TGE

ANNUAL REPORT 2018

INTRODUCTION

TGE ROLE

REGULATORY ENVIRONMENT

OFFER

CSR

PLANS FOR 2019

INTRODUCTION

Dear All

On the eve of the 20th anniversary of TGE operation on the Polish and foreign markets, I would like to summarise another year of our operation. In numerous contexts, 2018 was the best year in TGE's history. When sharing our most important achievements and changes introduced in response to market expectations, I am presenting, in fact, the description or the road we have travelled together to create one of the most liquid markets in our region.

Undoubtedly, 2018 was a year of records. We achieved the highest electric energy trading level in history, exceeding the 2015 volume - the previous record-holding year - by 21% as well as the highest trading volume in natural gas. Despite the decrease in generation of energy from renewable sources in Poland, we also noted an increase in property rights trading volume.

Thus, the bar is set high for 2019. Similarly to 2018 and previous years, we will be your partner in everyday work and take actions with the view to promoting exchange trading.

At the end of last year, we decided to implement two projects within the liquidity improvement programme. The first one relates to a new market animation model. The other one, i.e. a pilot programme to be implemented by the end of June 2019, relates to decreasing the differences between prices of the purchase and sales bids made for electric energy instruments on the derivatives market.

Energy markets are dynamic, and dynamics means change. Every day, our team acts to ensure rapid adjustment to new legal requirements, in a manner least interfering with your business. In December 2018, we applied to the Financial Supervision Authority for a licence to manage an Organised Trading Facility (OTF). This action was taken in relation to the MiFID II Directive implemented in the Polish legal system. We expect to be granted the licence in the autumn of this year. The OTF status will enable us to run our activity in line with the new regulations, simultaneously maintaining our current processes, in participation of the IRGiT (Commodity Clearing House), as far as guarantees and settlements are concerned.

At the end of last year, the Polish Parliament passed a bill increasing the obligation for exchange listing level up to 100%. The statutory duty will be discharged by our Members on the TGE trading floor on the basis of mutual trust.

In 2018, the Polish market experienced a considerable increase in electric energy prices. It resulted in enforcing the bill of January 2019 stating that prices for end customers as of 30 June 2018 are the maximum prices for 2019. The bill does not concern the wholesale market directly. We hope that its enforcement method (not known on the day of report publication) will not exert a considerable impact on Polish Power Exchange trading. On an ongoing basis, we will inform you about all aspects important for the exchange activity as well as changes resulting from this regulation.

The energy market is still evolving, and this trend persists. The Polish Power Exchange will definitely transform along with it. At the beginning of the next year of our activity, we have defined clear goals. Apart from the-above mentioned changes resulting in liquidity improvement, we intend to meet the objectives defined in the GPW Capital Group strategy. Moreover, we intend to continue enabling our market to remain highly transparent, through our information websites and services, and cooperation with international organisations with the view to building a common energy market.

This was the best year in the Polish Power Exchange's history, which would not have been possible without your involvement. Thank you for co-creating the exchange market. I hope to summarise 2019 with informing you about even better results.

Yours sincerely,

TGE ROLE IN ENERGY SECTOR

ELECTRICITY

- increase by 102.5% (year-to-year)
- participation, as a member, in the Intra-Day Market project in the XBID model
- development of the “Maker- Taker” liquidity enhancement Programme
- mechanisms for market risk mitigation
- new offer for animators

NATURAL GAS

- increase by 3.4% (year-to-year)
- mechanisms for market risk mitigation
- nitrogen-rich natural gas market launch
- new offer for animators

PROPERTY RIGHTS

- increase by 0.4% (year-to-year)

GUARANTEES OF ORIGIN

- increase by 561.2% (year-to-year)

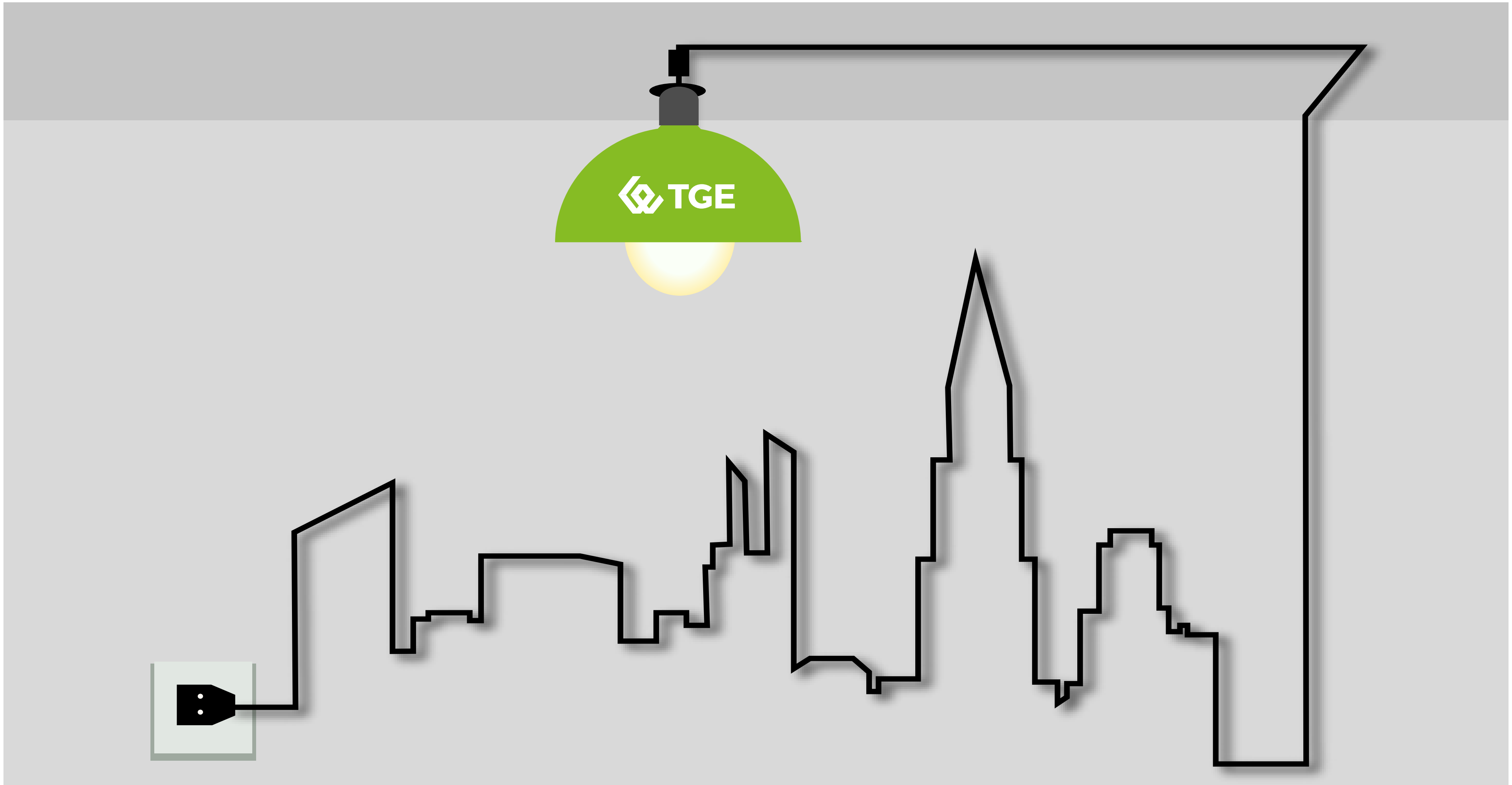
INFORMATION POLICY

- extension of Exchange Information Platform (GPI), in particular with the RSS channel

TGE IN NEW REGULATORY ENVIRONMENT

- transposition of MiFID II Directive into national law
- introduction of 100% commitment for electric energy
- capacity market launch in Poland

The Polish Power Exchange was established in December 1999, and its operating activity commenced in 2000. Thus, in 2020, we will celebrate its 20th anniversary. This is why we would like to recollect the events that have shaped the Exchange as one of the key players on the Polish energy market and the largest energy exchange in the region. With a view to ensuring high trading liquidity and a comprehensive offer, we have been acting towards creating a broad assortment adjustable to current market expectations. The faith put in us by our Members is reflected in the scale of trading achieved in 2018.



1999 2005 2010 2015 2020

1999
Creation of the Exchange
For 19 years, we have been co-creating the electricity market

2000
Launching the Day-Ahead Market for electric energy
In 2018, we achieved the highest energy trading volume on the spot market

2003
Obtaining permission to operate a commodity exchange
For 15 years, we have been operating on the basis of the KNF (Polish Financial Supervision Authority)

2005
Launching the Property Rights Market and Certificate of Origin Register for electricity generated from RES
We launched Poland's first market for RES property right trading

2006
Launching the spot market for CO_2 emission trading allowances
By enhancing our offer, we facilitated CO_2 emission allowance trading

2007
Launching the Property Rights Market and Certificate of Origin Register for electric energy generated from co-generation
We are developing the property rights market

2008
Launching the Commodity Derivatives Market for electric energy
In comparison with 2017, in 2018, we observed a twofold increase in volume, the highest in the RTTe's (Commodity Derivatives Market) history

2012
Creation of Gas Exchange
Launching the Futures Market and Day-Ahead Market for natural gas

2014
Launching the Exchange Information Platform and Intra-Day Market for gas
We extended TGE's offer and provide up-to-date information on managed markets

2015
Obtaining the Nominated Electricity Market Operators (NEMO) status in Poland
We enable our members to participate in the European electricity market

2017
Launching the X–Stream Trading and SAPRI Trade brokers' application
We continuously implement new technological solutions

2018
Launching the nitrogen-rich natural gas spot market
The TGE offer was complemented with the nitrogen-rich natural gas market.

Source: own compilation

EXCHANGE TRADING

- electricity
- natural gas
- property rights
- CO_2 emission allowances

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- Intra-Day Market
- Day-Ahead Market
- Commodity Derivatives Market

PARTICIPATION IN SUPPORT SYSTEMS FOR RENEWABLE ENERGY SOURCES

- Certificate of Origin Register
- Guarantee of Origin Register

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- RES
- co-generation
- agricultural bio-gas
- energy efficiency

COMMUNICATION ACTIVITIES

- access to current and archive session data
- Kurier TGE
- Exchange Information Platform

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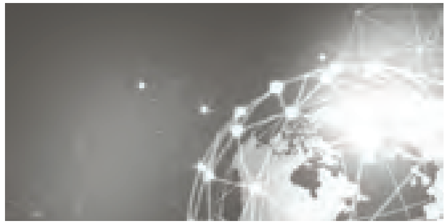
- data
- reports
- analytics
- real-time information



INTERNATIONAL COOPERATION

- membership in associations
- cooperation for market integration

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- co-creation of energy markets
- participation in integrated energy markets

Presently, the TGE Capital Group comprises three entities: Polish Power Exchange, Infoengine and Warsaw Commodity Clearing House. Our companies provide comprehensive services for current and prospective TGE Members. Since 2012, we have been part of the Warsaw Stock Exchange Capital Group, which has enabled us to benefit from the experience of the largest stock exchange in Central and Eastern Europe which trades on one of the most dynamically developing capital markets in Europe. The commodity market generates over 40% of GPW (Warsaw Stock Exchange) revenues. Its development is one of the pillars of the Group's development strategy. The factors which contribute to this development include a broad offer presented by TGE and its subsidiaries which provide comprehensive services for current members "under one roof" and transparency for perspective customers.

TGE CAPITAL GROUP
comprehensive customer service offered by our companies

TGE

- trading in energy products and property rights
- managing Certificate of Origin and Guarantee of Origin Registers
- managing communication policy within the Exchange Information Platform

IRGiT

- transaction settlement and accounting
- risk management
- guaranteed transaction safety

INFO ENGINE

- independent energy market Operator
- entity responsible for trade balancing
- strategic and operating advisory services for trading companies, consumers and public institutions

PIOTR ZAWISTOWSKI

President of the Management Board

Has been operating in the energy industry since 2000. Since 2008, he has worked as the Portfolio Management Department Director in TAURON Polska Energia S.A., participating in numerous key projects including: management of operations related to developing the TAURON Group's business model and integrations with GZE (Vatenfall) Group's company in the trading area. From May 2014 to December 2015, he worked as the President of the Management Board of TAURON Obsługa Klienta sp. z o.o. From December 2015 to March 2017, he held the position of the Deputy President for Customer Service and Trade in TAURON Polska Energia S.A., being responsible for development of the TAURON Group's offer for electric energy and gas. In 2016-2017, he held the position of the President of the Managing Board of the Association of Energy Trading, was a member of the Managing Board of the Polish Electricity Association, and a member of the Supervisory Board of the Polish Power Exchange. In October 2017, he became the President of the Management Board of TGE.

In 2002, Piotr Zawistowski graduated from the Wrocław University of Economics with an M.A. degree in company management. In 2007, he graduated from a sales management post-graduate course at WSB University in Wrocław.

PIOTR LISTWOŃ

Vice President of the Management Board

Piotr Listwoń has professional experience in such areas as: trading, settlements on commodity derivatives markets, financial instrument markets as well as the settlement of transactions with market coupling, PCR. He started working for the TGE Capital Group in 2008. In 2010-2014, he held the position of the Deputy Director of the Settlement and Accounting Department in Izba Rozliczeniowa Giełd Towarowych S.A. (Clearing House). Since 2014, he has worked as the Department Director, managing activities connected with implementing a new financial settlement model based on Clearing House's cooperation with Krajowa Izba Rozliczeniowa S.A. and the largest Polish banks while dealing with payments resulting from transactions settled. In 2013-2018, he held the position of the International Cooperation Development Director for IRGiT. In 2018, he took the position of the Vice President of the Management Board, being responsible for TGE operational activity.

Piotr Listwoń graduated from the Strategic Management Department of the POU/Oxford Brookes University with an MBA degree.

DR PAWEŁ OSTROWSKI

Vice President of the Management Board

Paweł Ostrowski has over 15 years of experience in operation on the capital market. He has worked for such institutions as PKO Bank Polski S.A., Societe Generale, Deutsche Bank Polska S.A. and BNP Paribas Polska S.A. Since 2007, he has held the position of the Sales Director in the Treasury Department of PKO BP Bank Polski S.A. He specialises in sales of treasury products and instruments securing commodity and interest rate risks. He has participated in projects related to implementing the MiFID I package and the merger with Nordea Bank Polska S.A. He has been a member of the of the Management Board of TGE since November 2016.

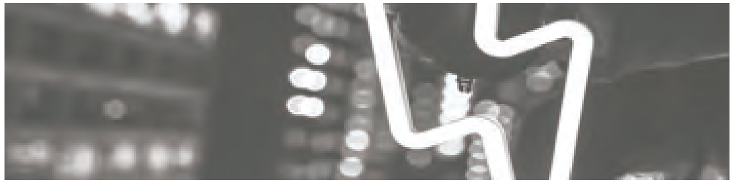
Paweł Ostrowski graduated from the SGH Warsaw School of Economics where he obtained a Ph.D. degree. He also graduated from the MBA Programme of the University of Illinois at Urbana – Champaign and Management Department of the University of Warsaw. He also has a post-graduate degree in capital markets, obtained at the Law and Administration Department of the University of Warsaw.

The objective of the Polish Power Exchange is to actively participate in energy product trading, and to provide its Members and markets with a high degree of transparency. Our friendly communication policy was continued in 2018. We added an RSS communication channel to the Exchange Information Platform established in 2014 in order to provide instant access to market-relevant information.

GPI (Exchange Information Platform) is a key communication initiative providing up-to-date energy and coal market data. Site visitors are able to familiarise themselves with data relating to the Polish electricity market and REMIT data. Such a direct RSS communication channel enables our Members and entities indirectly participating in the exchange market to make fully informed decisions.

Our subscribers were provided with daily issues of the Kurier TGE publication informing them about the previous day's session results. Our sites provided free-of-charge current and archive session results relating to each managed market. Moreover, at the end of each month, reports summarising listings and presenting market trends from the previous 12 months were provided.

TGE MULTI-DIMENSIONAL COMMUNICATION POLICY IN 2018



POLISH POWER EXCHANGE

information on current and archive session results

monthly market summaries

daily issues of Kurier TGE

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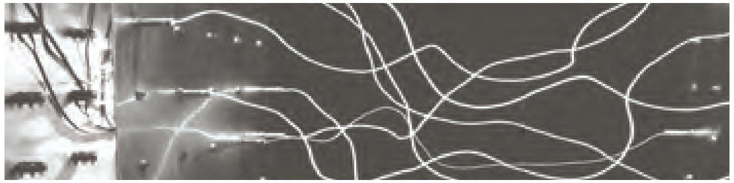
providing stakeholders with access
to full information and market analyses



EXCHANGE INFORMATION PLATFORM

current information on events in the electric energy industry

information on generation and inter-system exchange

presentation of coal price indices

RSS channel

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collecting current information on energy systems

providing coal market information

Source: own compilation

The Polish Power Exchange runs a two-plane activity on the European market comprising integration and international cooperation. The objective also includes shaping the energy product trading environment so that energy products are most friendly for our Members and contribute to enhancing liquidity on the Polish trading floor.

PRICE COUPLING OF REGIONS PCR

A project standardising IT solutions for the European electric energy Day-Ahead Market by development of the common transaction algorithm (EUPHEMIA) as well as a communication and data exchange system (PCR Matcher and Broker [PMB]) used to calculate electric energy prices in Europe. The PCR algorithm is currently used across practically the entire EU. Since October 2015, TGE has been a fully-fledged member of the PCR and co-owner of the project, with such exchanges as Nord Pool, Epex Spot, GME, OMiE, OTE and HENEX.

MULTI-REGIONAL COUPLING MRC

A pan-European project for operating integration of electric energy spot markets; the largest and most liquid European market encompassing 90% of energy demand.
In July 2015, TGE became a fully-fledged member of the MRC market by signing the Day Ahead Operations Agreement (DAOA) currently ensuring cooperation of 14 energy exchanges and 27 transmission system operators. Since 2010, TGE has been an exchange serviced on the MRC market. However, since 14 November 2017, it has been an active and independent MRC market operator, via Swe-Pol Link with Sweden and Lit-Pol Link with Lithuania.

CORE FB MC

The project includes Central European markets and should ensure integration of the Central and Central-Eastern European (CORE) regional market with MRC, in the 4th quarter of 2020. Within its scope, operators are to design algorithms for cross-border energy transmission capability using the flow-based allocation methodology, considered as an optimum approach by OSP.
In parallel to the CORE, in December 2018, the regional regulators accepted implementation of a project ensuring an earlier launch of the cross-border Day Ahead Market within the borders of Germany, Poland, the Czech Republic, Slovakia, Hungary and Romania, using a simplified NTC/ATC methodology for transmission capability determination. This undertaking should open the Polish western and southern borders for the cross-border exchange market in the second half of 2020.

XBID i LIP

The European electricity market in the XBID model was launched in June 2018, in Western and Northern Europe, for intra-day electric energy trading. TGE has been participating in the project since July 2018, when accessions to agreements were signed. TGE also cooperates with stakeholders from neighbouring markets, e.g. by acceding to the Local Implementation Project – LIP 16 and LIP 15, which will technically enable TGE to join the XBID market in the second half of 2019. In order to implement LIP 15 and LIP 16, it is necessary to implement the local LTS software operating with the XBID system.

Association of Power Exchanges
APEx

The international association of power exchanges, APEx, promotes practices aimed at creating competitive energy markets and exchanging experiences gained on global markets.

Association of Europen Energy Exhanges
EUROPEX

The association of European energy exchanges, whose objective is to promote competitive energy markets in the participation of energy exchanges, supports liberalisation processes and participation in energy market integration.

Association of Futures Markets
AFM

An international organisation of commodity and financial exchanges. The organisation promotes new products on derivatives markets, and has become a hub for the exchange of ideas among entities trading on these markets. TGE is a founding member of AFM.

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- co-creation of global exchange markets, taking into account Polish entities' interests
- implementing best market practices
- promoting liberalisation for the benefit for entities operating on competitive energy markets

TGE

REGULATORY ENVIRONMENT

For the Polish Power Exchange, 2018 was another year with legal changes and adjustments to applicable regulations. Our team has worked and will work towards adjusting to legal regulations and informing our Members about their impact. Our overriding objective is to ensure that legal changes have the least possible impact on relationships with TGE. Similarly to previous years, in 2018, we observed parallel changes in European and Polish law.

Implementation of EC Regulation No. 2015/1222

In June 2018, TGE became a part of the Intra-Day Market in the XBID model. The project was considered to be an instrument for uniform coupling of intra-day markets in EU and Norway. It ensures optimum usage of cross-border generation assets, with particular attention paid to variable power of renewable energy sources. The first deliveries to the newly created market took place on 13 June 2018. The system integrates markets of the following countries: Austria, Belgium, Denmark, Estonia, Finland, France, Spain, Holland, Lithuania, Latvia, Germany, Norway, Portugal and Sweden. The Polish Power Exchange will join the coupled market during the further stage of the integrations process, in the 4th quarter of 2019.

Implementation of the CACM (Capacity Allocation and Congestion Management) Regulatio

The Polish Power Exchange gained Nominated Electricity Market Operators (NEMO) status in 2015. Presently, preparations for its operation in this role are coming to a successful end. TGE will operate as NEMO, in parallel with the EPEX Spot and NordPool exchanges.

General Data Protection Regulation (GDPR)

On 25 May 2018, the GDPR Regulation came into force, amending previously applicable personal data protection regulations. The new regulation included companies collecting and processing personal data. The regulation’s impact on TGE has demonstrated itself mostly in requirements relating to membership documentation. Due to the fact that we process personal data belonging to our employees, Members and RRM platform users necessary to compete agreements and settlements, we have adapted our processes to the regulatory requirements. The GPW Group appointed a common Data Protection Inspector, and applicable coordinators operate in subsidiaries.

In 2018, Poland underwent considerable regulatory changes in the energy sector. At the beginning of the year, the Act on the capacity market came into force. In April, the MiFID II Directive was implemented in Polish law and, in the final quarter of the year, the exchange commitment for the electric energy market was raised to 100% and regulations freezing the electric energy prices for end consumers for 2019 were put into force. So far, the Act has not been ratified by the European Commission.

Act on amending the Excise Tax Act and on amending certain other Acts

From January to December 2018, the electric energy prices on the Polish market increased by 58%[1]. In December, the Act was enforced resulting in freezing prices for end consumers at the level as of 30 June 2018. The Act is to apply retroactively with effect from the beginning of 2019. No solutions for financing the difference of the electric energy purchase price on the wholesale market were known on this report publication date. TGE does not anticipate any direct impact of the Act on exchange trading, however, the regulations result in uncertainty concerning the future. In the meaning of the Act, prices for end consumers are frozen only in 2019.

Energy Law Act amendment - increasing the exchange commitment on the electric energy market

The amendment to the Energy Law Act implemented at the end of 2018 enforced the obligation to sell 100% of generated energy on the regulated market. This obligation excludes electric energy generated from renewable energy sources, energy generated from small generation sources and energy generated in efficient co-generation[2]. We understand the increase in the exchange commitment from 15% to 30% in 2018 and, next, to 100%, as trust expressed by the legislator to the Polish Power Exchange as a platform in which the liberal energy market in Poland is shaped. The decision will result in increasing market liquidity and consolidating prices on TGE as reference prices.

MIFID II – implementation in Polish law

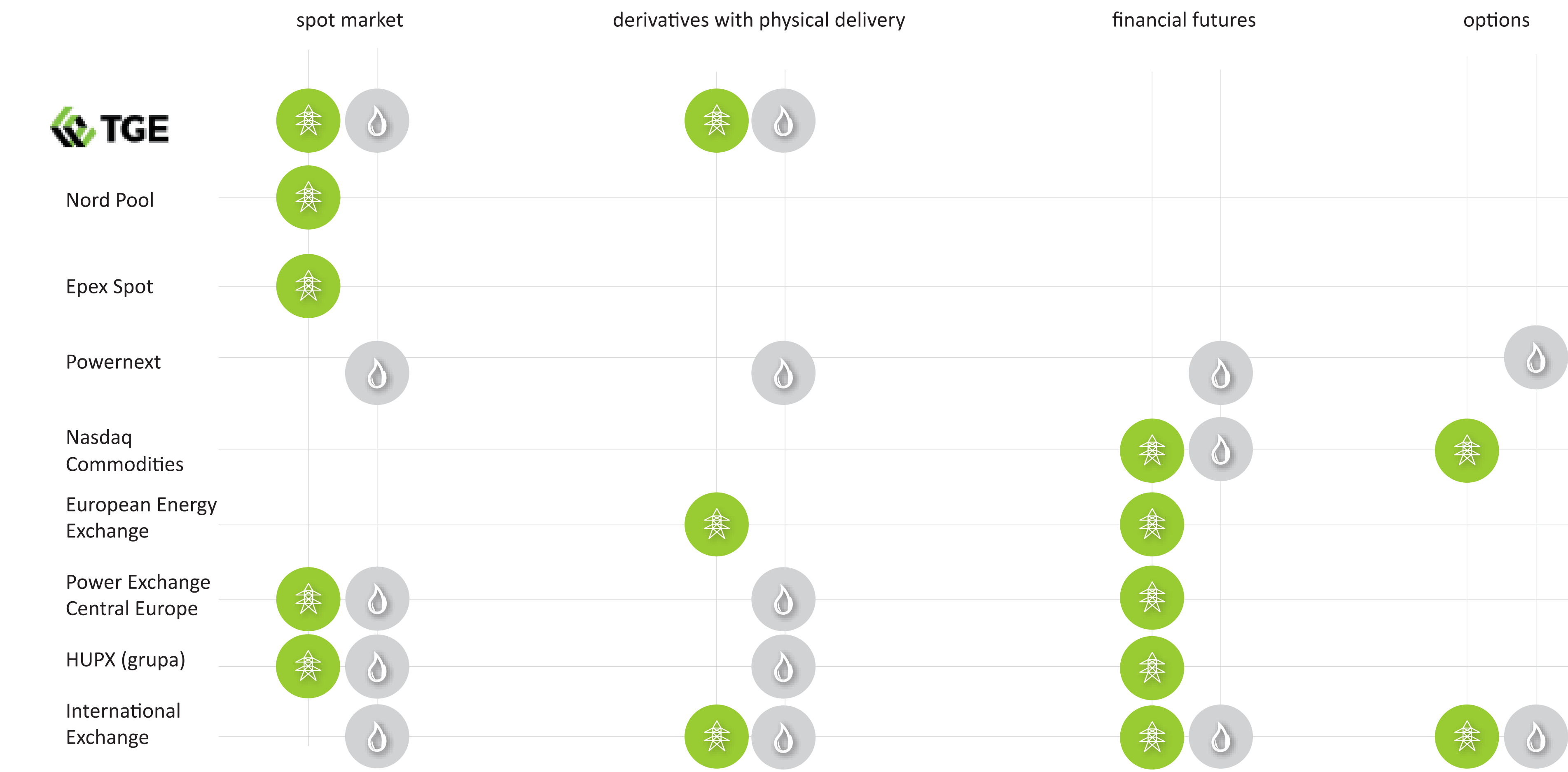
In April 2018, an EU regulation in the form of the MiFID II Directive was implemented into Polish law, which influences the operation of the commodity derivatives markets run by TGE. In December 2018, the Polish Power Exchange applied to the Financial Supervision Authority for a licence to manage an Organised Trading Facility (OTF). Transactions will be settled by IRGiT using the presently functioning safety measures. This solution will not result in increasing costs related to exchange trading. We expect to be awarded with OTF status in autumn 2019.

1 Base contract price increase for 2019
2 The Act also excludes auxiliary power consumption of power engineering companies, sales via direct lines, and the energy used by operators to fulfil their statutory obligations. The Act also provides for the possibility of releasing from this obligation energy from selected generation units that commenced generation after 1 July 2017.

TGE OFFER

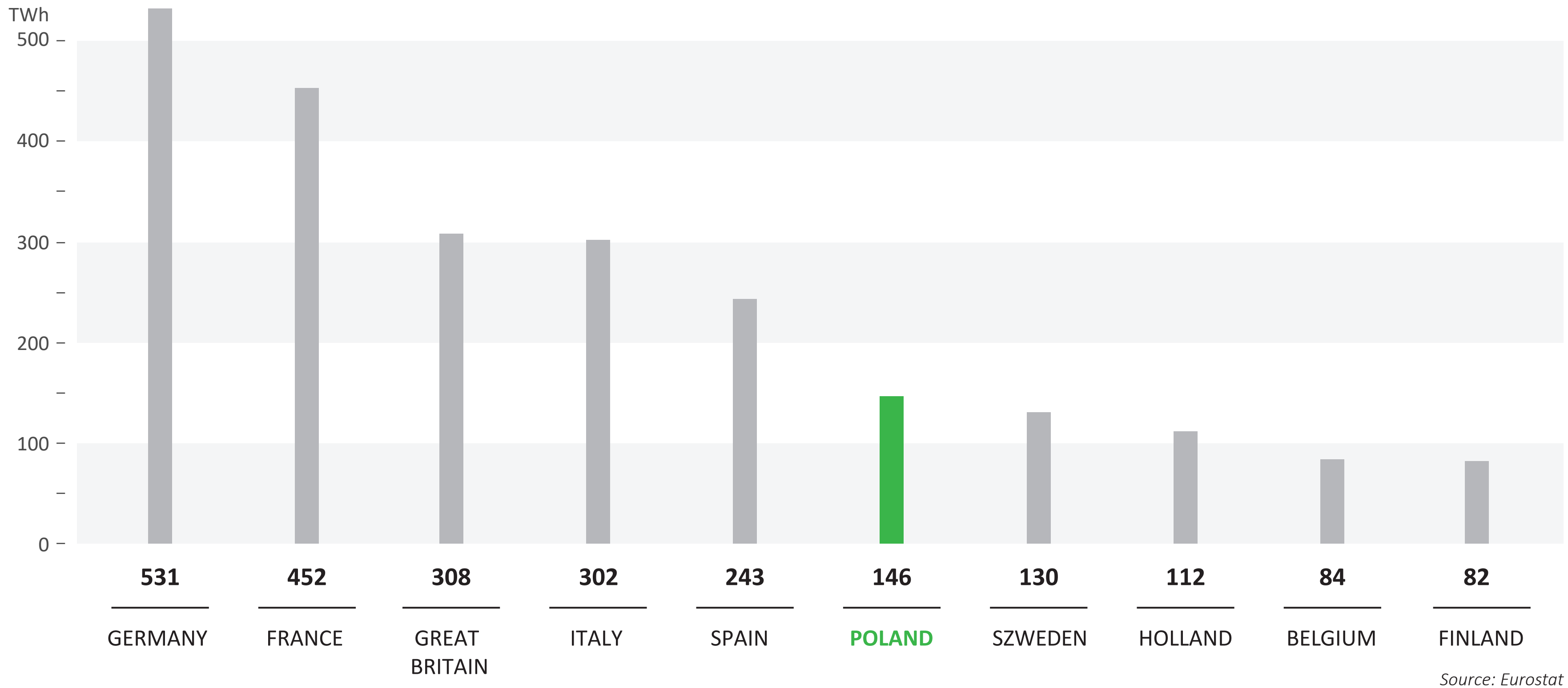
Nowadays, the Polish Power Exchange provides a comprehensive offer for its Members on the market. The palette of products encompasses markets for electric energy, natural gas, property rights and CO_2 emissions trading allowances. In 2018, we extended our offer with high-nitrogen natural gas on the spot market. We were also included in the group of countries launching the European Intra-Day Market in the XBID model. In response to our Partners' needs, we not only extend our offer, but also modified our existing products. Last year, we introduced changes on the Gas Intra-Day Market by replacing hourly products with daily products.

As a consequence of our product policy, we became a natural partner on the regional energy market.



Poland is the sixth largest electric energy consumer in the European Union and the largest consumer among Member States from the Central and Eastern Europe region. International connections with the German market, i.e. the largest electric energy market in Europe, and with the liquid Scandinavian market, Lithuanian, Czech and Slovakian markets as well as the large Ukrainian market, position Poland as a key country in the region, and the Polish Power Exchange as a strategic partner. For the last 19 years, we have been playing a key role in creating the electric energy trading processes.

ELECTRIC ENERGY CONSUMPTION ON THE 10 LARGEST ENERGY MARKETS IN 2017

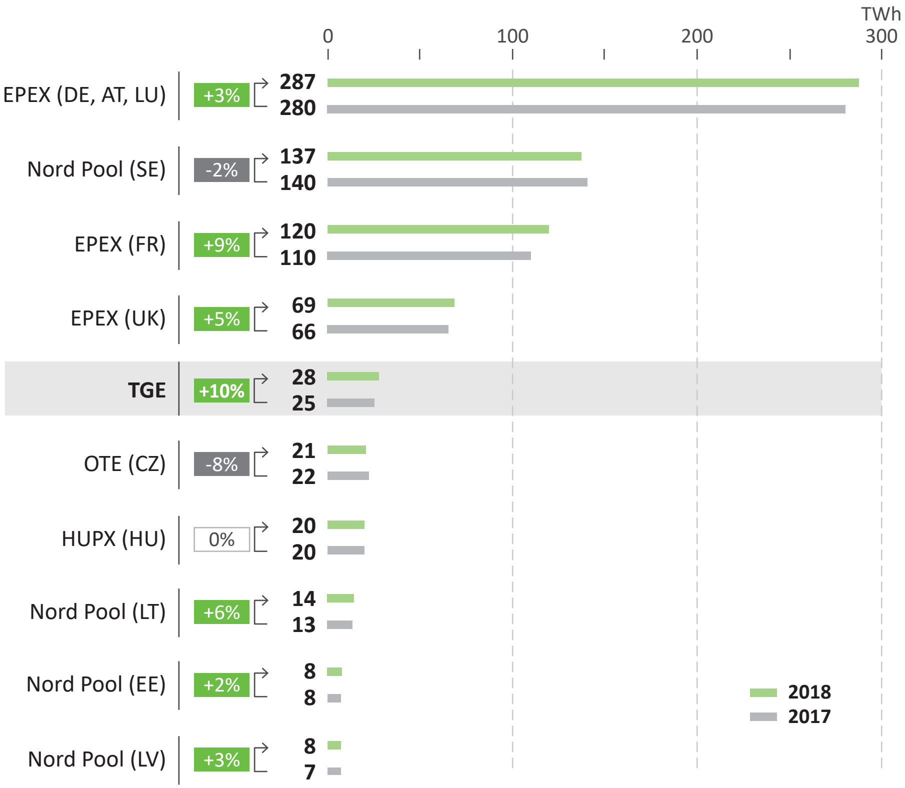


Source: Eurostat

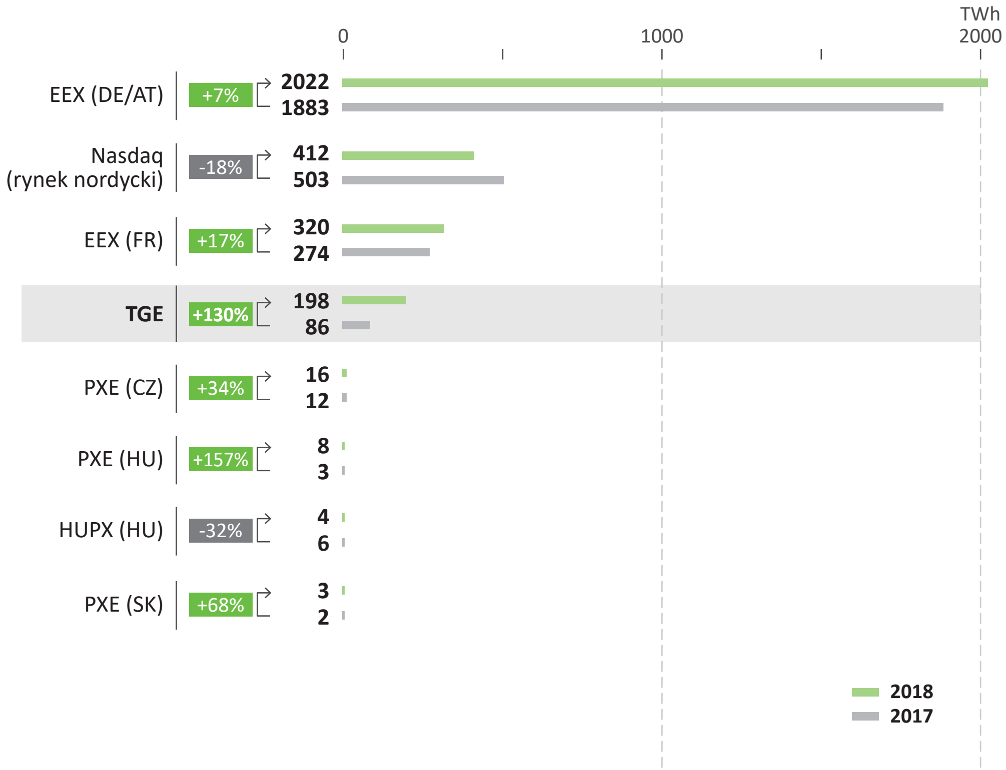
In comparison with other European energy exchanges, in 2018, two aspects differentiated the Polish Power Exchange. It recorded the highest growth volumes in relation to its high base from 2017. The specificity of the Polish market consists of the large share of commodity derivatives markets, also maintained in 2018.

In 2018, the trading volume on the exchange in Poland amounted to 145% of energy transmitted to the grid, which brings Poland closer to most developed EU countries and considerably exceeds the liquidity of markets in the region. The Polish Power Exchange has become a tried-and-tested partner on the European electricity market. Moreover, in the framework of their constant drive to create a fully competitive market, Polish legislators have decided that, in order to ensure equal conditions of access to its resources, the entire trading will take place on a regulated market in the coming years, which is presently represented in Poland only by TGE. We perceive this decision as expression of trust observed also in relation to our Members, on a daily basis. The new regulation will enable us to extend our operations, enhancing our regional leadership position.

ELECTRIC ENERGY TRADING VOLUME ON SELECTED SPOT MARKETS IN EUROPE



ELECTRIC ENERGY TRADING VOLUME ON SELECTED COMMODITY DERIVATIVES MARKETS IN EUROPE



Source: exchanges

The structure of TGE products is composed in a manner ensuring short-term adjustment of supply and demand and long-term planning of sales or consumption for end consumers. The number of periods on the commodity derivatives markets protects the interests of both purchasers and sellers. The activity of both parties results in a degree of liquidity exceeding domestic production by 45%[1]. The spot market offer includes hourly, block and weekend products. Clients are able to purchase electric energy in base, peak and off-peak contracts. The commodity derivatives market contains weekly, quarterly and annual products. All electric energy products listed on the Polish Power Exchange include physical delivery.

1 Energy transferred to grid

TGE OFFER ON THE ELECTRICITY MARKET

INTRA-DAY MARKET	DAY-AHEAD MARKET				COMMODITY DERIVATIVES MARKET			
HOURLY	RDN	DAM	BLOCK INSTRUMENTS	WEEKEND INSTRUMENTS	WEEKLY PRODUCTS	MONTHLY PRODUCTS	QUARTERLY PRODUCTS	ANNUAL PRODUCTS
	HOURLY		BASE, PEAK5, OFFPEAK		6 PERIODS	9 PERIODS	6 PERIODS	3 PERIODS
					BASE, PEAK5, OFFPEAK			

BENEFITS FOR MEMBERS AND MARKET

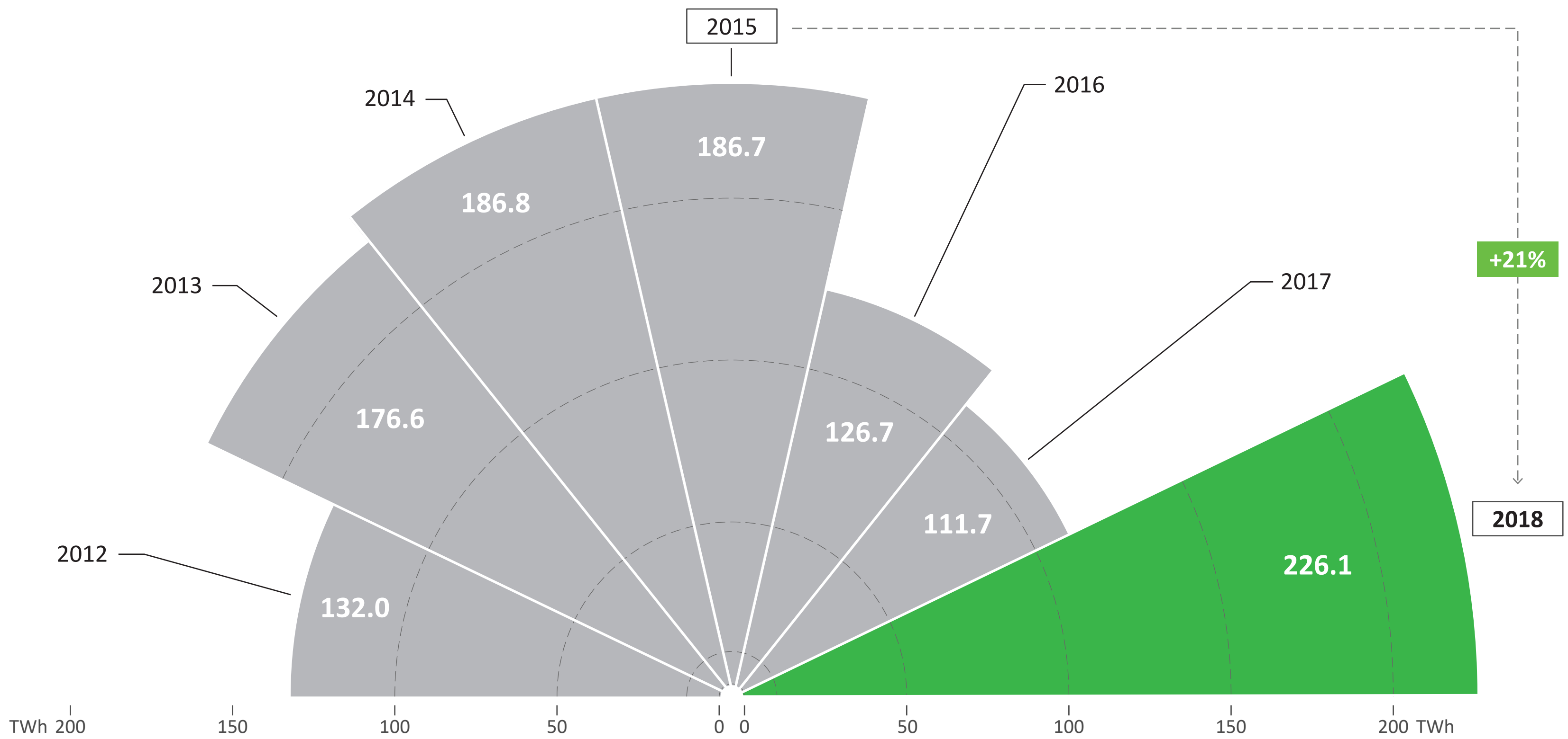
INTRA-DAY MARKET	DAY-AHEAD MARKET	COMMODITY DERIVATIVES MARKET
item adjustment	initial balancing	item collateralising
balancing	investment signal	long-term expenditure planning
	electric energy price estimate for balancing purposes	possibility to offer constant prices

Source: own compilation

The position of the Polish Power Exchange on the electricity market has been built for years, so that it could achieve the highest trading volume in its history in 2018.

After the drops experienced in 2016-2017, our Members decided to purchase over 226 TWh of electric energy. This volume exceed the so-far highest 2015 volume by 21%.

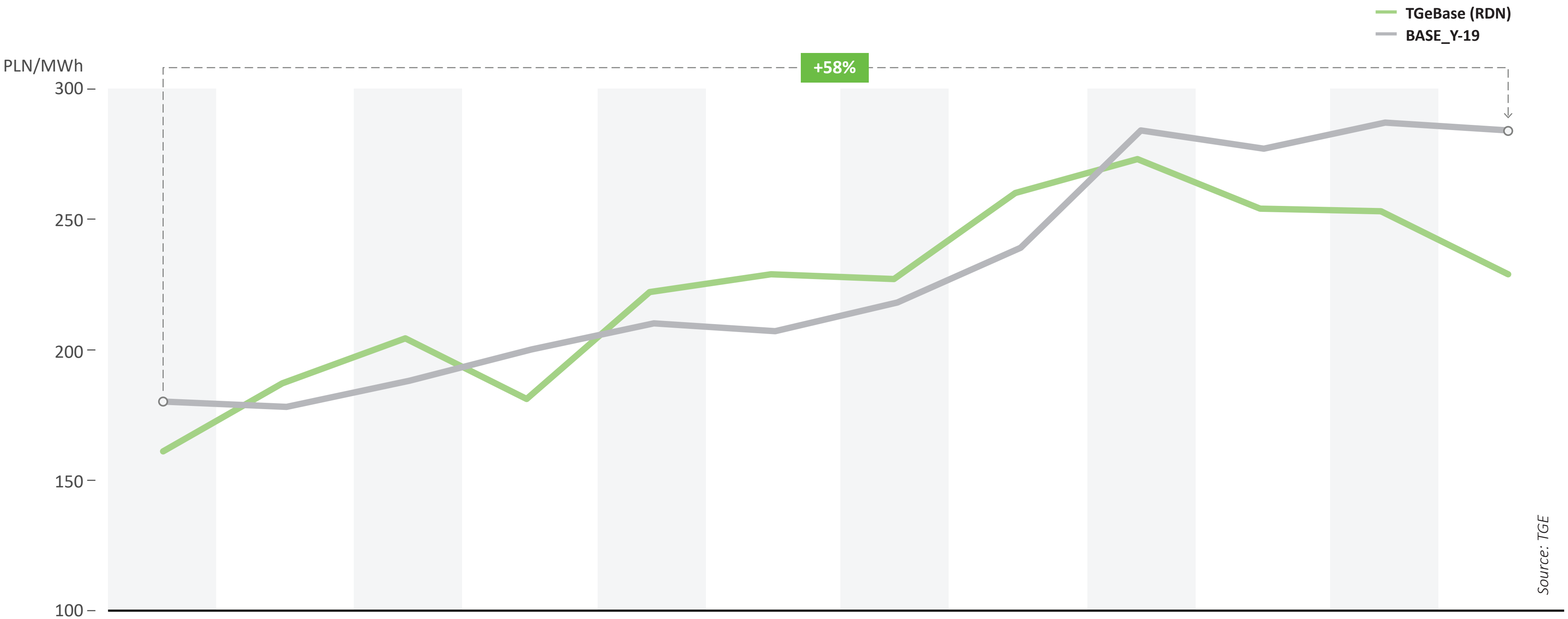
ELECTRICITY TRADING ON TGE IN 2012-2018



Source: TGE

In 2018, a considerable increase in electric energy prices on the Polish Power Exchange was recorded. In December 2018, the average monthly price on the commodity derivatives market (base contract for 2019 – BASE_Y-19) was 58% higher than in January. Price changes on the wholesale market resulted in passing an Act capping the maximum price for end consumers, and a programme for subsidising the differences in prices on the wholesale market and in trading.

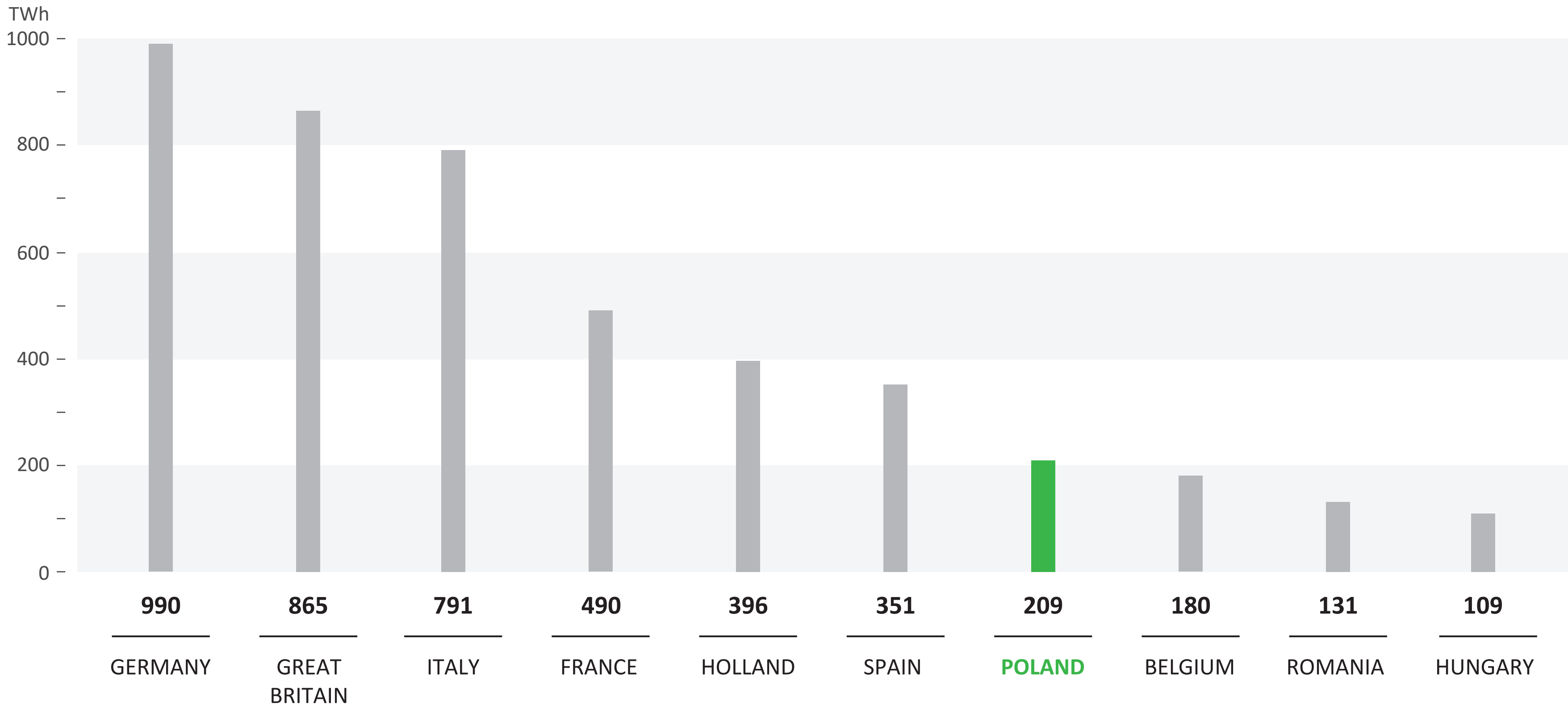
AVERAGE MONTHLY ELECTRIC ENERGY PRICES ON THE SPOT AND COMMODITY DERIVATIVES MARKET



	01/18	02/18	03/18	04/18	05/18	06/18	07/18	08/18	09/18	10/18	11/18	12/18
TGeBase (RDN)	161	187	205	181	222	229	227	260	273	254	253	229
BASE_Y-19	180	178	188	200	210	207	218	239	284	277	287	284

Similarly to electric energy, the Polish natural gas market is presently one of the largest markets in the European Union. According to the domestic consumption scale, Poland is in the seventh place. In contrast to the majority of EU countries, the level of import dependency in Poland is much lower, and the current and planned investment projects facilitate the diversification of natural gas import sources. The Polish natural gas market is connected, via gas pipelines, with the German, Czech, Belarussian and Ukrainian markets. However, this list of countries can be complemented with any country having access to LNG infrastructure. The LNG terminal in Świnoujście is the "window to the world" of the Polish gas system.

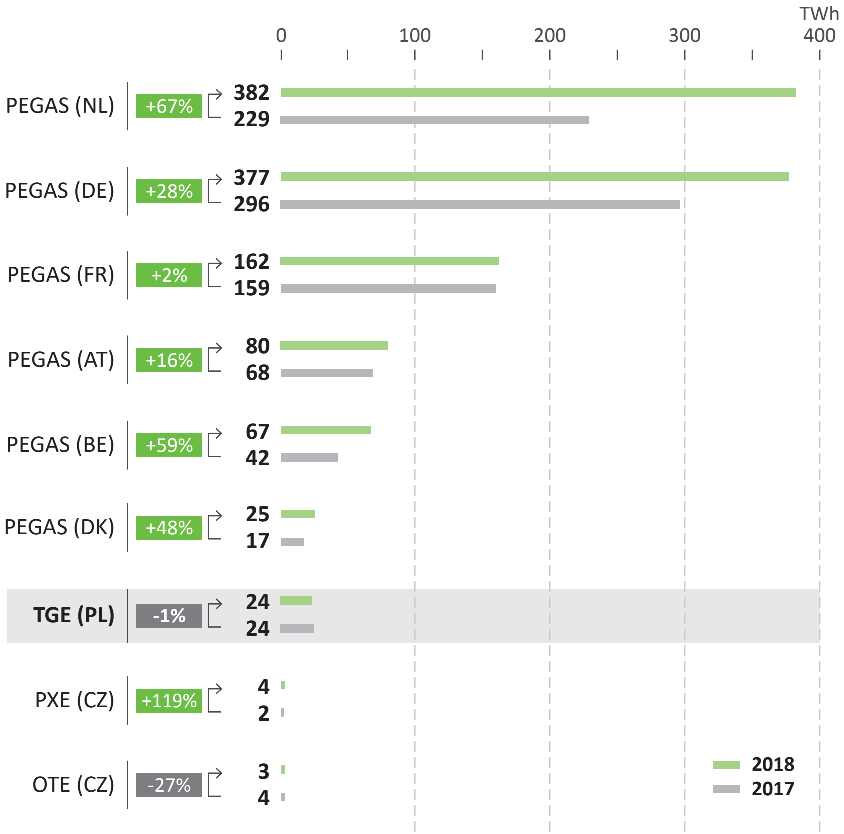
NATURAL GAS CONSUMPTION ON THE 10 LARGEST ENERGY MARKETS IN 2017



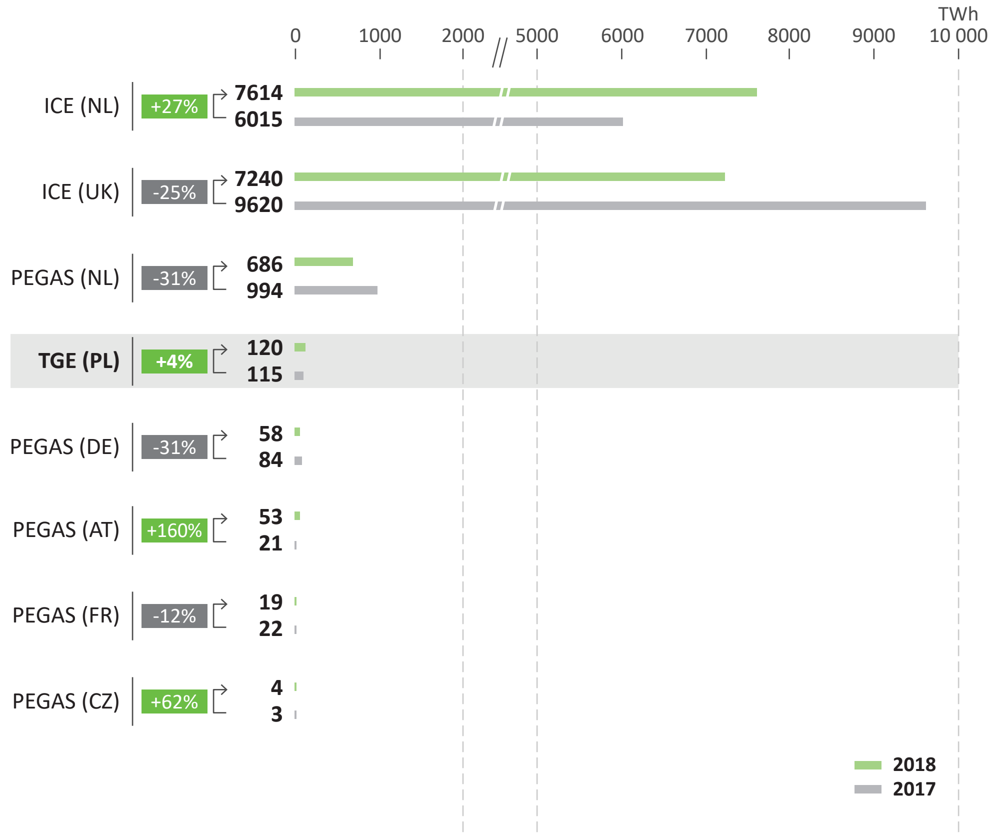
Source: BP Statistical Review, URE

The characteristics of the European natural gas markets vary. The Polish spot market is relatively small, and most trading takes place on the commodity derivatives market. Due to the above, the volume of natural gas trading on the commodity derivatives market is higher than on the German or French markets. The highest traditional trading volumes are recorded in the Dutch and British markets.

NATURAL GAS TRADING VOLUME ON SELECTED SPOT MARKETS IN EUROPE



NATURAL GAS TRADING VOLUME ON SELECTED COMMODITY DERIVATIVES MARKETS IN EUROPE



Source: exchanges

The trading in Poland includes methane-rich natural gas and high-nitrogen natural gas. For the last five years, the Polish Power Exchange has provided its Members with an opportunity to trade in natural gas on commodity derivatives and spot markets. Such factors as active participation in market liberalisation processes, continuous extension of the offer and trust have resulted in creating in Poland the largest natural gas trading platform in the region. In 2018, in response to market expectations, we extended our offer with high-nitrogen natural gas. While addressing an 8.1 TWh volume market, we may state that our trading platform is used by all domestic consumers. On the spot market, we currently offer base and weekend products as well as a product dedicated to natural gas, in the Gas Transfer Pipeline system. On the commodity derivatives market, we offer weekly, monthly, quarterly, seasonal and annual base products, including physical delivery.

METHANE-RICH AND HIGH-NITROGEN NATURAL GAS				METHANE-RICH NATURAL GAS				
INTRA-DAY GAS MARKET	**DAY-AHEAD GAS MARKET**			**COMMODITY DERIVATIVES GAS MARKET**				
HOURLY	**BASE**	**SGT BASE**	**WEEKEND**	**WEEKLY PRODUCTS**	**MONTHLY PRODUCTS**	**QUARTERLY PRODUCTS**	**SEASONAL PRODUCTS**	**ANNUAL PRODUCTS**
				4 PERIODS	3 PERIODS	4 PERIODS	3 PERIODS	2 PERIODS
				BASE				

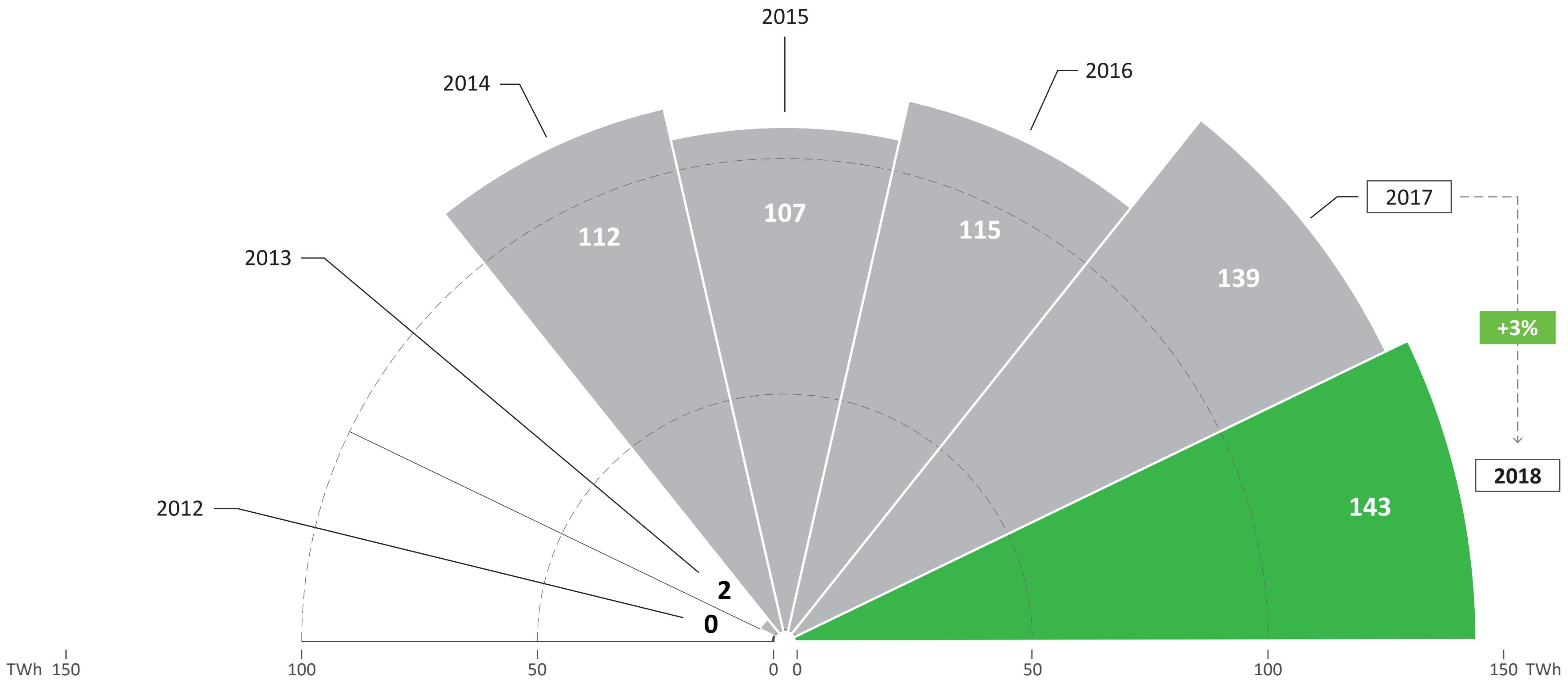
BENEFITS FOR MEMBERS AND THE MARKET

INTRA-DAY GAS MARKET	DAY-AHEAD GAS MARKET	COMMODITY DERIVATIVES GAS MARKET
including high-nitrogen natural gas as an exchange product		taking into account the variability of natural gas demand in individual seasons
item adjustment	initial balancing	long-term expenditure planning
balancing	adjusting purchases to consumption variations on the basis of precise forecasts	possibility to offer constant prices
	price signal for commodity derivatives markets	

Source: own compilation

The natural gas market on the Polish Power Exchange is young in comparison with the electric energy market. We recorded minimum trading volumes in 2012-2013. Starting from 2014, the trading volume exceeded the domestic gas consumption volume by 50%. Similarly to electric energy, 2018 was a record year. The trading volume, amounting to 143 TWh, exceeded the so-far highest volume recorded in 2017 by 3%.

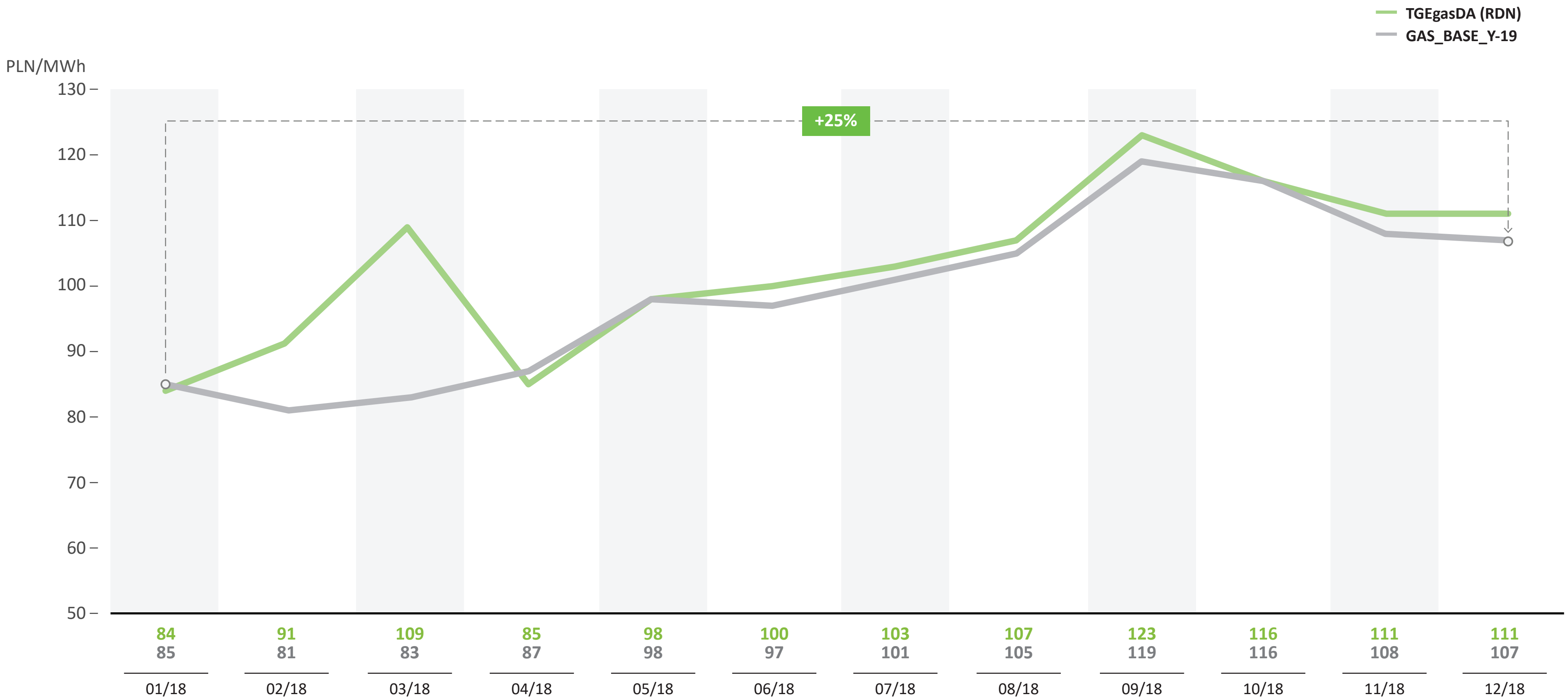
NATURAL GAS TRADING ON TGE IN 2012-2018



Source: TGE

In 2018, natural gas prices, similarly to electric energy prices, increased, however, the pace of growth was less than half. In December 2018, the average monthly price of a contract with delivery in 2019 was 25% higher than in January.

AVERAGE MONTHLY ELECTRIC ENERGY PRICES ON SPOT AND COMMODITY DERIVATIVES MARKET



Source: TGE

Property Rights Market offer

The Polish Power Exchange participates in the market related to electric energy support on two planes. Firstly, there is the Property Rights Market organisation. Secondly, there is the managing of Certificates of Origin and Guarantee of Origin Registers with statutory authorisation.

The 2018 trading was tied to the area of products related to electric energy generation from renewable energy sources, its generation in co-generation systems and from agricultural bio-gas. The support system also includes an instrument that aids supplying the gas network with agricultural bio-gas. Its corresponding product constitutes a trading subject in the form of a "brown certificate". Moreover, there are dedicated products promoting investment projects which enhance energy efficiency.

Trading in property rights is organised in continuous trading systems and in a uniform system as well as in the form of OTC deals in bilateral transactions. RES instruments are also listed on the commodity derivatives market, with delivery in a given month.

Presently, the Polish Power Exchange maintains two registers, i.e. the Certificates of Origin Register and Guarantee of Origin Register. The Exchange was entrusted with this activity in line with the Polish Energy Law.

Certificate of Origin Regist

- ✓ The Certificate of Origin Register was launched on 1 October 2015. Its task is to centralise information on energy generated from renewable energy sources and in co-generation systems. It ensures market transparency and reliability.
- ✓ The COR tasks include, in particular:
- ✓ identification of entities entitled to property rights resulting from certificates of origin;
- ✓ identification of applicable property rights resulting from certificates of origin and the amount of electric energy corresponding to those rights;
- ✓ registration of certificates of origin and property rights resulting from them;
- ✓ registering transactions concluded in property rights trading and the ownership status for property rights resulting from certificates of origin;
- ✓ issuing documents confirming the ownership status for property rights in a register, which are later used by the Energy Regulatory Office to redeem certificates of origin.

Guarantee of Origin Register

In parallel with the Certificate of Origin Register, since 2014, TGE has been managing the Guarantee of Origin Register with the view to disclosing generation sources for electric energy and fuels. The Guarantee of Origin Register is directed at entities generating energy from renewable sources, trading companies, brokers and other interested parties which need a confirmation that the given electric energy is generated from renewable sources.

RENEWABLE ENERGY SOURCES

Support for energy generated from RES

Green certificates
PMOZE and PMOZE_A

CO-GENERATION

Support for energy generated in co-generation processes

Yellow certificates
Small units and gas fuels (PMGM)

Purple certificates
Energy generated from mining methane, and biomass (PMMET)

Red certificates
Other co-generation units (PMEC)

AGRICULTURAL BIO-GAS

Support for agricultural biogas

Blue certificates
Electric energy generated from bio-gas (PMOZE_BIO)

Brown certificates
Agricultural biogas introduced to the network (PMBG)

ENERGY EFFICIENCY

Support for investment projects aimed at enhancing energy efficiency

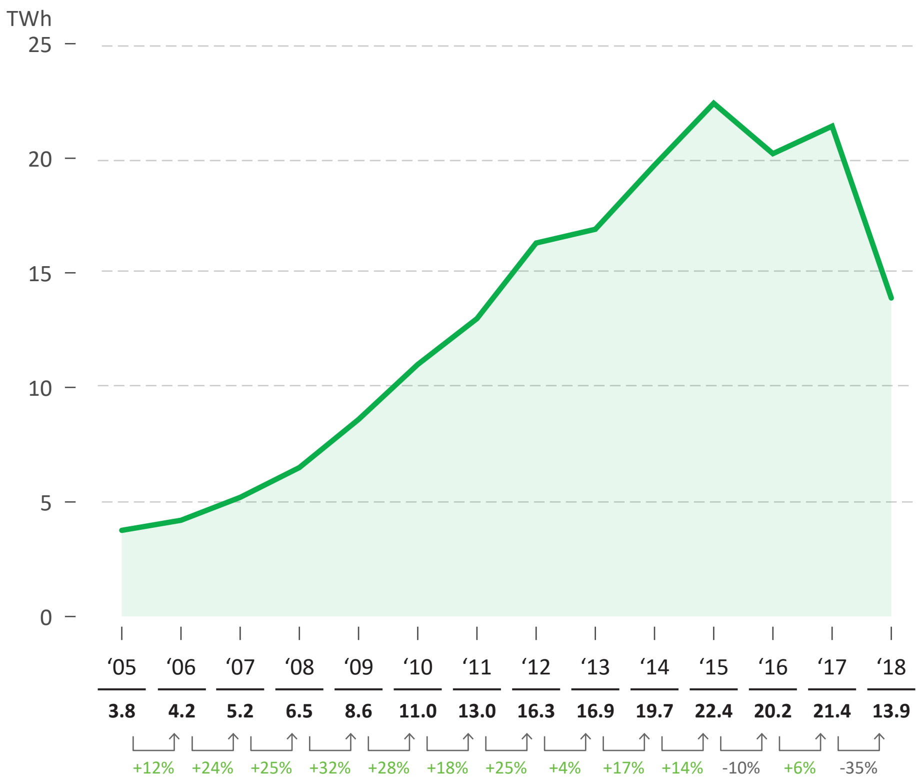
White certificates
(PMEF, PMEF_F, PMEF_XX)

The amount of the energy generated from RES in 2018 decreased for the second time in history. In comparison with 2017, the decrease amounted to 35%. Last year, only 13.9 TWh of electric energy was generated from RES, which is the smallest amount since 2011.

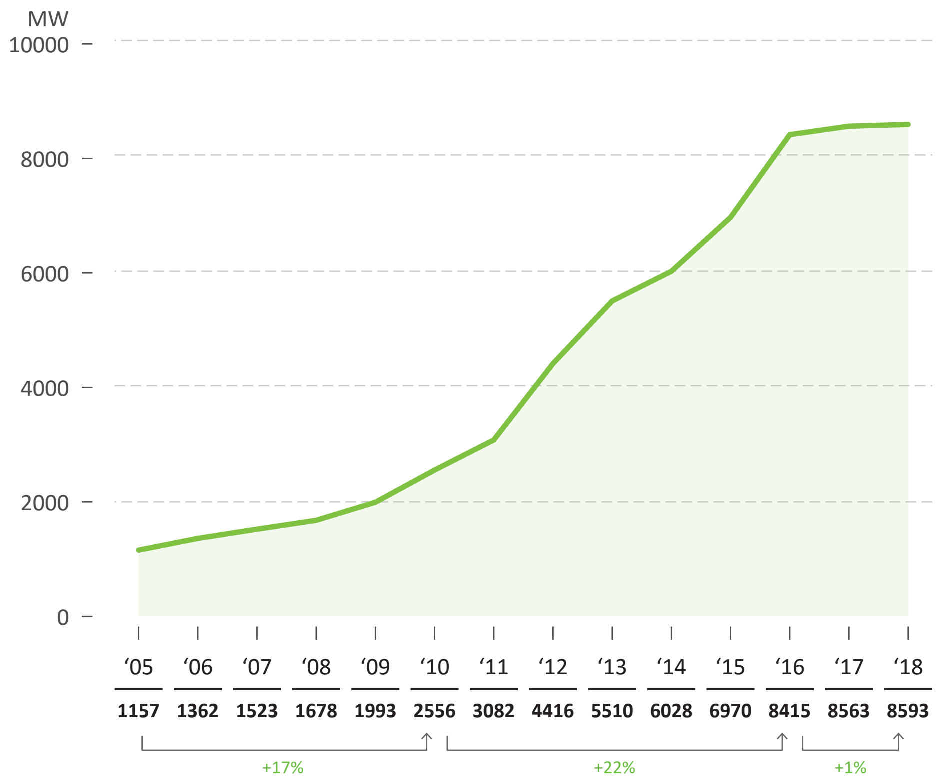
The installed power from renewable energy sources increased in 2010 -2016, by 22% per year, on average. In 2017 and 2018, stabilisation occurred, with the average increase rate amounting to 1%. At the end of 2018, the installed power from RES amounted to 8.6 GW.

The changes in electric energy generation from renewable sources and lower pace of increase in the installed power result mostly from the changes introduced in support systems and regulatory changes in relation to renewable energy source installations.

ENERGY GENERATED FROM RENEWABLE ENERGY SOURCES



INSTALLED POWER FROM RENEWABLE ENERGY SOURCES IN POLAND



Source: URE

One of the key markets managed by the Polish Power Exchange is the market related to renewable energy sources and environmentally-friendly electric energy generation. In 2018, TGE managed trading with property rights to certificates of origin for electric energy generated from renewable energy sources and in co-generation, as well as certificates of origin issued for agricultural bio-gas and energy efficiency. The rights to certificates of origin and trading in them is aimed at stimulating market entities to get involved in production using environmentally-friendly technologies. The volume of electric energy generated in co-generation processes makes Poland one of the European leaders in this scope. The system for co-generation support was changed at the beginning of 2019, due to the Act of 14 December 2018 on promoting electric energy from high-efficiency co-generation. Among others, it assumes that the co-generation fee is to be listed separately on electricity bills. Moreover the catalogue of support methods for renewable energy sources was extended, in particular, a feed-in tariff system was introduced.

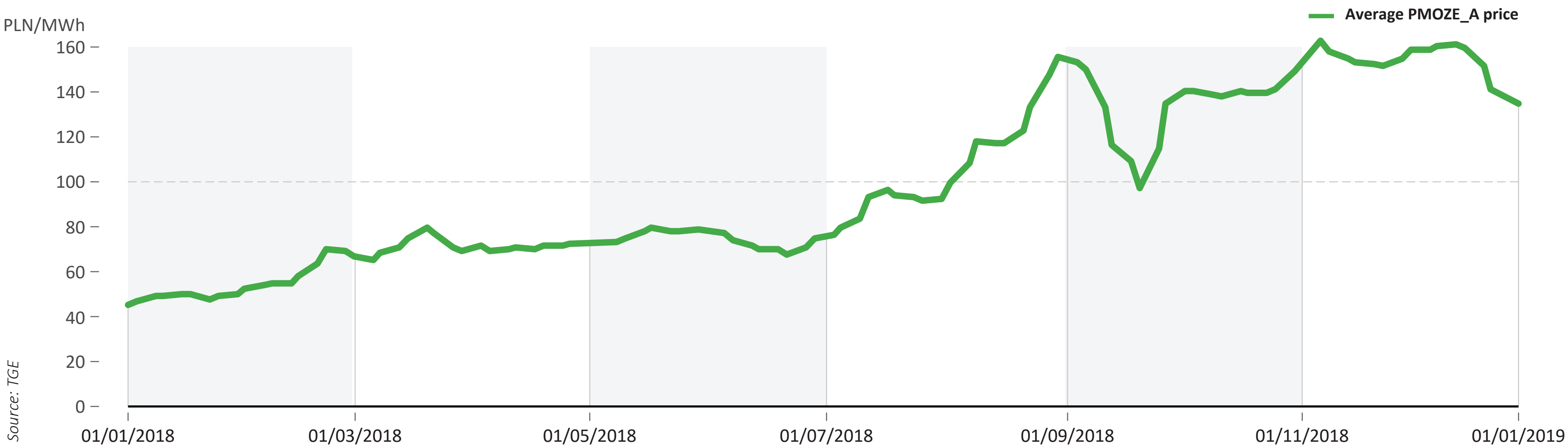
Because of the fact that TGE manages markets for property rights related to the generation of electric energy from renewable sources and in co-generation as well as markets related to energy efficiency and agricultural bio-gas, in parallel with the Certificate of Origin and Guarantee of Origin Registers, for years, it has been a platform ensuring comprehensive organisation of the RES market in Poland.

An increase by 0.4% (year-to-year) was recorded on the property rights market in 2018. Last year, the total volume of electric energy property rights trading was 59.3 TWh. In 2018, the trading volume for green certificates (PMOZE and PMOZE_A instruments on the Property Rights Market) was at the level of 30.1 TWh, i.e. 0.01% less than in 2017.

In 2018, the weighted average price on PRM sessions for the PMOZE_A instrument was 103.82 PLN/MWh, i.e. 64.99 PLN/MWh more than in 2017.

In 2018, the property rights trading volume for energy efficiency was 330,017 toe, i.e. an increase by 17.5% (year-to-year).

OZEX_A_POLPX INDEX PRICES IN 2018



The Polish energy sector is mostly based on fossil fuels. Approximately 80% of electric energy is generated from hard and brown coal. While operating on a market where the level of consumption of such fuels is one of the highest in the European Union, we respond to its expectations and present price indices for steam coal, along with the Industrial Development Agency. These indices demonstrate reference prices allowing electric energy generation costs to be analysed. They may be used as base instruments. On the international coal market, indices make it possible to compare prices among markets, which is important, in particular in the context of the market trends observed in 2018. Hard coal production in Poland has been decreasing for the last two years and, in 2018, was 15% lower than two years before. Simultaneously, a 53% (year-to-year) increase in imports was observed.

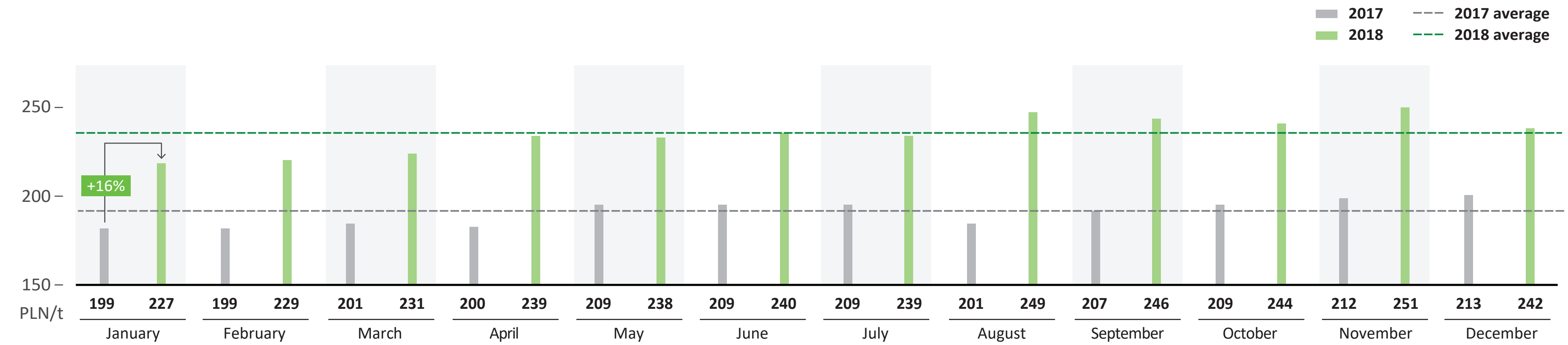
Coal price information is published within two indices:

PSCMI 1 index (PSCMI 1/T in PLN/tonne and PSCMI 1/Q in PLN/GJ). Index for fine coal, class 20-23/1, for the commercial and industrial power sectors. It is calculated as a weighed average from monthly deliveries meeting the following quality criterion for the index (working state parameters): calorific value: 20≤Qri<24 [MJ/kg], total sulphur content below 1%. The monthly product price is set as a weighed average from transactions realised on the Polish steam coal market, invoiced in a given calendar month. The base price is the ex-mine price, i.e. the net price excluding excise tax and VAT, in line with CFA conditions ("in wagon"), on the loading site, without costs of insurance or delivery costs within the basic transport route.

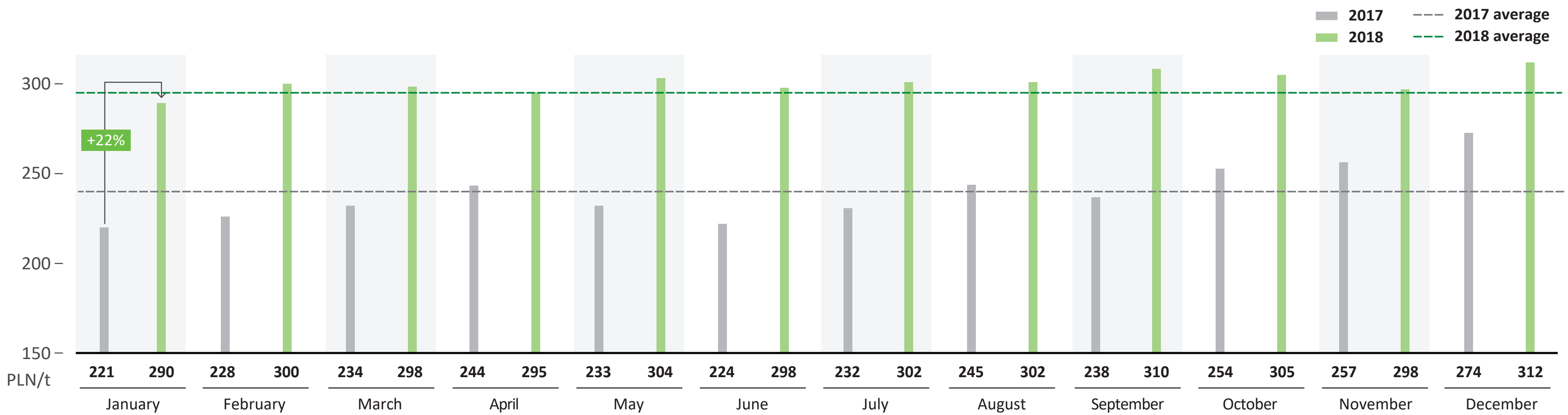
PSCMI 2 index (PSCMI 2/T in PLN/tonne and PSCMI 2/Q in PLN/GJ). Index for fine coal, class 23-26/08, for industrial and communal heating stations, other industrial consumers and the remaining domestic consumers. It is calculated as a weighed average from monthly deliveries meeting the following quality criterion for the index (working state parameters): calorific value: 23≤Qir<27 [MJ/kg], total sulphur content below 0.8%. The monthly product price is set as a weighed average from transactions realised on the Polish power coal market, invoiced in a given calendar month. The base price is the ex-mine price, i.e. the net price excluding excise tax and VAT, in line with CFA conditions ("in wagon"), on the loading site, without costs of insurance or delivery costs within the basic transport route.

In 2018, the coal prices on the Polish market increased by 16% on average (coal for commercial and industrial power sectors) and by 22% on average (for industrial and communal heating stations, other industrial consumers and the remaining domestic consumers). The highest PSCMI 1 index value was reported in November: 250.78 PLN/t. The highest PSCMI 2 index value was reported in December 2018: 311.66 PLN/t.

MONTHLY PSCMI 1 INDICES



MONTHLY PSCMI 2 INDICES



Source: GPI TGE

TGE

CORPORATE SOCIAL RESPONSIBILITY

CSR strategy

On 16 November 2015, the Polish Power Exchange adopted a Corporate Social Responsibility strategy (CSR), within the framework of the GPW Capital Group. Its implementation confirms that TGE achieves its business objectives in line with the Group's objectives, in a most transparent manner. The main objective of the CSR strategy is continuous raising of the level of broadly-understood quality of the domestic commodities market, by means of such activities as: educational programmes, promotion of the highest corporate and communication governance standards, cooperation and active dialogue with market participants, as well as initiating cooperation and contacts among stakeholders.

The CSR strategy of the Polish Power Exchange is based on four key elements: activity for the benefit of the market, educational activity, relationships with personnel, and activity for the benefit of the environment.

RESPECT Index

In 2018, the Polish Power Exchange, for the fifth time, participated in the RESPECT Index project organised by GPW and aimed at recognising companies managed in a responsible and sustainable manner.

The RESPECT Index goes back to the activity undertaken by the Warsaw Stock Exchange (GPW) in 2009, which resulted in creating the first in Central and Eastern Europe index of responsible companies. The index comprises only companies listed on the Warsaw Stock Exchange which operate in conformance to the best management standards for corporate governance, informational governance and relationships with investors, as well as in relation to ecological, social and employment factors. The cyclical survey is addressed to Polish companies listed on the GPW Main Market in order to update the RESPECT index composition.

Code of Ethics

This document defines the role of ethical values present in all aspects of TGE's activity, describes the adopted codes of conduct, publicises and promotes a culture of adherence to the applicable law, decision-making processes based on ethical criteria, with respect to the rights of suppliers, clients, employees and competitors. The above-mentioned rules apply to all company personnel, and non-conformance may be treated as misconduct.

Environmental policy

The Polish Power Exchange treats environmental protection as one of the bases for establishing values of a modern and competitive institution operating on the European energy market. Due to this, in November 2015, the Exchange adopted its Environmental Policy based on the key obligations of TGE as regards actions taken to mitigate the negative impact of its activity on the environment.

OHS policy

Constantly striving to ensure the highest safety and comfort standards for its own personnel and meeting the CSR goals, in 2015, the Polish Power Exchange implemented the Occupational Health and Safety Policy. Actions taken within this scope provide perfect confirmation of the fact that such factors as caring about a healthy, safe and friendly working environment and supporting personnel's professional potential are one of the TGE key priorities.

Corporate Volunteering Programme

Another vital element of the Corporate Social Responsibility Strategy implemented by the Polish Power Exchange is popularisation of the Corporate Volunteering Programme, in the framework of which the company has taken the Home for Single Mothers with Children in Kraśniewo under its wing. Our employees organise seasonal collections of clothes for the Home and support this organisation in obtaining all necessary equipment. Additionally, TGE helps make children's dreams come true by supporting the "Dziecięca Fantazja" (Children's Fantasy) Foundation.

TGE

PLANS FOR 2019

The Polish Power Exchange has several tasks to fulfil in 2019. The first initiatives were put in motion on the basis of decisions and actions taken in 2018. Others will be implemented in the next months. There are also initiatives already implemented for years, and the plans concern their development and response to market expectations. The former include mostly actions taken in order to obtain an Organised Trading Platform (OTF) licence. We are expecting to be granted one in the autumn of 2019. This objective is included in our owner's (Warsaw Stock Exchange) strategy. The commodities market run by the Polish Power Exchange presently generates over 40% of GPW Capital Group's revenue. The OTF licence will enable us to reinforce our position on the regional energy market in conformance with newly implemented regulations resulting from the MiFID II Directive, without any radical changes in energy product trading processes. The other strategic objective included in the GPW Group strategy for TGE development is provision of an auction platform for infrastructural services connected with the electric energy and natural gas markets. Actions within this scope will be taken in 2019.

Apart from the Group's strategic objectives, in 2018, we decided to launch a comprehensive liquidity enhancement programme. We introduced a new animation model directed at participants who plan to commence cooperation with our organisation in the role of animators. It contains a "Fast Market" mechanism making it possible to expand maximum spreads of all animators operating within a given instrument by the end of a given session, provided that a considerable price variation was reported during this session. In such situations, the maximum market animator's spread is extended twofold, enabling the entity to fulfil its function without facing excessive market risk. Moreover, a gratuity for the best animators has been introduced, i.e. the transaction fees can be reduced by max. PLN 20,000 monthly.

We have also introduced the "Maker-Taker" pilot programme aimed at enhancing trading liquidity by narrowing down price differences between the best purchase and sale offers for a given exchange instrument. The system consists of lowering trading fees by 50% for transaction initiators, within the framework of transactions made for their benefit, for commodity derivatives with electric energy delivery.

Apart from the actions taken, we intend to continue our policy of active participation in European energy market integration and ensure high transparency on the domestic energy market.

A consistent TGE priority is to ensure market dialogue and cooperation, in order to elaborate mutually satisfying solutions.

LIQUIDITY ENHANCEMENT

- "Fast Market" mechanism
- gratuity for best animators
- "Maker-Taker" pilot programme

GPW GROUP'S STRATEGIC INITIATIVES

- OTF licence
- providing an auction platform for infrastructural services

CONTINUATION OF ACTIONS INITIATED

- active participation in European energy market integration
- high level of energy market transparency

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