed approximately 206.0 km of 2D seismic acquisitions and 638.3 km2 of 3D seismic acquisitions in Poland for PGNiG GHPB. In total, the company completed approximately 206.0 km of 2D seismic surveys and 2,196.9 km2 of 3D seismic surveys during the year,

while PGNiG GHPB delivered around 214.8 km of 2D seismic surveys and approximately 637.2 km^2 of 3D seismic surveys in Poland.

(in PLN million, unless stated otherwise)

Drilling operations and well services

EXALO Drilling S.A., a subsidiary of PGNiG, offers well and drilling services both for the PGNiG Group and for third parties. The company is one of the leading European onshore drilling companies, offering the full range of professional well services.

The EXALO Group's most important contracts in 2021 included:

- for PGNiG: operation of the 2000 KM drilling rig, and provision of oilfield and drilling services, including drilling of wells in Pakistan;
- for external customers: drilling of wells for customers in Pakistan, Tanzania and the Czech Republic, and provision of cementing services (cementing of casing pipes) in Ukraine.

The company also completed orders for the PGNiG Branch in Pakistan.

In 2021, the PGNiG Group was EXALO's largest customer. The company's other major business partners include Orlen Upstream Sp. z o.o., Przedsiębiorstwo Budowy Kopalń PeBeKa S.A., as well as municipalities and companies producing heat.

In 2021, EXALO carried out works on 29 boreholes with a total depth of approximately 52.2 kilometres and 41 workover wells.

In 2021, PGNiG's Geology and Hydrocarbon Production Branch (GHPB) carried out drilling operations on 26 wells with a total depth of 39.6 km.

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 their different function.

Table 22 Underground Gas Storage Facilities (UGSFs) as at the end of December 31st 2021

	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

4.1.5 Development prospects and challenges for the future

Poland

In 2022, PGNiG plans to produce in Poland 3.7 bcm of natural gas (measured as high-methane gas equivalent), and 0.6m tonnes of crude oil and condensate.

Work planned for 2022 in the Sanok Production Branch includes:

- development and tying-in of the following wells: Przemyśl (226, 234) – Przemyśl Wschód Gas Production Site, Przemyśl (299, 308) – Hurko Gas Production Site, Rogoźnica (3,4,5) – Zalesie Gas Production Site, and Tarnów 82K – Tarnów II Gas Production Site;
- development of the following wells: Korzeniówek 1 – Pilzno Gas Production Site and Jaksmanice 204 – Maćkowice Gas Production Site;
- tie-in of the following wells: Mirocin 4, 39, 50 – Jodłówka Gas Production Site;
- installation of a gas compressor at Siedleczka I Gas Processing Facility – Krasne Gas Production Site;
- conversion of the process units at Zalesie Gas Processing Facility – Zalesie Gas Production Site.

The activities planned by the Zielona Góra Branch include:

- expansion of Lubiatów Oil and Gas Production Site to increase production output from the Międzychód field;
- development of the Różańsko field and construction of a cogeneration source for Dębno Oil and Gas Production Site;
- development of the following fields: Kamień Mały – Zielin Oil and Gas Production Site, Rokietnica (including construction of gas transmission pipeline from Grodzisk Wlkopolski to Kościan) – Młodawsko Oil and Gas Production Site, Gryżyna – Oil and Gas Production Site Radoszyn, Czeszów – Gas Production Site Bogdaj-Uciechów-Czeszów;
- development of the following wells: Koźminiec-1 – Radlin Gas Production Site, Grotów (4K, 10 and 12K) – Lubiatów Oil and Gas Production Site, Chwalęcin-1K – Radlin Gas Production Site, Borowo-5 – Kościan-Brońsko Gas Production Site, Granówko-1 – Kościan-Brońsko Gas Production Site, Szczepowice-1 – Kościan-Brońsko Gas Production Site, Turkowo-2 – Wielichowo Gas Production Site, Brońsko-30 – Kościan-Brońsko Gas Production Site, Paproć-66H – Paproć Gas Production Site;
- construction of a natural gas compressor station at Central Facility of Kościan-Brońsko Gas Production Site.

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.

Norway

On the Norwegian Continental Shelf, PGNiG UN will continue, as a partner, to produce hydrocarbons from the Skarv, Ærfugl, Ærfugl Nord, Morvin, Vilje, Vale, Gina Krog, Skogul, Kvitebjørn, Ormen Lange, Alve, Marulk, Duva, Tambar Øst and Valemon fields, and to develop the Tommeliten Alpha field. Development of the Shrek, Alve Nord, Fogelberg and King Lear fields is at the concept phase. PGNiG UN also works towards ensuring stable and predictable long-term gas supplies to Poland. It includes both support for the construction of infrastructure to physically bring Norwegian gas to Poland and potential acquisitions of production and pre-production assets on the Norwegian Continental Shelf.

In 2022, the company plans to upscale its gas production on the back of the acquisition of additional assets acquired as part of INEOS E&P Norge AS, as well as the investment works completed in 2021 on the Ærfugl, Ærfugl Nord and Duva fields. In 2022, a number of investment decisions are also expected to be taken (Shrek, Alve Nord, Fogelberg, King Lear and Cape Vulture).

Pakistan

In Pakistan, appraisal and production work is scheduled for 2022 to finish drilling the Rehman-8 development well, to drill the Rizq-4 well and to tie in the Rehman-8 well. In parallel with the drilling campaign, the PGNiG Pakistan Branch will work on expanding the capacity of the production infrastructure. As part of continued exploration efforts, the Pakistan Branch plans to acquire 2D seismic data and start drilling the Rayyan-1 exploration well.

Seismic surveys are scheduled to commence on the Musakhel licence in 2022 to decide whether to proceed with the drilling of the first exploration well.

In addition to the work planned for the Kirthar and Musakhel licence areas, steps are being taken to identify and possibly acquire further attractive assets in Pakistan.

United Arab Emirates

The PGNiG Branch in UAE sees growth prospects in the acquisition of rights to operate on further blocks in the Ras Al Khaimah emirate, as well as in other emirates where production work is already under way (Sharjah and Abu Dhabi). Preliminary business negotiations are in progress for those initiatives. The challenge will be to contract service provides and to drill the first exploration well on Block 5 in the Ras Al Khaimah emirate, due to the challenging geological conditions and mechanics of the rock mass.

Ukraine

On February 24th, 2022, the Russian Federation made a military invasion of Ukraine. All work in Ukraine was suspended. Employees of the PGNiG Group and their families were evacuated from areas at risk of military actions. The Group will adapt its own actions to situation.

Geophysical, geotechnical, geological and drilling services and seismic surveys (Geofizyka Toruń)

Geofizyka Toruń adopted the company strategy for 2021–2025, aligned with the development of the broadly defined multi-utility sector and the achievement of climate neutrality objectives. The company will continue to diversify its market base by exploring for hydrocarbons and ramping up their production around the world, and to offer new technologies and proprietary innovative solutions as part of its primary business operations, namely geophysical services, including those applied towards decarbonisation of the energy sector and those offered to the RES segment, which will help tap the potential of wind power in the Baltic Sea. Based on its geotechnical services portfolio, Geofizyka Toruń also plans to carry out work contributing to the development of onshore and offshore infrastructure, including installation terminals and ports.

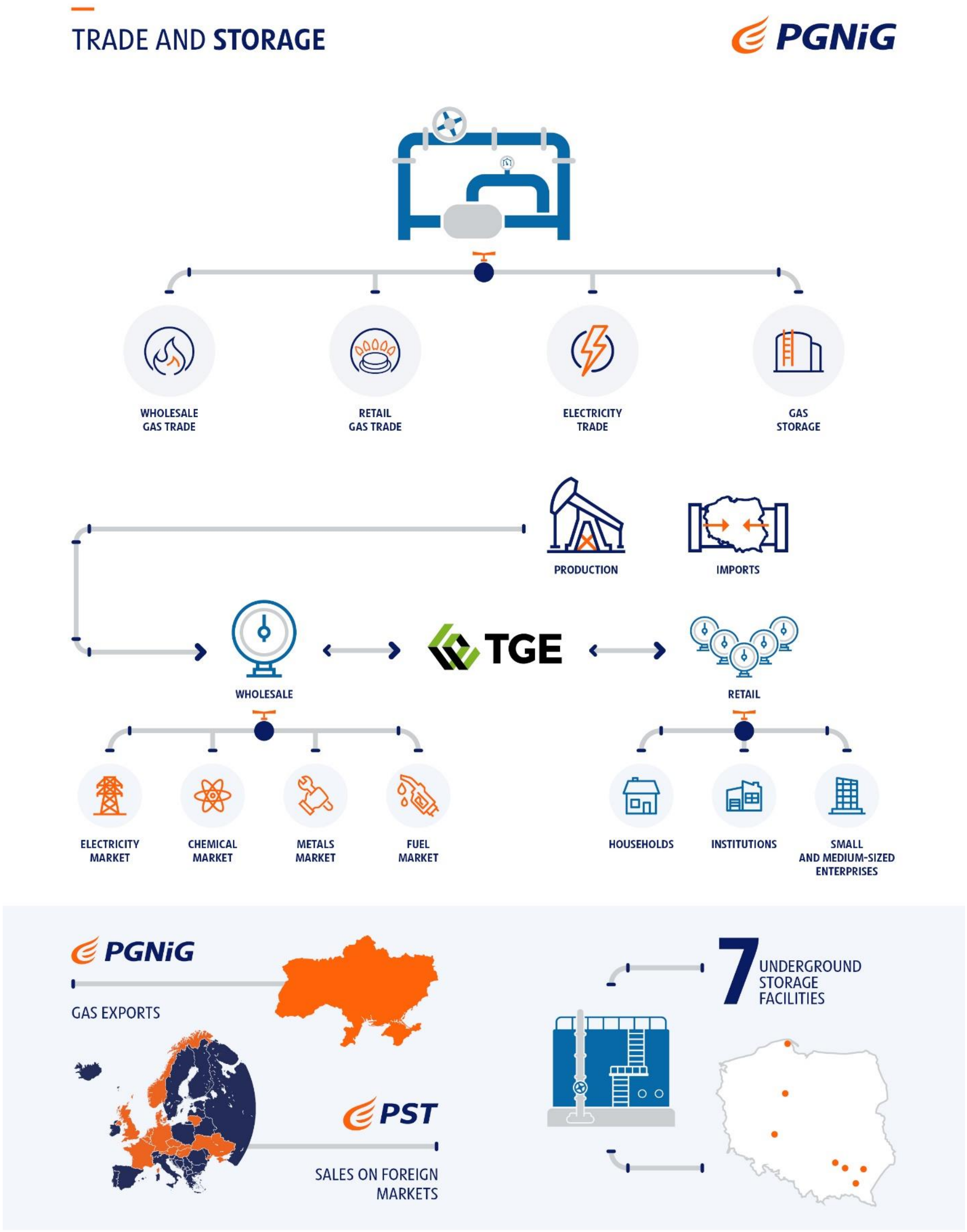
In the European green transformation process, geothermal energy projects and the storage and disposal of hazardous materials, including CO_2, will play an increasingly important role. Based on its experience to date, the company will offer innovative geophysical solutions to achieve climate neutrality targets.

Geophysical services and seismic surveys (EXALO)

EXALO sees potential for further growth in geothermal drilling and drilling for underground gas storage. The company will focus on reinforcing its position in the geothermal market by enhancing its brand recognition as a provider of this type of works, and by acquiring new drilling contracts thanks to its growing competitive edge. Furthermore, in order to meet customers' expectations, EXALO started to participate in tenders for 'turnkey' drilling contracts (end-to-end well services, from the construction of access roads and the drilling site, through the provision of necessary utilities, up to the development of a well) both in Poland and abroad.

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, the PGNiG Group is developing its foreign operations. The segment also trades in electricity, certificates of origin for electricity, CO_2 emission allowances, and crude oil (since 2018, through PST). In order to conduct trading activities on the global LNG market, the company established a branch in London. The segment operates seven underground gas storage facilities and provides a ticketing service for gas storage to external customers.



(in PLN million, unless stated otherwise)

4.2.1 Key operating metrics

Table 23 Volumes of natural gas sales to non-PGNiG Group customers in the Trade and Storage segment

mcm	2021		2020		2019	2018	2017
	PGNiG Group	PGNiG	PGNiG Group	PGNiG	PGNiG Group	PGNiG Group	PGNiG Group
High-methane gas (E)	32,694	17,531	29,927	17,767	29,031	27,440	22,818
Nitrogen-rich gas (Ls/Lw as E equivalent)	797	237	745	261	751	721	671
Total (measured as E equivalent), including:	33,491	17,768	30,672	18,028	29,782	28,161	23,489
PGNiG – Wholesale	17,768	17,768	18,030	18,030	16,726	16,364	13,734
PGNiG OD – Retail sale	9,706	0	8,195	0	7,815	7,868	7,245
PST – Wholesale/retail sale	6,017	0	4,447	0	5,242	3,929	2,510

Table 24 Volumes of natural gas sales to non-PGNiG Group customers outside Poland in the Trade and Storage segment

mcm	2021		2020		2019	2018	2017
	GK PGNiG	PGNiG	GK PGNiG	PGNiG	GK PGNiG	GK PGNiG	GK PGNiG
PST	5,317	0	3,720	0	5,028	3,929	2,186
Exports from Poland and sales in Ukraine	225	225	1,239	1,239	544	451	728
Total (measured as E equivalent)	5,542	225	4,959	1,239	5,572	4,380	2,914

Table 25 T&S segment's natural gas customers from outside the PGNiG Group – Poland

mcm	2021		2020		2019	
	PGNiG Group	PGNiG	PGNiG Group	PGNiG	PGNiG Group	PGNiG
Households	5,140	0	4,352	0	4,152	0
Retail, services, wholesale	1,657	239	1,556	372	1,597	342
Nitrogen processing plants	2,491	2,482	2,526	2,519	2,272	2,264
Power and heat plants	1,276	984	1,542	1,161	1,927	1,749
Refineries and petrochemical plants	1,895	1,887	2,412	2,400	2,020	2,013
Other industrial customers	3,916	692	3,583	692	3,182	903
Exchange	11,574	11,259	9,742	9,647	9,061	8,910
TOTAL T&S sales to non-PGNiG Group customers in Poland	27,949	17,543	25,713	16,791	24,211	16,181

Table 26 Non-PGNiG Group gas customers outside Poland in the T&S segment

mcm	2021		2020		2019	
	PGNiG Group	PGNiG	PGNiG Group	PGNiG	PGNiG Group	PGNiG
Households	0	0	18	0	32	0
Retail, services, wholesale	2,654	0	1,580	0	2,677	0
Other industrial customers	0	0	9	0	16	0
Exchange	2,663	0	2,113	0	2,303	0
Exports from Poland and sales in Ukraine	225	225	1,239	1,239	544	544
Total T&S sales to non-PGNiG Group customers	5,542	225	4,959	1,239	5,572	5,572

Table 27 PGNiG's electricity customer base in the T&S segment

GWh	2021	2020	2019
End users	155	0	0
Trading companies	28	101	360
Balancing market	30	50	353
Exchange	9,756	8,875	6,713
Total PGNiG's sales	9,968	9,026	7,426

Table 28 Total working storage capacities and TPA working storage capacities

	Working storage capacities (mcm)		TPA working storage capacities (mcm)		TPA working storage capacities (GWh)	
	2021	2020	2021	2020	2021	2020
Kawerna Storage Facilities Group	824,8	824,8	807,6	809,6	8 860,8	8882,6
Wierzchowice SF	1 300	1300	1 300	1300	14 264	14263,6
Sanok Storage Facilities Group	1 050,0	1 050,0	1 050,0	1 050,0	11 520,6	11 520,6
Total	3 174,8	3 174,8	3 157,6	3 159,6	34 645,0	34 666,8

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

4.2.2 Wholesale business

4.2.2.1 Operations in Poland

PGNiG's activities include the wholesale of natural gas produced from domestic fields and imported via pipelines and by sea. Through its specialised 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.

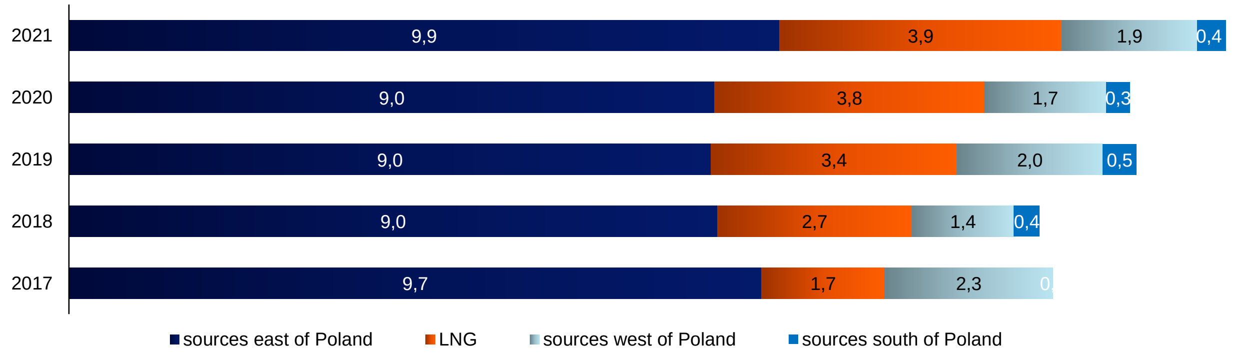
Gas imports

In 2021, 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.

Deliveries were also made under medium- and short-term grid gas and LNG supply contracts (including a five-year contract for nine shipments of liquefied natural gas from Centrica LNG Company Limited, which began to be performed in 2018).

Chart 10 Imports of natural gas to Poland in 2017–2021 (bcm)



In 2021, the imported gas volume was 176.9 Twh (16.1 bcm). Gas purchases from countries east of Poland rose by 9.9 TWh (approximately 0.9 bcm) on 2020. LNG deliveries went up from 41.2 Twh (3.8 bcm) in 2020 to 43.2TWh (3.9 bcm) in 2021.

On September 2nd 2021 the annexes to the liquefied natural gas supply contracts were signed by PGNiG with Venture Global Plaquemines LNG, LLC and Venture Global Calcasieu Pass, LLC. Signing of the annexes will cause increase in the volume of LNG supplies to PGNiG by a total of 2 million tonnes of LNG per year from planned liquefaction facilities:

- Calcasieu Pass LNG in Calcasieu Parish – increase in the deliveries from 1 to 1.5 million tonnes of LNG per year;
- Plaquemines LNG in Plaquemines Parish – increase in the deliveries from 2.5 to 4.0 million tonnes of LNG per.

As a result of conclusion of the annexes, total volume of LNG supplies from Venture Global Plaquemines LNG, LLC and Venture Global Calcasieu Pass, LLC will reach 5.5 million tonnes of LNG per year, i.e. approximately 7.4 bcm of natural gas after regasification.

Following the conclusion of long-term contracts for the purchase of LNG at U.S. terminals in previous years, in 2020 and 2021 the PGNiG Group company PST chartered four tankers from the Norwegian shipowner Knutsen OAS Shipping to collect LNG contracted on a free-on-board basis. The vessels, with a capacity of 174,000 cm each, will be placed in service in 2023 and 2024. The acquisition of the vessels will increase the flexibility of LNG purchases and sales and is another step towards developing the PGNiG Group's trading activities on the global market.

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, contracts were concluded for the provision of gas transmission services in the period from October 1st 2022 to October 1st 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 3.2.2.

Renegotiation of price terms under the contract with OOO Gazprom Export

PGNiG and Gazprom submitted the following requests for renegotiation of the Yamal contract price terms:

- PGNiG: on November 1st 2017, November 1st 2020 and October 28th 2021, requesting amendments to the earlier request for renegotiation submitted by the Company on November 1st 2020 by setting November 1st 2021 as the new effective date of the requested renegotiation under the Yamal contract; and
- Gazprom: on December 7th 2017 and November 9th 2020.

PGNiG remains in contact with the supplier as regards the submitted requests.

PAO Gazprom/OOO Gazprom Export filed two petitions with the Stockholm Court of Appeals with respect to arbitration proceedings instigated by PGNiG against PAO Gazprom/OOO Gazprom Export concerning revision of the contractual price of gas supplied by the supplier under the Yamal contract as of November 1st 2014. The first petition, of October 2nd 2018, was for revoking the Arbitration Court's ad hoc partial award of June 29th 2018. The Stockholm Court of Appeals, by its judgment of December 23rd 2020, dismissed the petition. The second petition, of May 29th 2020, for reversal of the final award issued by the Court of Arbitration. The case is pending.

LNG supplies

In 2021, PGNiG received a total of 35 LNG shipments to Poland, with a total volume of 2.83m tonnes, i.e. approximately 43.21 TWh or 3.94 bcm of natural gas after regasification, including:

- 19 shipments under long-term contracts with Qatargas, with the volume of LNG imports from Qatar totalling 1.75m tonnes, i.e. ca. 26.58 TWh or 2.42 bcm of natural gas after regasification;
- 12 spot deliveries;
- 2 shipments under the PGNiG Group's medium-term contract with Centrica;
- 2 shipments 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. Contractual prices are determined on a case-by-case basis using a uniform and objective pricing methodology.

In 2021, PGNiG successfully continued its sales strategy and retained the customer base. The largest amounts of natural gas are sold in Poland to industrial customers, including: PKN ORLEN S.A., Grupa Azoty, Grupa LOTOS S.A., PGE Polska Grupa Energetyczna S.A., KGHM Polska Miedź S.A., the ArcelorMittal Group, PGNiG Termika S.A. and Elektrociepłownia Stalowa Wola S.A.

In 2021, PGNiG's sales of high-methane grid gas in Poland amounted to 198.5 TWh (ca. 18.1 bmc). Year on year, the sales grew by 7.5%, from 184.7 TWh (16.8 bcm).

Sale of gas by PST

In 2018, PST opened a branch in Poland to establish relations with gas supply customers in Poland and subsequently across Europe, building on the existing relationships with subsidiaries of international companies based in the country.

As at December 31st 2021, PST supplied gas (E gas) to 20 customers (41 points of delivery in Poland). The customers of the Polish Branch of PST are the largest private businesses from the glass, ceramic, automotive, non-ferrous metal, chemical, food and agricultural industries, receiving gas fuel for their in-house needs at physical points of delivery, as well as wholesale customers taking gas fuel at virtual or physical point of delivery for subsequent resale.

The Polish Branch of PST supports PGNiG OOH and PGNiG OD in the supply of SSLNG from the Klaipėda LNG FSRU terminal in Lithuania to the Polish border. In 2021, the total of 51 GWh was delivered.

Exports

In 2021, PGNiG continued to sell natural gas on the Ukrainian market, mainly in cooperation with the ERU Group and other leading traders on the Ukrainian market. Given the prevailing market conditions and high gas stock levels in Ukrainian storage facilities, gas was not imported into Ukraine from the west for a major part of the year and the Company's trading activities in that country focused on transactions to purchase / sell gas held in Ukrainian underground storage facilities. In 2021, PGNiG's sales to Ukraine totalled approximately 0.2 bcm (2.5 TWh) of natural gas. Gas was sold in the Ukrainian storage system under the Customs Warehouse Regime (CWR). The Company monitors growth opportunities on the Ukrainian market.

Gas sales on POLPX

The volume of gas sold by PGNiG on POLPX in 2021 (sales with delivery dates in 2021) was 123.5 TWh (11.12 bcm), up by approximately 17.7 TWh year on year.

Small-scale LNG sales

In 2021, PGNiG continued to develop its small-scale LNG business, 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. In 2021, 5,699 LNG tankers were loaded in Świnoujście (2020: 3,385). The aggregate amount of LNG the Company placed on the market was 122.6 thousand tonnes, of which 100.9 thousand tonnes was sourced through Świnoujście and 21.7 thousand tonnes came from Odolanów and Grodzisk Wielkopolski. In total, in 2016–2021, the Company placed 401.3 thousand tonnes of LNG on the market, including 271.2 thousand tonnes from the LNG terminal in Świnoujście and 130.1 thousand tonnes from the Odolanów and Grodzisk plants. In addition, PGNiG has transhipped 13.7 thousand tonnes of LNG onto tankers at the small-scale LNG terminal in Klaipėda since April 2020.

Sales of electricity

PGNiG's business on the electricity market primarily involves wholesale trading, to provide PGNiG Group companies with access to the market. Total sales of electricity to trading companies and on the Polish Power Exchange accounted for more than 90% of

PGNiG's total electricity sales in 2021. PGNiG provided commercial balancing services to PGNiG TERMIKA and PGNIG TERMIKA EP, as well as commercial and technical operator services to PGNiG TERMIKA.

Capacity market

Following the auctions organised by Polskie Sieci Elektroenergetyczne S.A. in 2021, PGNiG signed the following contracts:

- annual contract for deliveries in 2026, at a record-high price of PLN 400.39/kW/year (net capacity of 17 MW);
- quarterly contract for deliveries in the first quarter of 2022; (86 MW)
- quarterly contracts for deliveries in the first and fourth quarter of 2022; (140 MW)

In 2021, PGNiG actively participated in secondary trading on the capacity market.

Prospects for wholesale trade in Poland

PGNiG has secured long-term regasification and transmission capacities to cover import requirements of the Polish wholesale market. After the expiry of the Yamal contract at the end of 2022, gas will be imported based on a diversified portfolio of purchase contracts and in cooperation with the PGNiG Group companies active on the European wholesale and LNG markets and strengthening the Group's position as a gas producer on the Norwegian Continental Shelf.

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 capacities of new cross-border connections (Baltic Pipe, Poland–Lithuania, Poland–Slovakia) to be brought on stream in 2022, and the additional capacity of the LNG terminal in Świnoujście to be put into service in subsequent years, will enable Poland to source higher volumes of grid gas and LNG, and to balance the market in the event of temporary gas shortages or surpluses.

4.2.2.2 Wholesale business abroad

PGNiG Supply & Trading (PST)

Through PGNiG Supply & Trading GmbH, the PGNiG Group is developing its operations in Europe in three main areas: international LNG trading, access to the European gas market, including gas from the North Sea Continental Shelf, and wholesale on the markets of Central and Eastern Europe.

As part of its business, PST can trade in gas fuels in Poland, Germany, the Netherlands, Belgium, Austria, Norway (Gassled System), Denmark, the United Kingdom, France, the Czech Republic, Slovakia, Ukraine, Lithuania and Hungary. PST is an active player on organised markets (exchanges) and in OTC trading. It trades with over 150 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. In 2021, fourteen shipments with 13.4 TWh of LNG contracted by PST were received at the Świnoujście terminal.

In order to be able to start receiving gas from fields on the Norwegian Continental Shelf, PST was registered with the Norwegian Gassled system operated by Gassco (Shipper Agreement). PST is also registered as a shipper (gas intermediary) and a participant of the gas storage system in Ukraine. In 2021, in order to expand its presence in Central and Eastern Europe, the company became a member of the CEEGEX Hungarian gas exchange and the GET Baltic exchange for PGNiG's Lithuanian market.

PST continues trading in futures contracts for Brent crude and gas in the US Henry Hub, through the following exchanges: ICE Futures Europe and ICE Futures U.S. It also sells electricity on the German market in exchange (EEX) and OTC transactions.

Product sales and operations in 2021

In 2021, PST sold 91.4 TWh of pipeline-supplied gas (including 20.6 TWh of gas from PGNiG UN and the LOTOS Group), 13.5 TWh of LNG and 1.9 TWh of electricity in exchange and OTC transactions. Poland was PST's largest market for deliveries, where 44% of the volume was sold, while the German and Dutch markets accounted for 29% and 22% of sales, respectively.

In 2019, PST began to receive gas from LOTOS Exploration & Production Norge, under a contract for supply of gas produced in license areas located on the Norwegian Continental Shelf (NCS). The volume of gas received under the contract in 2020 was 6.2 TWh, and 5.0 TWh in 2021. PST also receives gas produced by PGNiG UN on the German coast. In 2020, PST signed three additional contracts for the supply of gas from the Norwegian Continental Shelf/Danish Continental Shelf (NCS/DCS) area. Gas deliveries from the new suppliers started in October 2020 (Aker BP) and December 2020 (DNO), and Ørsted will supply gas starting from 2023.

In the first six months of 2021, PST signed a gas supply contract on the German coast for the 2021 gas year. The company is continuing negotiations concerning a medium-term contract for gas supply from 2022 (with Total Energies Norge) In addition, PST won a tender for the sale of gas produced from the Duva and Nova fields. The gas will be transported to the United Kingdom (seller: Sval Energie AS).

Competition

PST's main competitors are major players in the energy market such as Shell, Total, RWE, Equinor, etc., who are concurrently active in network gas, LNG and electricity trading in all markets where PST is present.

Prospects for wholesale trade abroad

PST

Due to the persistence of the pandemic, PST expects reduced trading activity in the wholesale markets. In addition, in the second half of 2021, the gas market crisis driven by the unprecedented price surge triggered an increase in credit risk, followed by lower liquidity on the OTC market. These factors posed significant liquidity challenges for PST and other energy market players. Consequently, PST is expected to scale down its proprietary trading activities compared with the period before the pandemic and the price crisis affecting gas and electricity markets.

Notwithstanding temporary restrictions caused by the pandemic and the crisis related to energy market prices, PST will continue to develop its business in the company's key strategic areas, especially LNG trading, procurement of gas from the North Sea and the Norwegian Sea area and gas trading in Central and Eastern European markets.

PST plans to expand its LNG business to include FOB deliveries both on the spot market and under medium-term contracts. The expansion of commercial and logistic capabilities in LNG freight management will allow the Group to further develop its LNG trading business to create opportunities for optimising long-term contracts from 2022 onwards. In order to fulfil the long-term FOB supply contracts, PST has executed contracts to charter five LNG vessels that will be able to receive and transport the contracted LNG volumes. PST has also contracted regasification capacities of the Montoir LNG terminal in France, including 10 cargoes in 2023 and 15 cargoes per year in 2024−2029.

In preparation for the start of gas supplies to Poland via the Baltic Pipe, the company has increased its activity on the Norwegian Continental Shelf (NCS) and the Danish Continental Shelf (DCS). The purpose is to enable natural gas supplies from the NCS and the DCS to Poland. As part of its operations on the NCS, PST has also started to procure and sell natural gas liquids (including propane, butane, paraffin and ethane).

PST is also upscaling its activities in Central and Eastern Europe in order to diversify the sources of gas supply to Poland and to optimise the PGNiG Group's portfolio in the region. Particularly important for PST is business expansion into and in markets which, thanks to the emerging gas infrastructure, will gain strategic significance for the Polish market directly, i.e. Slovakia, Ukraine and Lithuania, and indirectly, such as Hungary, Latvia and Estonia. Building capabilities and strengthening presence in the region will enable the company to gain an additional market for gas from the northern direction and optimise its gas portfolio using, among other things, the storage systems in Poland, Ukraine and Latvia. In 2021, during the gas crisis in Moldova, the Company carried out the first deliveries of non-Russian gas to that country.

PGNiG

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 efforts to build competence and market position in the markets of Central and Eastern Europe and the Baltic Sea basin. Since the start of operations on April 1st 2020, the Company has delivered ten shipments by sea to Klaipėda, and 758 tanker trucks have left the terminal with a total freight of over 13.7 thousand tonnes of LNG, destined mostly for the Polish market, but also the markets in Lithuania, Latvia and Estonia.

In addition to the transhipment facilities, the terminal also offers bunkering of ships. This allows PGNiG to build competence in this area and in the future to make use of the potential of the Świnoujście terminal, which is being expanded.

4.2.3 Retail business

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 POLPX), 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 electricity.

Sources of gas

High-methane gas is procured from three main sources:

- Pourchases of gas on the Polish Power Exchange (POLPX);
- Purchase of gas under a bilateral contract, 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 global volume of high-methane gas purchases was attributable to transactions on POLPX. In addition to high-methane natural gas, PGNiG OD's purchase portfolio also includes nitrogen-rich gas and liquefied high-methane natural gas (LNG). Nitrogen-rich gas is purchased under a bilateral contract with PGNiG S.A., while LNG is sourced under bilateral contracts with PGNiG S.A. and PGNiG Supply & Trading GmbH sp. z o.o. (Polish Branch).

Sales of gas

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

- Type of gas fuel received: high-methane gas or nitrogen-rich gas;
- Contracted capacity;
- Annual contracted volume – for customers with contracted capacity of not more than 110 kWh/h;
- Billing system – as per the billing frequency applicable to customers with contracted 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. Households are subject to a gas tariff approved by the President of URE. In 2021, PGNiG OD applied the following gas fuel trading tariffs:

- Gas Fuel Trading Tariff of PGNiG Obrót Detaliczny Sp. z o.o. (hereinafter: Tariff No. 10), approved on December 17th 2020 by the President of URE and effective from January 1st 2021 to December 31st 2021. The prices of gas fuel for all tariff groups were reduced by 4.5% relative to the previous tariff, i.e. Tariff No. 9. The subscription fees remained unchanged. The gas fuel prices and subscription fees defined in Tariff No. 10 were effective from January 1st 2021 to April 30th 2021.
- Amendment to Gas Fuel Trading Tariff No. 10 of PGNiG Obrót Detaliczny Sp. z o.o. (hereinafter: Amendment to Tariff No. 10) approved by the President of URE on April 15th 2021. The prices of gas fuel for all tariff groups increased by 5.6% compared with Tariff No. 10. The subscription fees remained unchanged. The gas fuel prices and subscription fees defined in the Amendment to Tariff No. 10 were effective from May 1st 2021 to July 31st 2021.
- Amendment No. 2 to Gas Fuel Trading Tariff No. 10 of PGNiG Obrót Detaliczny Sp. z o.o. (hereinafter: Amendment No. 2 to Tariff No. 10) approved by the President of URE on July 16th 2021. The prices of gas fuel for all tariff groups increased by 12.4% compared with Amendment to Tariff No. 10. The subscription fees remained unchanged. The gas fuel prices and subscription fees defined in Amendment No. 2 to Tariff No. 10 were effective from August 1st 2021 to September 30th 2021.
- Amendment No. 3 to Gas Fuel Trading Tariff No. 10 of PGNiG Obrót Detaliczny Sp. z o.o (hereinafter: Amendment No. 3 to Tariff No. 10) approved by the President of URE on September 16th 2021. The prices of gas fuel for all tariff groups increased by 7.4% compared with Amendment No. 2 to Tariff No. 10. The subscription fees remained unchanged. The gas fuel prices and subscription fees defined in Amendment No. 3 to Tariff No. 10 were effective from October 1st 2021 to December 31st 2021.

In addition, by a decision of December 17th 2021, the President of URE approved Gas Fuel Trading Tariff No. 11 of PGNiG Obrót Detaliczny sp. z o.o., effective from January 1st 2022 to December 31st 2022 on the grounds of amendments introduced under the Act of December 2nd Amending the Energy Law which introduced the possibility for gas providers for household clients to utilize a mechanism that uses only the portion of gas purchase costs and to gain costs not yet reflected in the current tariff through subsequent tariffs or through prices and fee rates in three years period since the end of the validity of the tariff approved on the basis of these regulations.

As at the end of 2021, PGNiG OD served the total of approximately 7.144 million customers in tariff groups 1–4 (both high-methane and nitrogen-rich gas) and over 31 thousand gas delivery points in tariff groups 5–7. 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. The company's commercial policy results in a stable market share, which is due, among other things, to the level of customer satisfaction, a broad product portfolio and the service quality.

Sales of other hydrocarbons

- Sale of CNG at existing CNG refuelling stations – to customers with CNG-fuelled car fleets; under non-cash refuelling agreements and separate bilateral agreements.
- Sale of CNG along with infrastructure – a comprehensive service offered by PGNiG OD to transport companies, where gas fuel is delivered along with the necessary infrastructure;
- Sale of LNG fuel – to end users with own infrastructure for receipt of LNG deliveries (transport or manufacturing); Purchase of LNG and its transport to designated locations;
- 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 – LNG sales for shipping purposes, including truck-to-ship bunkering services, carried out in Polishports.

Business-to-customer sales policy (B2C)

An important factor determining the company's retail gas sales policy is the obligation to have its tariffs approved by the President of URE. The abolition of this obligation under current legislation is planned for January 2024.

Seeking to meet customer expectations and strengthen its market competitiveness, the company is gradually expanding its offering to the retail base of more than 7m accounts through sales of add-on products.

In previous years, the offering was expanded by adding the following services:

- 24/7 ‘Pomocna Ekipa’ handyman service;
- ‘Na Zdrowie’ package, offering easy and quick access to medical services;
- ‘Doradca Prawny dla Ciebie’ and ‘Doradca Prawny dla Firmy’ legal service packages, which provide access to legal advice and reimbursement of lawyer fees;
- ‘Pełnym Oddechem’ financial service, offered in partnership with BOŚ Bank;
- ‘Fotowoltaika dla domu’ product.

Business-to-business sales policy (B2B)

The gas offering is based on special term-plans with fixed prices or variable prices indexed to selected stock exchange indices. Customers who do not wish to be bound by a fixed-term contract can opt for gas supplies based on the standard 'Gas for Business' price list used in open-term contracts.

The development of product offers and pricing plans is based on segmentation analyses (with particular emphasis on price elasticity) and customer demand communicated through the sales network. An important element of the process is the monitoring of competitors' activities and offers.

Ramping up the sales of add-on products, such as ‘Fotowoltaika dla Firm’ (contracts covering PV design and installation), energy audits, energy efficiency audits and energy consultancy services, plays an important role in expanding the company’s product mix.

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

PGNiG OD acted as a ‘stand-by supplier’ and ‘supplier of last resort’ (in accordance with the Act Amending the Energy Law and Certain Other Acts of November 9th 2018).

In 2021, following discontinuation of gas fuel supplies by ONICO S.A., Beskidzka Energetyka Sp. z o.o., ONE S.A., Polski Prąd i Gaz Sp. z o.o. and Konerg S.A., PGNiG OD ensured uninterrupted supply of gas fuel to customers of those energy companies, acting as an emergency supplier or supplier of last resort. Those customers were billed according to the existing gas tariff or ‘Gas for Business’ price table (non-consumers).

Sales 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 2021, the company supplied electricity to more than 102.5 thousand delivery points.

The option to sell excess renewable energy (from installations with a capacity of up to 500 kW) attracted interest from 60 customers.

Additionally, in the third quarter of 2021 business customers were given the option to buy electricity with Guarantees of Origin.

Growing prices of electricity on wholesale markets (POLPX) may diminish the attractiveness of PGNiG OD’s offering, especially for consumers. The fact that prices for this market segment continue to be regulated and that it is difficult to compete with suppliers from large energy groups is also an important factor.

An offering for prosumers is planned to be introduced as sales in the photovoltaic business grow.

Competition

On the Polish natural gas market, the company competes with the largest electricity suppliers that expand their operations to include sale of natural gas. In 2021, PGNiG OD’s main and most active competitors on the gas market were: Fortum, Tauron, Axpo, Cryogas M&T Poland, Enea (by annual volume of customers lost to competitors in the B2B segment).

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. According to available information, competitors are pursuing robust investment plans to expand their tanker fleets and equipment used for LNG sales.

On the LNG bunkering market, the most active competitors are DUON Dystrybucja sp. z o.o., Barter S.A., Cryogas sp. z o.o., Gascom sp. z o.o. and foreign entities, e.g. Nauticor and Gasum.

Prospects for retail trade in Poland

Price trends on the gas market and the related risk of the company’s failing to achieve its objectives as well as the seeking of effective methods to stabilise its performance remain critical in setting short- and medium-term priorities for action.

The key driver of the company’s performance is the grid gas market, which saw unprecedented price hikes in late 2021 and early 2022 due to a number of geopolitical and macroeconomic factors. The nature of those factors and scale of their impact are beyond the company’s control. Remedial actions, either planned or already being implemented, include a number of changes in the regulatory framework (in the global, national and industry dimension) that impose new reporting, accounting and operating requirements on the company. In particular, they are and will continue to be focused on protecting the company’s key customer groups against adverse effects of price rises and inflation, which in the long term will allow the company to maintain a stable customer base and continue to compete effectively on the retail market.

Those adverse developments had additional bearing on the company's operations. The company had to adapt to the challenges posed by sharp increases in wholesale prices on the main markets, regulatory changes and the introduction of preferential terms for technologies alternative to fossil fuels. An overview of the key challenges and risks for PGNiG OD:

- A sharp increase in/volatility of natural gas prices – both in terms of direct impact on the company's financial performance and volumes (customers' purchase and investment decisions, which are adversely affected by price rises eroding the competitiveness of gas vs other energy carriers) and in terms of public relations and communication (including threats to the effects of campaigns promoting gas fuel and to the effectiveness of support mechanisms for air quality improvement initiatives).
- The progressing energy transition driven both by the EU's climate policy and market expectations, and the associated competitive, technological and investment challenges.
- The risk of replacing gas fuel by customers from tariff groups 1–4 with alternative solutions for central heating and domestic hot water.
- The risk of substituting gas-based solutions with zero-carbon solutions in the business sector.
- A potential entry of strong international competitors into the Polish gas market, which may pose a particular challenge for the company following the expected deregulation of gas prices for households starting from 2024.

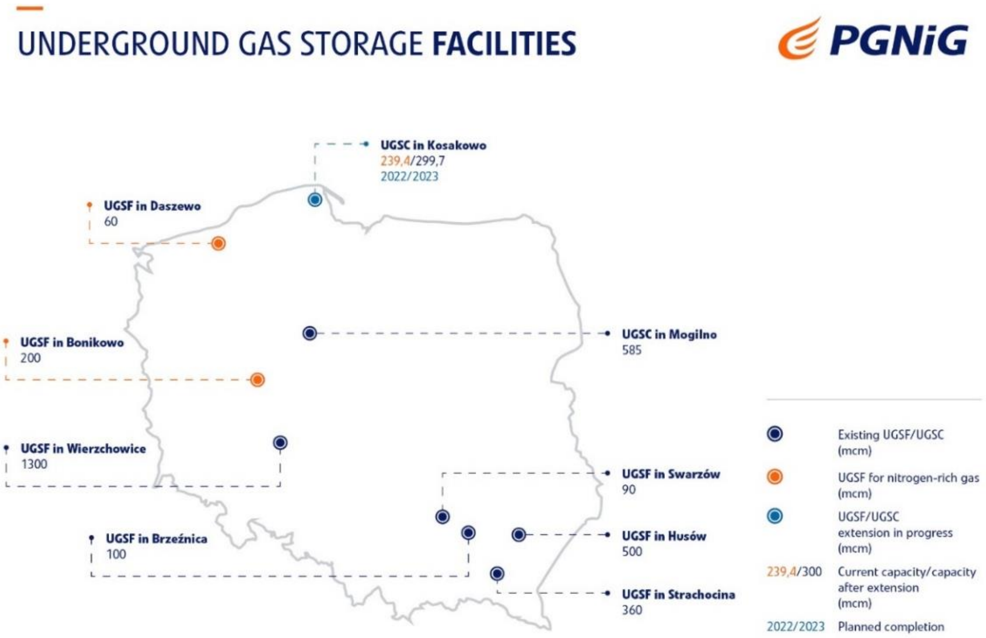
Concurrently, changes in the company's environment provide a number of opportunities the company has leveraged or intends to leverage. These mainly include:

- Making natural gas a transition fuel in the coming decades in view of the objectives of the climate neutrality policy until 2050, inclusion of natural gas in the EU taxonomy.
- Leveraging industrial and power projects in Poland to ramp up gas sales.
- Further exploiting the sales potential in the existing B2C customer base by launching more add-on products.
- Digitalisation and exploiting the potential of the existing sales channels and customer service – developing multi-channel services based on the nationwide Customer Service Office network with an increasing role of electronic customer service channels, including mobile applications.
- Growing demand from B2B customers for advanced gas products (including LNG) and electricity as well as related services and products, including consultancy and other solutions enabling cost optimisation.
- Expanding the offering of hybrid solutions and new models to meet energy needs, also using RES solutions, in response to evolving customer expectations and project co-financing options.
- Development of fuel demand for low-emission land and marine transport.
- Steps taken by local governments to reduce low-stack emissions and growing awareness of potential customers in this respect, planned and existing programmes and mechanisms to co-finance smog prevention.

4.2.4 Storage

Gas Storage Poland (GSP) is engaged in storage of gas fuels in the following facilities owned by PGNiG: Husów UGSF, Wierzchowice UGSF, Strachocina UGSF, Swarzów UGSF, Brzeźnica UGSF, Mogilno CUGSF and Kosakowo CUGSF.

Figure 6 Underground gas storage facilities



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

As part of its business, GSP holds a licence to store gas fuel in storage facilities. Settlements of gas fuel storage services were subject to the following tariffs:

- amended gas fuel storage Tariff No. 1/2020, effective from 6.00 am on January 1st 2021 to 6.00 am on June 16th 2021;
- gas fuel storage Tariff No. 1/2021, effective from 6.00 am on June 16th 2021 to 6.00 am on September 1st 2021;
- amended gas fuel storage Tariff No. 1/2021, effective from 6.00 am on September 1st 2021 to 6.00 am on October 15th 2021;
- Amendment 2 to gas fuel storage Tariff No. 1/2021, effective from 6.00 am on October 15th 2021 to 6.00 am on January 1st 2022.

Short-term peak fluctuations in demand for natural gas are balanced by supplies from the Mogilno and Kosakowo CUGSFs, where gas is stored in worked-out salt caverns. The capacities of the Wierzchowice, Husów, Strachocina, Swarzów and Brzeźnica UGSFs are mainly 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.

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

The product offering is based on the Storage Facilities (SF) and Storage Facility Groups (SFG), i.e.:

- Kawerna SFG (comprising Mogilno UGSF and Kosakowo UGSF),
- Sanok SFG (comprising Husów UGSF, Strachocina UGSF, Swarzów UGSF and Brzeźnica UGSF),
- Wierzchowice SF.

As at December 31st 2021, under long-term SSAs, GSP provided a total of 172,200 long-term storage capacity packages, including 70,300 packages of storage services provided on a firm basis, and 101,900 packages on an interruptible basis. As part of short-term storage services provided on an interruptible basis as at December 31st 2021, GSP allocated 474 flexible storage capacity packages.

Third-party access (TPA) storage capacities

As at December 31st 2021, GSP had a total working storage capacity of 3,174.8 mcm, of which a total of 3,139.6 mcm was made available, on a TPA basis and to GAZ-SYSTEM, as part of long-term services; 18 mcm, out of 30.0 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 5.2 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 performed ticketing service contracts concluded for the gas year 2020/2021 with six energy companies; in the gas year 2021/2022, the services are provided to nine energy companies. The total volume of gas stocks held by PGNiG for other entities was over 310 GWh of natural gas in the 2020/2021 gas year and over 315 GWh of natural gas in the 2021/2022 gas year.

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 2021, the construction of Cluster B was continued at the Kosakowo CUGSF with a view to obtaining additional working capacities. In 2021, the construction of the K-7 and K-10 chambers was continued. The injection of gas into the chambers was completed. The last chambers were constructed and commissioned on September 13th 2021. The project was completed in December 2021.

Development prospects and challenges for the future

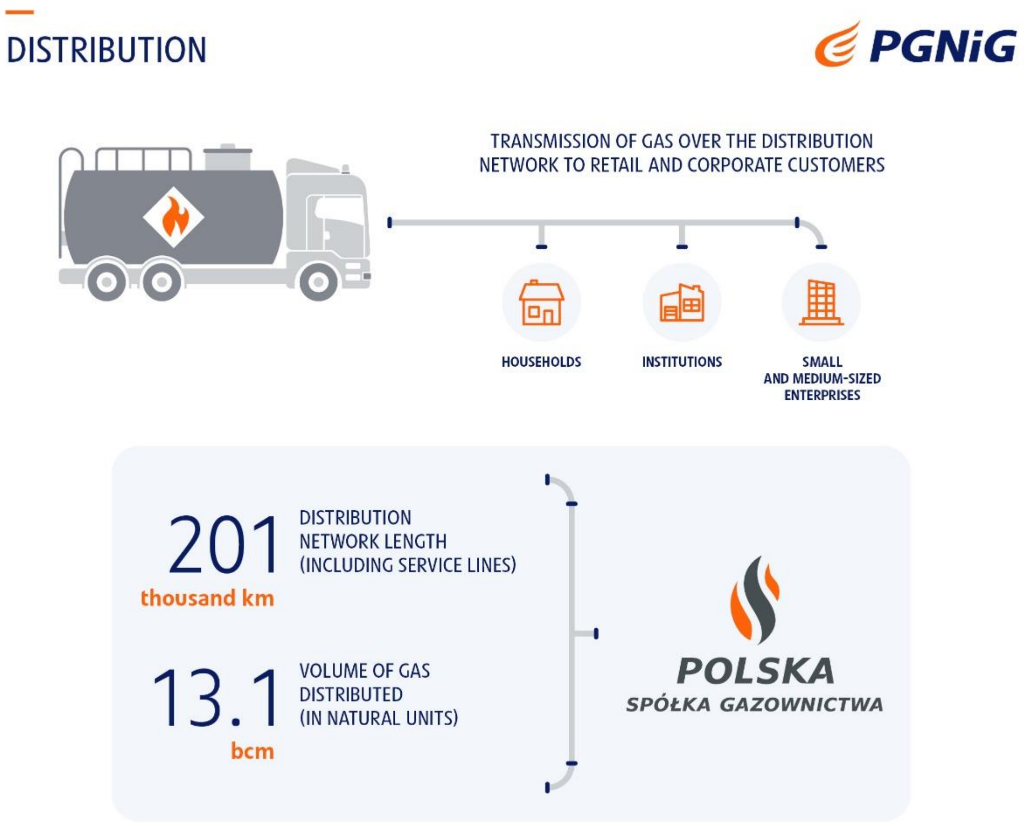
In accordance with the schedule for the ‘Kosakowo CUGSF – Construction of Five Chambers, Cluster B’ project, in 2021 the construction of the K-7 and K-10 chambers at the Kosakowo CUGSF was completed to expand the storage capacities. After completing the construction of those chambers, 10 storage chambers with a working capacity of 299.7 mcm are operated at the Kosakowo CUGSF.

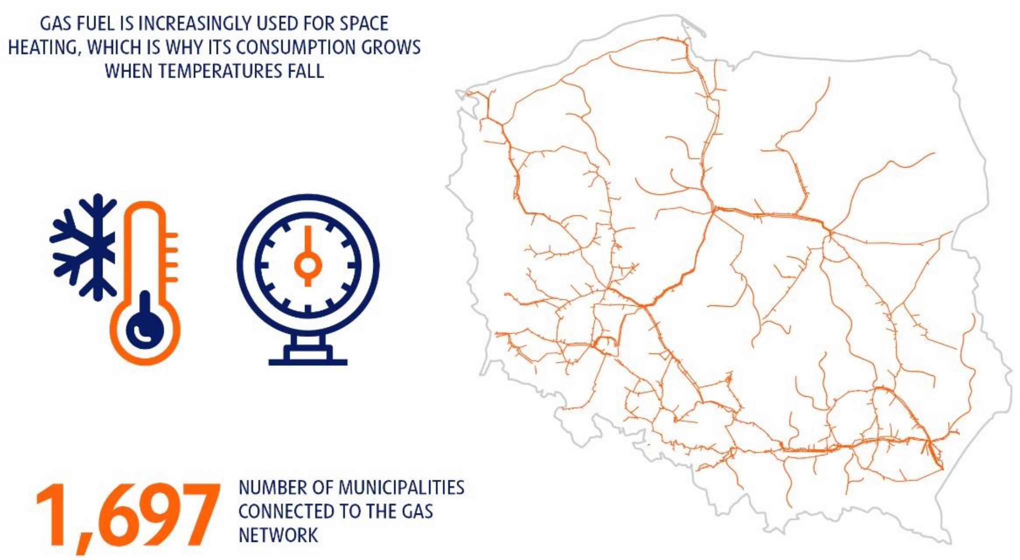
GSP also plans to expand its storage business, in particular storage of energy (in the form of hydrogen), hydrogen, biomethane, compressed air and liquid fuels, in order to broaden its customer base and secure new revenue streams. The offered services will include preparation, execution and supervision of underground energy and fuels storage projects and subsequent offering of the storage capacities.

In accordance with PGNiG S.A.’s preliminary directional decision, in 2022 GSP will continue working on hydrogen, biomethane, compressed air and LPG storage projects. Plans for 2022 include work in the administrative, legal and environmental areas and preparation for appropriate geological surveys at selected locations. As part of non-regulated activities, a new service will be continued in 2022 relating to the operation of a gas drying system in Mikanowo.

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 amounts 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 Polska Spółka Gazownictwa sp. z o.o. (PSG). As the Distribution System Operator, the company operates in all regions of Poland. Being the owner of the major part of the gas distribution network and gas service lines located in Poland, PSG enjoys a dominant market share.





(in PLN million, unless stated otherwise)

4.3.1 Key operating metrics

Table 29 Volume of distributed gas

mcm in natural units	2021	2020	2019	2018	2017
Total volume of distributed gas, including:	13,138	11,570	11,531	11,747	11,645
high-methane gas (E)	11,488	10,194	9,976	9,918	9,797
nitrogen-rich gas (Ls/Lw as E equivalent)	1,150	1,061	1,048	971	989

Table 30 Length of distribution networks

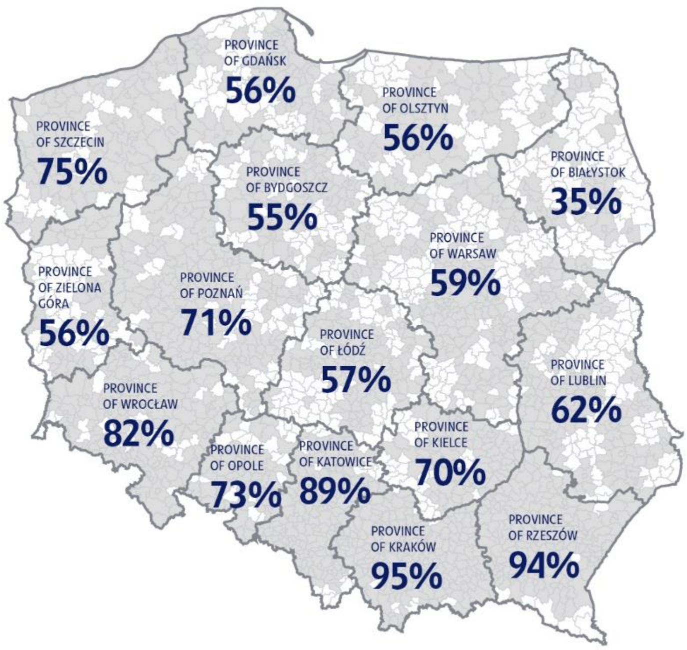
thousand km	2021	2020	2019	2018	2017
Length of distribution networks	201	195.18	191	186	183

In the first half of 2021, three new municipalities were connected to the gas grid. Thus, the geographical coverage in terms of the number of municipalities connected reached 68.51% (1,697 out of 2,477 municipalities).

4.3.2 Activities in 2021

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) in accordance with the provisions of the Energy Law and a programme for ensuring non-discriminatory treatment of distribution system users (Compliance Programme), applicable to PSG. PSG provides the distribution services under relevant distribution contracts. At the end of 2021, PSG was distributing gas fuel to 7.4m customers. In 2021, PSG executed six distribution contracts and two Interoperator Distribution Agreements. In the same period, approximately 19 thousand customers switched gas suppliers.

Figure 7 Municipalities where PSG provides gas fuel distribution services



Source: In-house analysis based on PSG data.

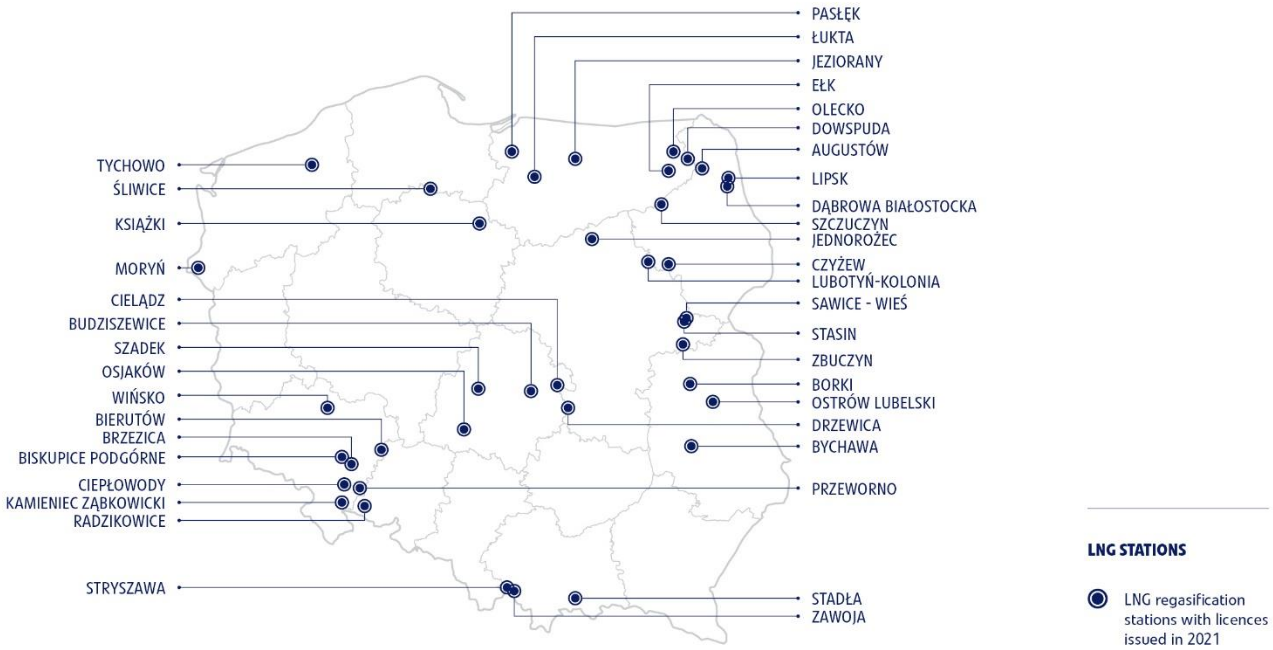
PSG's activities resulted in the execution of over 119,300 connection contracts in 2021, providing for 135,900 new connections to the gas grid. In 2021, PSG planned to build over 67,900 new service lines. By the end of the year, nearly 260,000 decisions defining the terms of connection were issued (an increase of 17% year on year) and 119,200 service lines with a total length of 1,133.7 km were built.

In 2021, PSG commissioned 31 LNG regasification stations, and additionally purchased two such facilities in Ełk and Olecko from PGNiG S.A., which became PSG's property on December 1st 2021.

In 2021, PSG obtained 33 liquefaction and regasification licences. At the same time, following an amendment to the Energy Law of May 20th 2021, six LNG regasification stations with a capacity of up to 200 cm/h were made available, whose operation, in accordance with the amendment to the Energy Law, does not require a licence. Thus, the number of the LNG regasification plants licensed and made available increased to 91 at the year's end.

The volume of gas distributed using LNG regasification plants (including stations supporting the distribution system) was 226.3 GWh in 2021 (an increase of approximately 43.5% year on year) and the number of single distribution orders for the year was 22,490 (an increase of approximately 3% year on year).

Figure 8 LNG regasification stations in Poland with licence issued in 2021



Source: In-house analysis based on PSG data.

Chart 11 Volume of gas transmitted via the distribution system in 2017–2021 (mcm)

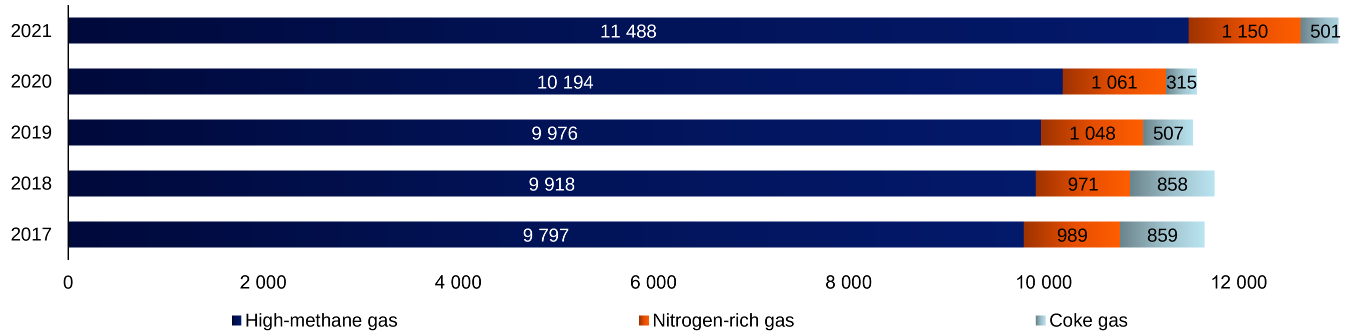
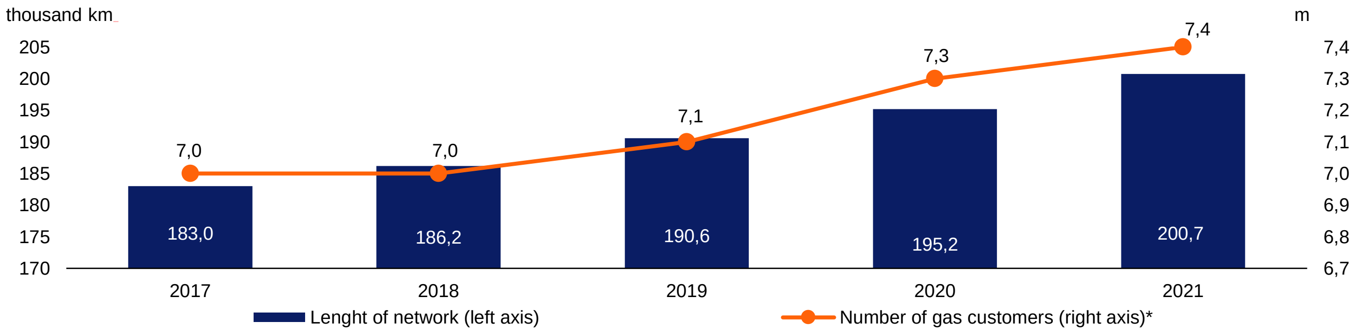


Chart 12 Length of own network, including service lines and number of customers*



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

A significant event that had an impact on the fulfilment of its operator obligations was the execution by PSG, with suppliers of last resort and stand-by suppliers, of comprehensive contracts, including provisions of the stand-by supply contract, in the name and on behalf of end customers for 3,931 exit points, following discontinuation of gas fuel supply by gas fuel suppliers to customers connected to the distribution network.

PSG's business is regulated, with licensing of gas fuel distribution and LNG regasification services, and the obligation to have distribution tariffs approved by the President of the Energy Regulatory Office (URE). In 2021, the following tariffs were in force:

- Tariff No. 8, effective from April 3rd 2020 to January 31st 2021; the tariff increased the average distribution fee by 3.5% relative to the previous tariff;
- Tariff No. 9, effective from February 1st to December 31st 2021; the tariff increased the average distribution fee by 3.6% relative to the previous tariff.

One of the key elements of the legal and regulatory regime in which DSOs (Distribution System Operators) operate is the Compliance Programme. The Compliance Programme is a document setting out the measures to be taken by a DSO in order to ensure non-discriminatory treatment of users and potential users of the distribution system. The obligation for a DSO to have this document arises directly under Art. 9d.4 of the Energy Law. It should be noted that in 2021 there was a material change to the Compliance Programme in force for PSG, approved by the President of the Energy Regulatory Office (URE) as a result of the new 'Guidelines for the Content of Compliance Programmes' published by the President of the Energy Regulatory Office (URE) in February 2019. This updated Compliance Programme sets stricter unbundling rules for individual areas of PSG's operations, including the area of ICT infrastructure management, customer service, communication, sponsorship, research and development, outsourcing and centralisation of services and procurement.

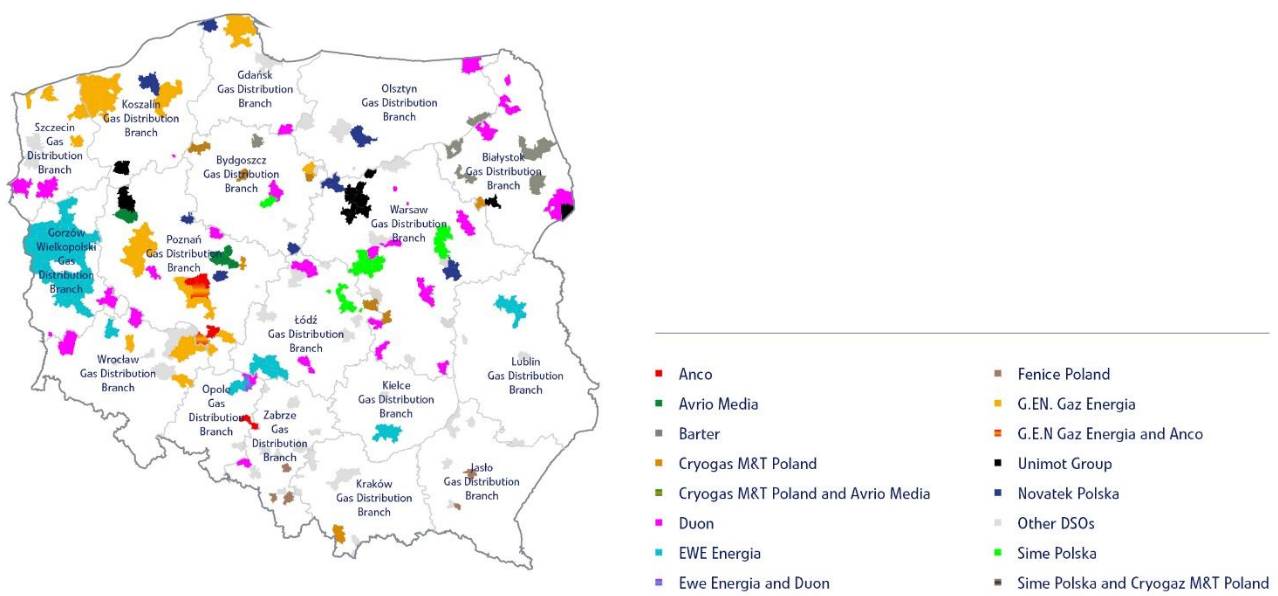
Competition

There are 49 competing DSOs on the Polish gas distribution market, including:

- 17 entities for whom DSO activities are the core business;
- 32 entities engaging in DSO activities outside their core business.

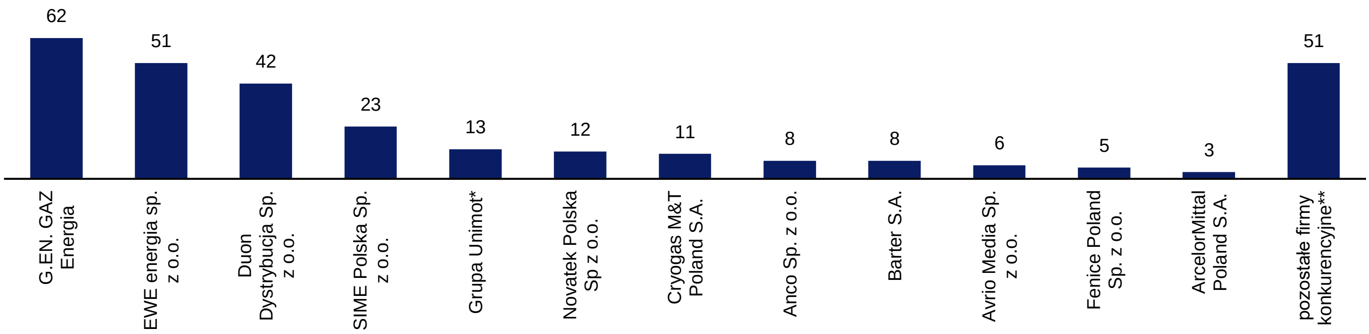
In total, competing DSOs and entities engaged in LNG regasification (without a gas distribution licence) operate in 295 municipalities; both PSG and competing DSOs operate in 154 municipalities.

Figure 9 Operating areas of competitors in Poland



Source: In-house analysis based on PSG data.

Chart 13 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.*

Companies with the greatest impact on the distribution market in Poland include entities that have entry points (mainly independent of PSG) to their own distribution systems, including LNG regasification stations, and operate in approximately 42% of municipalities where PSG's direct competitors are present. These include: Duon Dystrybucja, G.EN. GAZ Energia, Novatek Green Energy and UNIMOT System. Other competitors are active on local markets or expand at smaller rates.

Key projects and investments

In 2021, the total capital expenditure incurred in the Distribution segment was approximately PLN 3.24bn. PSG spent around PLN 2.18bn on expanding the network and connecting new customers. Another PLN 0.84bn was spent on reconstruction and modernisation of the gas network, of which slightly over PLN 0.30bn on replacement and certification of gas meters and components of metering systems.

In 2021, PSG pursued projects supporting implementation of the PSG Strategy for 2016−2022 in the area of distribution and infrastructure, aimed at putting in place technological and organisational solutions in customer service, meter reading, network assets management, billing of distribution services and security.

As a gas distributor, PSG additionally engages in a range of activities to combat smog and air pollution. In 2021, a number of environmental initiatives continued to be implemented in cooperation with local authorities. These included:

- 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). The project was implemented in 2019–2021 and was closed in November 2021;
- '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 2021, 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 ten projects exceeds PLN 675.2m, VAT inclusive (with the amount of subsidies in excess of PLN 257.4m). The total length of the distribution pipelines to be built or upgraded under the projects is approximately 489 km.

In 2021 PSG continued to perform under a grant agreement with the National Centre for Research and Development for the implementation of an R&D project carried out in consortium with Kielce University of Technology. The project is expected to deliver a new precise technology for assessing the technical condition of gas pipelines using acoustic methods and GPR surveys. PSG is constantly looking at possibilities of obtaining funding for new development initiatives. The company participates in preparations to obtain funding and secure the interests of the gas industry in the new EU perspective for 2021-2027. In this respect, PSG collaborates with PGNiG, the Chamber of the Natural Gas Industry and the competent ministries.

In 2021, efforts were continued to develop the R&D&I functions at PSG and improve the innovation potential of the company.

PSG actively participates in innovation programmes and projects. Some of the most important R&D projects implemented in 2021 included:

- efforts to develop the requirements for injecting combustible dopant gases, including hydrogen, into the PSG network;
- implementation of the EU co-funded project described above, entitled 'Innovative System for Automatic Identification and Location of Gas Infrastructure Defects using the Phenomenon of Acoustic Emission (SIildig AE)';
- pilot implementation and testing of an alternative electronic data reading system from metering systems;
- pilot implementation of an innovative system to detect gas network leakage.

Efforts were continued to secure innovative solutions supporting PSG’s core business and increase employee engagement based on previously implemented procedural solutions such as the PSG Innovation System or implementation doctorates, including the one on biomethane quality launched in the previous year.

Research and development

PSG monitors new technologies relevant to the energy sector and the government’s incentives to support the development of low-carbon energy, based on green generation sources and high-efficiency infrastructure. The company participates in the work of national and international working teams, focused on thematic streams relating to gas infrastructure, sustainable development and use of natural gas. It plans to focus its R&D&I efforts on projects to expand the functionality of the gas network and prepare for the distribution of decarbonised gases, to improve the efficiency of gas fuel distribution, and to ensure the operational safety of gas infrastructure and the continuity of gas fuel supply. PSG is a party to cooperation agreements for the development of the biogas and biomethane sectors and for the development of the hydrogen economy; in these agreements, R&D&I is classified among objectives and activities of strategic importance until 2030.

4.3.3 Development prospects and challenges for the future

In the short term, PSG is taking steps which, through the roll-out of the gas network and connection of end customers (mainly as part of "network densification", i.e. connection of new service lines to the existing gas network), are part of the anti-smog measures. In parallel, PSG participates in the ‘Connect, because every breath matters’ campaign.

In the medium term, PSG takes steps to convert, modernise and build a new gas network in order to maintain the security and continuity of gas fuel supplies and the long-term capacity to connect new industrial customers, including in particular district heating accounts below 50 MW. This is in line with the arrangements set out in the MCP Directive, which strengthens the emission standards of certain pollutants into the air from medium-sized combustion sources. These arrangements indicate that existing installations with a capacity greater than 5 MW have until 2025 to comply with the new emission standards, and those with a capacity of up to 5 MW – until 2030. Switching to gaseous fuel, by connecting to the gas network, represents an opportunity for these facilities to reduce harmful emissions.

The business potential is recognised in the development of the market for new renewable gas products and the target volumes of these gases to be transported, which can offset (to an extent dependent on economic and regulatory factors) the declining energy significance of natural gas in the "Green Deal" economy. Therefore, PSG is conducting multi-faceted analyses to prepare the gas infrastructure for the distribution of renewable gases.

Last year, PSG actively participated in initiatives coordinated by the Ministry of Climate and Environment on the renewable gas, natural gas and hydrogen markets, and in 2022 it will carry out activities in the performance of:

- Agreement of November 23rd 2021 on cooperation in developing the biogas and biomethane sector;
- Sectoral agreement of October 14th 2021 to build the hydrogen economy.

Fostering the chance of contributing to the achievement of strategic objectives set out in these agreements, PSG is actively engaged in the activities envisaged for business representatives.

PSG will continue to issue service-line pre-contract documentation for biomethane units in accordance with the developed standards. The introduction (in the second half of 2022) of legislative measures planned by the government to regulate the biogas and biomethane market, as well as the conditions arising in PSG’s environment and affecting business, technical and social aspects of the implementation of Poland’s energy policy, will be reflected in relevant updates of process solutions and related documents. The solutions will be communicated on an ongoing basis to all employees of PSG’s organisational units involved in the process of biomethane plant connection to PSG’s gas distribution network.

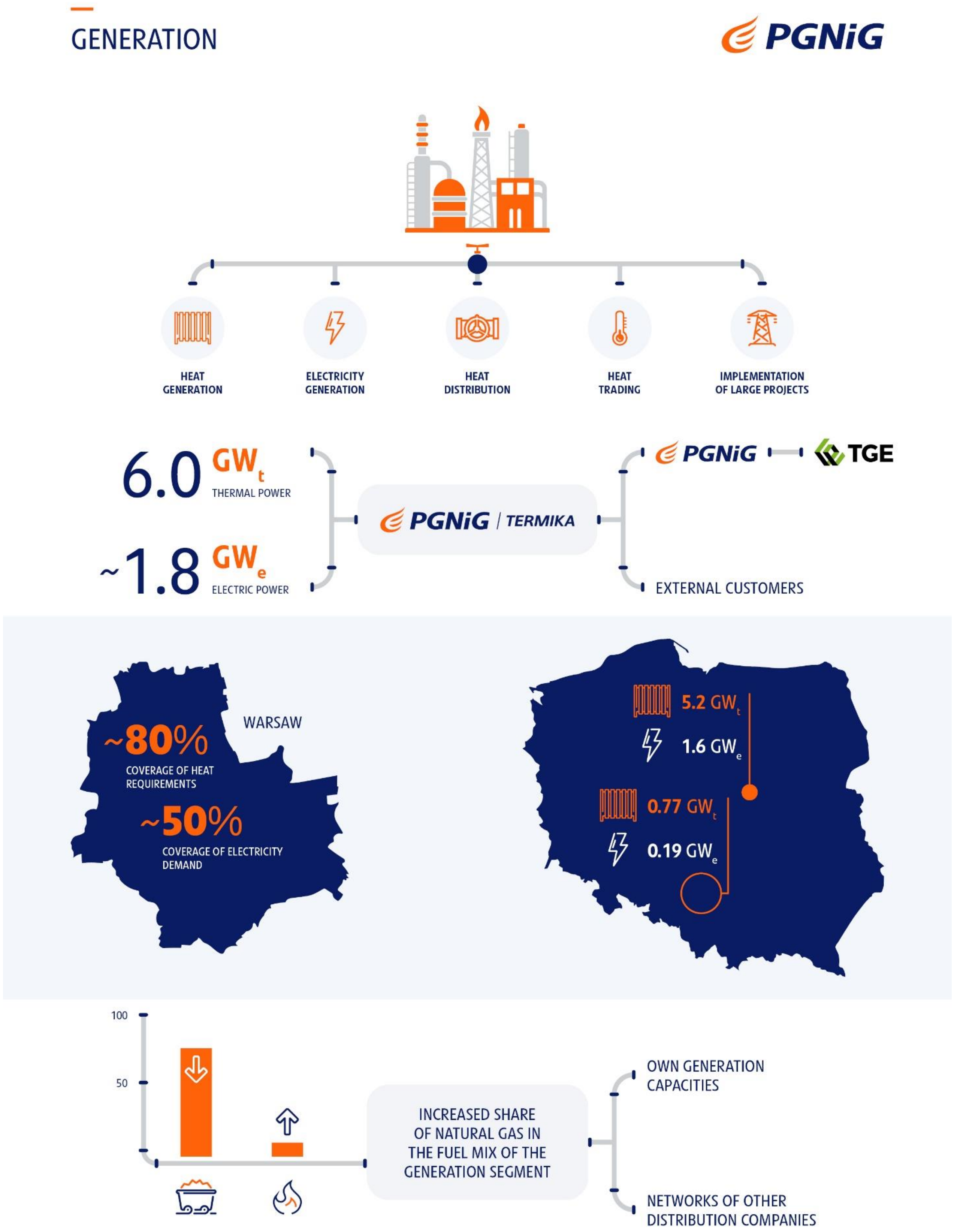
In view of the long-term policy of the European Union, known as the European Green Deal, which envisages achieving climate neutrality by 2050, and the priority for the generation of energy from renewable energy sources (RES), PSG will continue to analyse, both in technological and regulatory aspects, on a project basis, further issues related to extension of the functionality of gas infrastructure to transport natural gas mixtures containing other gases, primarily gases from renewable sources, i.e. biomethane, hydrogen and synthetic natural gas. In order to achieve the organisational and technical capacity for economically viable distribution of these gases, a number of strategic issues, as well as energy policy, economic, social, environmental, technical, legal, organisational and business aspects, need to be analysed. Cooperation and experience sharing with foreign and domestic entities involved in the implementation of the Power to Gas project, as well as preparation/operation of gas networks for the transport of natural gas mixture containing hydrogen or transport of 100% hydrogen will also continue. In the R&D area, analyses will focus on feasible projects to expand the functionality of the gas network and prepare for the distribution of decarbonised gases, improve the efficiency of gas fuel distribution, as well as to ensure the operational safety of gas infrastructure and the continuity of gas fuel supply.

PSG also engages in cooperation with the PGNiG Group and entities from the fuel sector to develop a business model which, taking into account the prevailing market conditions and the policy of the state, will enable the development of alternative fuel infrastructure and create conditions to offer vehicle users a viable CNG refuelling option.

Currently, all projects to develop alternative fuel infrastructure under the ‘Programme to build natural gas stations and to upgrade, expand or build networks necessary to connect these stations in 2019–2022’ are at final implementation stages. Projects to construct 23 CNG refuelling stations, including two LCNG facilities, are under way. By the end of 2021, 20 CNG stations, including two LCNG stations, were commissioned. Currently, these projects are being notified by the contractors to the Building Inspection Authority in order to obtain administrative operating permits. Detailed rules for the Final Acceptance of the projects, together with functional tests of the stations technical parameters, have been developed.

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 relevant competence centre at the PGNiG Group 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 31 Volume of regulated sales of heat from own sources to customers outside the PGNiG Group in the Generation segment

TJ	2021	2020	2019	2018	2017
Total heat sales volumes from own generation sources	41,174	38,940	39,263	40,659	42,611
at PGNiG TERMIKA	38,395	36,495	36,880	38,290	40,037
at PGNiG TERMIKA EP	2,779	2,445	2,383	2,369	2,574

Table 32 Total sales volume of electricity from own generation sources in the Generation segment

GWh	2021	2020	2019	2018	2017
Total electricity sales volumes from own generation sources	3,480	3,638	3,948	3,974	3,882
at PGNiG TERMIKA	2,992	3,202	3,493	3,535	3,593
at PGNiG TERMIKA EP	488	436	455	439	289

Table 33 Maximum capacity by licence / plant / branch

Generating unit	Heat [MW]	Electricity [MW]	Cooling [MW]	Compressed air capacity ['000 cm/h]
PGNiG TERMIKA	5,177	1,567	-	-
Siekierki CHP plant	2,068	650	-	-
Żerań CHP plant*	2,131	908	-	-
Pruszków CHP plant	164	9	-	-
Kawęczyn heat plant	465	-	-	-
Wola heat plant	349	-	-	-
PGNIG TERMIKA EP	773	185	17	240
Zofiówka Branch	279	113	-	117
Zofiówka Branch (Borynia site)	4	2	-	-
Moszczenica Branch	121	39	-	-
Pniówek Branch	72	14	17	123
Suszec Branch (Suszec site)	38	11	-	-
Suszec Branch (Częstochowa site)	3	3	-	-
Wodzisław Branch	55	2	-	-
Wodzisław Branch (Niewiadom site)	3	2	-	-
Racibórz Branch (Racibórz site)	87	-	-	-
Racibórz Branch (Kuźnia Raciborska site)	4	-	-	-
Żory Branch	88	-	-	-
Żory Branch (Czerwionka-Leszczyny site)	15	-	-	-
Distribution Office	4	-	-	-

** At Żerań CHP plant decommissioning of four coal-fired water boilers WP120 (9, 10, 11, 12) to adapt the plant to new emission requirements; change of licence to cover three gas-fired water boilers of 130 MW each and a CCGT unit – the effective licence approved by a decision of December 9th 2021.*

4.4.2 Activities in 2021

PGNiG TERMIKA S.A. is the Group's competence centre for heat and electricity generation as well as execution of heat and power projects. PGNiG TERMIKA's core business is the generation of heat and electricity from cogeneration sources.

The main sources of the company's revenue are sales of heat, electricity and grid services. The company satisfies most (around 80%) of the heat demand on the Warsaw market and almost the entire demand of the district heating network. PGNiG TERMIKA is also a producer and supplier of heat and the owner of heat sources and heat networks in the towns of Pruszków and Piastów and in the Michałowice municipality.

The company is one of the largest Polish producers of electricity and heat from high-efficiency cogeneration sources.

The core business of PGNiG TERMIKA Energetyka Przemysłowa S.A. is generation and distribution of and trading in heat, distribution of electricity, compressed air and cold. PGNiG TERMIKA EP is the PGNiG TERMIKA Group's competence centre for industrial power generation and use of methane captured from coal seam demethanation. The company operates generation assets with a total capacity of ca. 773 MWt and 185 MWe, and approximately 318 km of heat networks. The company operates 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, housing communities, housing management companies (ZGMs) and mines.

The key investment projects underway in 2021 included the performance of the contract to construct a CCGT unit and a peak-load boiler house at the Żerań CHP plant (placed in service in December 2021), an investment programme to upgrade the Pruszków CHP plant (execution phase) and a programme to upgrade the Kawęczyn heat plant (contract award phase). Work is being continued on the project to construct a multi-fuel unit at the Siekierki CHP plant. In 2021, the project was revised in terms of its target fuel mix and a decision was made to fully depart from coal. In February 2021, a procedure was initiated to obtain a zoning permit. Geological and engineering documentation was drawn up and approved, and work on the building permit documentation is nearing completion. As part of future investments at the Siekierki CHP plant, in 2021 a feasibility study was carried out to upgrade the plant by the construction of a CCGT unit with a capacity of 300 Mwe to 550 MWe, gas-fired boiler units with a capacity of 520 Mwt to 650 MWt, a heat battery with a capacity of 30,000 ccm to 60,000 ccm and electrode boilers.

In 2021, 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 Warsaw in 2021 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 (connected to PGNiG TERMIKA S.A.'s own local networks and to the networks of Veolia Energia Warszawa S.A.), based on a transmission contract (those customers are billed on different terms as they are classified in PGNiG TERMIKA's separate tariff group – 'OKW').

The PGNiG TERMIKA Group includes PGNiG TERMIKA Energetyka Przemyśl Sp. z o.o., whose principal business consists in heat generation. The company, established on December 4th 2020, operates a heating network owned by Miejskie Przedsiębiorstwo Energetyki Cieplnej of Przemyśl. On April 21st 2021, PGNiG TERMIKA Energetyka Przemyśl and Miejskie Przedsiębiorstwo Energetyki Cieplnej of Przemyśl signed a Long-Term Lease Contract for the Zasanie Heat Plant in Przemyśl, under which the company took over the operation of the plant as of September 1st 2021, thus commencing its operating activity.

Licences (tariffs)

PGNiG TERMIKA holds licences for electricity generation, heat generation, heat transmission, and electricity trading. In the first nine months of 2021 – a tariff for heat generated at PGNiG TERMIKA's heat generating sources: the Żerań CHP plant, Siekierki CHP plant, Pruszków CHP plant, Wola heat plant and Kawęczyn heat 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, approved by the President of URE on August 13th 2020.

New heat generation rates have applied as of June 1st 2021 under the tariff adjustment and decision of the President of URE obtained on May 10th 2021. On September 10th 2021, the President of URE issued a decision approving the tariff for the company's heat for the 2021/2022 season covering generation, transmission and distribution. The new rates resulting from the decision have applied since October 1st 2021.

After a new cogeneration unit had been placed in service at the Żerań CHP plant, an application was made to amend the heat tariff so that it covers the CCGT unit in the Żerań CHP plant. The President of URE issued an approving decision on December 17th 2021 and the adjusted heat rates have applied since January 1st 2022. The following tariffs were introduced and applied in 2021:

- tariff effective from September 1st 2020 to September 30th 2021, resulting in a 3.21% increase in average prices;
- tariff adjustment effective from June 1st 2021 to September 30th 2021, resulting in a 9.03% increase in generation prices;
- tariff effective from October 1st 2021 to September 30th 2022, resulting in a 0.12% increase in average prices;
- tariff adjustment effective from January 1st 2022 to September 30th 2022, resulting in a 15.54% increase in generation prices.

PGNiG TERMIKA EP holds licences for: generation of electricity, generation of heat, transmission and distribution of heat, trading in heat, trading in electricity and distribution of electricity.

The following tariffs were applicable to heat generated from PGNiG TERMIKA EP's generating sources in 2021:

- heat tariff effective from January 1st 2021 to July 31st 2021, approved by the President of URE on June 9th 2020;
- heat tariff effective from August 1st 2021 to November 30th 2021, approved by the President of URE on July 14th 2021;
- heat tariff adjustment effective from December 1st 2021 to December 31st 2021, approved for two generation sources by the President of URE on November 8th 2021.

The approved average heat price growth rate was 8.49% (for heat generation, the rate was 9.92% and for heat transmission: 5.34%).

Summary of auctions on the capacity market for 2021–2026

In 2021, another main auction of the capacity market was held for deliveries in 2026 and an additional auction for quarterly deliveries in 2022. As a result of the three main auctions organised by Polskie Sieci Elektroenergetyczne S.A. in 2018, 2019 and 2020 and the additional auctions in 2020 and 2021, PGNiG TERMIKA and PGNiG TERMIKA EP concluded 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);
- Units No. 9 and No. 10 at the Siekierki CHP plant: annual supply contract, limited due to emission requirements, for deliveries from January 1st 2025 to June 30th 2025 (total net capacity of 140 MW);

- Units No. 7 and No. 8 at the Siekierki CHP plant: supply contracts for deliveries in the first and fourth quarters of 2021 and in 2022 (total net capacity of 43 MW).

PGNiG TERMIKA units made available to PGNiG:

- Żerań 1 CHP plant: supply contracts for deliveries in the first and fourth quarters of 2021 and in 2022 (net capacity of 140 MW);
- Units No. 9 and No. 10 at the Siekierki CHP plant: supply contracts for deliveries in the first quarter of 2021 (total net capacity of 171 MW);
- Unit No. 9 at the Siekierki CHP plant: supply contracts for deliveries in the first quarter of 2022 (total net capacity of 86 MW).

At PGNiG TERMIKA EP:

- Moszczenica CHP plant unit: annual supply contracts for deliveries in 2022 (net capacity of 7 MW), and in 2023 (6.4 MW);
- Wodzisław-Częstochowa CHP plant unit: annual supply contracts for deliveries in 2022 and 2023 (net capacity of 1.2 MW);
- Moszczenica-Wodzisław CHP plant unit: annual supply contracts for deliveries in 2024 (net capacity of 8 MW), and in 2025 and 2026 (net capacity of 8.2 MW);
- CFB unit (Cogeneration Fluidised Bed unit) at the Zofiówka CHP plant – quarterly contracts for deliveries in 2022 (net capacity of 65 MW), annual supply contract for deliveries in 2024 (net capacity of 65.1 MW) and semi-annual supply contract for deliveries in 2025 (net capacity of 65.7 MW).

Furthermore, in 2018, the operator of 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 deliveries in 2021–2027 (net capacity of 386 MW).

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. The shares in the heat production markets in Warsaw and Pruszków make PGNiG TERMIKA a natural monopolist in these areas. An important area of competition is the sale of heat to end customers, where business is conducted on a TPA basis (third party access).

Electricity

PGNiG TERMIKA sells electricity almost exclusively on the wholesale market (with an only marginal share of sales to end customers). In 2020, as in previous years, the main players on the wholesale market were three groups of companies: PGE Polska Grupa Energetyczna S.A., TAURON Polska Energia S.A, and ENEA S.A., which account for some 67% of total installed capacity and whose electricity output represents approximately 70% of the total production in Poland. The PGE Polska Grupa Energetyczna Group holds the largest share in electricity generation. Given their shares in the wholesale market, the above entities certainly have a major impact on the development of energy prices under futures contracts.

Key projects and investments

Generation's segment capital expenditure in 2021 totalled approximately PLN 2 135m (of which PGNiG TERMIKA and PGNiG TERMIKA EP's PLN 582m on account of CO_2) and was incurred to upgrade and construct generating units.

Żerań CHP plant

One of the key capex projects in 2021 was the construction of a 500 MW CCGT unit at the Żerań CHP plant (Żerań CCGT unit). The first start-up phase resulted in the first firing of the gas turbine on June 17th 2021, the first synchronisation of the CCGT unit with the National Power System on June 28th 2021 and the first generation of electricity.

On April 29th 2021, a settlement agreement was signed before a mediator concerning claims of the contractor (consortium consisting of: Mitsubishi Hitachi Power Systems Europe GmbH, Mitsubishi Hitachi Power Systems Ltd., Mitsubishi Hitachi Power Systems Europe Ltd. and Polimex-Mostostal S.A.) in connection with the COVID-19 pandemic. Under the settlement agreement, the date of the Żerań CCGT unit placement in service was moved to September 30th 2021. In the fourth quarter of 2021, a test run and acceptance tests were carried out in accordance with the Transmission Network Code (TNC). On December 6th 2021, the Żerań CCGT unit was placed in service. On December 9th 2021, a power generation licence was obtained. Capital expenditure on the Żerań CCGT unit totalled approximately PLN 1.5bn.

Peak-load boiler house (Żerań CHP plant)

As part of the project to construct a peak-load boiler house at the Żerań CHP plant in 2021, the construction work was carried out under a contract signed with the consortium composed of Przedsiębiorstwo Budowy Kopalń PeBeKa S.A., Varia TECh sp. z o.o. and Ekolog sp. z o.o., as was the construction of a gas reduction and metering station for the peak-load boiler house executed by PGNiG Technologie S.A. Under the contracts, a complete boiler house comprising three boilers with a capacity of 130 MWt each, an ammonia water unloading and storage station for the flue gas denitrification unit, a three-flue stack, a staircase tower, and a complete gas reduction and metering station together with all necessary facilities were constructed. On December 3rd 2021, upgraded K15 and K16 boilers were placed in service. These were the last units to be placed in service under the project to construct a peak-load boiler house.

Stalowa Wola CHP plant (ECSW)

ECSW is a CCGT unit in operation since September 2020, comprising two turbines with a total installed capacity of approximately 460 MW, including one gas turbine with a recovery boiler with an installed capacity of approximately 300 MW and one pass-out and condensing steam turbine with an installed capacity of 160 MW. The CCGT unit's thermal power is 240 MW. Its pull-out power in cogeneration is 431 MW. A reserve heat source, comprising four water boilers with a total installed thermal power of approximately 125 MW (rounding off to be confirmned) and one steam boiler with an installed thermal power of approximately 10 MW (rounding off to be confirmned), was placed in service in November 2020.

In 2021, ECSW carried out operations consisting in heat and electricity generation. On January 14th 2021, the company obtained a heat tariff approved by the President of URE and on February 9th 2021 a licence to trade in electricity. Previously, in 2020 ECSW obtained a licence for heat and electricity generation.

On December 31st 2021, ECSW and Abener Energia S.A. (the original general contractor for the construction of a CCGT unit) reached an out-of-court settlement to determine the rules under which they would settle mutual claims arising out of any court or arbitration disputes between the parties under the contract concluded in April 2012 for the construction of a CCGT unit.

Ostrołęka Power Plant

On February 24th 2021, PGNiG, Energa S.A. and Polski Koncern Naftowy ORLEN S.A. submitted to the Competition and Consumer Protection Office (UOKiK) an application for the establishment of a joint venture, CCGT Ostrołęka Sp. z o.o., for the construction of a gas-fired power generation unit. On April 14th 2021, the applicants received a decision of the President of UOKiK to approve the concentration.

On November 29th 2021, the parties to the joint venture executed an amendment to the investment agreement of December 22nd 2020 on general rules of cooperation in the construction of a gas-fired power generation unit at the Ostrołęka C Power Plant.

The amendment confirms the parties' readiness to continue their cooperation on the project to construct the Ostrołęka C Power Plant (the "Gas Project"), while identifying the need to adapt the terms of cooperation to the conditions under which the Gas Project is to be carried out. The parties committed to seek agreement on PGNiG's financial contribution. The amount and manner of PGNiG's financial contribution to the Gas Project should be specified in another agreement, to be concluded by the end of 2022.

Pruszków CHP plant

As part of the Pruszków CHP plant modernisation project, the coal handling infrastructure and two water boilers were upgraded, and an environmental protection system was constructed. Subsequently, a gas connection agreement was signed, the terms of connection to the power grid were obtained, and a grid connection agreement was executed. Currently, the company is waiting for the environmental permit to become final.

In addition, bids were received in tender procedures for the construction of a new coal-fired boiler house. However, a decision was made to abandon the construction of a new coal-fired boiler house and instead to commence the construction of a new biomass-fired boiler house and a cogeneration engine. Conceptual work is under way to prepare this project for execution.

Renewable Energy Sources (RES)

As part of the development of its own RES sources, the company is continuing the project for the construction of a photovoltaic system at the Kawęczyn heat plant. The PV system will have a capacity of approximately 1 MWe. Its commissioning is scheduled for the third quarter of 2022.

PGNiG TERMIKA EP's investments

The most important investments carried out at PGNiG TERMIKA EP in 2021 included:

- project related to the supply of heat from own generation sources to the town of Rybnik;
- expansion and upgrade of district heating networks in Jastrzębie-Zdrój, co-fnanced with assistance funds;
- construction of engine power generators fired with gas captured from demethanation processes at hydrocarbon extraction facilities at the Zofiówka site, co-financed with assistance funds;
- replacement of old engine power generators fired with gas captured from demethanation processes at hydrocarbon extraction facilities at the Pniówek site, supplying heat to absorption chillers of the air conditioning systems of the workings at the KWK Pniówek hard coal mine, co-financed with assistance funds;
- bringing the heat plant units at the Żory site and the Racibórz site to the requirements of the Medium Combustion Plant (MCP) Directive, concerning the limitation of emissions of certain pollutants into the air from medium combustion plants;

- combination of the heating systems of the Jastrzębie-Zdrój and Pniówek sites.

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

PGNiG TERMIKA holds 20.43% of PGG's share capital. PGNiG TERMIKA's investment in PGG shares totalled PLN 800m. The current carrying amount of the shares, including impairment losses, is PLN 0. On May 28th 2021, the government and social partners signed a social agreement concerning the transformation of the hard coal mining sector and other transformation processes for the Katowice Province. The government agreed to promptly submit a notification request to the European Commission for the assessment of state aid for the production units of hard coal mining companies, proposed in the social agreement, and for approval of the planned public support mechanisms (aid to cover exceptional costs and subsidies for a reduction of production capacities) to ensure stable functioning of the coal mining sector until its closure. The social agreement also sets the deadlines for discontinuing coal production at individual mines by the end of 2049, and provides for security of employment and a social benefits package for employees of the phased-out production units covered by the support mechanism.

In 2021, all shareholders began selling their PGG shares to the State Treasury – in the performance of the social agreement, the State Treasury intends to acquire PGG shares from all shareholders. In order to notify state aid, the European Commission requires the State Treasury to become the direct owner of the entire hard coal mining sector to be covered by state aid.

Research and development

In 2021, the company continued its research, development and innovation projects, including:

- the 'Electrolytic reduction of CO_2 to methane – production of synthetic fuel from CO_2' project, designed to develop, construct and test a unit for electrolytic reduction of carbon dioxide to methane on a laboratory and pilot scale and to assess the possibility of applying the developed technology to reduce emissions of CO_2 by converting it to synthetic fuel, i.e. methane, with an option of storage. The project is being implemented in collaboration with the Wrocław University of Technology.
- the 'Development of a method for accurate determination of deNOx catalyst lifetime and the construction of a predictive tool for SCR reactors' project. The deliverable of the project will be an IT tool for catalytic reduction of NOx emissions from flue gas from coal-fired boilers and machine learning to assess the lifetime of deNOx catalysts in real time, depending on their past and current operating conditions. The project aims to reduce operating costs by optimising maintenance management and extending the operational lifetime of SCR catalytic layers. The project is being implemented in partnership with the Institute of Power Engineering – Research Institute of Warsaw.

Additionally, in 2021 the company carried out two pilot projects in cooperation with PGNiG to test innovative projects implemented by start-ups:

- a pilot project carried out by ReliaSol to predict potential failures of selected equipment in order to secure plant maintenance. The project involved using a 130 MWt gas-fired boiler at the Żerań CHP plant. The project's objectives included developing predictive analytical models for the gas-fired boiler as well as a failure detection model, to check the effectiveness of the models based on historical data and to eventually implement the models into the ReliaSol system to prepare a demonstration of the solution.
- a pilot project carried out by PHOTO SURVEY to check whether a new type of agricultural biomass, i.e. chips from maize rachis (maize residue left after removal of grains from the cobs) is suitable for combustion in a biomass-fired boiler at the Siekierki CHP plant. The pilot project results confirmed the possibility of co-incinerating that type of biomass in a biomass-fired boiler, taking into account technological risks.

4.4.3 Development prospects and challenges for the future

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 2022, PGNiG TERMIKA will continue work on several projects, including the construction of a peak-load boiler house at the Żerań CHP plant (phase 2), preparations for the construction of a 75 MWe multi-fuel unit and preparations for the construction of a CCGT unit at the Siekierki CHP plant.

Capital expenditure planned for 2022 in the area of environmental initiatives will cover adaptation of the Kawęczyn heat plant to the BAT conclusions, upgrade of the Pruszków CHP plant, upgrade of absorbers 1 and 2 at the Siekierki CHP plant, a programme to reduce noise generated by the plants and upgrade of the sanitary sewage system.

PGNiG TERMIKA will pursue an investment programme, including upgrades to its existing generation assets, aimed at building new high-efficiency and cost-effective generation capacity using low- and zero-emission technologies adapted to increasingly stringent environmental requirements. Steps will be taken to expand the company's business and R&D&I projects focusing on the use of hydrogen in the energy sector, the construction of heat and electricity batteries, increased use of renewable energy sources in power generation as well as the use of Power-to-Heat technologies (electrode boilers, heat pumps).

In the coming years, PGNiG TERMIKA also intends to continue the monitoring of acquisition opportunities among heat distribution and heat and electricity generation businesses, and to improve its business efficiency through the use of modern production and assets management methods.

The objectives of PGNiG TERMIKA EP in 2022 include the continuation and completion of the project to secure heat supplies for the town of Rybnik and the project to integrate the heating systems of the Zofiówka CHP plant and the Pniówek CHP plant, as well as efforts to intensify acquisition of new customers for central heating, domestic hot water, and cold. The company is also taking steps to significantly expand the heat market to include year-round sales of domestic hot water, particularly in the towns of Kuźnia Raciborska, Jastrzębie-Zdrój, Rybnik and Żory. In the long term, the company recognises the potential of thermal waste conversion and is therefore carrying out siting, technological and economic analyses (for the construction of thermal waste conversion facilities in Racibórz and RDF co-incineration in a CFB boiler).

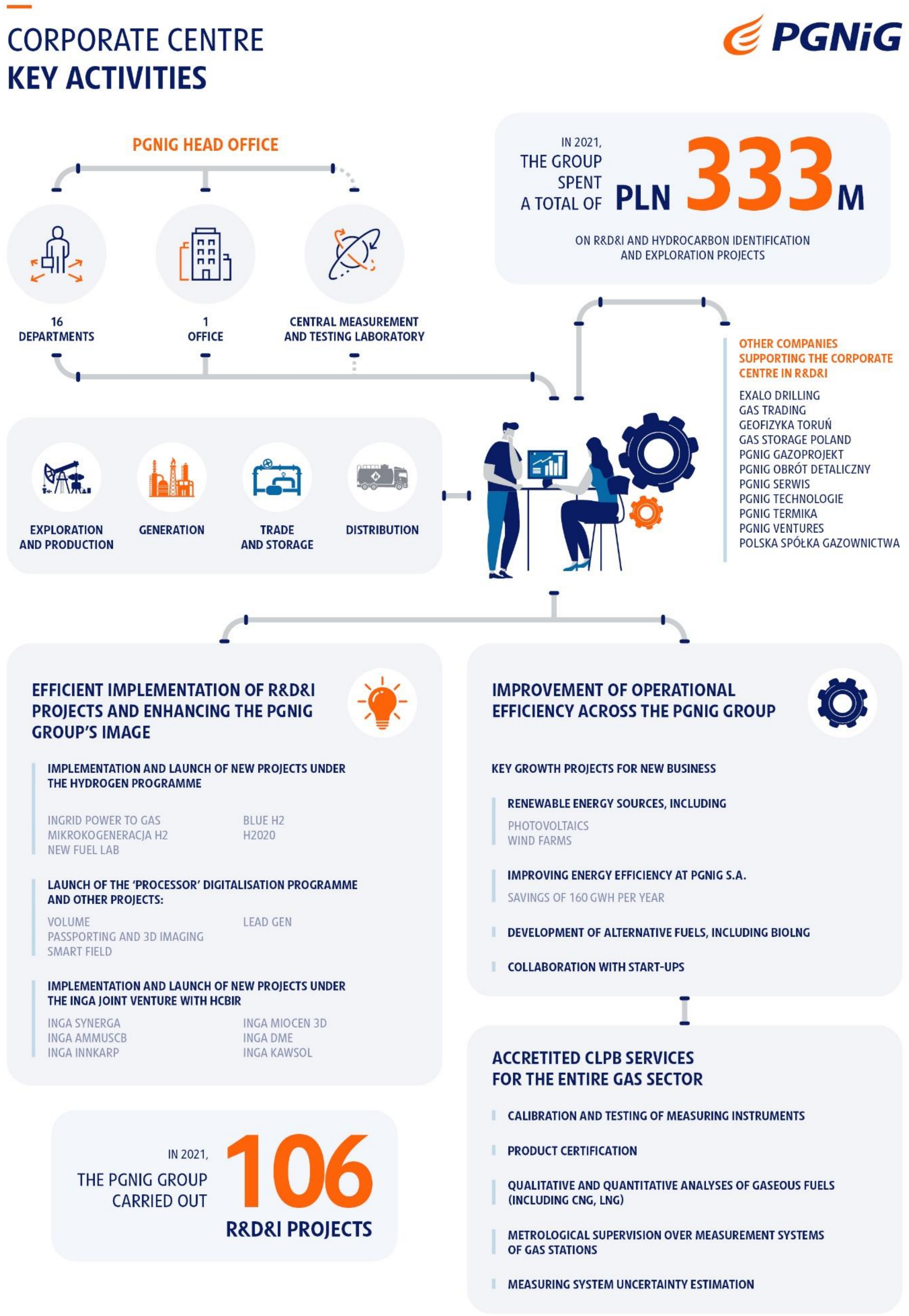
Concurrently, the company is taking steps to reduce emissions from individual generation sources through: exiting the ETS by the Suszec and Moszczenica CHP plants, conversion to biomass or co-incineration of coal and biomass in Żory, Wodzisław and Zofiówka CHP plants, as well as to make use of existing RES installations, i.e. PV systems in Jastrzębie-Zdrój, Racibórz and Żory (completed in 2021), and planned to be completed in the coming years (in Moszczenica).

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 the share of zero and low carbon fuels in the heat and electricity generation mix in order to reduce GHG emissions;

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- and zero-emission technologies.

4.5 Other Activities



4.5.1 PGNiG Group support companies and secondary business activities

4.5.1.1 Activities in 2021

PGNiG Technologie

PGNiG Technologie S.A. is active mainly on the domestic oil and gas market and, to a lesser extent, on foreign markets. Its business covers three main 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 for hydrocarbon production and exploration. In the storage business, PGNiG Technologie provides products and services relating to the development, repair and operation of gas storage facilities.

In 2021, as part of its business diversification efforts, the company continued executing orders in new areas relating to the supply of compressor sets. A new addition to the offering of PGNiG Technologie, and a novelty for PGNiG as the investor, was the construction of two sets of mobile production units (MPU 100) to conduct production tests and regular production from wells. In 2021, PGNiG Technologie provided its services to PGNiG Group companies and third parties, including: GAZ-SYSTEM, ORLEN Upstream Sp. z o.o and DC Goryzonty i MHWirth AS. A significant project carried out in 2021 was the continued development of the Kamień Mały crude oil field for PGNiG, the facilities scheduled to be commissioned in the first quarter of 2022.

PGNiG Serwis

The principal business of PGNiG Serwis Sp. z o.o. 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.

GAZOPROJEKT

PGNiG GAZOPROJEKT S.A. specialises in comprehensive preparation of pre-design and design documentation for the gas, fuel and energy as well as general construction sectors. After a period of high demand for design services for large strategic projects from the company's main customers, i.e. PERN S.A., OGP GAZ-SYSTEM S.A. and Polska Spółka Gazownictwa Sp. z o.o., the market is now saturated, with construction projects in the execution phase. Due to the situation on the fuel market, the segment of storage and distribution of liquid fuels shows some potential for new projects. The construction of new underground gas and oil storage facilities is currently in the decision-making phase.

Geovita

Geovita S.A.'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 2021, the company signed a conditional agreement for the sale of the facility in Jugowice and tender procedures were announced for the divestment of unprofitable assets in Płotki near Piła and Gronów near Łagów. In 2021, the restructuring process initiated in 2017 was continued with a view to increasing the company's value.

On December 16th 2021, the PGNiG Group and Polski Holding Hotelowy Sp. z o.o. signed a conditional agreement for the sale of Geovita's leisure facilities. On February 28, 2022, the last of the conditions precedent was fulfilled, and on March 4, 2022, the ownership of the shares was transferred to Polski Holding Hotelowy Sp. z o.o.

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. It also provides insurance cover to third parties, especially from the power sector. In 2021, the company continued cooperation with the PGNiG Group companies in relation to insurance contracts.

The key project completed in the reporting period involved the acquisition of assets held within Employee Pension Plans by Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych na Życie, i.e. a subsidiary of Polski Gaz TUW, whose main focus is now the offering of Employee Pension Plans in the form of unit-linked group life insurance. As at the end of 2021, Polski Gaz TUW managed 16 Employee Pension Plans of PGNiG Group companies.

In 2021, Polski Gaz TUW continued to sell insurance products distributed through PGNiG Obrót Detaliczny, i.e. 'Doradca Prawny dla Ciebie' and 'Doradca Prawny dla Firmy' legal service packages. Additionally, in partnership with PGNiG OD, Polski Gaz TUW prepared a cyber insurance product which is consistent with PGNIG OD's efforts to ensure customer security, i.e. the 'informed customer' campaign, and provides the first consumer cyber solutions in Poland. The new product will provide cover against theft, accidents and financial risks caused by cybersecurity incidents.

In 2021, in view of the ongoing SARS-CoV-2 pandemic, Polski Gaz TUW prepared and started to sell COVID insurance policies for employers, offering a comprehensive package of services to protect the health and safety of employees who bear the brunt of the pandemic.

PGNiG Ventures

PGNiG Ventures Sp. z o.o.’s strategy is to invest in companies with growth potential or those that are in the rapid growth phase and demonstrate continued ability to grow. Investments are made in companies from the industrial sector that operate in fast-growing market segments, have a competitive edge and potential for product development or geographical expansion. In 2021, PGNiG Ventures reviewed 122 projects and chose to invest in three predictive maintenance projects (Industry 4.0), smart metering (digitisation of metering infrastructure – power generation) and SaaS services supporting sales of PV systems, heat pumps, etc.

4.5.1.2 Development prospects and challenges for the future

PGNiG Technologie

In 2022–2024, the company will focus on continuing growth within its existing markets. This will involve in particular activities relating to projects and deliveries for the hydrocarbon production industry. Business development efforts have been made to build new competencies in acquiring contracts for delivery of gas compressor sets, mobile production units and gas-fired heat generation facilities.

To diversify revenue streams and expand its order book, the company will take steps to secure contracts in the gas transmission and distribution market, construct reduction stations, make deliveries to the railway industry and develop export sales of finished goods (Norway, Ukraine).

PGNiG Serwis

In 2022, PGNiG Serwis intends to remain involved in the implementation of the PGNiG Group’s strategic plans. PGNiG Serwis sees opportunities in the demand for optimisation measures and reduction of operating costs, which is facilitated by the company taking over support functions and services for more companies in the PGNiG Group. PGNiG Serwis also intends to expand its personal and property security business, IT support and property management services.

Gazoprojekt

In 2022, the downward trend in new large-scale transmission projects is expected to continue. On the other hand, projects to connect electricity and heat generation systems to the gas network should increase. This will largely depend on the way the state’s energy policy is implemented, as well as on possible changes in the EU’s approach to such projects, i.e. formal and actual recognition of natural gas as a transitional fuel and co-financing of gas projects. Due to the situation on the fuel market, the segments of storage and distribution of liquid fuels, construction of underground gas and liquid fuel storage facilities, show some potential for new projects. The planned energy revolution, including its financing tools, and consolidation trends in the Polish energy sector, may be an opportunity for the company to strengthen its market position.

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.

Furthermore, upon satisfaction of the conditions precedent to the agreement for sale of Geovita between the PGNiG Group and PHH, the company will be separated from the Group and transferred to the new owner.

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

According to its strategy for 2021-2025, Polski Gaz TUW will continue to operate as a subsidiary of PGNiG providing it with end-to-end effective insurance services. In 2022, Polski Gaz TUW na Życie plans to sell, under an agency model, an individual protection product providing nursing care benefits for the insured.

PGNIG Ventures

PGNiG Ventures expects to continue its capital expenditure efforts in 2022, taking into account the impact of the macroeconomic situation in which the PGNiG Group operates. Therefore, the company expects to close the investment process launched in 2021 in the first quarter of 2022. In the next quarters of 2022, the company will continue to seek opportunities for new investment projects; it also plans to prepare investment documentation for one or two projects.

4.5.2 Research, development and innovation. PGNiG Corporate Centre

The area’s main task is to build an efficient organisational and management model for R&D&I activities at the PGNiG Group, undertaken with a view to ensuring the Group’s competitive edge in the changing market. To this end, research, development and innovation projects are carried out to improve the Group’s long-term operational efficiency and foster its brand image. The Corporate Centre comprises the PGNiG Head Office with 16 Departments and one Office.

At the PGNiG Head Office, the R&D&I activities (solution identification, development, implementation/commercialisation), including cooperation with research and development institutions, as well as matters related to intellectual property (products of R&D activities), are managed by the Research and Innovation Department. The relevant organisational units are the Research and Innovation Department, the Business Development Department, and Central Measurement and Research Laboratory (CLPB).

4.5.2.1 Activities in 2021

Research and Innovation Department

In 2021, the Department oversaw work on 106 research, development and innovation projects. In 2021, the PGNiG Group spent a total of approximately PLN 332.6m on R&D&I and hydrocarbon identification and exploration projects, of which at the PGNiG Group companies: approximately PLN 111.1m, at PGNiG: approximately PLN 221.5m (including approximately PLN 18.5m on R&D&I projects and approximately PLN 203.0m on hydrocarbon identification and exploration projects (at the Geology and Hydrocarbon Production Branch)).

In 2021, collaborative work was being carried out with scientific and research partners on ongoing and planned R&D&I projects of interest to the PGNiG Group.

Under the INGA (INnovative GAs) joint venture, implemented in partnership with the National Centre for Research and Development and GAZ-SYSTEM S.A., in 2021 work continued on the execution of four research and development projects selected in the first INGA competition, including two exploration and production projects (INNKARP, SYNERGA), one post-mining methane recovery project (AMMUSCB), and one alternative fuels project (DME). In the second competition round of the INGA JV, two other projects were selected and scheduled for execution, one in the area of ‘Underground hydrocarbon storage’ (KAWSOL) concerning the integration of RESs with underground energy storage facilities in salt caverns, and the other in the area of ‘Exploration for and production of hydrocarbons and production of gas fuels’ (Miocen 3D) concerning exploration for unconventional hydrocarbon deposits.

All those processes are co-funded by the National Centre for Research and Development. The total budget of the projects is approximately PLN 74.4m, including NCBiR’s financing of PLN 36.4m. The objective of the INGA Joint Venture is to promote long-term innovation and competitiveness of the PGNiG Group companies in Poland and on the global market through targeted and commercialisation-oriented implementation of R&D projects and partnerships with research institutes.

In 2021, Stage 2 of the MiniDrill project was continued. The purpose of the project is to develop a technology for the drilling of a number of small-diameter sidetracks, radiating in different directions from an existing well, which will enable the acquisition of additional hydrocarbon volumes (compared with the methods currently used). In this way, the technology is expected to enable enhanced recovery of hydrocarbons from existing wells, optimising the production operations.

The key events in 2021 include the launch of the ‘Processor’ Digitalisation Programme. The total budget of projects under Tranche 1 of the Programme was PLN 137m. The aim of the programme is to maximise the benefits of digital innovation. One of its objectives is to identify areas within the PGNiG Group where the implementation of new digital technology solutions would quickly deliver benefits from the business activities of the PGNiG Group. The programme will be implemented in several tranches, with 11 projects under Tranche 1, including advanced data analysis and predictive models, digital twinning, 3D imaging combined with passporting and preparation to work in a private cloud environment.

One of the projects covered by Tranche 1 of the Digitalisation Programme is the Smart Field project coordinated by the Geology and Hydrocarbon Production Branch. As a result of the project, a flexible cloud environment is to be created for dynamic field modelling. The use of hybrid cloud computing capacity will reduce the time of preparing analyses for gas/oil deposits and enable the process to be fully automated. The above efforts are aimed at increasing the recoverable reserves of natural gas in Poland and maintaining domestic production volumes at a stable level. They also contribute to environmental protection by optimising energy consumption and reducing the carbon footprint throughout the value chain.

In 2021, the R&D&I area pursued a systemic approach to securing preferential financing across the Group. Procedures were followed to organise the identification of aid programmes, the division of responsibilities when applying for preferential funding, and the external communication with competent ministries. As a result, the PGNiG Group companies keep track of the sources of financing within the current and future EU financial frameworks and initiate application procedures for the most interesting R&D&I and investment projects.

Activities were also continued within the PGNiG Group’s Strategic Projects Committee for the Research, Development and Innovation Area. The Committee is an important forum for strategic R&D&I activities, knowledge exchange and discussions to achieve synergies in key business areas.

One of the key initiatives promoting innovation in the energy sector was the ‘PGNiG INNOVATORS’ conference organised in 2021. The conference for employees of the PGNiG Group was an online event held from June 16th to June 17th 2021. The conference highlighted the role and importance of innovation for the operations and competitive position of the entire PGNiG Group. Innovation was addressed in the context of global economic developments and trends, with attention paid not only to the need, but also to the absolute necessity to search for novel solutions and remain innovative in the rapidly changing world. The conference was attended by more than 2,000 employees of all Group companies.

Hydrogen Programme

In 2021, design work continued under the ‘Hydrogen – a Clean Fuel for the Future. Building Hydrogen Capabilities at the PGNiG Group’ programme, initiated in 2020. The programme pursues strategic objectives of the Company and the Group. Its objective is to assess and start the implementation (pilots/demonstrations) of hydrogen technologies within specific areas of the PGNiG Group’s business, including in particular distribution as well as large-scale storage and production, on the basis of identified technological capabilities and experience gained through successive R&D&I projects. The programme also aims to involve a team of specialists from all areas of the PGNiG Group's business where a business case for implementing hydrogen technologies can be identified. Cooperation between stakeholders from different areas of the Company's operations, while creating a single, coherent value chain, will contribute to the PGNiG Group's commitment and increased responsibility for development and innovation growth, reduce project implementation costs, improve profitability of potential investments, and enhance the allocation of financial, material and human capital.

The following projects are pursued under the programme:

- InGrid, P2G – an off-grid research network to add green hydrogen to natural gas and to test the impact of hydrogen on gas infrastructure of the distribution network. In 2021, design work was completed, a permit for the construction of the Odolanów unit was obtained, tender procedures were concluded to select the electrolyser supplier and contractor for the PV unit and the battery energy storage facility;
- H2020 – project to construct underground hydrogen storage facilities with the use of salt caverns. In 2021, PGNiG submitted an application to the European Commission for the 'Important Projects of Common European Interest' – for co-financing the project to construct energy storage facilities in Mogilno and Kosakowo, and to construct a research cavern in Mogilno. The project is being implemented by the PGNiG and GSP joint team;
- Blue H_2 – project initiated in 2021. The purpose of the project is to develop a blue hydrogen production technology (with parameters meeting the transport requirements) based on reforming natural gas integrated with a CO_2 capture unit – adaptable to the characteristics of the market product and enabling hydrogen storage.

As regards the 'Hydra Tank. Construction of a Research Hydrogen Refuelling Station' project, considering the inability to execute the project within the time limit and at the location specified in the contract, following additional analyses, including a legal analysis, a decision was made to terminate the contract.

Activities in the Programme also include efforts not directly related to R&D&I projects. In October 2021, PGNiG joined the Sectoral agreement for the development of a hydrogen economy in Poland, coordinated by the Polish Ministry of Climate and Environment. PGNiG is also an active participant of the Hydrogen Europe association, a voluntary organisation of hydrogen market stakeholders, and the European Clean Hydrogen Alliance (ECH2A), coordinated by the European Commission. These are key platforms for broad cooperation in the development of the entire hydrogen value chain to build a hydrogen ecosystem in Europe over three decades.

Business Development Department

In 2021, the Business Development Department worked on development projects and tasks, focusing on the following key areas: Renewable Energy Sources, Alternative Fuels, Energy Efficiency and the Inn-Vento Start-up Centre.

Renewable Energy Sources (RES)

In 2021, the 'Photovoltaic Business' project continued, designed to enable the PGNiG Group to enter in the prosument photovoltaic market. Under the project, a short list of companies providing such services was selected, with a view to acquiring one of them in 2022.

In parallel, under the 'Photovoltaic Installations' project, an inventory was made of roofs and own land that meet the criteria for the construction of photovoltaic systems and farms at PGNiG and the PGNiG Group. The first roof systems have already been installed under the project, with more systems planned to be mounted in the coming years. A concept for the development of large-scale photovoltaic farm projects has also been developed, involving the conditional acquisition of special purpose vehicles developing such projects. Technical and commercial criteria for target projects were formulated and preliminary discussions were initiated with developers of such projects.

As part of the WIND project, potential acquisitions of ready-to-build and operational wind farms are analysed on an ongoing basis. In 2021, PGNiG commenced to execute selected acquisitions; the same approach in this area is planned for 2022.

Alternative Fuels

In 2021, projects in the area of alternative fuels were carried out, with a focus on the use of LNG, bioLNG, and CNG:

- under the ssLNG/CNG (small scale LNG) Programme, the ISOLA project was launched to develop an optimum business model for off-grid gas distribution and LNG balancing, as part of which models for the off-grid gas distribution was prepared and analysis of the legal and regulatory framework was carried out;
- Stage 2 of the Magellan project was carried out, providing for purchase of bunkering equipment. At present, the project is being continued as part of PGNiG OD's KOLUMB 2 project;
- the 'Gepard' project continued, designed to expand PGNiG's LNG and CNG product offering for heavy road transport. Currently, the project is being implemented as part of an initiative to develop the LNG and CNG segment directly at PGNiG OD;

- Stage 2 of the 'BioLNG TANK' project was completed, which provided, among other things, for establishing relations with suppliers of systems for parametrising and liquefying agricultural biogas to bioLNG, defining the terms of cooperation with the project partner, i.e. an investor in the agricultural biogas plant, and preparing draft long-term agreements on cooperation, sales of biogas and lease of land. Stage 2 of the project concluded with obtaining an internal investment decision for the construction project.

Energy Efficiency

In 2021, following the implementation of projects improving energy efficiency, the President of URE granted PGNiG a certificate of energy efficiency for approximately 250 toe, with a value of approximately PLN 500,000. Thanks to the steady improvement of energy efficiency, the average annual savings in energy consumed approximate 13,800 toe, representing 160 GWh.

The implementation of those projects enabled the requirements of the PN-EN ISO:50001:2018 Energy Management System standard to be met, as confirmed by an appropriate certificate issued by Bureau Veritas Certification. The implemented system is a tool that enables systemic identification of energy efficiency improvement projects and eliminates the need for mandatory energy audits by external parties every four years. In total, 17 new energy efficiency improvement projects were identified at the PGNiG Branches in Sanok, Zielona Góra and Odolanów.

Moreover, the programme entitled 'Improvement of Energy Efficiency at the PGNiG Group' continued, designed to coordinate measures aimed at achieving benefits in energy management. Under the Programme, the Company launched further projects expected to improve its energy efficiency performance. Two projects were completed: The Dębno 4.0 project – implementation of a system for monitoring and managing utilities at the Dębno Oil and Natural Gas Production Site, and further upgrade of the gas engine at the Odolanów gas compressor station.

InnVento Startup Centre

In 2021, InnVento's activity focused on cooperation with the HugeTech accelerator, operator of the IDEA Global acceleration programme, co-financed with public funds (Measure 2.5 POIR – Smart Development Programme, Acceleration programmes). A similar cooperation agreement was also concluded with the Kraków Technology Park (KPT), operator of the KPT ScaleUp acceleration programme. As part of this cooperation, PGNiG can carry out pilot projects with selected start-ups in business areas that have been identified as promising for the implementation of technologies developed by small technology companies. InnVento was also a partner of the Space3ac accelerator, where international start-up teams which will join the Space3ac Poland Prize 2 programme will be given the opportunity to receive financial support and implement pilot projects for PGNiG.

In 2021, InnVento entered into agreements for six pilot projects in the following areas:

- construction of a prototype application to support IT vulnerability management for PGNiG – Proessence start-up;
- PoC (proof of concept) for a solution to provide a professional automatic balancing service for electricity from distributed generation sources, including by enabling the management of distributed electricity receivers, for PGNiG – TruBlu start-up;
- development of predictive models for failures of a gas-fired boiler, their review based on historical data and demonstration implementation for PGNiG Termika – ReliaSol start-up;
- development of an application called LeadGen (generator of leads: potential customers who would buy both gas and non-gas products and services (PV systems) for PGNiG OD; task under the Processor digitalisation programme – BitPeak start-up;
- use of maize cob cores in the production of electricity, heat and CO_2 for industrial applications as a new renewable energy source for PGNiG Termika – Photo Survey start-up;
- a solution enabling automatic and intelligent classification of employee tickets in the Jira tool, which will enable the implementation of an automatic bot to answer employee inquiries for PGNiG OD – Alphamoon Services start-up.

In cooperation with CLPB, a technology competition was held and a bid was obtained to develop an effective, economically and technologically efficient method (a device or sensor) for measuring hydrogen concentration in natural gas that would guarantee accuracy, repeatability and stability as well as fast and correct detection.

PGNiG Central Measurement and Testing Laboratory (CLPB) Branch

The main objective of CLPB is to maintain and strengthen its market position as a leading calibration and testing laboratory accredited by the Polish Centre of Accreditation and a verification point for measuring equipment and systems used in the natural gas industry as well as a natural gas quality control laboratory for all types of natural gas, including CNG and LNG. In this area, CLPB continues to provide services such as testing the correctness and reliability of natural gas quality and quantity measurements, testing of metering equipment and systems, and provision of analyses, opinions and technical expertise. The CLPB Branch's key customers are internal and external customers operating in Poland. The largest customers include PGNiG Group companies (Gas Storage Poland Sp. z o.o., Polska Spółka Gazownictwa Sp. z o.o., PGNiG Termika S.A., Sanok Branch and Zielona Góra Branch), GAZ-SYSTEM S.A., EuRoPolGaz S.A., KGHM Polska Miedź S.A. and Grupa Azoty Group companies.

The Branch provides metrology services for natural gas measurement and quality assessment equipment. Such equipment includes process chromatographic analysers for the assessment of natural gas quality, gas fuel dampness diagnostic devices and gas fuel density meters. CLPB also analyses the composition of natural gas, the content of odoriser and the content of sulfur compounds.

In order to enhance efficiency and the ability to take on new R&D challenges, a new dedicated unit was established within the Branch in 2020, namely the Research, Development and Innovative Technology Office. Key project initiatives implemented at the office since 2020 include:

- New Fuel Lab (NFL) project to expand the laboratory activities of CLPB PGNiG to perform quantitative and qualitative tests of hydrogen purity for vehicle fuel applications, mixtures of natural gas with hydrogen and biomethane;
- the Bio-CNG project: The Use of Biodegradable Fraction of Municipal Waste in Energy Production is a circular economy initiative to develop technologies for efficient preparation, processing and management of the organic fraction of municipal waste.

In 2021, new alternative fuel initiatives were launched, including:

- The H2 Micro-Cogeneration (Micro-CHP) R&D project designed to acquire technical and economic expertise in the production process, as well as hands-on operational experience in the solid oxide fuel cells (SOFC) technology, and to subsequently develop and implement the high-efficiency small-scale micro-CHP technology based on solid oxide fuel cells (mCHP-SOFC).

Concepts and complete design documentation were prepared for the following projects:

- The HyCogen R&D project focusing on the development of an innovative, economically viable, energy-efficient and unique technology of a gas engine in a cogeneration unit powered by a mixture of natural gas and hydrogen in any proportions (and ultimately with pure hydrogen), designed to supply electricity and heat to end users from lowest emission (and ultimately zero emission) sources;
- The Biomethanization project intended to obtain deliverables in the form of know-how and rights to biomethanization technology in a methanogenic reactor, ready to move on to the pre-implementation stage;
- The reFOOD project meant to develop an effective technological framework and business model based on the circular economy concept and the production of an alternative transport fuel using expired food products.

4.5.2.2 Development prospects and challenges for the future

Research and Innovation Department

PGNiG's focus is primarily on reinforcing the PGNiG Group's position in hydrogen technologies, further digitalisation of its business, and application of new solutions to its core business operations, particularly to Exploration and Production as well as Storage.

Priority will be given to the completion (within the adopted time frames and budgets) of ongoing R&D&I projects and to the commercialisation of further products. At the same time, new business areas that can increase the competitiveness of companies and strengthen their market position will be constantly analysed. These activities will be implemented over two time horizons.

Short-term horizon (until the end of 2022):

- Strengthening the position of the PGNiG Group in hydrogen technologies, including by preparing an update of the Hydrogen Programme, incorporating the objectives set out in the 'Polish Hydrogen Strategy until 2030 with an outlook until 2040' adopted by the Polish government;
- Under the InGrid Power to Gas (PtG) project: launch of a PV unit with a power storage facility in Odolanów in the second quarter of 2022, followed by an electrolyser unit and an island hydrogen research network in Odolanów to be launched in the fourth quarter of 2022, which will mark completion of the construction work and commencement of research activities;
- As part of the H2020 project: launch in the third quarter of 2022 of a complete measurement vehicle capable of testing storage infrastructure containing hydrogen and natural gas-hydrogen mixtures;
- Under the Blue H_2 project, among other activities: preparation of feasibility studies for complete systems for gas reforming, CO_2 capture and conditioning, and hydrogen application; as well as execution of agreements with industrial partners interested in the purchase of products (hydrogen and CO_2).
- Design and construction of an innovative turbo-expander in Odolanów, based on Polish know-how and technologies;
- Roll-out of the passporting functionality for the power unit in the production facility, including its connection to production databases and real-time presentation;
- Securing notification to the European Commission relating to the construction of salt caverns as large-scale storage facilities of energy in hydrogen.

Medium-term horizon (2022–2024):

- Growth and expansion in the hydrogen technology market, including in P2G energy storage and hydrogen storage;

- Roll-out of the Digitalisation Programme including digital innovation projects – e.g. big data analytics and decision support algorithms (artificial intelligence, machine learning) and process automation – developed, tested and implemented across the PGNiG Group's value chain;
- Commercialisation/implementation into the PGNiG Group's business of the results of R&D projects, including products and technologies originating from INGA projects – assessed on an ongoing basis in terms of commercialisation viability;

Business Development Department

In 2022, steps will be taken primarily to ensure efficient implementation of new business products at the PGNiG Group and to identify and develop new projects.

RES

In 2022, the PGNiG Group plans to enter the prosumer photovoltaic market through potential acquisition of a provider of such services. As part of the Group's growth in the RES market in 2022, efforts will be continued to build and operate a portfolio of renewable electricity sources, including in the photovoltaics segment: development of photovoltaic systems on own land and in own facilities, acquisitions of photovoltaic farms and development of large-scale photovoltaic farm projects in accordance with the developed business concept; In the wind farm segment: potential acquisitions of wind farm projects ready for construction as well as operational wind farms.

Alternative Fuels

In 2022, work is to be continued under the bioLNG TANK project. The procurement procedure for the 'Turn-key construction of a bioLNG unit' is to be launched, followed by execution of a contract with the winning contractor, execution of a contract with the agricultural biogas plant, and securing administrative permits for the construction project: environmental decision, zoning permit, technical connection conditions, and building permit. New liquefied biomethane projects will be selected and analysed, and new locations for investment projects will be identified.

Under the 'ISOLA' project, the Company will develop an optimum business model for the 'off-grid gas roll-out' concept, together with the provisions on optimised processes; estimate tangible benefits of the optimisation and develop a document governing that area.

Work will be carried out on the 'waste-to-hydrogen' concept, and data will be collected regarding potential production of other alternative fuels derived from waste (such as ammonia, methanol, and ethanol) and their possible applications; market research will be conducted with regard to the sale of other types of alternative fuels; and other hydrogen production technologies will be explored.

Energy Efficiency

In the Energy Efficiency area, in 2022:

- The PGNiG Group companies will phase in energy-related products developed in the ESCO project, including under the ongoing Stop SMOG project;
- The Energy Efficiency Improvement Programme will be gradually delivered, and the average annual energy savings through the implementation of 17 identified projects have been preliminarily estimated at approximately 44 GWh;
- The certified Energy Management System compliant with the PN-EN ISO 50001:2018 standard is to be maintained.

InnVento Startup Centre

In 2022, the Group plans to increase the scale of test projects with start-ups, building on cooperation with external partners (accelerators). To this end, steps will be taken to identify and verify the technological and business needs of PGNiG and key Group companies, as well as to support effective management of such projects within the PGNIG Group. Another technology competition is also to be launched.

Central Measurement and Testing Laboratory (CLPB)

In 2022, CLPB plans to expand its measurement and testing activities by acquiring new customers, expanding the service range, increasing the use of its expertise potential and existing infrastructure, and to intensify marketing efforts through such activities as campaigns targeted at entities that use infrastructure requiring certification. Other business development initiatives will include building CLPB's competences and infrastructure to offer qualitative and quantitative testing and analytical services for alternative fuels.

Short-term plans provide for expanding CLPB's competences to include quality analyses of hydrogen as a low-emission vehicle fuel. Currently, there is no such laboratory in Poland, and the prospect of organising one becomes a very important element in the development of CLPB in the context of the emerging market for hydrogen fuel, as well as the quantitative and qualitative testing of natural gas-hydrogen mixtures and biomethane.

In addition, the model NSG-T01 metering station is planned to be upgraded, which allows commercial calibration of various types of gas meters (turbine, ultrasonic, and centrifugal) within the range of (0.16 ÷ 6,500 cm/h), as Poland's only such facility (except for the

Central Office of Measures). Replacement of the existing control system as well as the control and measurement devices will enable the company to expand its measuring capabilities to include turbine, ultrasonic, and thermal mass flow meters.

In the area of project development, 2022 is expected to see the launch of innovative hydrogen technology projects as part of the Hydrogen Programme in order to develop gas engine technologies for safe and low-emission combustion of natural gas-hydrogen mixtures. Conceptual work is under way to launch a green hydrogen production project.

In 2022, CLPB is expected to be involved in the following work as part of the construction and application of research infrastructure in Odolanów:

- Verification of the winning projects in the ‘Measure H2 for PGNiG’ competition, namely the selective sensors used to measure hydrogen concentration in natural gas (as an alternative to expanding chromatographs), and in particular used as sensors in blending units to reduce network upgrade costs;
- Participation in the design and construction of hydrogen dosing systems, and in their laboratory and on-site tests;
- Verification of the measurement results of previously used chromatographs (PGCs) in the presence of hydrogen;
- Laboratory analyses of the effects of hydrogen on pressure sensors in pressure gauges and transducers;
- Assisting in the commissioning of a test system of medium pressure gas meters, including leakage tests in the presence of hydrogen, and checking the ability to obtain the set gas flow values.

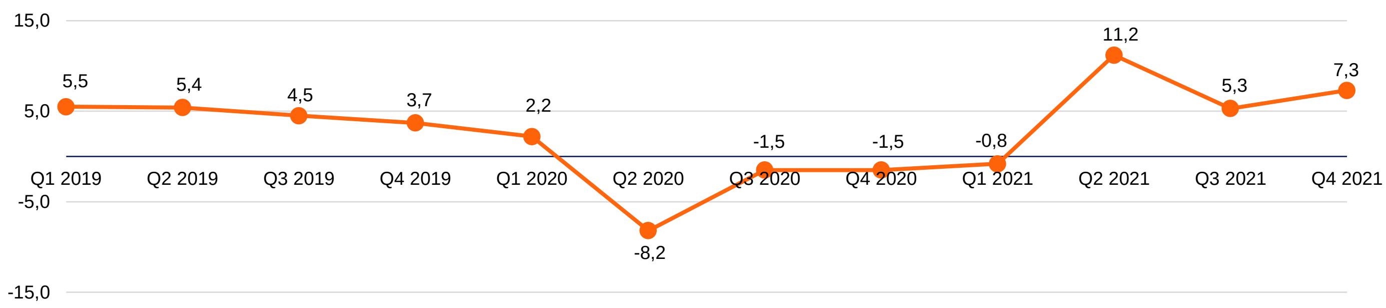
2022 is expected to see the launch of the ‘Circular Economy at the PGNiG Group’ programme aimed at gradual roll-out of the circular economy business model (CBM model) across the PGNiG Group in order to create opportunities for long-term revenue growth at the Group and improve the efficient use of raw materials, products and generated waste.

5. Financial condition of the PGNiG Group and PGNiG in 2021

5.1 Macroeconomic environment

5.1.1 Economic situation and exchange rates

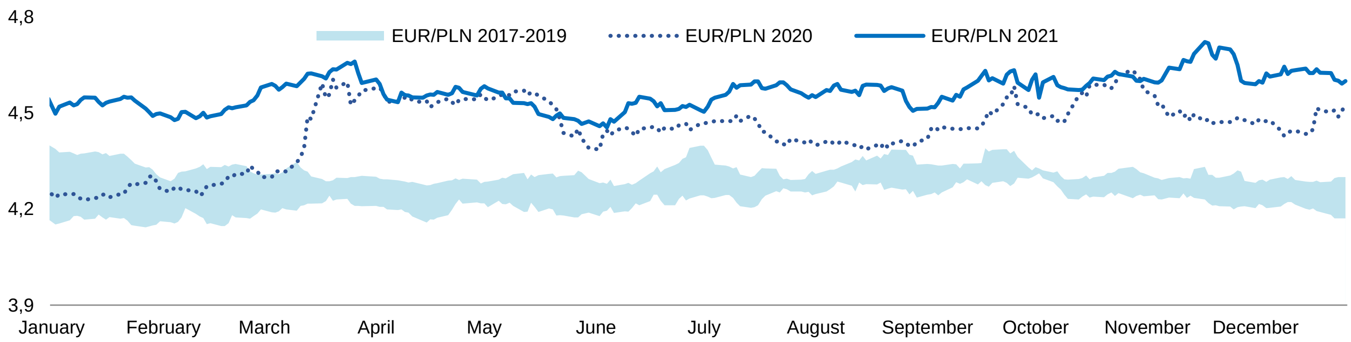
Chart 14 Gross domestic product



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

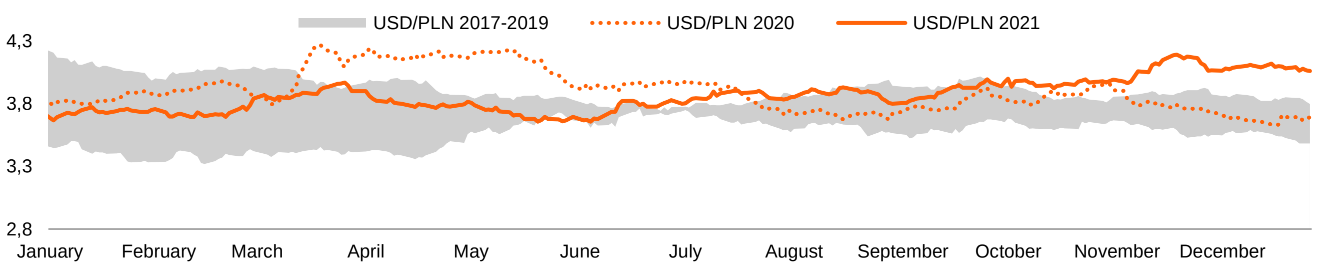
According to a preliminary estimate by Statistics Poland (GUS), the country's gross domestic product (GDP) in 2021 was up 5.7% in real terms on 2020, compared with a 2.5% decline recorded in 2020. As a result of the post-pandemic economic recovery, domestic demand grew 8.2%, and investments increased 8% year on year. Industrial output was the largest contributor to growth, having generated 14.1% of gross value added.

Chart 15 EUR/PLN exchange rates



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

Chart 16 USD/PLN exchange rates



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

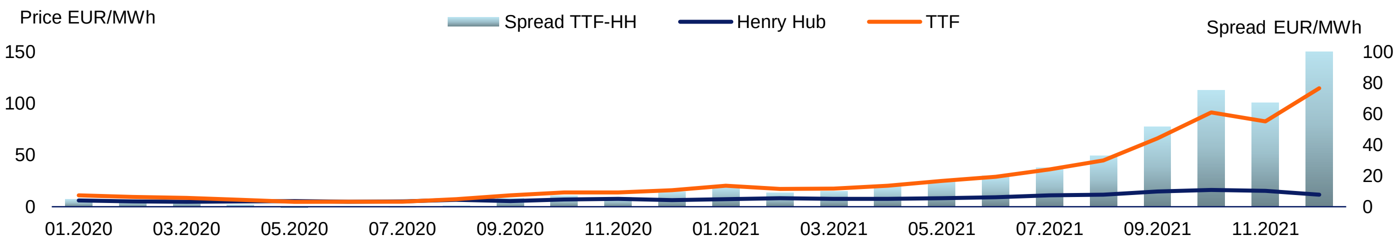
The USD and EUR exchange rates are a significant indicator for the PGNiG Group, mainly because of their impact on gas procurement costs in the Trade and Storage segment. The dollar exchange rate mainly affects settlements with gas suppliers in long-term contracts and oil revenue, while the euro exchange rate affects gas purchases from the western direction.

5.1.2 Trends in the natural gas market

Gas prices in Europe and globally

In 2021, prices of natural gas in Europe rose sharply relative to prices quoted at the US Henry Hub. The average natural gas price at the Dutch TTF Holdings Hub during that period was EUR 47.14MWh – having increased more than 390% year on year. Comparing the same periods, natural gas prices at the Henry Hub went up by EUR 4.43/MWh to EUR 10.75/MWh on average. Therefore, the average gas price in the United States was up 70.2% at that time. The spread between those two trading points grew by over 1,000% last year, by EUR 33.39/MWh, to reach an average of EUR 36.39/MWh in 2021. The largest price spread of EUR 103.14/MWh was recorded in December.

Chart 17 Average monthly front month gas contract at Henry Hub and TTF in 2020 and 2021

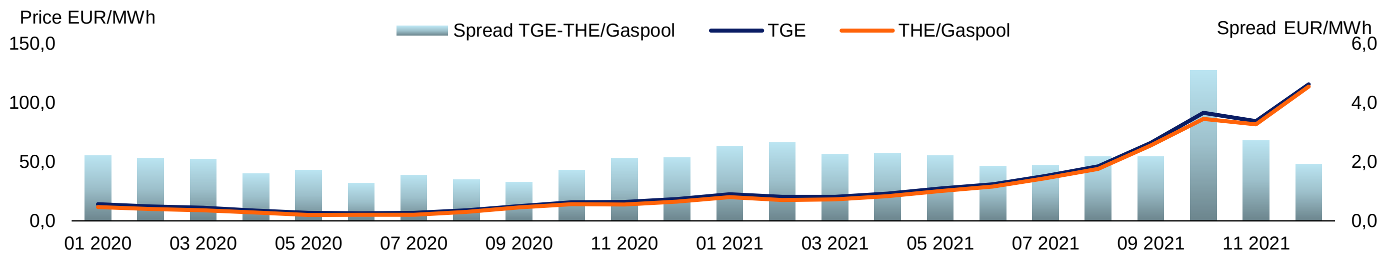


Source: In-house analysis based on NYMEX and ICE data. Front-month contract - contract with the delivery date in the following month.

Gas prices in Poland

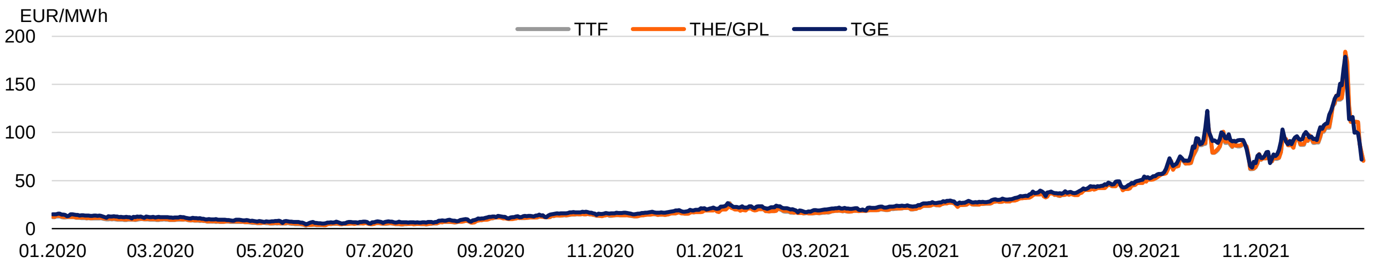
In 2021, the average spot price of gas in Poland was EUR 48.78/MWh, up EUR 37.37/MWh year on year. Gas prices in Poland were strongly correlated with those in Germany and on the European markets in general. The average spread between spot prices (for Day Ahead products) on the POLPX and the THE (Gaspool) in 2021 was EUR 2.48/MWh, up EUR 0.71/MWh (40%) year on year. The reported increase in the spread between average closing prices on the Polish and German markets was not attributable to any fundamental changes (such as higher transmission costs), but was driven by sharp price spikes on the gas market seen especially in the last quarter of 2021, which saw an unprecedented strong upward trend. As a result of these market developments, combined with the earlier closing time of the POLPX relative to western exchanges, the closing prices in Poland were unable to follow the gas price upticks, and the POLPX price was only able to ‘catch up’ with prices quoted at the Western European hubs on the next day on market opening.

Chart 18 Average monthly spot prices of natural gas in Poland and Germany in 2020 and 2021



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

Chart 19 Spot prices of gas at POLPX, TTF and THE in 2020 and 2021



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

The situation on the natural gas market in Europe and globally has a bearing on the PGNiG Group's financial results, mainly due to its impact on both income and expenses of the Trade and Storage segment.

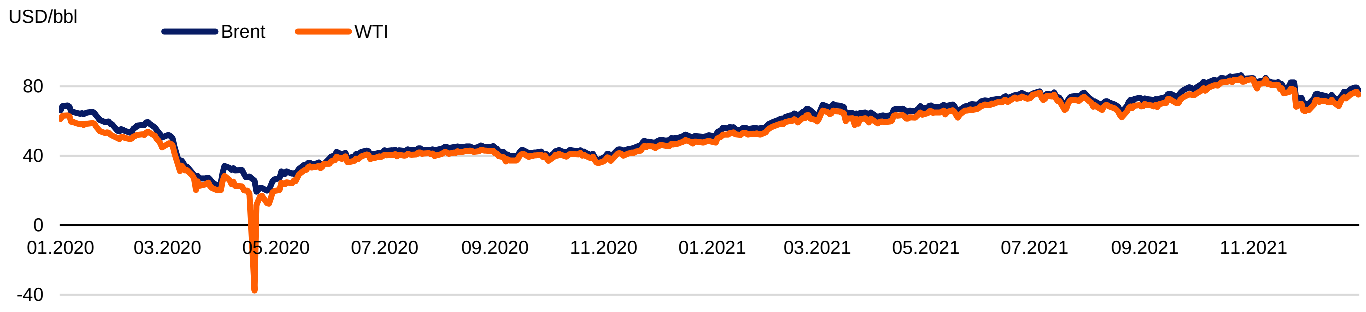
5.1.3 Trends in the crude oil market

In 2021, the crude oil market saw rising prices. The average spot price of Brent crude was USD 71/bbl, compared with USD 42/bbl in 2020. The price increases were mainly triggered by the economic recovery following the global coronavirus pandemic. After vaccination campaigns were launched in many regions around the world, pandemic-related restrictions were lifted and mobility returned to near normal levels from before the pandemic. The increase in global demand for crude oil outstripped a short-term spike in production, causing a shrinkage in worldwide oil stocks.

In the fourth quarter of 2021, investors in the crude oil market were extremely jittery, and crude prices ranged from USD 65/bbl to USD 86/bbl. Such price volatility was driven, among other factors, by the uncertainty surrounding the new coronavirus variant Omicron and its impact on demand for crude oil. On the supply side, crude prices fell following a decision taken by OPEC+ members to ramp up their output, but at the same time grew due to disruptions in supplies from Libya and Kazakhstan.

(in PLN million, unless stated otherwise)

Chart 20 Month-ahead Brent and WTI oil prices in 2020 and 2021



Source: In-house analysis based on ICE and NYMEX data. month-ahead contract – contract with the delivery date in the following month.

In 2021, the average demand for crude oil rose by 5.2% year on year, to an average of 96.64 mbbl/day. Oil demand among the world's largest non-OECD consumers went up by 5.1%. Other Asian countries also saw rising demand for crude oil. The global oil supply was increased in 2021 by 1.45% year on year, which means it did not rebound enough to match the demand. Output from the OPEC group rose most sharply, up by 2.69%. China's production went up by 2.6%, and the United States increased its output by 0.99%.

Table 34 Global oil demand

million bbl/d **Demand**	**2021**	**2020**
OECD	44.26	42.02
including United States	*19.70*	*18.19*
Non-OECD	52.38	49.84
including China	*15.22*	*14.43*
Globally – total	96.64	91.85

Source: in-house analysis based on EIA data.

Table 35 Global oil supply

million bbl/d **Supply**	**2021**	**2020**
OECD	30.94	30.56
including United States	*1.,77*	*18.58*
Non-OECD	64.33	63.34
including China	*4.99*	*4.86*
including FSU countries	*13.67*	*13.41*
including OPEC	*3.,51*	*30.69*
Globally – total	95.27	93.90

Source: in-house analysis based on EIA data.

Table 36 Crude oil supply and demand balance

million bbl/d **Surplus/deficit**	**2021**	**2020**
Globally – total	1.37	-2.05

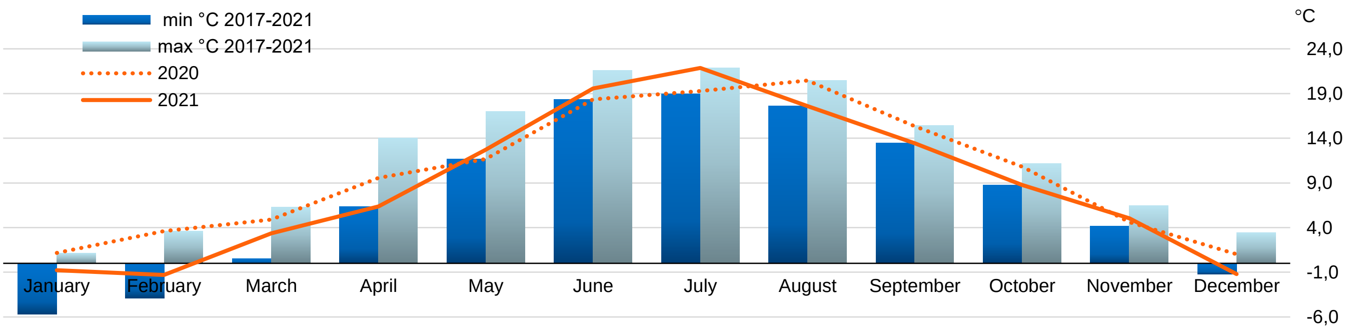
Source: in-house analysis based on EIA data.

The situation on the oil market in Europe and globally has a bearing on the PGNiG 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

In the winter months of 2021, the temperature was below the seasonal average, averaging 2 degrees Celsius. In the first and fourth quarters, the average temperature was lower by nearly 3 and 1.5 degrees Celsius, respectively. In the spring and summer season, the temperature oscillated around 13 degrees Celsius in the second quarter and 17 degrees Celsius in the third quarter on average, while in 2020 the corresponding readings were 13 and 18 degrees Celsius. The temperature factor affects the PGNiG Group's performance mainly in the Trade and Storage, Distribution and Generation segments.

Chart 21 Average monthly temperatures



Reference point for temperature measurement: Rzeszów.
Source: In-house analysis.

5.2 Financial position of the PGNiG Group in 2021

Table 37 Financial highlights of the PGNiG Group for 2020–2021

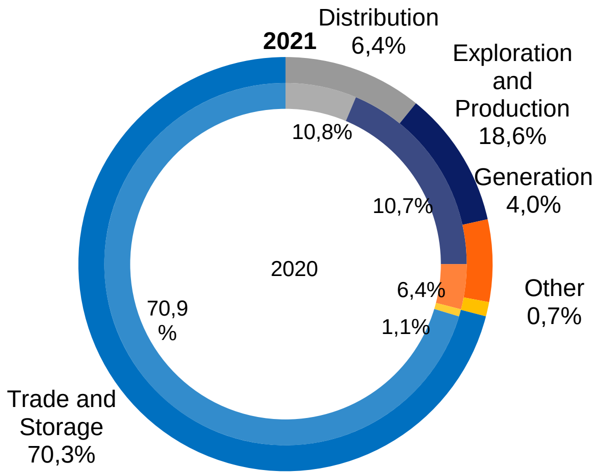
Key data from the consolidated financial statements	PLNm 12 months ended December 31st 2021	PLNm 12 months ended December 31th 2020	EURm 12 months ended December 31st 2021	EURm 12 months ended December 31th 2020
Revenue	69,964	39,197	15,284	8,761
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	15,593	13,009	3,406	2,908
Operating profit (EBIT)	11,562	9,585	2,526	2,142
Profit before tax	10,982	9,025	2,399	2,017
Net profit attributable to owners of the parent	6,014	7,340	1,314	1,641
Net profit	6,014	7,340	1,314	1,641
Total comprehensive income attributable to owners of the parent	3,240	6,285	708	1,405
Total comprehensive income	3,240	6,285	708	1,405
Net cash from operating activities	3,470	14,118	758	3,155
Net cash from investing activities	(8,092)	(6,254)	(1,768)	(1,398)
Net cash from financing activities	8,628	(3,653)	1,885	(816)
Net cash flows	4,006	4,211	875	941
Basic and diluted earnings per share (in PLN and EUR, respectively)	1.04	1.27	0.23	0.28

Key data from the consolidated financial statements	PLNm As at December 31st 2021	PLNm As at December 31st 2020	EURm As at December 31st 2021	EURm As at December 31st 2020
Total assets	101,576	62,871	22,085	13,624
Total liabilities	57,197	18,746	12,436	4,062
Non-current liabilities	20,107	11,666	4,372	2,528
Current liabilities	37,090	7,080	8,064	1,534
Total equity	44,379	44,125	9,649	9,562
Share capital	5,778	5,778	1,256	1,252
Weighted average number of ordinary shares (million)	5,778	5,778	5,778	5,778
Book value per share and diluted book value per share (PLN/EUR)	7.68	7.64	1.68	1.65
Dividend per share declared or paid (PLN and EUR)	0.21	0.09	0.05	0.02

5.2.1 Consolidated statement of profit or loss of the PGNiG Group

Revenue

Chart 22 Revenue in 2020–2021 by business segment



Exploration and Production: revenue from sales of E and Ls/Lw gas up PLN 9,904m (+398%) year on year, revenue from sales of crude oil and condensate up PLN 1,074m (+76%) year on year.

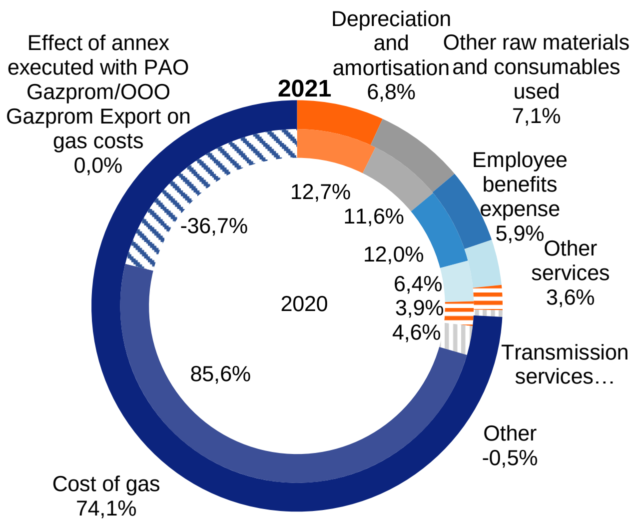
Trade and Storage: revenue from sales of E and Ls/Lw gas (taking into account the adjustment to gas sales due to hedging transactions) up PLN 27,698m (103%) year on year.

Distribution: revenue from distribution services in Poland up PLN 699m (16%) year on year, with a 3.6% increase in the distribution tariff.

Generation: revenue from sales of heat up PLN 284m (10%) year on year, with the average air temperature lower year on year and a 6% increase in volumes of heat sales; revenue from sales of electricity generated by the segment's own sources up PLN 186m (18%) year on year on lower sales volumes (down 4%).

Operating expenses

Chart 23 Operating expenses in 2020–2021



Cost of gas up PLN 23,950m (121%) year on year. The increase in the cost of gas does not include the effect of the annex executed with PAO Gazprom/OOO Gazprom Export on the cost of gas in 2014–2019, in the amount of PLN 4,915m.

The cost of other raw materials and consumables up PLN 944m (+29%) year on year, including a PLN 898m (50%) year-on-year increase in electricity for trading.

Employee benefits expense up PLN 99m (3%) year on year, including salaries and wages up PLN 142m (6%) year on year.
The cost of 13 dry wells and seismic surveys totalled PLN 625m in 2021 vs PLN 198m (8 dry wells) in 2020.

Reversal of impairment loss on non-current assets in 2021: PLN +1,017m, vs impairment loss on non-current assets recognised in 2020: PLN -1,588m.
Effect of gas inventory write-down of PLN -89m, vs gas inventory write-down of PLN +358m reversed in 2020.
Depreciation of PLN -4,031m in 2021, PLN -751m in Norway.

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EBITDA

Chart 24 EBITDA bridge in 2020–2021

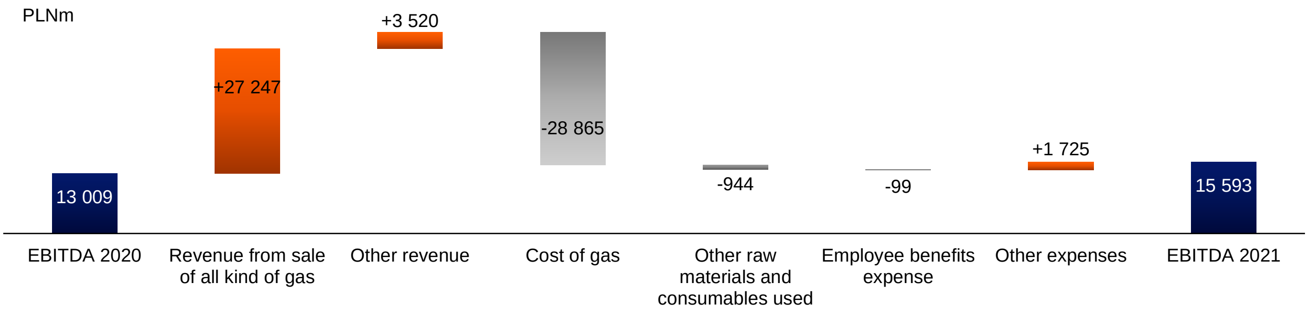
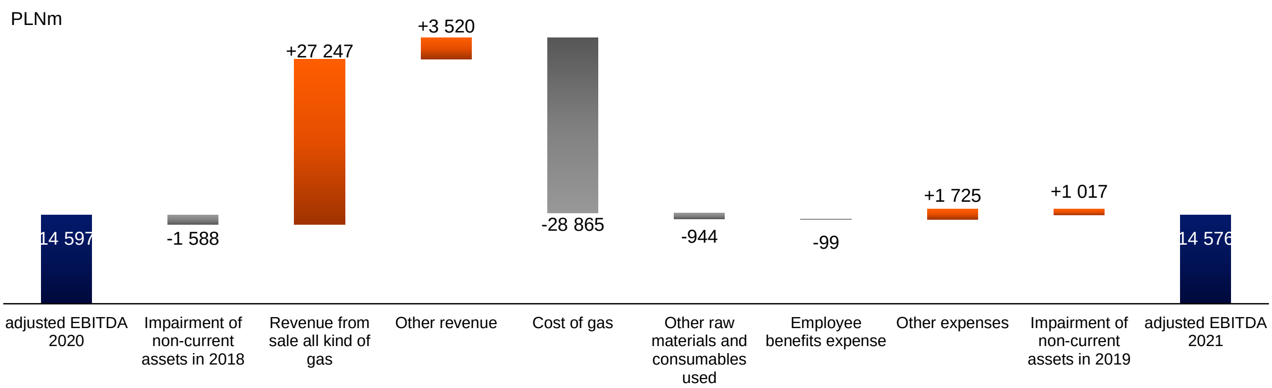


Chart 25 Adjusted EBITDA bridge in 2020–2021



Net finance costs and net profit or loss

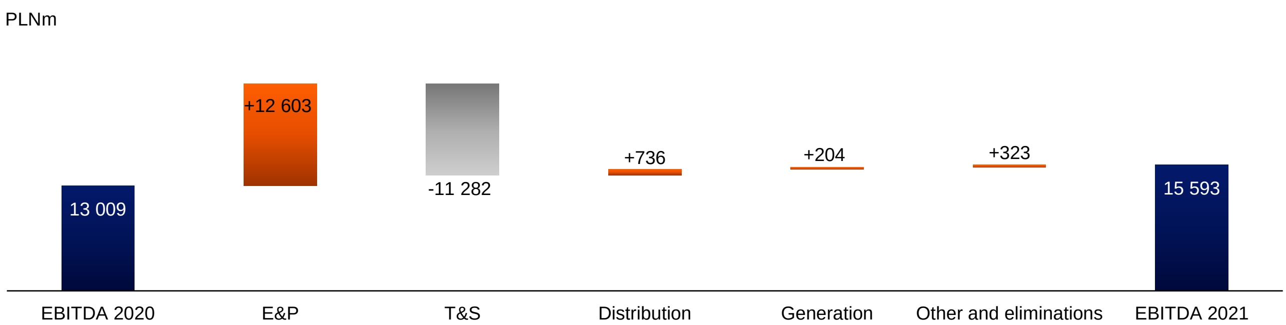
Net finance costs in 2021 amounted to PLN -587m, of which the key item was a PLN -394m impairment loss on loans advanced (mainly to Elektrociepłownia Stalowa Wola S.A.).

After accounting for profit on equity-accounted investees of PLN +7m and the higher year on year tax expense (due largely to taxes on PGNiG UN's operations) of PLN 4,795m, the Group's net profit for 2021 came in at PLN 6,187m, down PLN 1,153m year on year (a significant effect of the annex executed with PAO Gazprom/OOO Gazprom Export in 2020).

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 2021.

5.2.2 Overview of segment results

Chart 26 EBITDA bridge in 2020–2021



(in PLN million, unless stated otherwise)

Exploration and Production (E&P)

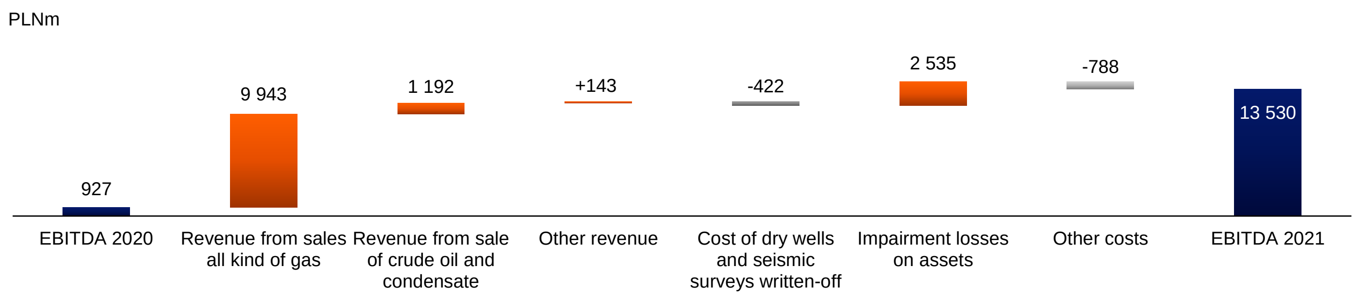
Table 38 Revenue in the Exploration and Production segment in 2018–2021

Exploration and Production financial data	2021	2020	2019	2018
Revenue from non-PGNiG Group customers	4,354	2,754	3,351	3,795
Inter-segment revenue	11,536	1,858	2,471	3,876
Total revenue, including	15,890	4,612	5,822	7,671
high-methane gas, nitrogen-rich gas and LNG	12,455	2,512	3,117	4,574
crude oil, condensate and NGL	2,683	1,491	2,112	2,554
geophysical, geological, drilling, well services	302	227	277	275
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	13,530	927	3,360	5,019
Operating profit (EBIT)	12,078	-321	2,304	3,956

Table 39 Operating expenses in the Exploration and Production segment in 2018–2021

	2021	2020	2019	2018
Total costs, including:	-3,812	-4,933	-3,518	-3,715
raw materials and consumables used	-455	-313	-357	-380
employee benefits expense	-928	-910	-890	-867
transmission services	-290	-210	-223	-262
other services	-852	-618	-590	-667
taxes and charges	-606	-389	-297	-270
other income and expenses	-32	-55	19	-227
work performed by the entity and capitalised	378	493	489	505
cost of dry wells	-607	-185	-252	-687
cost of exploration and evaluation assets written-off – seismic surveys	-18	-13	-6	0
impairment losses on non-current assets	1,050	-1,485	-355	203
depreciation and amortisation expense	-1,452	-1,248	-1,056	-1,063

Chart 27 E&P segment's EBITDA bridge in 2020–2021



- a PLN 9,943m (396%) year-on-year total increase in revenue from sales of natural gas in the segment, on a 343% year-on-year rise in gas prices quoted on the Day-Ahead Market of the Polish Power Exchange and higher TTF price by 391%;
- gas production volumes in Poland down 3% year on year, in Norway and Pakistan – up 197% and 10% year on year, respectively;
- revenue from sales of crude oil and condensate up PLN 1,074m (+76%) year on year, on lower sales volumes in Poland (down 10% year on year), higher sales volumes in Norway (+13% year on year), and a 66% year-on-year increase in the average Brent oil price in USD;
- crude oil and NGL production volumes in Norway up 19% year on year, to 732 thousand tonnes, and in Poland – down 9% year on year, to 643 thousand tonnes;
- cost of dry wells and seismic surveys written off: PLN -625m in 2021 vs PLN -198m in 2020;
- reversal of impairment losses on non-current assets: PLN +1,025m in 2021 vs PLN -1,485m of impairment losses recognised in 2020;
- overlift/underlift in Norway in 2021 – effect on profit or loss for 2021: PLN +73m. In 2020, the effect of overlift/underlift on profit or loss was PLN +16m.

Table 40 Capital expenditure in the Exploration and Production segment in 2018–2021

	Capital expenditure* on property, plant and equipment made by the PGNiG Group	2021	2020	2019	2018
	Exploration and Production, including:	2,108	2,557	2,508	2,232
1	Norway**	1,227	1,572	1,414	1,149
2	Pakistan	64	75	136	94
3	Libya	4	4	4	9

** Including capitalised borrowing costs.*
*** Capital Expenditure on the acquisitions of INEOS E&P Norge AS at the level of PLN 1,309m as at December 31st, 2021 is not included.*

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

Table 41 PGNiG UN's financial performance

PGNiG UN (NOKm)	2021	2020	2019	2018
Revenue	13,315	2,180	2,358	3,569
EBITDA	11,840	436	1,515	2,247
EBIT	10,174	(945)	721	1,343
Net profit/loss	1,938	(183)	143	157
Total assets	33,590	15,219	13,244	10,145
Equity	4,150	1,711	1,894	751

Trade and Storage (T&S)

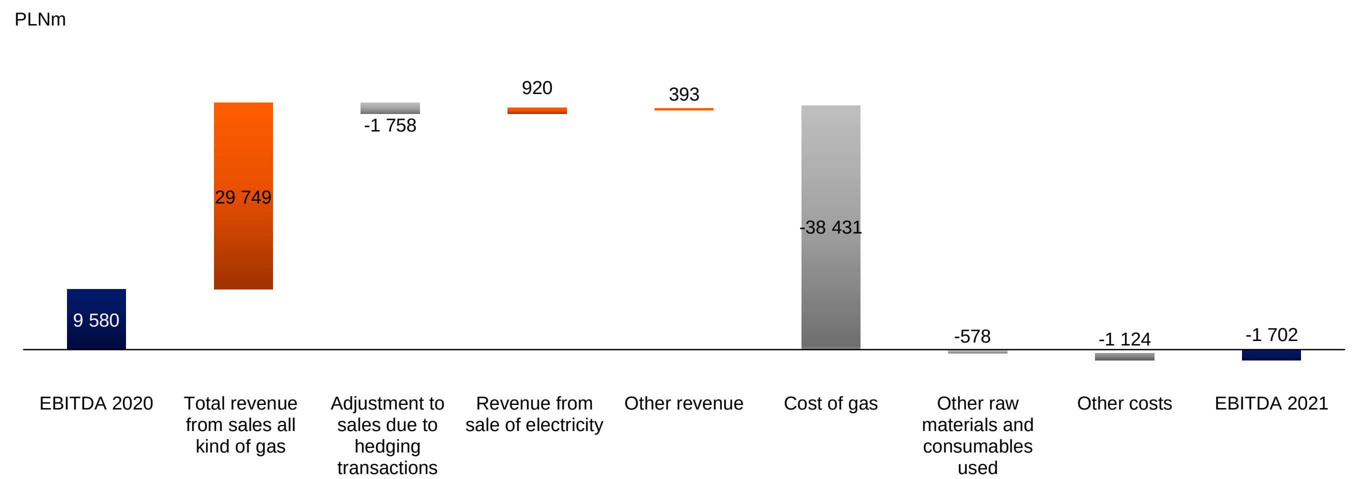
Table 42 Revenue in the Trade and Storage segment in 2018–2021

Trade and Storage financial data	2021	2020	2019	2018
Revenue from non-PGNiG Group customers	57,807	29,850	32,415	31,038
Inter-segment revenue	2,140	793	835	666
Total revenue, including	59,947	30,643	33,250	31,704
high-methane gas, nitrogen-rich gas, LNG, CNG, adjustment on hedging transactions	55,126	27,135	30,008	29,220
electricity	3,778	2,858	2,488	2,010
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	-1,702	9,580	-470	-848
Operating profit (EBIT)	-1,913	9,357	-684	-1,037

Table 43 Operating expenses in the Trade and Storage segment in 2018–2021

	2021	2020	2019	2018
Total costs, including:	-61,860	-21,286	-33,934	-32,741
cost of gas	-55,148	-16,717	-29,181	-28,971
raw materials and consumables used	-3,813	-2,782	-2,489	-1,970
employee benefits expense	-431	-441	-401	-384
transmission services	-185	-171	-175	-143
other services	-805	-824	-745	-707
taxes and charges	-39	-48	-38	-35
other income and expenses	-1,156	-466	-457	-365
work performed by the entity and capitalised	17	28	22	29
depreciation and amortisation expense	-211	-223	-214	-189

Chart 28 T&S segment's EBITDA bridge in 2020–2021



- total revenue from sale of natural gas in the segment (including the effect of hedging transactions) up PLN 27,991m (+103%) year on year;
- PLN 38,431m (230%) year-on-year increase in the cost of gas sold in the segment due to higher gas prices on European commodity exchanges;
- recognition in 2020 of the effect of settlement under the annex to the Yamal contract of PLN 5,689m (approximately PLN 4,915m relates to gas costs in 2014-2019) and net exchange gains on accounting for mutual settlements (approximately PLN 300m);
- net gain/(loss) on measurement and realisation of hedging instruments recognised in operating profit/(loss) in a total amount of PLN 1,415m, of which:

  (1) recognised in revenue: PLN -697m (2020: PLN +1,062m),

  (2) recognised in cost of gas: PLN +1,590m (2020: PLN -296m),

  (3) recognised in other expenses, net: PLN +522m (2020: PLN +233m);
- slightly higher year-on-year volumes of gas imports to Poland from across its eastern border (2021: 9.9 bcm vs 2020: 9.00 bcm), from the western and southern direction (2021: 2.28 bcm vs 2020: 2.04 bcm), as well as higher volumes of LNG imports (2021: 3.94 bcm vs 2020: 3.76 bcm);
- total revenue from sale of electricity in the segment: PLN 3,778m, increase by PLN 920m (32%) year on year, with cost of energy for trading higher by PLN -1,023m (37%) year on year;
- effect of gas inventory write-down of PLN -89m, vs gas inventory write-down of PLN +358m reversed in 2020;
- effect of recognition of a provision for energy efficiency buy-out price: PLN -302m in 2021 vs PLN -233m in 2020.

Capital expenditure made in 2021 on the PGNiG Group's property, plant and equipment in the Trade and Storage segment was PLN 80m.

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

Table 44 PGNiG OD's financial performance

PGNiG OD (PLNm)	2021	2020	2019	2018
Revenue	13,941	9,667	10,965	9,097
EBITDA	-601	930	561	76
EBIT	-637	897	534	67
Net profit/loss	-530	721	425	54
Total assets	5,898	3,107	3,445	3,183
Equity	229	1,475	1,188	809

Table 45 PST Group's financial performance

PST Group (EURm)	2021	2020	2019	2018
Revenue	4,659	1,036	1,671	1,531
EBITDA	8	3	3	0
EBIT	8	2	2	0
Net profit/loss	2	0	0	(1)
Total assets	1,614	233	350	418
Equity	8	6	6	6

Distribution

Table 46 Revenue in the Distribution segment in 2018–2021

Distribution financial data	2021	2020	2019	2018
Revenue from non-PGNiG Group customers	5,304	4,603	4,481	4,604
Inter-segment revenue	109	81	106	323
Total revenue, including	5,413	4,684	4,587	4,927
gas distribution	5,088	4,389	4,208	4,414
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	2,893	2,157	1,995	2,385
Operating profit (EBIT)	1,675	1,063	980	1,458

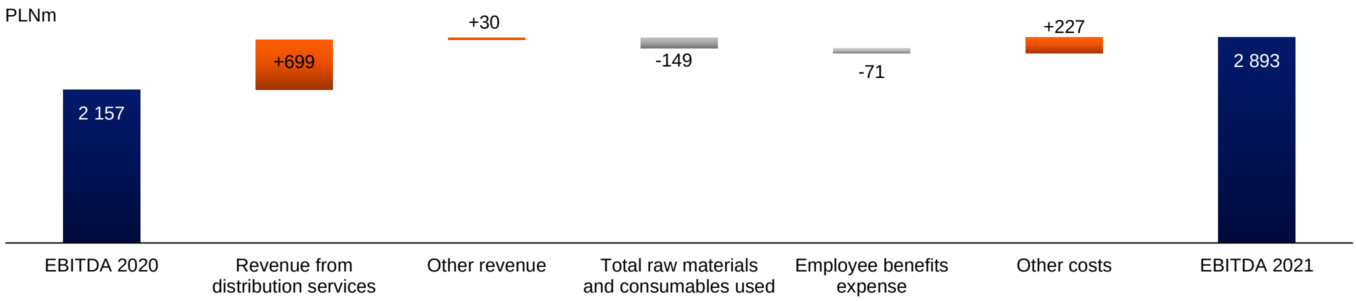
Table 47 Operating expenses in the Distribution segment in 2018–2021

	2021	2020	2019	2018
Total costs, including:	-3,738	-3,621	-3,607	-3,469
raw materials and consumables used	-221	-72	-247	-436
employee benefits expense	-1,566	-1,495	-1,394	-1,178
transmission services	-684	-667	-655	-634
other services	-244	-233	-250	-259
taxes and charges	-490	-394	-369	-409
other income and expenses	299	-33	-23	86

(in PLN million, unless stated otherwise)

work performed by the entity and capitalised	386	367	346	288
recognition and reversal of impairment losses on property, plant and equipment and intangible assets	-5	-5	6	-2
depreciation and amortisation expense	-1,218	-1,094	-1,015	-927

Chart 29 Distribution segment's EBITDA bridge in 2020–2021



- 14% higher gas distribution volumes of 13.14 bcm, with average air temperatures lower by -1.3 °C year on year°;
- revenue from distribution services in Poland higher by PLN 699m (16%) year on year, due to a higher tariff (increase of approximately 3.6% on the previous tariff);
- employee benefits expense higher by PLN 71m (+5%) year on year due to higher salaries and wages and other components of remuneration, i.e. bonuses and social security contributions.

Capital expenditure incurred in 2021 on the PGNiG Group's property, plant and equipment in the Distribution was PLN 3,227m.

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

Table 48 PSG Group's financial performance

PSG Group (PLNm)	2021	2020	2019	2018
Revenue	5,413	4,684	4,587	4,927
EBITDA	2,862	2,126	1,953	2,337
EBIT	1,634	1,018	924	1,398
Net profit/loss	1,221	738	671	1,110
Total assets	22,198	19,754	17,564	15,149
Equity	13,730	12,406	11,686	12,088

** Includes adjustment to bring the Company's financial results in line with the PGNiG Group's accounting policies. The adjustment adjusts the value of a building to the cost of the asset.*

Generation

Table 49 Revenue in the Generation segment in 2018–2021

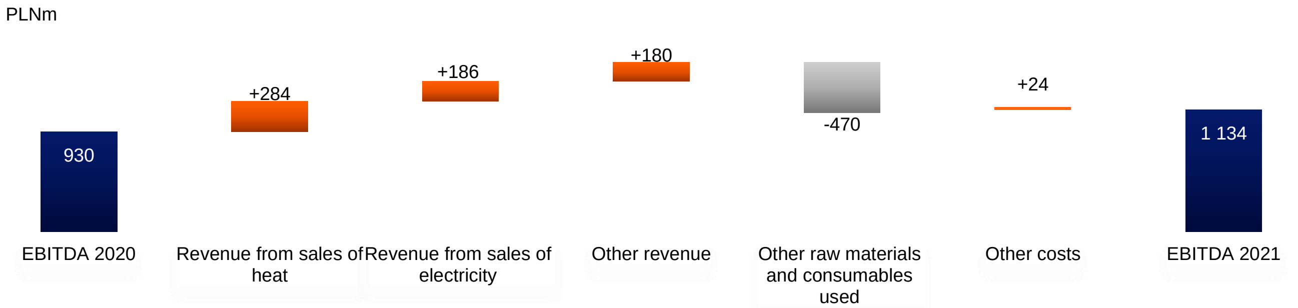
Generation financial data	2021	2020	2019	2018
Revenue from non-PGNiG Group customers	2,381	1,844	1,606	1,617
Inter-segment revenue	1,042	929	959	770
Total revenue, including	3,423	2,773	2,565	2,387
heat	1,753	1,469	1,330	1,322
electricity	1,239	1,053	997	802
heat distribution	96	78	75	74
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	1,134	930	856	788
Operating profit (EBIT)	55	135	149	316

Table 50 Operating expenses in the Generation segment in 2018–2021

	2021	2020	2019	2018
Total costs, including:	-3,368	-2,638	-2,416	-2,071
raw materials and consumables used	-1,636	-1,166	-1,120	-1,034
employee benefits expense	-238	-234	-219	-205
services	-244	-207	-195	-191
taxes and charges	-76	-65	-65	-77
other income and expenses	-95	-171	-111	-93
work performed by the entity and capitalised	0	0	1	1
recognition and reversal of impairment losses on property, plant and equipment and intangible assets	0	-7	0	16
depreciation and amortisation expense	-1,079	-795	-707	-472

(in PLN million, unless stated otherwise)

Chart 30 Generation segment's EBITDA bridge in 2020–2021



- revenue from sales of electricity generated from the segment's own sources higher by 19% year on year, at PLN 1,084m, with market prices rising and with sales volumes lower by -4% year on year;
- higher revenue from sales of heat (19% year on year) at PLN 1.75bn, with lower average temperature and a rise in sales volumes (+6% year on year);
- costs of coal stable year on year, at PLN 808m in 2021, and cost of biomass lower by PLN 9m year on year, at PLN 71m in 2021;
- PLN -284m year-on-year increase in depreciation and amortisation expense, includin CO_2 depreciation and amortisation of PLN 972m.

Capital expenditure made in 2021 on the PGNiG Group's property, plant and equipment in the Generation segment was PLN 2,135m (including PLN 582m attributable to CO_2).

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

Table 51 PGNiG TERMIKA's financial performance

PGNiG TERMIKA (PLNm)	2021	2020	2019	2018
Revenue	2,894	2,357	2,176	2,016
EBITDA	985	836	777	687
EBIT	68	150	147	286
Net profit/loss	7	(519)	(89)	208
Total assets	7,543	6,533	6,876	5,949
Equity	2,656	2,612	3,133	3,415

5.2.3 Fluctuations in financial performance

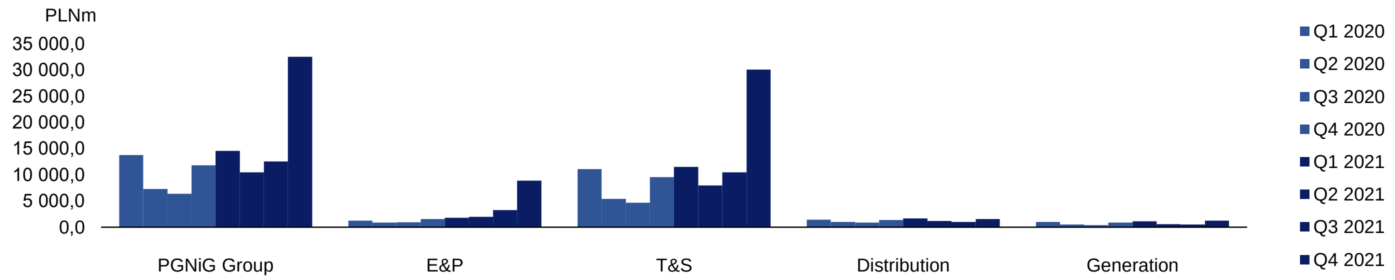
The sale, distribution and storage of gas fuels, as well as cogeneration of heat and electricity, which, in addition to hydrocarbon exploration and production, constitute the principal business of the Group, are subject to significant seasonal fluctuations.

Revenue from sales 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 31 Fluctuations in PGNiG Group's revenue in 2020–2021



(in PLN million, unless stated otherwise)

Chart 32 Fluctuations in PGNiG Group's EBITDA in 2020–2021

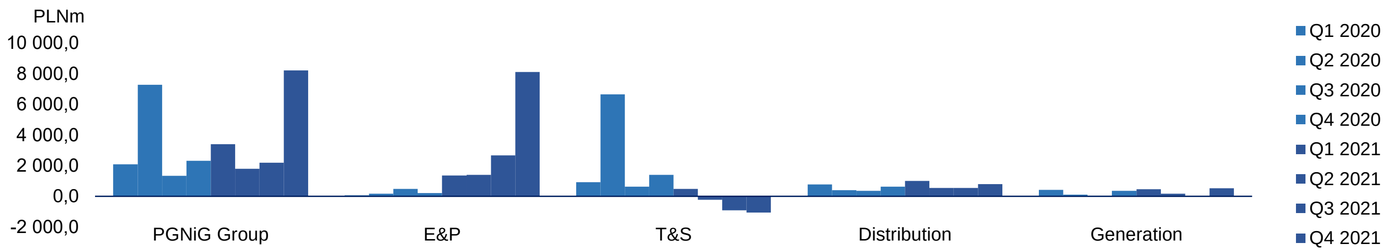


Table 52 Quarterly EBITDA and adjusted EBITDA by operating segment in 2021

PLNm	PGNiG Group	Exploration and Production	Trade and Storage	Distribution	Generation
	2021				
Q1 EBITDA	3,393	1,348	493	1,011	463
Adjusted Q1 EBITDA	*3,117*	*1,079*	*493*	*1,010*	*463*
Q2 EBITDA	1,801	1,406	-221	542	171
Adjusted Q2 EBITDA	*1,536*	*1,110*	*-222*	*541*	*171*
Q3 EBITDA	2,197	2,670	-915	545	-22
Adjusted Q3 EBITDA	*2,159*	*2,633*	*-915*	*544*	*-22*
Q4 EBITDA	8,202	8,106	-1,058	796	522
Adjusted Q4 EBITDA	*7,764*	*7,659*	*-1,056*	*803*	*522*

Table 53 Quarterly EBITDA and adjusted EBITDA by operating segment in 2020

PLNm	PGNiG Group	Exploration and Production	Trade and Storage	Distribution	Generation
	2020				
Q1 EBITDA	2,078	71	909	771	416
Adjusted Q1 EBITDA	*2,835*	*829*	*909*	*769*	*416*
Q2 EBITDA	7,274	173	6,646	405	117
Adjusted Q2 EBITDA	*7,371*	*267*	*6,647*	*408*	*117*
Q3 EBITDA	1,333	478	632	362	35
Adjusted Q3 EBITDA	*1,288*	*433*	*632*	*362*	*35*
Q4 EBITDA	2,324	207	1,392	618	362
Adjusted Q4 EBITDA	*3,104*	*883*	*1397*	*623*	*369*

5.2.4 Consolidated statement of financial position

As at December 31st 2021, total assets recognised in the consolidated statement of financial position were PLN 101,576m, having increased by PLN 38,705m (approximately 62%) on the end of 2020.

Assets

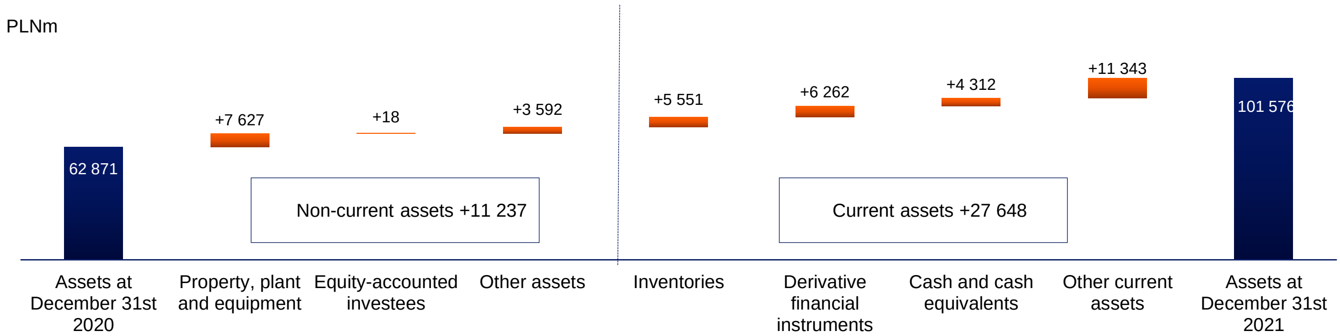


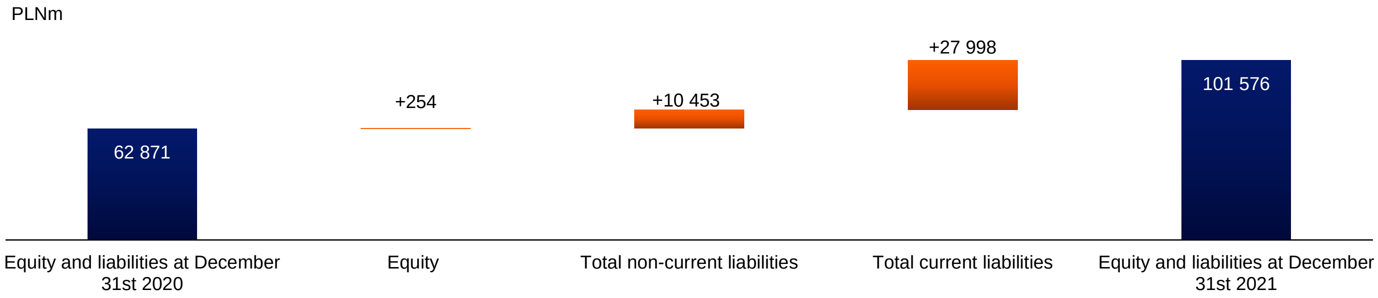
Chart 33 Selected items of the statement of financial position – Assets

Property, plant and equipment represent the largest item of the PGNiG Group's assets. As at December 31st 2021, property, plant and equipment amounted to PLN 57,480m, having increased by PLN 11,237m (24%) year on year relative to December 31st 2020. Intangible assets grew from PLN 693m to PLN 1,826m as at the end of 2021, while deferred tax assets totalled PLN 1,494m, driven mainly by a higher value of derivative instruments. Equity-accounted investees rose by PLN +18m (ca. 2%) relatove to the end of 2020.

As at the end of 2021, the PGNiG Group's current assets were PLN 44,096m, having increased by PLN 27,468m (ca. 169%) year on year. The increase was mainly attributable to receivables of PLN 16,462m, up by PLN 11,174m (approximately 211% year on year), derivative financial instruments of PLN 7,572m, up by PLN 6,262m (approximately 478%) year on year, and cash and cash equivalents of PLN 11,410m, up by PLN 4,312m (approximately 61%) year on year.

Equity and liabilities

Chart 34 Selected items of the statement of financial position – Equity and liabilities



The main source of financing for the PGNiG Group's assets is equity, whose value at the end of 2021 was PLN 44,379m, which represents an increase of PLN 254m (1% year on year) relative to 2020. The change in equity was mainly attributable to retained earnings, which increased by PLN 4,801m (ca. 13% year on year), and to hedging reserve, which fell by PLN -4,582m (ca -285x year on year).

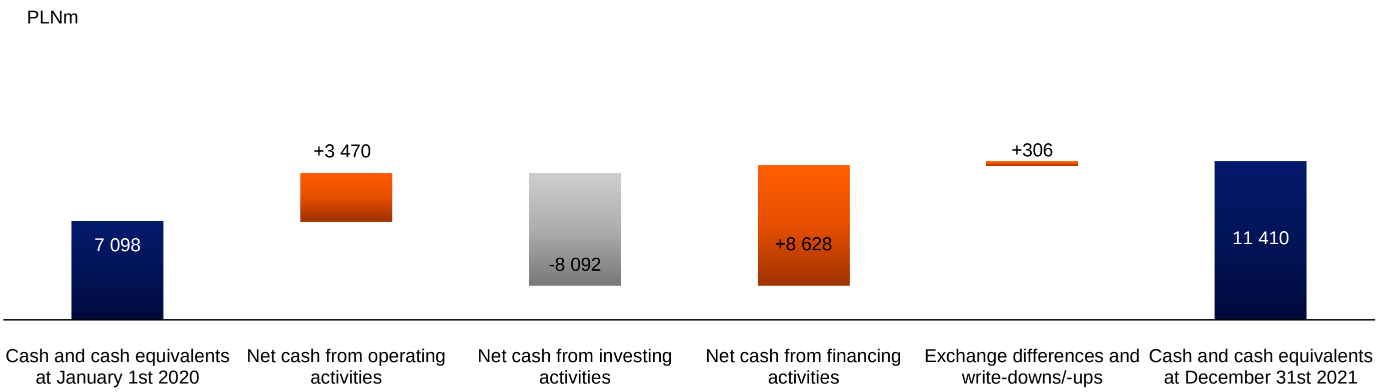
As at the end of 2021, non-current liabilities were PLN 20,107m, having increased by PLN 8,441m (approximately 72% year on year) on December 31st 2020. The change in non-current liabilities was attributable, among other things, to an increase in total value of derivative financial instruments of PLN 4,582m (16x year on year) and an increase in deferred tax liabilities of PLN 3,344m (ca. 150% year on year).

The largest increase was recorded in current liabilities. As at December 31st 2021, they amounted to PLN 37,090m, up by PLN 30,010m on the end of 2020 (approximately 424%). The significant increase of this item resulted mainly from PLN 9,823m growth in short-term debt (ca. PLN 29x year on year), trade payables by PLN 9,627m (292% year on year) and liabilities under derivative financial instruments by PLN 9,051m (ca. 813% year on year).

For the full version of the consolidated statement of financial position, see the consolidated financial statements of the PGNiG Group for 2021.

5.2.5 Consolidated statement of cash flows

Chart 35 Selected items of the statement of cash flows



With respect to operating activities, in 2021 the PGNiG Group's statement of cash flows was affected by: higher negative cash flows, led by a change in working capital, of PLN -10.0bn (2020: PLN +1.0bn), despite higher operating results, resulting in increased working capital requirements for gas purchases at prices significantly higher compared with previous quarters and years.

With respect to investing activities, in 2021 the PGNiG Group's statement of cash flows was affected by: higher payments for property, plant and equipment and intangible assets, of PLN 8.3bn, including: PLN 3.4bn in the Exploration and Production segment (including the acquisition of INEOS assets), PLN 3.2bn in the Distribution segment, and PLN 1.2bn in the Generation segment (excluding cash used on account of CO_2 emissions).

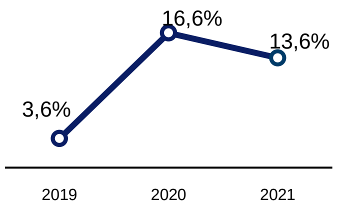
With respect to financing activities, the statement of cash flows was affected by:

- increase in the PGNiG Group's debt driven by higher working capital requirements and the need to replenish margin accounts used as collateral for stock market and financial transactions involving derivatives;
- bank borrowings, other debt instruments and lease liabilities of PLN 14.6bn at the end of 2021 (up PLN 10.5bn year on year);
- net debt (total bank borrowings, other debt instruments and lease liabilities less cash and cash equivalents) of PLN 3.2bn (end of 2020: PLN -2.9bn).
- Dividends paid of PLN 1,213m (PLN 0.21 per share).

For the full version of the consolidated statement of cash flows, see the consolidated financial statements of the PGNiG Group for 2021.

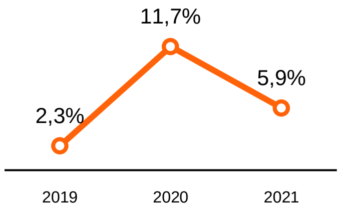
5.2.6 Profitability ratios

Chart 36 ROE



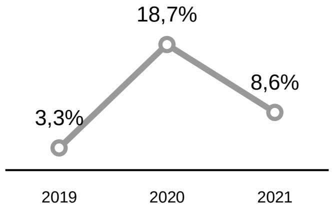
ROE: net profit to equity at end of period
The year-on-year decline of the ROE and ROA ratios in 2021 was due to the decrease in net profit for the year.

Chart 37 ROA



ROA: net profit to assets at end of period
The year-on-year decline of the ROE and ROA ratios in 2021 was due to the decrease in net profit for the year.

Chart 38 Return on Sales (ROS)



Net margin: net profit to revenue.
The year-on-year decline of the ROS ratio in 2021 was due to the increase in sales for the year.

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 relationship was significantly limited in the case of the Yamal contract thanks to the ruling of the Arbitration Court in Stockholm in favour of PGNiG concerning the pricing 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.

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, including natural gas.

The expected financial situation and operating activities of the PGNiG Group will be influenced by the developments in Ukraine and the ongoing military invasion of the Russian Federation. The successively introduced economic and personal sanctions against Russian entities and citizens, as well as the threat to infrastructure and thus the security of natural gas flow from the eastern direction, may adversely affect the international gas market and cause further increases in gas prices and weakening of the Polish currency. For more information on the changes that occured in the environment of the PGNiG’s Group at the beginning of 2022, see section 3.1.

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

In the coming months, oil prices will be influenced by developments in the global economy and numerous unknowns related to the Russian aggression in Ukraine and, to a lesser extent, the pandemic. Since the beginning of Russia's invasion of Ukraine, no restrictions on oil imports have been identified, but buyers fear that these supplies will be limited or cut off altogether with the escalation of the conflict. Due to the uncertain supply situation, further sharp changes in prices on the stock exchanges should be expected in the coming weeks, among other as a result of decisions made to limit or suspend purchases of Russian oil. Discussion arises over sanctions for energy products, however due to the lack of a coherent position of the member states, the imposition of such sanctions by the European Union probably shouldn't be expected.

Gas prices in Europe will remain high both at the end of the ongoing winter season and, with higher probabilty, also in the summer. From February 24th, 2022, very fast growth and high volatility of the prices is recorded. By March 7, 2022, prices had increased to EUR 227/MWh, i.e. by 284%, reaching the local peak of EUR 354/MWh on March 7, 2022. Therefore in the long term, it should be expected that the ongoing conflict will accelerate Europe's energy transformation and the process of limiting dependence from Russian energy resources. The European market will probably look for sources of gas other than Russian gas, therefore an increased demand for LNG and intensive injection of gas storage facilities may occur.

In Poland, the planned increases in import capacity and, the diversification of gas sources in general will alleviate the difficult supply situation on the global market. The question of a potential increase in production from the Dutch Groningen field remains unresolved. Despite numerous protests from the local community, the government is considering an increase in production of 7.6 bcm per year, compared to the previously expected level of 3.9 bcm. The reason is the Germany's demand, which increased by 1.1 bcm.

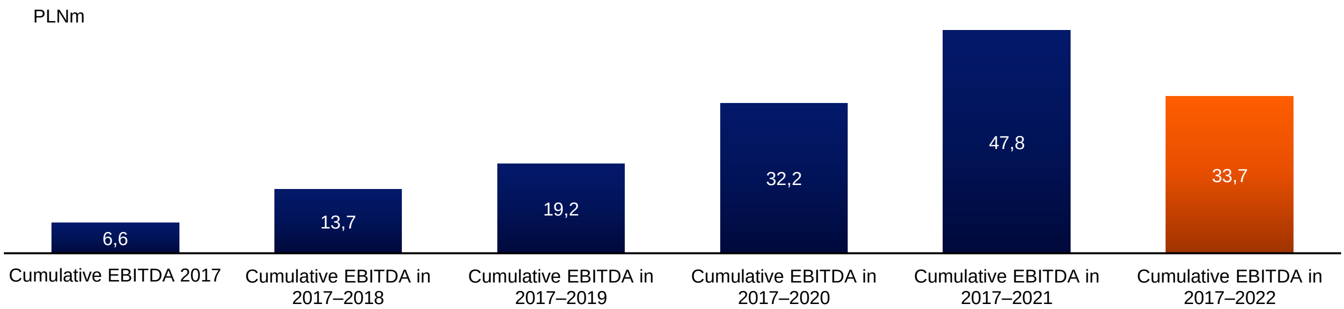
The price of CO_2 EUAs will mainly depend on the share of conventional sources in the staple of electricity generation, which is an effect of the efficiency of renewable energy sources and margins delivered by generation sources based on hard coal, lignite and natural gas. At present, when the price of natural gas is relatively higher than that of coal, generation of electricity from high emission fuels is on the rise. This, coupled with low generation from renewables in the previous year, led to sharp rises in EUA prices, to more than EUR 90 per tonne of CO_2. The European Union employs a mechanism to limit the supply of certificates each year. The smaller amount of EUAs available to EU Member States is intended to discourage them from producing electricity from conventional sources. Member States' efforts to dynamically increase the share of RES in the national energy mix may halt the increase in certificate prices over the next few years, but analysts expect a stable, strong increase after 2025. On the other hand, in the face of the Russian aggression against Ukraine and the increase in gas prices, the prices of CO_2 emission allowances at the beginning of 2022 dropped significantly. This may be related to the expected slowdown in the growth rate of European economies and thus lower emission needs.

The price of electricity in Poland in 2022 will depend on the price levels of CO_2 emission allowances. Commissioning new RES generation capacities (especially large PV projects) and lower EUA certificate prices (with profit-taking potential by financial institutions) may lead to a decline in electricity prices in current year. However, possible restrictions on coal imports may adversely affect the cost of electricity generation in the country.

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 2020, cumulative EBITDA reached PLN 47.8bn, representing approximately 142% of the target to be achieved by 2022.

Chart 39 PGNiG Group's cumulative EBITDA in 2017–2021 and the strategic target for 2022



On December 1st 2021, the Company published its oil and gas production forecasts for 2022–2024.

Table 54 Natural gas production forecast for 2022–2024*

bcm	2022	2023	2024
Poland	3,7	3,7	3,9
Other countries, including:	2,9	2,8	2,9
- Norway	*2,6*	*2,4*	*2,6*
- Pakistan	*0,3*	*0,4*	*0,3*
Total	6,6	6,5	6,8

** Converted to gas with a calorific value of 39.5 MJ/m^3.*

Table 55 Crude oil production forecast, including condensate and NGL, for 2022–2024

thousand tonnes	2022	2023	2024
Poland	603	569	534
Other countries, including:	920	791	894
- Norway	*920*	*791*	*904*
Total	1,523	1,360	1,428

The pandemic situation in 2020–2021 has delayed investment project work by several months or more, resulting in a downward revision of the projected volumes of oil and gas production in Poland in the following years. The projection of crude oil and natural gas output has also been affected by a decision to reduce gas purchases by the Gorzów CHP Plant in 2022, and in 2023–2024 by certain investment projects that will require prolonged downtime of process units at the Dębno and Lubiatów Oil and Gas Production Facilities.

The expected growth of natural gas production in Norway in 2021–2024 will be driven by the acquisition of the Ormen Lange, Marulk and Alve fields, and by the launch of production from the Ærfugl Nord, Duva and other wells drilled on the Ærfugl structure. In 2024, production is also to be launched from the Tommeliten Alpha field.

The expected increase in Norway's oil and NGL production levels between 2022 and 2024 will be driven by the acquisition of the Ormen Lange, Marulk and Alve fields. The decline in production volumes forecast for 2023 will be due to natural depletion. The decline is expected to halt in 2024 with the launch of production from the Tommeliten Alpha field.

5.2.9 Management of financial resources and liquidity of the PGNiG Group

Borrowings and debt securities

Due to high prices environment on natural gas markets, including Polish Power Exchange, TTF in the Netherlands and THE in Germany, PGNiG executed on December 17th 2021 three new agreements for overdraft facilities with: Bank Gospodarstwa Krajowego, PKO Bank Polski S.A. and CaixaBank S.A. Polish Branch, increasing the possibility to source short-term financing for the period of nine months for a total amount of PLN 2.7 billion.

Table 56 Key credit facility agreements executed by the PGNiG Group as at December 31st 2021

Bank	Maximum debt amount under the agreement (million)	Currency	Interest rate type	Facility type	Maturity date
Syndicate of nine banks	500	USD	variable	long-term facility	30.06.2026
Syndicate of ten banks	10,000	PLN	variable	working capital	24.06.2024
Bank Gospodarstwa Krajowego	1,200	PLN	variable	overdraft facility	16.09.2022
PKO Bank Polski S.A.	800	PLN	variable	overdraft facility	16.09.2022
CaixaBank S.A. Polish Branch	700	PLN	variable	overdraft facility	16.09.2022
Bank Gospodarstwa Krajowego	271	PLN	variable	long-term facility	27.08.2027
Agencja Rozwoju Przemysłu S.A.	100	PLN	variable	long-term loan	31.08.2029
Bank Pekao S.A.	75	PLN	variable	overdraft facility	16.07.2022
Deutsche Bank Munich	80	EUR	variable	overdraft facility	-
PKO Bank Polski	20	EUR	variable	overdraft facility	31.03.2022

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 for 2021.

In January and February 2022, the Company concluded further short-term credit agreements with banks: Societe Generale SA Polish Branch, a syndicate of banks Bank of China Limited operating through Bank of China Limited Luxembourg Branch and Bank of China (Europe) S.A. operating through Bank of China (Europe) S.A. Polish Branch, Deutsche Bank Polska S.A. and Credit Agricole Bank Polska S.A. for a total amount of PLN 1.8 billion.

Issues of securities and use of proceeds

On October 28th 2020, PGNiG executed Annex 1 to the PLN 5bn Notes Programme Agreement of December 21st 2017 with the following issue arrangers: ING Bank Śląski S.A., Bank Polska Kasa Opieki S.A., Bank Handlowy w Warszawie S.A. and Bank BNP Paribas Bank Polska SA. Annex 1 aligns the Programme with the current legal framework and extends the Programme until October 28th 2025. Under the Programme, PGNiG may issue fixed- or floating-rate notes with maturities of up to 10 years or zero-coupon notes as part of a public or private offering. The notes may be introduced to trading on the Catalyst multilateral trading facility. Proceeds from the notes will be used to satisfy the PGNiG Group's day-to-day financial needs related to the implementation of its strategy.

Table 57 Debt securities programme as at December 31st 2021

Bank	Limit	Currency	Maturity	Subject matter of agreement	End date
Syndicate of four banks Bank Pekao S.A. ING Bank Śląski S.A. Bank Handlowy w Warszawie S.A. BNP Paribas Bank Polska S.A.	5,000m	PLN	up to 10 years	note programme	28.10.2025

As at December 31st 2021, PGNiG S.A. had no outstanding debt under notes issued to other PGNiG Group members.

(in PLN million, unless stated otherwise)

Financial instruments

Table 58 Key financial assets by category

Item	Item referenced in Note	2021 Financial assets at amortised cost	2021 Financial assets at fair value through profit or loss	2021 Financial instruments designated for hedge accounting	2021 Total	2020 Loans and receivables at amortised cost	2020 Financial assets at fair value through profit or loss	2020 Financial instruments designated for hedge accounting	2020 Total
Receivables	Trade receivables	11,437	-	-	11,437	4,449	-	-	4,449
Derivative financial instruments		-	7,077	1,891	8,968	-	1,004	449	1,453
Cash and cash equivalents		11,410	-	-	11,410	7,098	-	-	7,098
Total		**22,847**	**7,077**	**1,891**	**31,815**	**11,547**	**1,004**	**449**	**13,000**

Table 59 Key financial liabilities by category

Item	Item referenced in Note	2021 Financial liabilities at amortised cost	2021 Financial liabilities at fair value through profit or loss	2021 Financial instruments designated for hedge accounting	2021 Total	2020 Financial liabilities at amortised cost	2020 Financial liabilities at fair value through profit or loss	2020 Financial instruments designated for hedge accounting	2020 Total
Financing liabilities	Bank borrowings	12,153	-	-	12,153	1,995	-	-	1,995
	Debt securities	-	-	-	-	-	-	-	-
Trade and tax payables	Trade payables	4,575	-	-	4,575	1,199	-	-	1,199
Derivative financial instruments		-	9,362	5,669	15,031	-	780	618	1,398
Total		**16,728**	**9,362**	**5,669**	**31,759**	**3,194**	**780**	**618**	**4,592**

For detailed information on financial instruments, see Note 7.1 to the consolidated financial statements of the PGNiG Group for 2021.

Debt ratios

Chart 40 Net debt/EBITDA

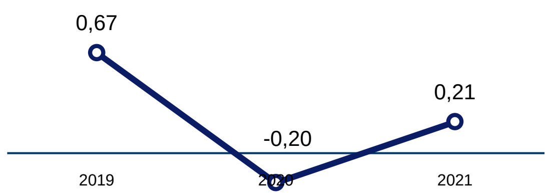
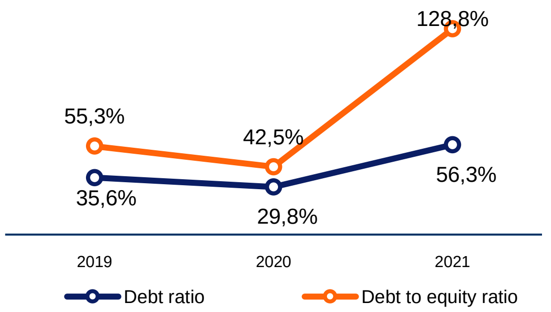


Chart 41 debt to equity ratio



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.

In 2021, the ratios increased due to a significant increase in liabilities with a concurrent increase in EBITDA.

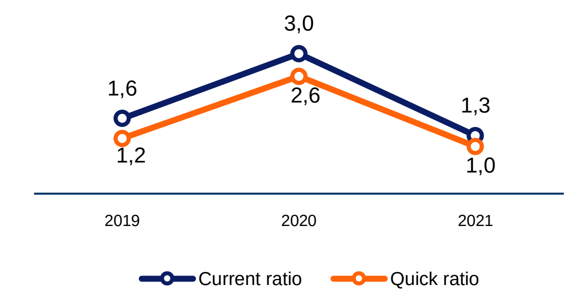
Total debt ratio: total liabilities to total equity and liabilities

Debt to equity ratio: total liabilities to equity

The increase in those ratios in 2021 was attributable to an increase in liabilities, mainly current ones.

Liquidity ratios

Chart 42 Liquidity ratios



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)

In 2021, the ratios decreased due to the higher amount of current liabilities.

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 2.3.2.

Sureties, guarantees and other contingent assets and liabilities

As at December 31st 2021, guarantees and sureties were the most significant item of the PGNiG Group's contingent liabilities, with the total value disclosed in the consolidated statements at PLN 6.5bn (PLN 4.8bn as at December 31st 2019).

The largest guarantee was issued by PGNiG to the Norwegian government for PGNiG UN's work on the Norwegian Continental Shelf, for the total amount of PLN 2.9bn at year-end 2021 (PLN 2.9bn at year-end 2020).

The increase in contingent liabilities under sureties and guarantees issued in the reporting period was principally due to the guarantees of PLN 1.6bn (as translated at the exchange rate quoted by the NBP for December 31st 2021) issued as security for the LNG vessel charter agreements.

Guarantee and surety agreements concluded in the reporting period, for a total amount of PLN 2.0bn, were primarily intended as security for gas supplies.

5.3 Financial condition of PGNiG in 2021

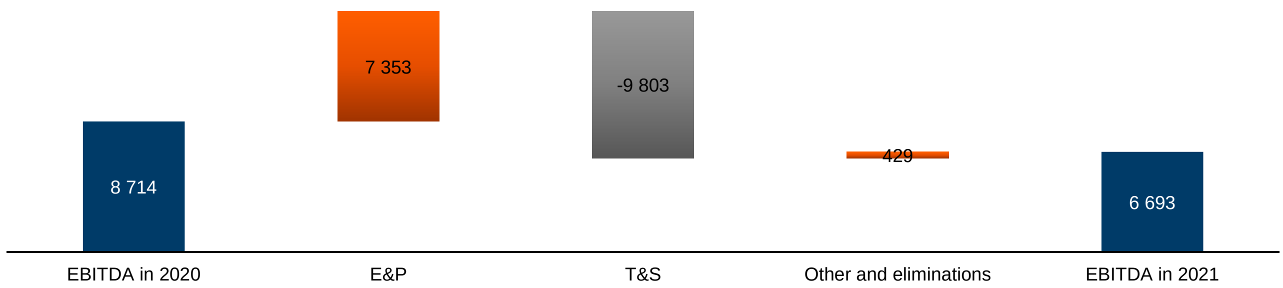
Table 60 PGNiG's financial highlights in 2020–2021

Key data from the separate financial statements	PLNm		EURm	
	12 months ended December 31st 2021	12 months ended December 31th 2020	12 months ended December 31st 2021	12 months ended December 31th 2020
Revenue	36,768	21,237	8,032	4,747
Operating profit before interest, taxes, depreciation and amortisation (EBITDA)	6,693	8,714	1,462	1,948
Operating profit (EBIT)	5,849	7,895	1,278	1,765
Profit before tax	6,264	8,490	1,368	1,898
Net profit	5,121	6,909	1,119	1,544
Total comprehensive income	2,327	5,900	508	1,319
Net cash from operating activities	(2,607)	9,394	(570)	2,100
Net cash from investing activities	361	(2,794)	79	(624)
Net cash from financing activities	8,714	(3,591)	1,904	(803)
Net cash flows	6,468	3,009	1,413	673
Earnings and diluted earnings per share attributable to holders of ordinary shares (PLN/EUR)	0.89	1.20	0.19	0.27

Key data from the separate financial statements	PLNm		EURm	
	As at December 31st 2021	As at December 31st 2020	As at December 31st 2021	As at December 31st 2020
Total assets	69,690	43,746	15,152	9,480
Total liabilities	34,120	7,516	7,418	1,629
Non-current liabilities	7,270	3,871	1,580	839
Current liabilities	26,850	3,645	5,838	790
Equity	35,570	36,230	7,734	7,851
Share capital and share premium	7,518	7,518	1,635	1,629
Weighted average number of shares (million) in the period	5,778	5,778	5,778	5,778
Book value per share and diluted book value per share (PLN/EUR)	6.16	6.27	1.34	1.36
Dividend per share declared or paid (PLN and EUR)	0.21	0.09	0.05	0.02

In 2021, PGNiG S.A. reported EBITDA of PLN 6,693m, PLN 2,021m less year on year. Changes in EBITDA by segment are presented in the chart below.

Chart 43 PGNiG's EBITDA bridge in 2020–2021



The decline in EBITDA (PLN -9,803m) in the Trade and Storage segment was attributable to the positive effect on 2020 costs of the settlement under the annex signed with PAO Gazprom/OOO Gazprom Export (PLN +4,915m) and higher gas purchase prices in 2021.

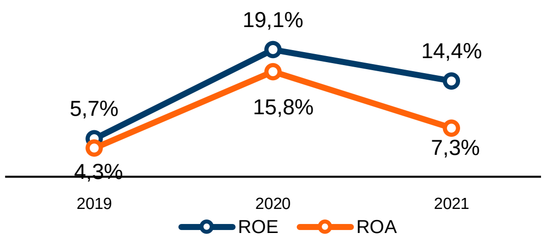
The PLN 7,353m increase in the Exploration and Production segment's EBITDA is mainly attributable to higher gas prices and reversal of impairment losses on non-current assets. The segment's EBITDA also improved as a result of higher profit on sales of crude oil, driven by rising unit selling prices.

The increase (PLN +429m) in the Other Activities segment's EBITDA was attributable, among other things, to the net foreign exchange result on operating activities.

Financial ratio analysis

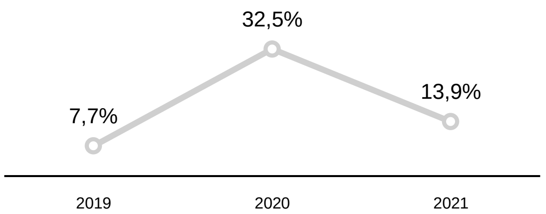
Profitability

Chart 44 ROE and ROA



The decrease in ROE and ROA ratios in 2021 resulting from a decrease in net profit year on year, due to the 2020 cost impact of the annex signed with Gazprom.

Chart 45 Net margin

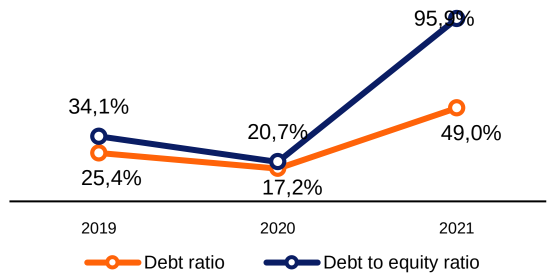


The decrease in net margin in 2021 resulting from a decrease in net profit year on year due to the 2020 cost impact of the annex signed with Gazprom.

(in PLN million, unless stated otherwise)

Debt ratios

Chart 46 Debt ratio and debt to equity ratio



The increase in total debt ratio in 2021 results from an increase in liabilities, including in particular:

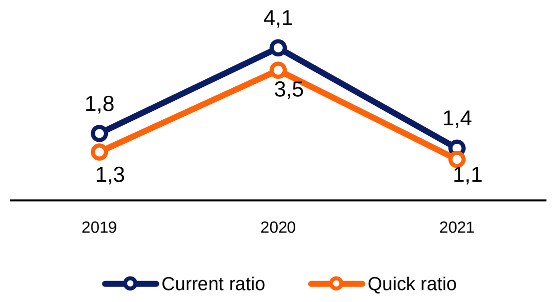
- Derivative financial liabilities (PLN +12bn);
- Interest liabilities (PLN +10bn);
- Trade and other payables (PLN +5bn).

The deviations are mainly attributable to soaring gas prices observed in the market in the second half of 2021.

The increase in total debt to equity ratio in 2021 is attributable to an increase in liabilities. For details see above

Liquidity ratios

Chart 47 Current ratio and quick ratio



As a result of the strong growth in gas market prices in the second half of 2021, the balance-sheet items affected by these prices, including trade receivables and payables, inventories, financial derivatives assets and liabilities and cash (including deposits), also increased significantly (sometimes several times). Credit facilities were also contracted to finance day-to-day operations. Consequently, despite a significant excess of current assets over current liabilities (PLN 10.7bn, up by PLN 1.3bn year on year), the ratio of current assets to current liabilities fell. However, the quick ratio shows a safe level >1.

Table 61 PGNiG's capital expenditure in 2018–2021

	Capital expenditure* on property, plant and equipment made by PGNiG	2021	2020	2019	2018
I.	Exploration and Production, including:	750	884	997	989
1	Exploration	361	587	614	764
	including expenditure on dry wells	*50*	*39*	*109*	*99*
2	Production	389	297	384	225
II.	Trade and Storage	58	67	93	87
1	Trade	5	31	62	0
2	Storage facilities used by the Trade and Storage segment	53	37	31	87
III.	Other Segments	164	75	49	138
IV.	Total capital expenditure (I+II+III)	971	1,026	1,140	1,213

** Including capitalised borrowing costs*

6. Corporate governance

6.1 Statement of compliance with corporate governance standards

6.1.1 Adopted code of corporate governance

In 2021, PGNiG complied with the set of corporate governance standards laid down in the 'Best Practice for GPW Listed Companies 2016' (the '2016 Code of Best Practice'), adopted by the WSE Supervisory Board in its Resolution No. 26/1413/2015 of October 13th 2015 and – since their coming into force in July 2021 – in the 'Best Practice for GPW Listed Companies 2021' adopted by the WSE Supervisory Board in its Resolution No. 13/1834/2021 of March 29th 2021 (the '2021 Code of Best Practice').

The amended texts of both Codes are available on the Warsaw Stock Exchange's corporate governance website at www.gpw.pl/dobre-praktyki and on the Company's website at: www.pgnig.pl/pgnig/lad-korporacyjny/dobre-praktyki

In accordance with the 2016 Code of Best Practice, PGNiG:

- ensures proper communication with investors and analysts by pursuing a transparent and effective information policy. To this end, it offers easy and equal access to information by using various communication tools – in this respect, the Company does not comply with principle I.Z.1.15 only;
- is managed by the management board, whose members act in the interest of PGNiG and are responsible for its activities. It is the management board's responsibility to lead the company, to be involved in setting and achieving its strategic goals, and to ensure that the Company is efficient and safe.
- is supervised by an effective and competent supervisory board. Members of the supervisory board act in the interest of PGNiG and are guided in their conduct by the independence of their opinions and judgments. In particular, the supervisory board gives its opinion on the company's strategy and verifies the work of the management board with respect to achieving the set strategic objectives, and monitors the company's results – in this respect, the Company has only departed from principle II.Z.7;
- maintains effective internal control, risk management and compliance systems, and exercises an effective internal audit function appropriate to the size of the company and the type and scale of its operations;
- encourages shareholder engagement with the company. The general meeting respects the rights of shareholders and seeks to adopt resolutions without infringing on the legitimate interests of particular groups of shareholders – in this respect, the company does not comply with recommendation IV. R.2 only;
- has clear procedures in place to prevent conflicts of interest and entering into transactions with related parties where a conflict of interest may arise. The procedures provide for ways to identify, reveal and manage such situations;
- has a remuneration policy in place to determine the form, structure, and method of determining the remuneration of members of the company's governing bodies and key managers – in this respect, the company does not comply with recommendation IV.R.4 only.

In accordance with the 2021 Code of Best Practice, PGNiG:

- engages in efficient communication with capital market participants, using various tools and forms of communication, with the corporate website being the primary tool; provides information on the Company's financial results from interim and full-year reports as soon as possible after the end of each reporting period; announces at least preliminary estimated financial results, organises regular performance meetings with investors, promptly responds to inquiries;
- is managed by the governing bodies composed of persons having appropriate qualifications, skills and experience; sufficient number of members of the supervisory board meetsthe independence criteria; the Company's internal regulations governing the decision-making process and functioning of the management board and supervisory board are consistent with best corporate governance practices;
- maintains effective internal control, risk management, and compliance systems and functions;
- engages shareholders in the Company's affairs by enabling them, in an appropriate manner, to attend general meetings held at appropriate times and venues;
- has developed clear procedures to prevent conflicts of interest and entering into transactions with related parties where a conflict of interest may arise;
- ensures the stability of management staff, among other things, by applying a transparent, equitable, coherent and non-discriminatory remuneration policy.

6.1.2 Information on non-compliance with corporate governance principles

Since the adoption of the 2016 Code of Best Practice at the organisation, PGNiG has gradually reduced the scope of non-compliance with the detailed rules laid down in the document. In 2016, the Company did not apply four principles and two recommendations. In 2021, the Company did not apply two principles from the list below and two recommendations of the 2016 Code of Best Practice. Reasons for the non-compliance are presented below.

Table 62 Reasons for non-compliance with the principles and recommendations of the 2016 Code of Best Practice

Disclosure Policy and Investor Communication I.Z.1.15	Content of the principle: A company should operate a corporate website and publish on it, in a legible form and in a separate section, in addition to information required under the legislation: information about the company's diversity policy applicable to the company's governing bodies and key managers; the description should cover the following elements of the diversity policy: gender, education, age, professional experience, and specify the goals of the diversity policy and its implementation in the reporting period; where the company has not drafted and implemented a diversity policy, it should publish the explanation of its decision on its website. Reason for non-compliance: The key criteria taken into account in the process of recruitment and selection of candidates for positions in the Company's key governing bodies are mainly professional experience and education. The Company has not developed a diversity policy for its key managers.
Management and Supervisory Board – II.Z.7	Content of the principle: Annex I to the Commission Recommendation referred to in principle II.Z.4 applies to the tasks and the operation of the committees of the supervisory board. Where the functions of the audit committee are performed by the supervisory board, the foregoing should apply accordingly. Reason for non-compliance: An Audit Committee operates as a standing committee of the Supervisory Board. Pursuant to the Best Practice for WSE Listed Companies, the Issuer 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 Issuer has implemented all the requirements to ensure that the Audit Committee participates in the oversight of the Issuer's activities except: 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 Issuer does not consider it necessary to introduce very detailed regulations specifying the operation of the Committee, including the implementation of the recommendation specified in section 4.3.2. Annex I to the European Commission Recommendation The Issuer will take appropriate steps in the future, if justified by the actual manner of operation of the Audit Committee.
General Meeting and shareholder relations IV.R.2;	Content of the recommendation: If justified by the structure of shareholders or expectations of shareholders notified to the company, and if the company is in a position to provide the technical infrastructure necessary for a general meeting to proceed efficiently using electronic communication means, the company should enable its shareholders to participate in a general meeting using such means, in particular through: 1) a real-time broadcast of the general meeting; 2) real-time bilateral communication where shareholders may take the floor during a general meeting from a location other than the general meeting; 3) exercise of the right to vote during a general meeting either in person or through a proxy. Reason for non-compliance: The Company decided not to apply the recommendation as the current shareholding structure and the high shareholder representation at the General Meeting do not indicate any need to enable its shareholders to participate in the General Meeting using electronic means of communication. The Company does not rule out introducing such a possibility in the future.
Remuneration VI.R.4.	Content of the recommendation: The remuneration levels of members of the management board and the supervisory board and key managers should be sufficient to attract, retain and motivate persons with skills necessary for proper management and supervision of the company. Remuneration should be adequate to the scope of tasks delegated to individuals, taking into account additional functions, for instance on supervisory board committees. Reason for non-compliance: 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

(in PLN million, unless stated otherwise)

applicable laws, namely the Act on Rules for Remunerating Persons Managing Certain Companies of June 9th 2016 (Dz.U. of 2017, item 2190).

Following the adoption of the 2021 Code of Best Practice and extension of the scope of application to new areas, in 2021 PGNiG did not comply with 13 principles.

Table 63 Reasons for non-compliance with the principles and recommendations of the 2021 Code of Best Practice

Disclosure Policy and Investor Communication 1.3.1	Content of the principle: Companies integrate ESG factors in their business strategy, including in particular: environmental factors, including measures and risks relating to climate change and sustainable development; Reason for non-compliance: The PGNiG Group's business strategy was published in 2017 and will continue to be implemented as adopted until 2022. Given the current uncertainty in the energy market regulation area, which may significantly affect the PGNiG Group's future business prospects, the work on the business strategy revision has been suspended. The current business strategy does not address separately environmental elements, including climate metrics and risks and sustainability aspects. These are provided for in a document supplementing the business strategy, i.e. the PGNiG Group's Sustainable Development Strategy for 2017–2022, albeit to a lesser extent than specified in principle 1.3.1. The Company is aware of the importance of sustainability in its day-to-day operations and will address the elements referred to in principle 1.3.1 in its updated or new strategy and the ESG policy, the work on which is currently in the planning phase.
Disclosure Policy and Investor Communication 1.3.2	Content of the principle: Companies integrate ESG factors in their business strategy, including in particular: social and employee factors, including among others actions taken and planned to ensure equal treatment of women and men, decent working conditions, respect for employees' rights, dialogue with local communities, customer relations. Reason for non-compliance: The PGNiG Group's business strategy was published in 2017 and will continue to be implemented as adopted until 2022. The strategy does not separately address social and employee elements. These are addressed in a document supplementing the business strategy, i.e. the PGNiG Group's Sustainable Development Strategy for 2017–2022, albeit to a lesser extent than specified in principle 1.3.2.
Disclosure Policy and Investor Communication 1.4.1	Content of the principle: To ensure quality communications with stakeholders, as a part of the business strategy, companies publish on their website information concerning the framework of the strategy, measurable goals, including in particular long-term goals, planned activities and their status, defined by measures, both financial and non-financial. The information on the ESG elements of the strategy should, among other things, explain how the decision-making processes of the company and its group members integrate climate change, including the resulting risks. Reason for non-compliance: The PGNiG Group's business strategy was published in 2017 and will continue to be implemented as adopted until 2022. Given the significant uncertainty in the energy market regulation area, which may significantly affect the PGNiG Group's future business prospects, the work on the business strategy revision has been suspended. The current business strategy does not address climate change and climate risks. These are addressed in a document supplementing the business strategy, i.e. the PGNiG Group's Sustainable Development Strategy for 2017–2022, albeit to a lesser extent than specified in principle 1.4.1. The Company is aware of the importance of sustainability in its day-to-day operations and will address the elements referred to in principle 1.4.1 in its updated or new strategy and the ESG policy, the work on which is currently in the planning phase.
Disclosure Policy and Investor Communication 1.4.2	Content of the principle: To ensure quality communications with stakeholders, as a part of the business strategy, companies publish on their website information concerning the framework of the strategy, measurable goals, including in particular long-term goals, planned activities and their status, defined by measures, both financial and non-financial. The information on the ESG elements of the strategy should, among other things, present the equal pay index for employees, defined as the percentage difference between the average monthly pay (including bonuses, awards and other benefits) of women and men in the last year, and present information about actions taken to eliminate any pay gaps, including a presentation of related risks and the time horizon of the equality target. Reason for non-compliance: The PGNiG Group's business strategy was published in 2017 and will continue to be implemented as adopted until 2022. Given the significant uncertainty in the energy market regulation area, which may significantly affect the PGNiG Group's future business prospects, the work on the business strategy revision has been suspended. The current business strategy does not address the issue of pay inequality, if any, or the related risks, and does not provide for the objective of achieving pay equality for women and men. The Company will seek to address the issues referred to in principle 1.4.2 in its updated or new strategy and the ESG policy, the work on which is currently in the planning phase.

(in PLN million, unless stated otherwise)

Disclosure Policy and Investor Communication 1.5	Content of the recommendation: Companies disclose at least on an annual basis the amounts expensed by the company and its group in support of culture, sports, charities, the media, social organisations, trade unions, etc. If the company or its group pay such expenses in the reporting year, the disclosure presents a list of such expenses. Reason for non-compliance: The Company discloses its expenses on entertainment, legal, marketing, public relations and social communication services as well as management consultancy related to PGNiG S.A. management. In addition, the PGNiG Group's Non-Financial Report presents the scope of sponsorship and charitable activities in the context of the Group. The presentation of this information differs from what is proposed in principle 1.5.
Management Board and Supervisory Board 2.1	Content of the recommendation: Companies should have in place a diversity policy applicable to the management board and the supervisory board, approved by the supervisory board or the general meeting. The diversity policy defines diversity goals and criteria, among others including gender, education, expertise, age, professional experience, and specifies the target dates and the monitoring systems for such goals. With regard to gender diversity of corporate bodies, the participation of the minority group in each body should be at least 30%. Reason for non-compliance: The Company has no diversity policy approved by the Supervisory Board or the General Meeting that would define the diversity requirements for the Company's governing bodies in terms of gender, education, expertise or professional experience. The key criteria taken into account in the process of recruitment and selection of candidates for positions in the Company's key governing bodies are mainly professional experience and education. In addition, the Company's Articles of Association provide for the appointment of representatives of the Group employees to the Supervisory Board and the Management Board following a vote held among the employees.
Management Board and Supervisory Board 2.2	Content of the recommendation: Decisions to elect members of the management board or the supervisory board of companies should ensure that the composition of those bodies is diverse by appointing persons ensuring diversity, among others in order to achieve the target minimum participation of the minority group of at least 30%, in line with the goals of the established diversity policy referred to in principle 2.1. Reason for non-compliance: The key criteria taken into account in the process of recruitment and selection of candidates for positions in the Company's key governing bodies are mainly professional experience and education. In addition, the Company's Articles of Association provide for the appointment of representatives of the Group employees to the Supervisory Board and the Management Board following a vote held among the employees.
Management Board and Supervisory Board 2.11.5	Content of the recommendation: In addition to its responsibilities laid down in the legislation, the supervisory board prepares and presents an annual report to the annual general meeting once per year. The report referred to above shall at least include an assessment of the rationality of expenses referred to in principle 1.5. Reason for non-compliance: In the report on its activities in each financial year, the Supervisory Board presents an assessment of the reasonableness of the Group companies' sponsorship, charitable giving and similar policies. However, the scope of this assessment is lesser than proposed in principle 1.5.
Management Board and Supervisory Board 2.11.6	Content of the recommendation: In addition to its responsibilities laid down in the legislation, the supervisory board prepares an annual report and presents it to the annual general meeting once per year. The report referred to above shall include at least: information regarding the degree of implementation of the diversity policy applicable to the management board and the supervisory board, including the achievement of goals referred to in principle 2.1. Reason for non-compliance: The Company has no diversity policy adopted by the Supervisory Board or the General Meeting that would define the diversity requirements for the Company's governing bodies in terms of gender, education, expertise or professional experience. The key criteria taken into account in the process of recruitment and selection of candidates for positions in the Company's key governing bodies are mainly professional experience and education. In addition, the Company's Articles of Association provide for the appointment of representatives of the Group employees to the Supervisory Board and the Management Board following a vote held among the employees.
General Meeting and shareholder relations 4.1	Content of the recommendation: Companies should enable their shareholders to participate in a general meeting by means of electronic communication (e-meeting) if justified by the expectations of shareholders

(in PLN million, unless stated otherwise)

	notified to the company, provided that the company is in a position to provide the technical infrastructure necessary for such general meeting to proceed. Reason for non-compliance: Based on the current shareholding structure of the Company and the high shareholder representation at the General Meetings, there is no need to enable the shareholders to participate in the General Meetings using electronic means of communication. To date, no proposals or requests have been received from the shareholders indicating the need to hold the General Meeting in electronic form. The Company does not rule out that such a possibility may be introduced in the future.
General Meeting and shareholder relations 4.8	Content of the recommendation: Draft resolutions of the general meeting on matters put on the agenda of the general meeting should be tabled by shareholders no later than three days before the general meeting. Reason for non-compliance: The Company does not limit its shareholders' ability to put forward draft resolutions on matters placed on the General Meeting agenda within a period shorter than specified in principle 4.8.
General Meeting and shareholder relations 4.9.1	Content of the recommendation: If the general meeting is to appoint members of the supervisory board or members of the supervisory board for a new term of office: candidates for members of the supervisory board should be nominated with a notice necessary for shareholders present at the general meeting to make an informed decision and in any case no later than three days before the general meeting; the names of candidates and all related documents should be immediately published on the company's website. Reason for non-compliance: The Company does not limit its shareholders' ability to put forward candidates for Supervisory Board members within a period shorter than specified in principle 4.9.1.
General Meeting and shareholder relations 4.11	Content of the recommendation: Members of the management board and members of the supervisory board participate in a general meeting, at the location of the meeting or via means of bilateral real-time electronic communication, as necessary to speak on matters discussed by the general meeting and answer questions asked at the general meeting. The management board presents to participants of an annual general meeting the financial results of the company and other relevant information, including non-financial information, contained in the financial statements to be approved by the general meeting. The management board presents key events of the last financial year, compares presented data with previous years, and presents the degree of implementation of the plans for the last year. Reason for non-compliance: The Company's Management Board provides information on the Company's operations, financial performance and progress in the implementation of the strategy objectives on an ongoing basis. The Company holds meetings and conference calls with investors and shareholders, as well as press conferences for the media in connection with the publication of its periodic reports and occurrence of events material to the Company's operations. The Company applies principle 4.6. of the Best Practices for WSE Listed Companies 2021 in a way that ensures that the shareholders are provided with comprehensive information on the matters discussed at the General Meeting. Answers to questions asked by the shareholders are provided by the Company in the form of current reports, in accordance with the applicable laws.

6.1.3 Shareholders with major direct or indirect holdings of Company shares

In 2021, 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 64 PGNiG's shareholding structure as at December 31st 2021

	Number of shares	Ownership interest	Number of votes at the General Meeting	Percentage voting interest in the Company
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, for as long as the State Treasury holds Company shares, the State Treasury, represented by the entity authorised to exercise rights conferred by the shares held by the State Treasury, has the right to appoint and dismiss one member of the Supervisory Board.

Further, pursuant to the Articles of Association, the minister competent for energy 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 (GM) be convened and that particular matters be placed on its agenda.

6.1.5 Restrictions on voting rights at PGNiG

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 the GM more than 10% of the total voting rights existing as at the date of the GM, 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 in the Company on the date of the GM'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 restrictions, votes of shareholders bound by a parent-subsidiary relationship are aggregated; if the aggregated number of votes exceeds 10% of total voting rights in the Company, it is subject to reduction.

6.1.6 Restrictions on transfer of ownership rights to issuer securities

Under Art. 13.24 of the Act on State Property Management of December 16th 2016 (Dz.U. of 2021, item 1933), 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 July 22nd 2020, the amendments to the Company's Articles of Association adopted by Resolution No. 23/2020 of the Annual General Meeting of PGNiG of June 24th 2020 were recorded in the court register.

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

The General Meeting (GM) operates in accordance with the provisions of the Commercial Companies Code, the Articles of Association and the GM's Rules of Procedure. The GM's Rules of Procedure, defining in particular detailed procedures for the conduct of General Meetings and for adopting resolutions, are available on the Company's website (www.pgnig.pl).

6.1.9 Convening and cancelling the General Meeting

An Annual General Meeting (GM) is convened by the Management Board, 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 (EGM).

The Supervisory Board may convene a GM 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 EGM, if the Supervisory Board deems it advisable.

GMs are convened by posting 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 posted at least 26 days before the date of the GM.

6.1.10 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 activities 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 governing participation in the PGNiG General Meeting are governed by the GM's Rules of Procedure, available on the Company's website at http://pgnig.pl/lad-korporacyjny/walne-zgromadzenie/regulamin.

The key rules of participation in the General Meeting:

- Each shareholder has the right to participate in General Meetings (GMs).
- Only persons who are the Company shareholders sixteen days prior to the date of a GM (i.e. on the record date for participation in the GM) are entitled to participate in the GM. The record date for participation in the GM 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 GM provided that they are entered in the Share Register on the registration date.
- Shareholders may participate in the GM and exercise their voting rights in person, through a representative or through a proxy.
- At the GM, 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 GM'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 GM certified as true copies by the Management Board.
- During a GM, any shareholder taking part in the GM may submit procedural motions.

Voting at the General Meeting

- One share confers the right to one vote at the GM

Voting at the GM is by 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 GM 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 2021:

- Paweł Majewski – President
- Robert Perkowski – Vice President, Operations
- Arkadiusz Sekściński – Vice President, Development
- Przemysław Wacławski – Vice President, Finance
- Jarosław Wróbel – Vice President
- Magdalena Zegarska – Vice President.

On February 17th 2021, Jarosław Wróbel resigned as Member and Vice President of the Management Board, with effect as of close of business on March 1st 2021. On March 2nd 2021, the PGNiG Supervisory Board decided to appoint, as of March 16th 2021, Artur Cieślik as Vice President of the Management Board, Chief Strategy and Regulation Officer, for the sixth term of office ending on January 10th 2023.

Composition of the Management Board as at December 31st 2021:

- Paweł Majewski – President
- Artur Cieślik – Vice President, Chief Strategy and Regulation Officer
- Robert Perkowski – Vice President, Operations,
- Arkadiusz Sekściński – Vice President, Development,
- Przemysław Wacławski – Vice President, Finance,
- Magdalena Zegarska – Vice President.

Paweł Majewski – President of the PGNiG Management Board

Paweł Majewski is a graduate of the Faculty of Law and Administration of the Jagiellonian University. He completed a postgraduate Executive Master of Business Administration (MBA) programme at Warsaw Management University.

A manager with many years' experience in managing corporations, including state-owned companies. He has served as President of the Management Board of Grupa LOTOS S.A., Vice President of the Management Board of Huta Stalowa Wola S.A., Member of the Management Board of DO & CO Poland Sp. z o.o. and President of the Management Board of Airport Cleaning Service Sp. z o.o. He has many years of professional experience in leadership roles, for instance at PETROLOT Sp. z o.o. (currently ORLEN Aviation Sp. z o.o.), and as Director of the Variable Margin and Production Management Division at PGNiG TERMIKA S.A.

A member of the Supervisory Board of Polski Holding Nieruchomości S.A. He has served on the supervisory boards of ZEM Łabędy Sp. z o.o., Jelcz Sp. z o.o., Lotniczy Catering Service Sp. z o.o., and other companies.

The President of the Management Board supervises and coordinates the Company's activities, including with respect to:
1) HR strategies, pay schemes and working time;
2) employment and payroll policies;
3) protection of classified information;
4) protection of personal data;
5) defence, protection of the Company's facilities;
6) management of the PGNiG Group, including exercise of the owner's supervision within the PGNiG Group;
7) formation of new companies within the PGNiG Group to pursue new projects undertaken as part of the PGNiG Group's strategy;
8) optimisation of the PGNiG Group's structure;
9) internal control and audit functions, in accordance with generally accepted standards of internal audit;
10) comprehensive legal support to protecting PGNiG's legal interests;
11) issuance of official orders and circulars for the Company;
12) organisational and technical support of the Company's governing bodies;
13) corporate social responsibility (CSR);
14) development and implementation of the sponsorship policy and the policy of building the Company's image in Poland and abroad;
15) the Company's information policy and corporate communication;
16) management of the Company's assets, excluding network assets, extraction assets and underground gas storage facilities;
17) management of the Company's non-production assets, including property;
18) planning and implementation of the Company's trade policy, particularly in respect of natural gas and electricity sales, execution and settlement of contracts for the sale of natural gas and electricity;
19) guiding the development of the natural gas market;
20) development of the natural gas import policy, also with respect to supply diversification;
21) monitoring and analysis of foreign markets and establishing relationships with foreign companies, international organisations and foreign government authorities with respect to trade relations;
22) cooperation with third parties with respect to trading in liquefied natural gas;
23) preparation of periodic gas fuel balance reports, consistent with gas sale contracts and plans;
24) periodic settlements of gas deliveries;
25) information services, including the receipt of information on events and crises in all areas of the Company's business;
26) operations of the Wholesale Trading Branch.

Artur Cieślik – Vice President of the Management Board, Chief Strategy and Regulation Officer

A graduate of the Faculty of Law, Canon Law and Administration at the Catholic University of Lublin, and the Faculty of Law and Administration of the University of Warsaw in partnership with the University of Florida Fredric G. Levin College of Law, Center for American Law Studies). Participant of Executive Master of Business Administration postgraduate studies organised by the University of Gdańsk in cooperation with the Gdańsk Foundation for Management Development and Porto Business School.

Lawyer and manager with over 20 years of professional experience gained working for capital market institutions, public companies and an international law firm.

He began his professional career at the Legal Department of the Warsaw Stock Exchange in 1997 where he worked until 2004. He was a lecturer at the Faculty of Law and Administration of Łazarski University from 2000 to 2005. In 2004–2006, he was employed at SYGNITY S.A. From 2006 to 2018, he worked with the international law firm DENTONS Europe Dąbrowski and Partners sp.k. as a Senior Associate and then as Counsel. He was involved with PKN ORLEN S.A. from 2018 as Advisor to the Management Board and Executive Director for Strategy. From August 24th 2020 to March 15th 2021, he served as Vice President of the Management Board for Strategy and Development at Grupa LOTOS S.A.

The Vice President of the Management Board, Chief Strategy and Regulation Officer, supervises and coordinates such areas of the Company's operations as:
1) development and monitoring of implementation of the PGNiG Group's Strategy;
2) execution of projects and acquisitions of the PGNiG Group,
3) developing a regulatory policy in consultation with government authorities, EU authorities and industry organisations;
4) liaising with the Energy Regulatory Office in respect of obtaining licences by the Company;
5) operation of the Company's foreign representative offices;
6) supervision of the project to consolidate groups of state-owned companies;
7) design and development of the risk management framework at the Company;
8) process management;
9) climate policy and environmental, social and corporate governance (ESG) policy.

Robert Perkowski – Vice President, Operations

Manager, member of the local government and holder of PhD in Economics. His PhD programme was conducted at the Institute of Economics of the Polish Academy of Sciences. He graduated from the Marketing and Management Department and the Finance and Banking Department at the Independent University of Business and Public Administration in Warsaw. He also completed post-graduate studies in Management Analytics at the ORGMASZ Institute of Organisation and Management in Industry. He authored more than a dozen research articles devoted to enterprise virtualisation.

An economist with long-standing management experience gained in various institutions. In 2019 and 2020, he served as Member of the Management Board of PGNiG Upstream Norway AS. In 2019, he served as Member of the Supervisory Board of INOVA Centrum Innowacji Technicznych Sp. z o.o. In 2006–2018, he served as the Mayor of Ząbki and since 2017 has been the President of the Management Board of the Polish Local Government Union. Prior to 2002, he worked at the Ministry of Justice, where he was responsible for financial payroll plans for the prison service. He also provided training services and served in other public capacities.

Robert Perkowski is also holding the following positions:

- Chairman of the Supervisory Board of Krajowa Spółka Cukrowa S.A.
- Member of the Supervisory Board of EuRoPol GAZ S.A.
- President of the Chamber of Natural Gas Industry
- Chairman of the Supervisory Board of PGNIG Gaz TUW

Vice President, Chief Operating Officer, supervises and coordinates the Company's activities, including with respect to:
1) the procurement strategy of the Company and of the Group;
2) policy, objectives and programmes related to hydrocarbon exploration and production in Poland and abroad;
3) overseeing all licensing processes related to hydrocarbon exploration, appraisal and production, production facility projects, as well as storage of waste matter in rock mass and non-reservoir storage of substances in accordance with the Polish law and foreign legal regulations in the countries where PGNiG carries out exploration and production operations;
4) development of technical assumptions, rules, norms and standards applicable in the area of oil drilling;
5) operation and safety of production systems;
6) implementation of the PGNiG Group's strategy objectives at the Company and the Group companies with respect to domestic and foreign upstream acquisition processes;
7) operations PGNiG S.A.'s Geology and Hydrocarbon Production Branch, the PGNiG Branches in Odolanów, Sanok and Zielona Góra, Well Mining Rescue Station in Kraków, and the Company's foreign branches;
8) building relations with the transmission system and distribution system operators;
9) building relations with the storage system operators.

Arkadiusz Sekściński – Vice President, Development

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 published in Polish and English. He holds a Master of Business Administration (MBA) degree from Łazarski University obtained as part of the Energy MBA Program.

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.

In addition to serving as Vice President of the Management Board of PGNiG S.A. for Development, he is also Chairman of the Supervisory Board of PGNIG Ventures and Member of the Management Board of PGNIG Upstream Norway.

Vice President, Chief Development Officer, supervises and coordinates the Company's operations with respect to:
1) research, innovation and growth projects involving PGNiG S.A.,
2) analysing and monitoring opportunities to obtain EU funding for the Company's operations;
3) standardisation activities at the Company,
4) development of technical assumptions, rules, norms and standards for the gas area;
5) operations of the PGNiG Central Measurement and Testing Laboratory;
6) implementation of the objectives of the PGNiG Group's strategy at the PGNiG Group companies in the area of research, innovation and development projects and cooperation with start-ups,
7) development of retail products and services within the PGNiG Group,
8) energy efficiency and renewable energy at the PGNiG Group.

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. He completed the international Executive MBA course at Politecnico di Milano Graduate School of Business 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 served 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.

The Vice President for Finance supervises and coordinates such areas of the Company's operations as:
1) implementation of the Company's strategic economic and financial objectives;
2) preparation and implementation of the Company's Business Plan;
3) economic and financial evaluations and analyses of expansion and investment projects;
4) planning and overseeing financial aspects of the investment policy;
5) monitoring the use of financial resources allocated to production, investment and repair work;
6) Company's internal settlement procedures;
7) PGNiG S.A.'s financing operations;
8) cash flows within the PGNiG Group;
9) budgeting and control of the Company's costs and revenue;
10) Company's credit policy;
11) Company's tax policy and tax liabilities;
12) financial risk management;
13) economic and financial analyses of new capital projects;
14) implementation and development of accounting procedures;
15) defining the rules of and overseeing the preparation of financial statements;

16) investor relations;
17) planning, development and operation of the Company's IT systems;
18) implementation of the PGNiG Group's strategic objectives at the Group companies in the areas of IT development;
19) IT management.

Magdalena Zegarska – Vice President

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 S.A. 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.

Vice President of the Management Board elected by Company employees supervises and coordinates the Company's operations with respect to:
1) occupational health and safety, fire protection;
2) cooperation with trade unions, the Employee Council and other employee organisations where their operations relate to the Company and the PGNiG Group;
3) issue of shares to eligible Company employees;
4) environmental protection,
5) development of social policy.

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. 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 state assets. 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 2021, the Management Board held 47 meetings and passed 636 resolutions.

6.2.2 Supervisory Board and its committees

Composition of the PGNiG S.A. Supervisory Board as at January 1st 2021:

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

In connection with the expiry of the eighth term of office of the Supervisory Board and the election results for members of the Supervisory Board of PGNiG S.A. elected by employees of PGNiG S.A. and all its subsidiaries within the meaning of the Act on Commercialisation and Certain Employee Rights of August 30th 1996, the General Meeting appointed the following persons to the Supervisory Board, with effect as of July 9th 2021:

- Bartłomiej Nowak – as Member of the Supervisory Board,
- Cezary Falkiewicz – as Member of the Supervisory Board,
- Piotr Sprzączak – as member of the Supervisory Board,
- Roman Gabrowski – as member of the Supervisory Board,
- Grzegorz Tchorek – as member of the Supervisory Board,
- Tomasz Gabzdyl – as member of the Supervisory Board,
- Mariusz Gierczak – as member of the Supervisory Board and
- Mieczysław Kawecki – as member of the Supervisory Board

for the ninth joint term of office of the Supervisory Board ending on July 10th 2024.

On July 30th 2021, at its first meeting of the ninth term of office, the PGNiG Supervisory Board elected:

- Bartłomiej Nowak – as Chairman of the Supervisory Board,
- Cezary Falkiewicz – as Deputy Chairman of the Supervisory Board,
- Tomasz Gabzdyl – as Secretary of the Supervisory Board.

Composition of the PGNiG S.A. Supervisory Board as at December 31st 2021:

- Bartłomiej Nowak – Chairman
- Cezary Falkiewicz – Deputy Chairman
- Tomasz Gabzdyl – Secretary
- Roman Gabrowski – Member
- Mariusz Gierczak – Member

- Mieczysław Kawecki – Member
- Piotr Sprzączak – Member
- Grzegorz Tchorek – Member

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. He also holds degrees of Master of Arts in Management and International Business from Bradford University and Master de Recherche from the European University Institute. Since 2009, he has held a 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. 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 Koźmiński University of Warsaw, initially as Assistant Professor and then Professor at the Law College, as well as Vice-Rector for Economic and Social Studies.

Bartłomiej Nowak is a member of the Scientific Boards of the Aviation Institute, Electron Technology Institute, and 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.

Cezary Falkiewicz – Deputy Chairman of the Supervisory Board

Cezary Falkiewicz is a graduate of the Faculty of Law and Administration of the Cardinal Stefan Wyszyński University in Warsaw. He also completed postgraduate studies in Finance and Accounting with the accreditation from ACCA at the Vistula University of Warsaw. Professionally involved with the state administration since 2014, first at the Ministry of State Treasury, then at the Chancellery of the Prime Minister and the Ministry of State Assets, where he currently serves as Deputy Director of the Fuel and Energy Companies Department.

In his work to date, he has dealt mainly with economic and financial analyses of enterprises and various aspects related to the acquisition of company shares by the State Treasury using funds from the Reprivatisation Fund. Cezary Falkiewicz's professional experience also covers M&A processes involving state-owned companies, as well as the oil and gas industry – in 2018-2021, he served on the Supervisory Board of Lotos Upstream Sp. z o.o.

His current responsibilities include exercise of the owner's rights in state-owned companies and coordination of the consolidation processes in the fuel and gas sector.

Piotr Sprzączak – Deputy Chairman of the Supervisory Board

Piotr Sprzączak graduated from the Faculty of Law and Administration of the Marie Curie-Skłodowska University of Lublin, completed an Executive MBA course at the Faculty of Management of the University of Warsaw, and also studied at the National School of Public Administration.

Since 2011, he has been involved in public administration within the energy domain. He began work at the Oil and Gas Department, where he dealt with security of natural gas supply, implementation of measures to finance gas projects from European sources (OPI&E, CEF) and negotiation of EU legal acts aimed at ensuring security of gas supply to the EU.

Currently, he serves as Head of the Heating Department at the Ministry of Climate and Environment, where, in addition to regulation of the heating sector, he also deals with energy efficiency matters.

Tomasz Gabzdyl – Member of the Supervisory Board

Tomasz Gabzdyl is a graduate of the Silesian University of Technology in Gliwice. He holds an engineering degree with a major in utility and industrial power engineering systems. His area of professional expertise includes occupational health and safety in the oil and gas production industry. He has completed a number of training programmes and courses in OHS and labour law.

He has worked for Polskie Górnictwo Naftowe i Gazownictwo since 1995, gaining expertise and experience in numerous roles. Gas Distribution Plant Manager at Polska Spółka Gazownictwa Sp. z o.o. Holder of the title of Grade II Mining Engineer. In recognition of his contribution to the Oil and Gas Industry, he received a ministerial Honorary Medal of Merit. Also awarded the following industry accolades: Outstanding Service to PGNiG SA and Outstanding Service to Polska Spółka Gazownictwa.

Since the beginning of his professional career, Tomasz Gabzdyl has been committed to social and trade union activism. In 2011 he became Deputy Chairman, and since 2019 has served as Chairman of the Nationwide Trade Union of Oil and Gas Mining, the largest and oldest trade unions centre at the PGNiG Group. He has co-authored many industry documents and labour agreements.

Voted by Employees to the Supervisory Board of PGNiG.

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). He is authorised to sit on the supervisory boards of state-owned companies, and is a licensed construction expert in power engineering as well as a court-appointed expert.

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 2007 he chaired the Supervisory Board of Jeleniogórskie Elektrownie Wodne (currently renamed Tauron Ekoenergia), and in 2016–2019 served as Chairman on the Supervisory Board of Tauron Ekoserwis. From 2016 to 2019 he was also President of the Management Board of Tauron Ekoenergia, where his current position is that of authorised representative of the Board for technology.

Mariusz Gierczak – Member of the Supervisory Board

Mariusz Gierczak is a graduate of the Faculty of Law and Administration of the University of Silesia in Katowice and the Faculty of Marketing and Management of the Częstochowa University of Technology (CUT). Participant of specialist training programmes and courses in the field of labour law. He deals with matters related to broadly defined collective labour relations, especially the role of social dialogue at mining and energy companies.

He has worked for Polskie Górnictwo Naftowe i Gazownictwo since 1995. Currently, he is employed at PGNiG Obrót Detaliczny Sp. z o.o. as Customer Service Manager. Holder of the title of Grade III Mining Engineer. In recognition of his contribution to the Oil and Gas Industry, he has received a ministerial Honorary Medal of Merit. Also awarded the following industry accolades: Outstanding Service to PGNiG SA and Outstanding Service to PGNiG Obrót Detaliczny.

Mariusz Gierczak is committed to social and trade union activism at the PGNiG Group. Since 2006 he has held the position of Deputy Chairman of the Nationwide Trade Union of Oil and Gas Mining. He deals mainly with matters related to equality in employment and counteracting all forms of discrimination, as well as respect for Employees and their affairs, working actively for decent working conditions and employment stability. He has initiated numerous social campaigns for Employees in difficult personal circumstances.

Voted by Employees to the Supervisory Board of PGNiG.

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, principal field of study: well operation. 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. In 1986, he became manager of the Wielopole crude oil extraction facility. In 1991–2017, he worked as manager of the Strachocina Underground Gas Storage Facility. Since 2017, Mr Kawecki has been managing the Underground Gas Storage Department of PGNiG's Sanok Branch.

In 1998, he completed post-graduate studies in underground gas storage, and then in 2003 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 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 PGNiG Warszawa of the sixth and seventh terms of office 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. In 1999–2004, Mr Kawecki was Chairman of the Supervisory Board of the NAFTOWIEC Housing Cooperative of Sanok. He was first Member and then Secretary of the Supervisory Board of PGNiG in 2005–2014.

Voted by Employees to the Supervisory Board of PGNiG.

Grzegorz Tchorek – Member of the Supervisory Board

Grzegorz Tchorek graduated from the Faculty of Management of the University of Warsaw. In 2007, he defended his doctoral thesis, which earned him an award of the Prime Minister for the best PhD dissertation. Having become a PhD, Mr Tchorek 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 (since 2009).

His main focus as an expert is the experience of eurozone economies, institutional transformation in EU member states, as well as internationalisation and innovation of businesses. In the course of his professional career, he has led analytical and research projects. His academic achievements include numerous research projects and publications concerned with the monetary union, innovativeness and competitiveness.

Grzegorz Tchorek has extensive experience as a speaker, attested to by his appearances at international conferences and lectures given at numerous academic centres across Europe.

Powers of the PGNIG 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 (GM). 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 GM 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 state assets, 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 2021, there were two committees of the Supervisory Board operating at the Company – the Audit Committee and the Strategy Committee.

Composition of the Audit Committee of the PGNiG Supervisory Board in 2021:

1) from January 1st 2021 to July 9th 2021 (eighth term of office of the Supervisory Board):
   - Grzegorz Tchorek – Chairman of the Audit Committee
   - Piotr Broda − Deputy Chairman of the Audit Committee
   - Bartłomiej Nowak – Member of the Audit Committee.
2) from July 30th 2021 to December 31st 2021 (ninth term of office of the Supervisory Board):
   - Grzegorz Tchorek – Member of the Audit Committee, from August 26th 2021 – Chairman of the Audit Committee
   - Roman Gabrowski – Member of the Audit Committee, from August 26th 2021 – Deputy Chairman of the Audit Committee
   - Mariusz Gierczak – Member of the Audit Committee
   - Bartłomiej Nowak – Member of the Audit Committee.

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.

Roman Gabrowski, Member of the Audit Committee, 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).

Mariusz Gierczak, Member of the Audit Committee, is a graduate of the Faculty of Law and Administration of the University of Silesia in Katowice and the Faculty of Marketing and Management of the Częstochowa University of Technology (CUT). Participant of specialist training programmes and courses in the field of labour law.

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 2021, the Audit Committee held ten meetings and passed six resolutions. At three of its meetings, the Audit Committee met with the auditor.

Rules for cooperation with audit firm

Following selection made by the PGNiG Supervisory Board on January 23rd 2020, 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 engagement letter, signed on May 20th 2020, covers the years 2021–2022.

In 2021, the audit firm provided the following permitted non-audit services to PGNiG:

- Review of the quarterly separate and consolidated financial statements for the periods ended March 31st 2021 and September 30th 2021.
- Review of the interim separate and consolidated financial statements for the six months ended June 30th 2021.
- 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 notes subscription agreements and the terms and conditions of such notes – for the 12 months ended December 31st 2020 and June 30th 2021.
- Assessment of the Report on Remuneration of Members of the Management Board and Supervisory Board for 2019–2020

Composition of the Strategy Committee

Composition of the Strategy Committee of the PGNiG Supervisory Board in 2021:

1) from January 1st 2021 to July 9th 2021 (eighth term of office of the Supervisory Board):

- Piotr Sprzączak – Chairman of the Strategy Committee
- Sławomir Borowiec – Member of the Strategy Committee
- Roman Gabrowski – Member of the Strategy Committee

- Mieczysław Kawecki – Member of the Strategy Committee
- Stanisław Sieradzki – Member of the Strategy Committee
- Grzegorz Tchorek – Member of the Strategy Committee.

2) from July 30th 2021 to December 31st 2021 (ninth term of office of the Supervisory Board):
   - Piotr Sprzączak – Chairman of the Strategy Committee
   - Cezary Falkiewicz – Member of the Strategy Committee
   - Roman Gabrowski – Member of the Strategy Committee
   - Tomasz Gabzdyl – Member of the Strategy Committee
   - Mieczysław Kawecki – Member of the Strategy Committee.

The Strategy Committee is composed of at least three members of the Supervisory Board. The Chairman of the Strategy Committee and its other members are appointed by the Supervisory Board from among its members on a rotating basis.

Rules governing the operation of the Strategy Committee and its powers

The Strategy Committee provides support to the Supervisory Board in the performance of its tasks. Meetings of the Audit Committee are held as needed, but at least once every six months. The Strategy Committee submits an annual report on its activities to the Supervisory Board.

The tasks of the Strategy Committee are:

- Giving opinions and recommendations to the Supervisory Board on strategic proposals or information addressed to the Supervisory Board and requiring its approval or opinion, in particular concerning:
  - Strategies for the Company and the PGNiG Group, and long-term strategic plans;
  - Management objectives (MBOs) for members of the Company's Management Board;
  - Business plans, including investment plans;
  - Planned and actual investments and divestments;
  - Other strategic matters;
- Performing any other tasks assigned by the Supervisory Board.

Strategy Committee meetings

In 2021, the Strategy Committee held five meetings.

6.3 Salaries and wages

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 for managers responsible for achieving PGNiG S.A.'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

The remuneration policy for members of the PGNiG Management Board and Supervisory Board was adopted by the PGNiG Annual General Meeting on June 24th 2020. Total remuneration of a member of the Management Board consists of a fixed component in the form of monthly base pay and a variable component representing additional remuneration payable for a given financial year. The monthly amount is determined by the Company's Supervisory Board, with the proviso that the Fixed Remuneration of the President and other members of the Management Board falls within the range of 7 to 15 times the reference salary within the meaning of Art. 1.3.11 of the Remuneration Act. The amount of Variable Remuneration depends on actual delivery of the Management Objectives and does not exceed 100% of the Fixed Remuneration.

Members of the Supervisory Board receive monthly remuneration. The remuneration is calculated as the product of the reference salary within the meaning of Art. 1.3.11 of the Act on Rules of Remunerating Persons Who Direct Certain Companies dated June 9th 2016, and a factor set in a separate General Meeting resolution. The multiplier is 1.7 for the Chairman of the Supervisory Board, 1.6 for the Deputy Chairperson of the Supervisory Board and Secretary of the Supervisory Board, and 1.5 for the other members of the Supervisory Board.

Table 65 Remuneration of members of the management and supervisory bodies of PGNiG in 2021

	January 1st–December 31st 2021			
	Total net remuneration, additional benefits and bonuses paid and due in 2021 for holding key positions at PGNiG	VAT amount	Total remuneration for holding key positions at subordinated entities in 2021, including VAT	Total remuneration in 2021
	PLN '000			
Total remuneration of Management Board members, including:	5,989	1,043	1,248	8,280
Paweł Majewski – President	799	-	371	1,170
Artur Cieślik – Vice President1)	590	-	-	590
Robert Perkowski – Vice President	1,145	262	371	1,778
Arkadiusz Sekściński – Vice President	1,131	259	-	1,390
Przemysław Wacławski – Vice President	1,183	259	506	1,949
Magdalena Zegarska – Vice President	1,141	262	-	1,404
Persons no longer in office as at December 31st 2021:	858	195	-	1,052
Jerzy Kwieciński – President2)	329	75	-	404
Jarosław Wróbel – Vice President3)	529	120	-	648
Total remuneration of Supervisory Board members, including:	541	-	-	541
Cezary Falkiewicz4)	40	-	-	40
Roman Gabrowski	83	-	-	83
Tomasz Gabzdyl4)	40	-	-	40
Mariusz Gierczak4)	38	-	-	38
Mieczysław Kawecki	80	-	-	80
Bartłomiej Nowak	94	-	-	94
Piotr Sprzączak	85	-	-	85
Grzegorz Tchorek	81	-	-	81
Persons no longer in office as at December 31st 2021:	179	-	-	179
Sławomir Borowiec5)	46	-	-	46
Piotr Broda5)	45	-	-	45
Andrzej Gonet5)	45	-	-	45
Stanisław Sieradzki5)	43	-	-	43
Total remuneration of members of the management and supervisory bodies	7,568	1,238	1,248	10,053

1) Serves as of March 16th 2021.
2) Served until October 22nd 2020.
3) Served until March 1st 2021.
4) Serves as of July 9th 2021.
5) Served until July 9th 2021.

Table 66 Remuneration of members of the management and supervisory bodies of PGNiG in 2020

	January 1st–December 31st 2020			
	Total net remuneration, additional benefits and bonuses paid and due in 2020 for holding key positions at PGNiG	VAT amount	Total remuneration for holding key positions at subordinated entities in 2020, including VAT	Total remuneration in 2020
	PLN '000			
Total remuneration of Management Board members, including:	4,842	1,070	398	6,310
Paweł Majewski – President1)	108	-	14	122
Robert Perkowski – Vice President	992	228	258	1,479
Arkadiusz Sekściński – Vice President2)	711	164	-	875
Przemysław Wacławski – Vice President2)	753	164	126	1,042
Jarosław Wróbel – Vice President3)	766	166	-	932
Magdalena Zegarska – Vice President	1,512	348	-	1,860

(in PLN million, unless stated otherwise)

Persons no longer in office as at December 31st 2020:	4,056	932	2,148	7,136
Radosław Bartosik – Vice President4)	383	88	409	880
Łukasz Kroplewski – Vice President5)	770	177	-	947
Jerzy Kwieciński – President3) 6)	694	159	278	1,131
Michał Pietrzyk – Vice President5)	623	142	535	1,300
Maciej Woźniak – Vice President5)	770	177	-	947
Piotr Woźniak – President5)	817	188	926	1,931
Total remuneration of Supervisory Board members, including:	767	-	-	767
Sławomir Borowiec	88	-	-	88
Piotr Broda	84	-	-	84
Roman Gabrowski	82	-	-	82
Andrzej Gonet	82	-	-	82
Mieczysław Kawecki	84	-	-	84
Bartłomiej Nowak	93	-	-	93
Stanisław Sieradzki	82	-	-	82
Piotr Sprzączak	89	-	-	89
Grzegorz Tchorek	83	-	-	83
Total remuneration of management and supervisory personnel	9,666	2,002	2,546	14,213

1) Serves as of November 12th 2020.
2) Serves as of January 15th 2020.
3) Serves as of January 10th 2020.
4) Served until January 16th 2019.
5) Served until January 9th 2020.
6) Served until October 22nd 2020.

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 2021.

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

In order to continuously improve effective risk management, PGNiG S.A. has implemented an integrated approach involving continuous and coordinated management of individual risk categories, taking into account their interrelationships, protection of all PGNiG resources and impact on the implementation of the Strategy. The risk management system is an element of the coordinated cooperation of the other PGNiG management systems, its operation designed to support the achievement of operational objectives of PGNiG's organisational units and objectives defined in the PGNiG Group Strategy.

Figure 10 Approach to risk management

The system covers integrated and coordinated management of individual risk categories at PGNiG, organised into a three lines model. It enables the collection of comprehensive and structured information on risks at PGNiG, the monitoring of risk exposures in terms of PGNiG's ability to meet its operational and strategic objectives, and coordinating the flow of management information. The PGNiG Risk Management Policy and the Procedure for Risk and Opportunity Management in PGNiG's processes have been implemented as part of the system.

In 2021, in line with the Procedure for Risk and Opportunity Management in PGNiG S.A.'s processes, a review was performed of the risks and opportunities inherent in processes carried out by PGNiG's organisational units, as defined in the PGNiG Group's Process Architecture.

Three lines model

Considering the profile and scale of the Company's operations, the risk management system has been based on a three lines model.

Figure 11 Three lines model

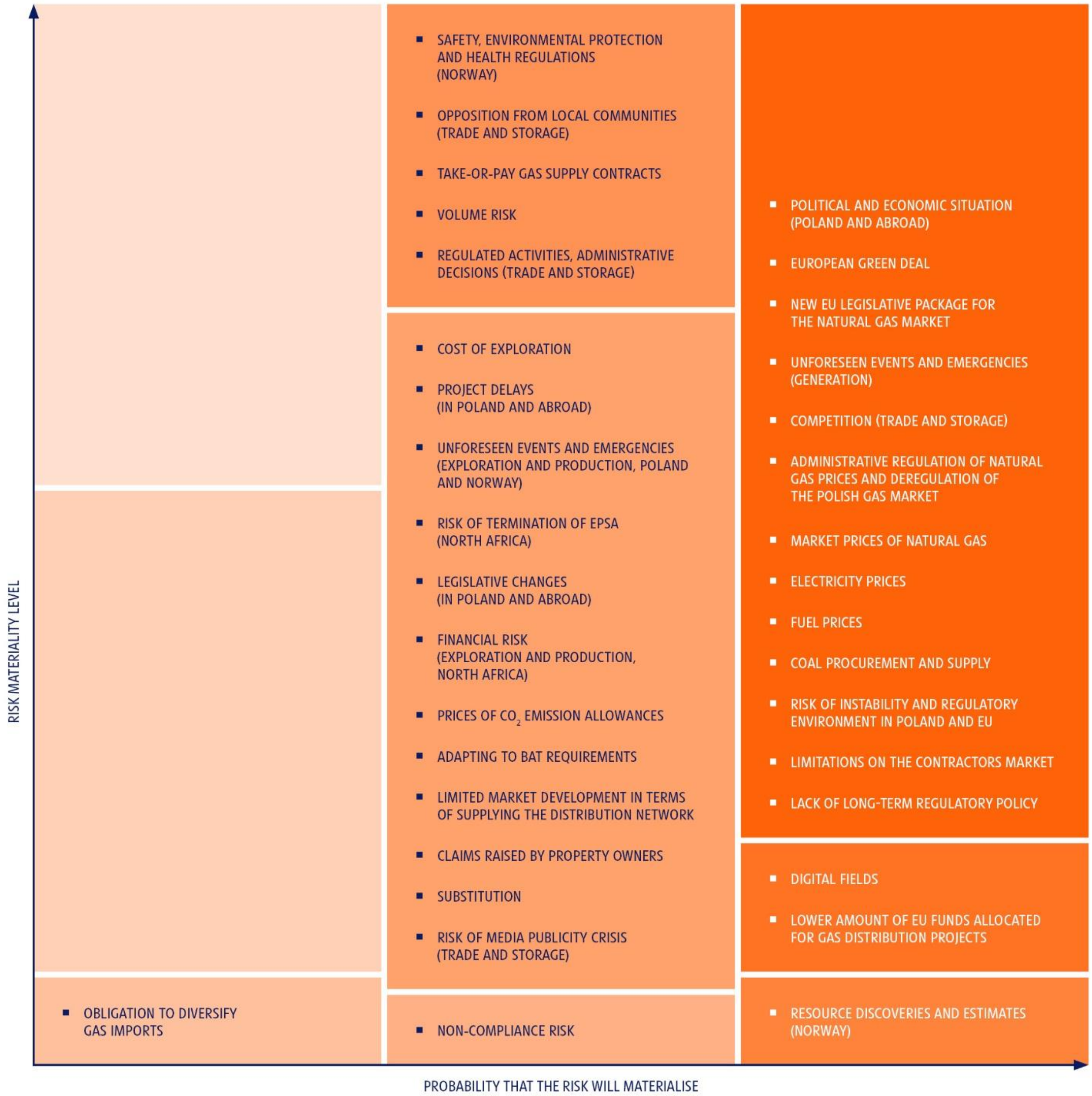
The function of line 1 is performed by all PGNiG business units. The operational mechanisms of day-to-day risk management are built into existing business processes, which are tailored to the nature of operations and extent of potential consequences caused by risks that affect PGNiG's objectives and performance. Measures taken as part of line 1 are to mitigate risks to an acceptable level. Risks are mitigated by designing and implementing appropriate controls, monitoring risk levels and implementing response measures.

The function of line 2 is performed by specialised business units. They provide complementary expertise, support, monitoring and supervision of risk management issues. Measures taken as part of line 2 are designed to monitor and control the solutions applied within line 1, as well as to support the managers of other business units in order to ensure that the deployed controls are correctly designed and effective.

The function of line 3 is performed by the internal audit department, which verifies the adequacy and effectiveness of the entire Risk Management System at PGNiG S.A. The role of line 3 is to independently and objectively check the system's operation, advise the management staff on the optimum and effective risk management and directly report to the Management Board. The function of third parties ensuring effectiveness of the system may be performed by external service providers through external audits, certifications, accreditations, etc.

The overriding role in the three lines model is that of the Management Board, which sets directions for the organisation, defining the Company's vision, mission and values. It delegates responsibilities for achieving the Company's objectives to the management staff and provides the necessary resources. The management staff in turn provides the Management Board with reports on the planned, actual and expected results, as well as reports on corporate governance and risk management.

Figure 12 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 → new risk – no arrow

Table 67 Changes in and impact of material operational risks on the PGNiG Group

Risk	Description
Resource discoveries and estimates Poland ●○○ ●○○ ↘ Norway ●○○ ●●● → Libya ●○○ ●●○ →	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.
Cost of exploration ●●○ ●●○ ↗	Capital intensity of an exploration project depends on prices of energy, materials and cost of services, including transport. 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 costs, the Company seeks new sources of supply, plans supply chains in advance and negotiates contracts.
Project delays In Poland and abroad: ●●○ ●●○ ↘ 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.
Limitations on the contractors market ●●● ●●● ↗	The risk is largely attributable to a limited number of qualified suppliers often providing specialist services and supplies, and to deteriorated competitiveness on the contractor market, an increase in labour costs, prices of materials and services. Another risk factor is the reduced ability to meet customers' needs in a timely manner due to economic developments and forced organisational changes resulting from the COVID-19 pandemic. The risk materialisation may result in delays in the execution of key projects, in particular those related to the purchase of specialist tools and equipment from entities whose plants are located in countries that have suffered significantly from the global pandemic. Another symptom of the risk materialisation may be reduced competitiveness among contractors and suppliers in the market due to reduced capacities or closures of their operations (as they implement the necessary cost cutting measures). 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.
Safety, environmental protection and health regulations In the Exploration and Production segment: Poland ●○○ ●○○ ↘ Norway ●●● ●●○ → In the Trade and Storage segment ●○○ ●○○ ↘	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.
Unforeseen events and emergencies In the Exploration and Production segment Poland:	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. **<u>Natural and epidemiological risks:</u>**

●●○ ●●○ ↗ Norway ●●● ●●○ → Generation ●●● ●●● →	In the countries where PGNiG conducts exploration and production work, natural hazards – such as climate risk, natural catastrophe risk, the occurrence of strong wind, floods, landslides, high temperatures, earthquakes, venomous animals and poisonous plants – may be expected. Such threats may result in delays in or suspension of works, which lifts the costs of remedial measures, posing a huge financial risk to the Company. The possibility of a crisis situation, e.g. a pandemic related to a contagious disease, should also be considered. The actual or possible incidence of a disease, e.g. COVID-19, in employees may lead to limited availability of qualified personnel, elimination of personnel performing works, and subsequent delay in or suspension of the works. The epidemic situation caused by the occurrence of the SARS-CoV-2 virus poses a risk to the health of employees and achievement of the objectives set by PGNiG TERMIKA S.A. Operational business continuity plans have been prepared to prevent, counter and combat COVID-19. A team was appointed to coordinate the Company's operations during the pandemic. A number of preventive measures have been put in place, in particular as regards the organisation of work and implementation of sanitary restrictions.
Risk of termination of EPSA Libya ●●○ ●●○ →	The EPSA stipulates commitments to carry out specific exploration works during a defined period. The occurence of force majeure suspends the lapse of time for the fulfilment of exploration commitments. Referring to political stabilisation, the management of NOC may order the resumption of exploration works and, in the absence of any action taken by the company, may deem it a failure to perform its obligations under the EPSA and terminate the agreement by taking over the rights to the licence and all results of the works and analyses already performed, and call on the guarantee issued by PGNiG S.A. to NOC to secure the performance of works by PGNiG UNA.
Changes in legal regulation In Poland and abroad: ●●○ ●●○ → 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.
Political and economic situation Poland ●●● ●●● Norway ●○○ ●○○ ↘ Libya ●●○ ●●○ ↘	Some countries where the PGNiG Group is conducting exploration and production activities are threatened by military conflicts and terrorist attacks, which may lead to limitation, suspension or even discontinuation of such activities. Some major risks related to acts of war include the possible imposition of embargoes and humanitarian crises. They may affect the continuity of the Company's business, preventing or hindering the achievement of its strategic objectives. Armed conflicts may lead to deficits of natural gas and crude oil on the European market, triggering price shocks. 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 activities 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. **Cultural considerations.** In countries where religious extremism plays a prominent role, it is easier to disrupt exploration and production processes due to religious and cultural differences, which may result in: • delay in/inability to perform PGNiG's works • employee safety hazards; • need to incur increased financial expenditure on multi-level protection; • maintaining good relations with the local community and infrastructure assistance for the local community. In August 2014, the low level of security in Libya brought about the notification of force majeure in the project and suspension of operations, which is currently a key factor preventing the resumption of performance of the exploration commitments. The stabilising political situation in Libya since mid-2020 and the expected parliamentary and presidential elections give hope for the resumption of exploratory works.
Opposition from local communities Exploration & Production segment Poland and other countries: ●●○ ●●○ → In the Trade and Storage segment ●●● ●●○ →	The protests of residents of areas where drilling operations were carried out focus, among other things, on noise emitted by the drilling equipment working around the clock, increased vehicle traffic and the destruction of roads, as well as concerns about environmental pollution (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. **Ownership matters** In agricultural countries, and in particular those poorly developed, an important factor limiting access to exploration sites is the strong attachment to land property owned for many generations.
Financial risk in the Exploration and Production segment: Libya ●●○ ●●○ →	Lack of sufficient resources to complete exploration works and prepare for the launch of production. PGNiG UNA's operations in Libya are financed entirely by the sole Shareholder (PGNiG S.A.). Failure to provide sufficient funds may result in the risk of termination of the EPSA and NOC calling on the guarantee issued by PGNiG S.A.

DIGITAL FIELDS PGNiG Group ●●○ ●●●	The process of digitisation of field data and optimisation of production involves a risk related to the dispersion of E&P data, due mainly to the lack of proper continuity in the collection of such data. This results in the varying quality and format of data, and therefore the need to verify many sources, as well as time- and labour-consuming process of data unification and centralisation. In addition, there is a risk of discontinuation of support for standard E&P licences due to technological developments towards cloud solutions, which may result in a lack of technical support and inability to update the domain programmes for the E&P segment. Another threat is the limited computing capacity required for building models. The limitation is due, among other things, to frequent technology changes, requiring the use of hardware with higher parameters, which may reduce the analytical capacity, extend the time of generating management information and, consequently, halt or delay PGNiG's works.
Competition In the Exploration and Production segment: Norway ●○○●●● → In the Trade and Storage segment Wholesale trade: ●●● ●●● → PGNiG OD: ●●○ ●●○ ↘	In the Exploration and Production 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. As in previous years, competitors seek to increase gas fuel sales by offering competitive prices of the fuel or dual fuel (gas and electricity) bundles. 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. The situation on the domestic market has led to changes in the competitive environment, as a number of smaller sellers have ceased to operate in Poland. On the other hand, the price dynamics may soon create new risks and the possibility of new players entering the Polish market. Particular attention should be paid to the continuing activity of the largest Polish energy companies on the domestic natural gas market.
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 has been disapplied are wholesale and business customers. Currently, sales in Poland to the largest customers are done on market terms, either through POLPX or on the basis of market price indices. Due to the fact that the structure of sales is not perfectly matched by the structure of purchases (e.g. as a result of production from own sources) and that prices in individual markets may vary, there is a risk of inaccurate estimation of income and expenses, which may adversely affect financial performance. 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 in accordance with rules which have been modified in 2021 and 2022. In order to protect households against a surge in natural gas prices, in December 2021 a mechanism was introduced into the Energy Law to spread the rise in gas tariff prices over time (Art. 62f). Further legislative amendments imposing additional obligations and requirements on PGNiG aim at protecting natural gas customers who are particularly exposed to the impact of price rises, extending tariff prices to cover additional customer groups. The new regulations envisage achieving the objective of protecting households and customers providing public services, while introducing compensation for gas sellers to tariff customers.
Take-or-pay gas supply contracts ●●● ●●○ ↗	PGNiG is a party to long-term take-or-pay contracts for gas supply to Poland, and committed to duly discharging 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 price of natural gas ●●● ●●● ↗	Growing costs of gas procurement on the Polish Power Exchange (POLPX). Since the beginning of 2021, natural gas prices have been growing unprecedentedly across Europe. The soaring prices of gas fuel are driven by a combination of macroeconomic and geopolitical factors; therefore, the global market situation has a direct effect on gas prices in Poland. Gas prices on the Polish Power Exchange in Warsaw are correlated with gas prices on West European markets, especially Germany and the Netherlands. The unprecedented surge in gas fuel prices is a global and extremely complex phenomenon. In 2021, the economies of individual countries started to grow dynamically on a rebound after pandemic-related lockdowns, which became a key driver behind the global price growth. This coincided with a very low level of gas storage after the cold winter in late 2020 and early 2021, as well as with insufficient supply of natural gas, mainly due to Russian Gazprom's behaviour. Gazprom, the main gas supplier to Europe, failed to fully utilise the existing technical capacities for gas transit in the western direction and to inject sufficient volumes of gas into its storage facilities in Western Europe ahead of the winter. Cumulation of all these adverse factors has contributed to a record-high price increase in the last 12 months. For PGNiG OD, which sells gas on the retail market, this has translated into higher gas procurement costs. The need to increase selling prices may adversely affect the Company's image and growth prospects of the retail market.
Electricity prices	The volatility of electricity prices is one of the key risks affecting the Company's financial performance. This risk is mitigated by the use of diversified contracts: both SPOTs and forwards to hedge the company's

(in PLN million, unless stated otherwise)

●●● ●●● ↗	projected exposure at a specified rate and time horizon of the hedging arrangements. 2021 was a year of unprecedented price increases: the annual contract for the next calendar year quoted a price above PLN 900/MWh in December 2021. In the next year, the price of electricity will also be subject to significant changes, depending, among other things, on fluctuations in the prices of CO_2 emission allowances, the share of renewable energy in Poland's generation mix and changes in the balance of cross-border electricity exchange. The volatility of electricity prices is also one of the key risks affecting the financial results of the Generation segment. Sales of electricity are governed by rules that limit exposure to the volatility. Any negative impact of lower prices on financial results is limited by matching the sales with purchases of CO_2 emission allowances.
Prices of CO_2 emission allowances ●●○ ●●○ →	The Group purchases CO_2 emission allowances in quantities representing the difference between actual emissions and the emissions covered by free emission allowances it receives. CO_2 emission allowances are purchased in accordance with the Company-set rules, defining the time horizon of purchases made and the rate of hedging the open position. In 2021, the prices of CO_2 emission allowances increased (weighted average price on the ICE and EEX exchanges was EUR 59.41/tonne), to exceed EUR 80/tonne in December 2021. In the following year, the price of EUAs will mainly depend on the share of conventional sources in the staple of electricity generation, which is an effect of the efficiency of renewable energy sources and margins delivered by generation sources based on hard coal, lignite and natural gas.
Fuel prices ●●● ●●● ↗	In the Generation segment, the key fuels used for heat and electricity production are coal, gas and biomass. 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 results.
Coal procurement and supply ●●● ●●● ↗	Coal is purchased by the Company mostly under contracts executed in advance and designed 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. Contracts for the purchase and supply of coal may not be fully performed (as was the case in 2021).
Volume risk ●●● ●●○ →	The volume of sales of cogenerated heat and electricity depends on weather conditions in the heating period. Above-average air temperatures result in lower sales and consequently lead to lower financial results of PGNiG TERMIKA S.A. Due to the volume risk, the Company adjusts its production plans to climate trends.
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 was August 17th 2021 or, where an IED derogation applied to an installation, the end date of the relevant derogation period. An investment plan has been developed for the PGNiG TERMIKA 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 has been completed. Timely completion of investment projects plays a crucial role. Also, the implementation of the BAT Conclusions is monitored on an ongoing basis and any doubts as to their interpretation are clarified.
Limited market development in terms of supplying the distribution network ●●○ ●●○ →	Limitations at the entry points to the distribution system result from constraints of the supply network and 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 as it is no longer possible to finance connection projects other than those covered by existing contracts.
Risk of instability of the regulatory environment in Poland and EU ●●● ●●● →	This risk is associated with the ongoing process of developing long-term sectoral regulations. As regards changes, there have been changes in technical guidelines for buildings (e.g., lowering of the primary energy (PE) limit), dependence on the energy efficiency of equipment and preferences for using renewables. The use of natural gas as a bridge fuel in the process of energy transition and towards climate neutrality is justified. As regards energy generation, changes are already seen in energy savings from energy efficiency improvement projects (e.g. thermo-modernisation of buildings, higher energy class equipment) and synergies with renewables (e.g. solar thermal systems, PV panels, heat pumps). These measures reduce unit demand for energy from end users. If the risk materialises, tariffs may be set at levels that do not secure the expected return on capital invested in the distribution of gas fuels. A measure to prevent the risk from materialising is to seek implementation of legislative changes and a relevant agreement with the 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 this risk include substantial claims raised by property owners regarding fees for occupying their property or limiting their right to use the property, an increase in litigation volume and 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 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 price development on commodity exchanges. Materialisation of the substitution risk may suppress revenue and volume growth, while reducing efficiency of the networks built.
Lower amount of EU funds allocated for financing gas distribution projects ●●○ ●●● →	This risk results from fund allocation priorities set by 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. One preventive mechanism is to promote the Company's needs in institutions responsible for distribution of EU funding and the implemented RTE Rules to assess projects potentially eligible for co-financing.

Limitations on the contractors market ●●● ●●● →	This risk results from an insufficient number of qualified contractors, deteriorated competitiveness in the contractors market, increase in the cost of labour, and limited access to materials and services due to the COVID 19 pandemic. Should this risk materialise, implementation of planned investment processes may be slower than expected.
Lack of long-term regulatory policy ●●● ●●● →	The risk is related to the absence of long-term rules for determining the level of prices and charges in the distribution tariff. If the risk materialises, tariffs may be set at levels that do not secure the expected return on capital invested in the distribution of gas fuels and it may be difficult to obtain approval for each subsequent tariff. A measure to prevent the risk from materialising is to seek implementation of legal changes obliging the President of URE to establish a multi-year tariff regulation model, development of a regulatory-tariff model and a relevant agreement with the URE.
Regulated activities, administrative decisions in the Trade and Storage segment ●●● ●●○ →	The validity of a decision dated May 16th 2012 (as amended) to grant the Company a licence for storing gas fuels in gas storage facilities for the period from June 1st 2012 until May 31st 2022 (the “Licence”) and a decision dated May 22nd 2012 (as amended) to designate the Company as the gas fuel storage system operator (the “Operator Decision”) expires on May 31st 2022. On October 29th 2020, the Company filed a request with the URE to extend the Licence term from June 1st 2022 to May 31st 2042. The administrative proceedings are pending. The request to extend the term of the Operator Decision was also filed by PGNiG S.A., the owner of the storage facilities, in 2020, and the administrative proceedings have not yet been closed.
Risk of media publicity crisis in the Trade and Storage segment ●●○ ●●○ ↘	The Company constantly monitors how its operations are presented in the media, including social media. The operation of the Kosakowo Cavern Underground Gas Storage Facility raises environmental concerns among the local community (an environmental association). Therefore, negative media coverage and complaints from local residents about the CUGSF operation are to be expected.
Risks related to equity investments (ventures) Risk related to investing in growth companies ●●● ●●●	The risk stems from the fact that investees’ ability to deliver performance is highly unpredictable. It should be noted that venture capital investments inherently carry a high degree of risk. This feature of such projects manifests itself throughout the investment period. The risk is managed by inclusion in the investment agreements of risk mitigation mechanisms. However, it is not possible to eliminate the risk completely.
Risk related to industry exposure ●●● ●●●	The Company invests in entities offering solutions for the energy and for the exploration and production sectors. The absence of sectoral diversification is one of the major risk factors for the fund. The Company seeks to diversify its investment portfolio through inclusion of diverse companies from different and uncorrelated sectors. The purpose of such diversification is to reduce the impact of economic fluctuations in different sectors and trends on the value of the portfolio.
Risk related to market environment ●●● ●●●	Given the current situation on the gas market, the Company has identified the risk that its investment activity may be constrained by the availability of funds to be used for such investments. The Company assesses this risk as a temporary one until gas prices stabilise.

Regulatory risks

Table 68 Changes in and impact of material regulatory risks on the PGNiG Group

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 ●●● ●●● →	In 2021, the European Commission unveiled its draft legislation implementing the European Green Deal. The European Commission proposes to significantly cut the 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 ●●●●●● ↗	On December 15th 2021, the European Commission presented legislative proposals to amend the provisions of the Gas Directive 2009/73, the Gas Regulation 715/2009 and the Security of Gas Supply Regulation (Regulation 2017/1938). Proposals concerning tariff discount mechanisms to secure LNG supply and storage facilities, the stockholding obligation and mutual recognition of suppliers in the EU/EEA should be considered as factors of particular risk.
Regulation on methane emissions reduction in the energy sector. ●●● ●●●	The proposal for a regulation of the European Parliament and of the Council on methane emissions reduction in the energy sector [COM(2021) 805], published by the European Commission on December 15th 2021, introduces a number of obligations related to leak detection, quantification and repair (LDAR) and to venting and combustion in flares. Being very stringent, those obligations would require significant financial outlays, reducing the competitiveness of companies, and could be difficult to comply with. Moreover, there are no corresponding gas import requirements because EU regulations do not apply to third country companies. Instead, information obligations have been imposed on gas importers.

Non-compliance risk

Table 69 Changes in 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. Since 2020, the Company has applied the 'PGNiG Compliance Risk Management Procedure (the Compliance Programme)', which formalises the Company's compliance management model. 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 reputational losses, which may also have their financial repercussions, • in the Company's operations, and • by negatively affecting the Company's value for stakeholders, including shareholders. As part of anti-corruption measures, the PGNiG Group has put in place the 'PGNiG Group Anti-Corruption and Misconduct Prevention Policy', and additionally – the 'PGNiG S.A. Anti-Corruption and Gift Procedure', implementing the above policy at PGNiG. The internal regulations referred to in the preceding sentence were adopted in 2021, replacing the internal regulation which had previously governed that area. In addition, the Ethics and Compliance Management System is in place at the PGNiG Group, as a result of which the ethics and compliance areas were integrated into the Compliance Department. In addition, the 'Transparency Policy for Managers' is applied, with the principal objective of eliminating the risk of conflicts of interest and lack of transparency in decision-making processes within the PGNiG Group. The PGNiG Group also follows the PGNiG Group Code of Ethics, which is based on four values: quality, reliability, responsibility and partnership. The 'Procedure for Reporting Cases of Misconduct and Handling the Reports at PGNiG S.A.', as amended in 2021, is also in place, setting out the rules for reporting violations of laws, procedures and ethical standards, as well as the procedure for handling such reports. Pursuant to the above procedure, the Company has both internal and external reporting channels. The external whistleblowing channel has been available from the Company's website since 2020.

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 report

Pursuant to Art. 49b.9 of the Accounting Act of September 29th 1994, the Company announces that the PGNiG Group's non-financial report ("Non-Financial Report") is being published as a separate document forming an integral part of the 2021 consolidated annual report, and will be available at http://www.pgnig.pl.

The Non-Financial Report is prepared in accordance with Art. 49b and Art. 55 of the Accounting Act of September 29th 1994 (Dz. U. of 2019, item 351), which requires public-interest entities to disclose their non-financial data. The Report contains non-financial information on PGNiG S.A. and the PGNiG Group for the period January 1st – December 31st 2021, and covers all subsidiaries included in the consolidated financial statements of the PGNiG Group for 2021.

The information presented in the Non-Financial Report includes descriptions of the PGNiG Group's business model, business and CSR strategies, organisational culture management, as well as data on the PGNiG Group's impacts, broken down into the strategic, economic, environmental, social and ethical areas. The Non-financial Report presents, among other things, the importance of the PGNiG Group's activities for Poland's economy and energy security, the Group's R&D&I projects, engagement with local communities, sponsorship, charity and cultural initiatives, and activities aimed at fostering work ethics at the PGNiG Group.

(in PLN million, unless stated otherwise)

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 2021 included:

- Agreement for the acquisition by PGNiG Upstream Norway AS of control over INEOS E&P Norge AS (for more information, see Section 4.1.2)
- Amendments to the LNG supply contracts concluded with Venture Global Plaquemines LNG, LLC and Venture Global Calcasieu Pass, LLC (for more information, see Section 4.2.2)
- Amendment to the investment agreement on general rules of cooperation in the construction of Ostrołęka C Power Plant (for more information, see Section 4.4.2)

8.1.2 Material related-party transactions

In 2021, PGNiG and its subsidiaries did not enter into any material transactions with related parties other than on arm's length terms. For detailed information on related-party transactions, see Note 8.4 to the consolidated financial statements of the PGNiG Group for 2021.

8.2 Litigation

Table 70 Litigation

Parties to the proceedings	Subject of the dispute	Description
Proceedings with respect to the obligation to sell natural gas through commodity exchange Parties to the proceedings: PGNiG, President of URE	failure to satisfy the exchange sale requirement in 2013 and 2014	On May 25th 2016, the President of URE launched ex officio proceedings to impose a fine on PGNiG S.A. for its failure to meet the exchange sale requirement in 2013. On June 17th 2016, pursuant to Art. 56.6a of the Energy Law, the Company filed a request that the President of URE refrain from imposing 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 costs of the first instance proceedings between the parties. On November 12th 2020, the Court of Appeals in Warsaw dismissed the Company's appeal. The ruling is final. The Company filed both a cassation complaint and a constitutional complaint.
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, but the appeal was dismissed. The Company filed a cassation complaint.

(in PLN million, unless stated otherwise)

NS2 AG derogation proceedings Parties to the proceedings: PGNiG, PST, NS2 AG, BNetzA, Higher Regional Court in Düsseldorf, Federal Court of Justice	derogation from the provisions of the Gas Directive in relation to Nord Stream 2 AG	On January 10th 2020, Nord Stream 2 AG applied to the German regulator BNetzA for derogation (exemption) from the provisions of the Gas Directive (2009/73/EC), as amended in 2019. The German company invoked Article 49a of the Directive despite failing to meet one of its conditions regarding the need for the pipeline to be completed on May 23rd 2019 (the date of entry into force of the amendment). PGNiG S.A. and PST applied on February 19th 2020 to join the proceedings. On March 18th 2020, the German regulator granted the request. On May 15th 2020, the German regulator issued a decision refusing the derogation to Nord Stream 2 AG. Consistent with the position presented by PGNiG S.A. and PST, BNetzA concluded that the pipeline was not completed on May 23rd 2019. On June 15th 2020, Nord Stream 2 AG appealed BNetzA's decision to the Higher Regional Court in Düsseldorf. On July 30th 2020, PGNiG S.A. and PST filed a letter of accession to the case as active participants, and on January 14th 2021 they filed a pleading stating their position on the case. On March 25th 2021, Nord Stream 2 AG submitted a response. On June 14th 2021, PGNiG S.A. and PST submitted a response to that pleading. On June 30th 2021, a hearing was held before the Higher Regional Court of Düsseldorf, which dismissed Nord Stream 2 AG's appeal by its judgment of August 25th 2021. Subsequently, on September 21st 2021, Nord Stream 2 AG filed a cassation complaint with the Federal Court of Justice.
NS2 AG certification proceedings Parties to the proceedings: PGNiG, PST, NS2 AG, BNetzA, German Federal Ministry of Economy	certification of Nord Stream 2 AG as an independent operator	On June 11th 2021, Nord Stream 2 AG applied to the German regulator BNetzA to be certified as an Independent Transmission Operator (ITO) of the Nord Stream 2 pipeline. On September 8th 2021, the application was supplemented, which resulted in the formal initiation of the procedure. On July 30th 2021, PGNiG S.A. and PST filed an application to join the certification procedure. On September 21st 2021, BNetzA agreed that the two companies could join the certification procedure. On October 20th 2021, both companies submitted their position on the case. On November 16th 2021, BNetzA gave notice of suspension of the certification procedure. The reason for the suspension was that the Swiss company Nord Stream 2 AG did not meet the certification criteria as an independent operator at this stage of the procedure. The procedure was suspended and was not resumed until the end of 2021.

(in PLN million, unless stated otherwise)

Proceedings concerning the OPAL pipeline Parties to the proceedings: PGNiG, PST, Opal Gastransport, OAO Gazprom, OOO Gazprom Export, BNetzA, Higher Regional Court of Düsseldorf, European Union Court of Justice	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 are primarily against the administrative settlement between the German regulator, OPAL Gastransport GmbH & Co. KG, OAO Gazprom, OOO Gazprom Export, defining amended conditions of the exemption of the OPAL pipeline from the common gas market regulations (especially with respect to Third Party Access (TPA)). The case is pending; a hearing having been scheduled for May 18th 2022. 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 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 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. An appeal against the judgment of the General Court of the EU was filed by the Federal Republic of Germany. On March 18th 2021, the Advocate General of the CJEU issued an opinion on maintaining the validity of the judgment issued by the General Court of the EU. On July 15th 2021, the Court of Justice of the European Union dismissed the appeal of the Federal Republic of Germany and found that by issuing the decision on the OPAL pipeline the European Commission had violated the principle of energy solidarity. The judgment is final.

8.3 Detailed description of the PGNiG Group's structure and its changes

As at December 31st 2021, the PGNiG Group comprised 39 business entities, including:

- PGNiG as the parent,
- 36 production, trade and service companies and two mutual insurance companies, including:
  - 22 direct subsidiaries of PGNiG,
  - 16 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, 13th Commercial Division of the National Court Register)
NATIONAL COURT REGISTER (KRS) NO.	0000059492
Website	www.pgnig.pl
Investor Relations	ri@pgnig.pl

(in PLN million, unless stated otherwise)

8.3.1 Detailed structure of the PGNiG Group

Table 71 List of the PGNiG Group subsidiaries as at December 31st 2021

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.	5,326,300	5,068,800	95.17%	95.17%
2	EXALO Drilling S.A.	981,500,000	981,500,000	100%	100%
3	GEOFIZYKA Toruń S.A.	75,240,000	75,240,000	100%	100%
4	Geovita S.A.	113,407,782	113,407,782	100%	100%
5	Gas Storage Poland Sp. z o.o.	15,290,000	15,290,000	100%	100%
6	PGNiG Obrót Detaliczny Sp. z o.o.	625,307,815	625,307,815	100%	100%
7	PGNiG Serwis Sp. z o.o.	9,995,000	9,995,000	100%	100%
8	PGNiG Technologie S.A.	272,727,240	272,227,240	100%	100%
9	PGNiG TERMIKA S.A.	1,740,324,950	1,740,324,950	100%	100%
10	Polska Spółka Gazownictwa Sp. z o.o.	10,488,917,050	10,488,917,050	100%	100%
11	PGNiG Supply & Trading GmbH	10,000,000 EUR	10,000,000 EUR	100%	100%
12	PGNiG Upstream Norway AS	1,115,000,000 NOK	1,115,000,000 NOK	100%	100%
13	PGNiG Upstream North Africa B.V.	20,000 EUR	20,000 EUR	100%	100%
14	GAS-TRADING S.A.	2,975,000	1,291,350	43.41%	79.58%2)
15	PGNiG Ventures Sp. z o.o.	22,590,000	22,590,000	100%	100%
16	PGNiG SPV 6 Sp. z o.o.	51,381,000	51,381,000	100%	100%
17	PGNiG SPV 7 Sp. z o.o.	1,000,000	1,000,000	100%	100%
18	Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych	40,000,000	40,000,000	100%	100%
19	LLC Karpatgazvydobuvannya	1,000 UAH	850 UAH	85%	85%
20	PGNiG SPV 8 Sp. z o.o.	1,500,000	1,500,000	100%	100%
21	PGNiG SPV 9 Sp. z o.o.	250,000	250,000	100%	100%
22	PGNiG SPV 10 Sp. z o.o.	250,000	250,000	100%	100%
	Subsidiaries – second tier				
23	PGNiG TERMIKA Energetyka Przemysłowa S.A.	370,836,300	370,836,300	-	100%8)
24	GAZ Sp. z o.o.	300,000	300,000	-	100%3)
25	PSG Inwestycje Sp. z o.o.	81,131,000	81,131,000	-	100%3)
26	Oil Tech International F.Z.E.	20,000 USD	20,000 USD	-	100%4)
27	EXALO DRILLING UKRAINE LLC	20,000 EUR	20,000 EUR	-	100%4)
28	PST Europe Sales GmbH in liquidation	1,000,000 EUR	1,000,000 EUR	-	100%5)
29	Ośrodek Badawczo-Rozwojowy Górnictwa Surowców Chemicznych CHEMKOP Sp. z o.o.	2,831,150	2,565,350	-	90.61%6)
30	Gas-Trading Podkarpacie Sp. z o.o.	6,670,627	5,257,524	-	78.82%7)
31	Polskie Centrum Brokerskie Sp. z o.o.	100,000	100,000		100%1)
32	PGNiG TERMIKA Energetyka Rozproszona Sp. z o.o.	13,550,000	13,550,000		100%8)
33	PGNiG TERMIKA Energetyka Przemyśl sp. z o.o.	6,000,000	6,000,000	-	100%8)
34	Zakład Gospodarki Mieszkaniowej Sp. z o.o.	1,806,500	1,806,500	-	100%4)
35	Exalo Diament Sp. z o.o. w organizacji (in the process of formation)	5,000	5,000	-	100%4)
36	Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych na Życie	25,000,000	25,000,000	100%	100%11)
37	PGNiG Supply&Trading Polska Sp. z o.o. w organizacji (in the process of formation)	50,000	50,000	100%	100%12)
	Subsidiaries – third tier				
38	XOOL GmbH in liquidation	500,000 EUR	500,000 EUR	-	100%9)
39	PGNiG TERMIKA Energetyka Przemysłowa - Technika Sp. z o.o.	200,000	200,000	-	100%10)

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 interest held indirectly through GAS TRADING S.A.
8) PGNiG's interest held indirectly through PGNiG TERMIKA S.A.
9) PGNiG's interest held indirectly through PGNiG Supply & Trading GmbH and PST Europe Sales GmbH in liquidation.
10) PGNiG's interest held indirectly through PGNiG TERMIKA S.A. and PGNiG TERMIKA Energetyka Przemysłowa S.A.
11) PGNIG's interest held indirectly through Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych.
12) PGNiG's interest held indirectly through PGNiG Supply & Trading GmbH (99%) and PGNiG SPV 6 Sp. z o.o. (1%)

(in PLN million, unless stated otherwise)

8.3.2 Other ownership interests and organisational links

Table 72 List of the PGNiG Group jointly controlled entities and associates as at December 31st 2021

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)
	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	11,146,800 UAH	4,055,205.84 UAH	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)]
9	Enelion Sp. z o.o.	13,200	2,250	-	17.05%[6)]
10	ICsec SA	161,876	20,000	-	12.36%[6)]
	Jointly controlled entities and associates– third and fourth tier				
11	SYNERCOM USŁUGI WSPÓLNE sp. z o.o.	10,835,000	2,213,591	-	20.43%[4)]
12	Gardia Broker Sp. z o.o.	55,000	11,236.5	-	20.43%[5)]
13	ICaudit Sp. z o.o.	22,500	2,779.91	-	12.36%[7)]
14	ICcert Sp. z o.o.	35,000	4,324.30	-	12.36%[7)]
15	ICdiode Sp. z o.o.	22,500	2,779.91	-	12.36%[7)]

1) PGNiG's direct interest is 48.00%, with an indirect 3.18% interest held through GAS-TRADING S.A.
2) PGNiG S.A.'s interest held indirectly through PGNiG TERMIKA S.A.
3) PGNiG S.A.'s interest held indirectly through PGNiG Technologie S.A.
4) PGNiG S.A.'s interest held indirectly through PGNiG TERMIKA S.A. and Polska Grupa Górnicza S.A.
5) PGNiG S.A.'s interest held indirectly through PGNiG TERMIKA S.A., Polska Grupa Górnicza S.A. and Śląskie Centrum Usług Wspólnych Sp. z o.o.
6) PGNiG's interest held indirectly through PGNiG Ventures Sp. z o.o.
7) PGNiG's interest held indirectly through PGNiG Ventures Sp. z o.o. and ICsec SA.

Equity investments outside the group of related entities

In 2021, the PGNiG Group made no material equity investments outside the group of related entities. As at the end of 2021, the total par value of PGNiG's equity interests held outside the group of related entities was PLN 85.7m. At year-end 2021, 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 114.3m.

8.3.3 Changes in the PGNiG Group structure

Table 73 Changes in the PGNiG Group shareholding structure in 2021

Type of change/transaction	Date	% Voting interest after the change/transaction
Share capital increase		
PGNiG Ventures Sp. z o.o.	January 13th 2021	100.00%
PGNiG Ventures Sp. z o.o.	April 29th 2021	100.00%
PGNiG TERMIKA Energetyka Przemyśl sp. z o.o.	May 21st 2021	100.00%
PGNiG Ventures Sp. z o.o.	June 1st 2021	100.00%
PGNiG Upstream Norway AS	June 7th 2021	100.00%
Polskie Centrum Brokerskie Sp. z o.o.	June 11th 2021	100.00%
Company formation		
Entry of PGNiG TERMIKA Energetyka Przemyśl Sp. z o.o. in the National Court Register	March 2nd 2021	100.00%
Acquisition of shares/accession to the company		
By PGNiG Ventures Sp. z o.o. in Enelion Sp. z o.o.	April 9th 2021	7.51%
By PGNiG Ventures Sp z o.o. in ICsec S.A.	May 11th 2021	6.58%
By PGNiG Ventures Sp. z o.o. and ICsec S.A. in ICaudit Sp. z o.o.	May 11th 2021	6.58%
By PGNiG Ventures Sp. z o.o. and ICsec S.A. in ICcert Sp. z o.o.	May 11th 2021	6.58%
By PGNiG Ventures Sp. z o.o. and ICsec S.A. in ICdiode Sp. z o.o.	May 11th 2021	6.58%
Change of company name		
From SEJ-SERWIS Sp. z o.o. to PGNiG TERMIKA Energetyka Przemysłowa - Technika Sp. z o.o.	April 1st 2021	100.00%
From PGNiG Serwis Doradztwo Ubezpieczeniowe Sp. z o.o. to Polskie Centrum Brokerskie Sp. z o.o.	June 11th 2021	100.00%
Other changes		
Termination of legal existence of PST Verwaltungs GmbH as a result of merger with PST Europe Sales GmbH	January 8th 2021	100.00%
CIFL Sp. z o.o. w likwidacji (in liquidation), finally liquidated and deleted from the National Court Register	February 19th 2021	100.00%

(in PLN million, unless stated otherwise)

8.4 PGNiG treasury shares and shares in PGNiG Group companies held by members of the management and supervisory bodies

Table 74 PGNiG shares held by members of the management and supervisory bodies as at December 31st 2021

Full name	Position	Number of shares/voting rights as at December 31st 2020	Par value of shares (PLN)	Number of shares/voting rights as at December 31st 2021	Par value of shares (PLN)
Mieczysław Kawecki	Member of the Supervisory Board	9,500	9,500	9,500	9,500

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 2021, 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 2021, 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.

By December 31st 2021, 728,293,842 PGNiG shares, representing 12.60% of the share capital and total voting rights in the Company, had been distributed among 59,256 of the 61,516 eligible employees.

8.6 Events subsequent to the reporting date

January 2022

January 5th – Execution of a credit facility agreement with Societe Generale SA Oddział w Polsce for a total amount of PLN 750m for a period of up to nine months

January 14th – PAO Gazprom and OOO Gazprom Export submit a call for arbitration before the Arbitration Court of Stockholm concerning a change in the price terms of gas supplied under the Yamal contract

February 2022

February 2nd – Gazprom's call for arbitration concerning EuRoPol GAZ

February 11th – PGNiG's response to PAO Gazprom and OOO Gazprom Export's call for arbitration before the Arbitration Court of Stockholm concerning a change in the price terms of gas supplied under the Yamal contract

February 23rd – Execution of credit facility agreements with a syndicate of Bank of China Limited and Bank of China (Europe) S.A. and Deutsche Bank Polska S.A. and Credit Agricole Bank Polska S.A. for a total amount of PLN 1.8bn

February 28th – Execution of an amendment to the settlement agreement between Elektrociepłownia Stalowa Wola S.A. and Abener Energia S.A

March 2022

March 2nd – PGNiG's response to Gazprom's call for arbitration concerning EuRoPol GAZ

March 4th – PGNiG's intention to enter into an agreement entrusting the maintenance of emergency stocks of natural gas to the Government Agency of Strategic Reserves

March 7th – Receipt of the first tranche of compensation of PLN 1.255bn due to PGNiG Obrót Detaliczny from the Price Difference Payment Fund

March 8th – Satisfaction of conditions precedent to the settlement agreement between Elektrociepłownia Stalowa Wola S.A. and Abener Energia S.A.

March 9th – Dismissal of Gazprom's complaint for reversal of the final award issued by the Court of Arbitration on March 30th 2020.

March 16th – Conditional decision by Polish antitrust authority regarding concentration between PGNiG and PKN ORLEN

March 18th – Execution of agreement on maintaining emergency gas stocks with Government Agency for Strategic Reserves

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 S.A. as the parent and the subsidiaries
CLPB	PGNiG Central Measurement and Testing Laboratory Branch
Stalowa Wola CHP plant	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 w upadłości (in liquidation in bankruptcy)
Geofizyka Toruń	GEOFIZYKA Toruń Sp. z o.o.
GEOVITA	GEOVITA S.A.
GSP	Gas Storage Poland Sp. z o.o.
OGiE	Geology and Hydrocarbon Production Branch of PGNiG
OOH	Wholesale Trading Branch of PGNiG
PGG	Polska Grupa Górnicza S.A.
PGNiG OD	PGNiG Obrót Detaliczny Sp. z o.o.
PGNiG Serwis	PGNiG Serwis 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.
PGNIG Ventures	PGNiG Ventures Sp z o.o.
Polski Gaz TUW	Polski Gaz Towarzystwo Ubezpieczeń Wzajemnych
PSG	Polska Spółka Gazownictwa Sp. z o.o.
PST	PGNiG Supply & Trading 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.)
ICE	Intercontinental Exchange – energy and commodity exchange
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
OPEC	Organization of the Petroleum Exporting Countries
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;
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
KGZ	gas production facilities
CGSF	cavern gas storage facility
KRNiGZ	Oil and gas production facilities
MTTS	Multiple Truck-to-Ship, a multiplying technology, increasing bunkering volume and speed
EGM	Extraordinary General Meeting (of a joint stock company)
EGM	Extraordinary General Meeting (of a limited liability company)
UGSF	underground gas storage facility
GM	General Meeting of Shareholders (of a joint stock company)
GM	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.*

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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 Group and PGNiG S.A. and the gives a fair view of the Company's and the Group's condition and includes a description of key threats and risks.

PGNiG S.A. Management Board:

President of the Management Board	Paweł Majewski	*Signed with qualified electronic signature*
Vice President of the Management Board	Artur Cieślik	*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	Magdalena Zegarska	*Signed with qualified electronic signature*

Warsaw, March 22nd 2022