

2017 Annual Report





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Foreword



18th year of TGE

2017 was the 18th year of Towarowa Giełda Energii (TGE) operation on the Polish and regional energy market. Therefore, one may grandiloquently say that TGE has entered a mature age. 2017 was very important for TGE and market participants not only in Poland but also in neighbouring countries and those who are related to Polish energy markets. TGE constantly observes the priorities of its actions, which include ensuring a high standard of safety as well as transparent and friendly trading conditions and strives to differentiate and expand scope of services. TGE adapts to the changing regulatory environment and implements the latest technological solutions in advance to meet the expectations of participants.

In 2017 we celebrated 5th year of gas market on TGE and this anniversary was celebrated by the participants in the best possible way: by establishing another record level of turnover on this market with an impressive volume of 138 656 413 MWh. During this time, TGE gas trading facility has become an integral part of the Polish gas market performing an important role as a market hub, price creator, the guarantor of safe trade and the centre of the market information.

Another important event in the past year was the launch of activity on November 15 by TGE as a full–fledged stock exchange–PCR coordinator and operator on the European Multi–Regional Market Coupling (MRC). The status of MRC market member and participation in the PCR project are an opportunity for TGE to offer market participants benefits resulting from the ongoing integration of regional markets and the implementation of EU electricity market mechanisms, while cooperating with other

European power exchanges and transmission system operators.

The process of adapting to new regulations and requirements resulting from the EU MiFID II legislation package was significant for the future functioning of TGE. Development in the close cooperation with all stakeholders of a model of TGE functioning in the transition period and transformation of the Commodity Forward Instruments Market into OTF, after obtaining necessary approvals of the KNF–Polish Financial Supervision Authority, will enable the participants to easily adjust their activities regarding the trade of energy products to new requirements, ensuring an even higher level of security and transparency of trading on TGE markets.

X. Trading Forum was another type of event, however not less important. It has gathered a record number of participants. Last year's conference focused primarily on the – already mentioned – adaptation of TGE markets to the MiFID II legislation package and the launch of the new X–Stream Trading system.

The system, implemented in cooperation with the Nasdaq stock exchange, is a technological solution allowing TGE to provide the highest level of services and flexibly widen the future scope of TGE's operations, including other commodity and derivative instruments. The SAPRI Trade IT system (also implemented in cooperation with Nasdaq), is dedicated to servicing the day—ahead market trading in the PCR standard and allows to improve the orders' execution process, including very sophisticated ones.

Cooperation with leading global players and implementation of the most modern and proven technological tools are guarantees that TGE will continue to provide market participants with the highest level of security in trading of energy products.

Piotr Zawistowski
Chairman
of the Executive Board of TGE







Key facts



History of TGE

Towarowa Giełda Energii SA (originally Giełda Energii SA) was established at the end of 1999 as part of the energy markets liberalisation process in Europe.

Since the beginning of its activity, TGE has set the highest standards in selecting and offering market participants the latest and most innovative products related to organization of energy products trade. In 2000, ie a few months after the commencement of operations, a spot market for electricity was launched. It has provided all active and potential participants of bilateral trade with the opportunity to compare prices with the new trading platform.

Another important event in the history of TGE (relevant also for energy markets in Poland and in whole Central and Eastern Europe) was the obtaining of the commodity exchange license in 2003. It needs to be highlighted that

TGE remains the only entity on the domestic market that has secured such a license. Undoubtedly, this confirms – required by the market participants – the above—average level of trade security and high standards in the area of risk mitigation of detrimental activities and behaviours, in particular market abuses and manipulations.

Subsequent events took place in the following years. They were crucial both from the point of view of the TGE itself and market participants, who are above all interested in development of increasingly sophisticated products, which are the result of the rapid evolution of energy markets, stemming also from their increasing regulation:

 2005 – creation of the Certificate of Origin Register for electricity produced in RES and Property Rights Market, enabling trade in property rights arising from certificates of origin;

- 2006 creation of the spot market for CO₂ emission allowances;
- 2007 incorporation of electricity generated in CHP into Certificate of Origin Register and Property Rights Market:
- 2008 Commodity Forward Instruments Market;
- 2012 Commodity Forward Instruments Market, Intraday Market and Day-Ahead Market for Natural Gas.



History of TGE

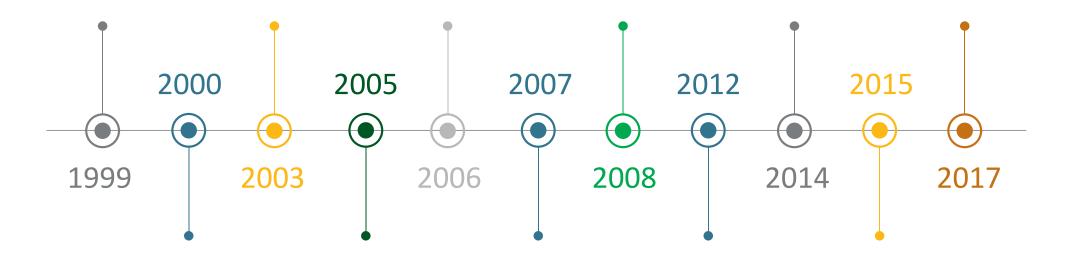
Establishing TGE

Acquiring the commodity exchange license

Launching the spot market for CO₂ emission allowances Launching the Commodity Forward Instruments Market for electricity

Launching the Exchange Information Platform and Intraday Market for natural gas

Launching X-Stream Trading and SAPRI Trade systems



Launching the Day Ahead Market for electricity Creation of the Certificate of Origin Register for electricity produced in RES and Property Rights Market Incorporation of electricity generated in CHP into Certificate of Origin Register and Property Rights Market Launching the Commodity Forward Instruments Market, Intraday Market and Day-Ahead Market for natural gas Acquiring the Nominated Electricity Market Operator (NEMO) status in Poland



Supervisory Board / Ownership structure

Supervisory Board*

Iwona Zatorska—Pańtak – Deputy Chairman of the Supervisory Board

Marek Wodnicki – Secretary of the Supervisory Board

Marek Gudima – Member of the Supervisory Board

Michał Kot – Member of the Supervisory Board

Dr Wojciech Nagel – Member of the Supervisory Board

Tomasz Poznański – Member of the Supervisory Board

Aleksander Zawisza – Member of the Supervisory Board

* Membership in the Supervisory Board as on June 30, 2018

Ownership Structure

TGE has been a member of the GPW SA Capital Group, which holds 100% of shares in the company's capital since February 2012.

Subsidiaries companies:

- Info Engine SA, a company providing services to electricity market participants. It is the largest Polish independent Trade Operator (OH) and an Entity Responsible for Balancing (POB);
- Warsaw Commodity Clearing House (IRGiT), an institution responsible for the financial settlement of market transactions and for the security of the cleared markets.





Executive Board



Piotr Zawistowski, Chairman

Associated with the energy industry since 2000. Actively participated in the creation of EnergiaPro Gigawat sp. o.o. in 2007–2008. In 2008, he joined TAURON Polska Energia S.A.. He served among others as the President of the Management Board of TAURON Obsluga Klienta sp. o.o., and the Vice-President of the Management Board for customer and trade of TAURON Polska Energia S.A.

Mr Zawistowski was also the Chairman of the Management Board of the Association of Energy Trading and a member of the Governing Board of the Polish Electricity Committee. From September 2017 member of the Supervisory Board of Towarowa Giełda Energii S.A.

Graduated from the master's program in business management on the University of Economics in Wroclaw and in 2007 he completed post-graduate studies in sales management at the School of Banking in Wroclaw.



Dr Paweł Ostrowski, Vice-Chairman

Mr Ostrowski has been professionally associated with the capital market for over 15 years, gaining experience and know—how in numerous financial institutions: PKO Bank Polski SA, Societe Generale, Deutsche Bank Polska SA, BNP Paribas Polska SA. He also participated in projects related to implementation of the MiFID I package , as well as a merger with Nordea Bank Polska SA.

Mr Ostrowski is a graduate of the Warsaw School of Economics, where he also obtained a doctoral degree. He also completed the MBA program of the University of Illinois at Urbana—Champaign and the University of Warsaw at the Faculty of Management as well as postgraduate studies in the field of capital market law at the Faculty of Law and Administration of the University of Warsaw.



Piotr Listwoń, Vice-Chairman*

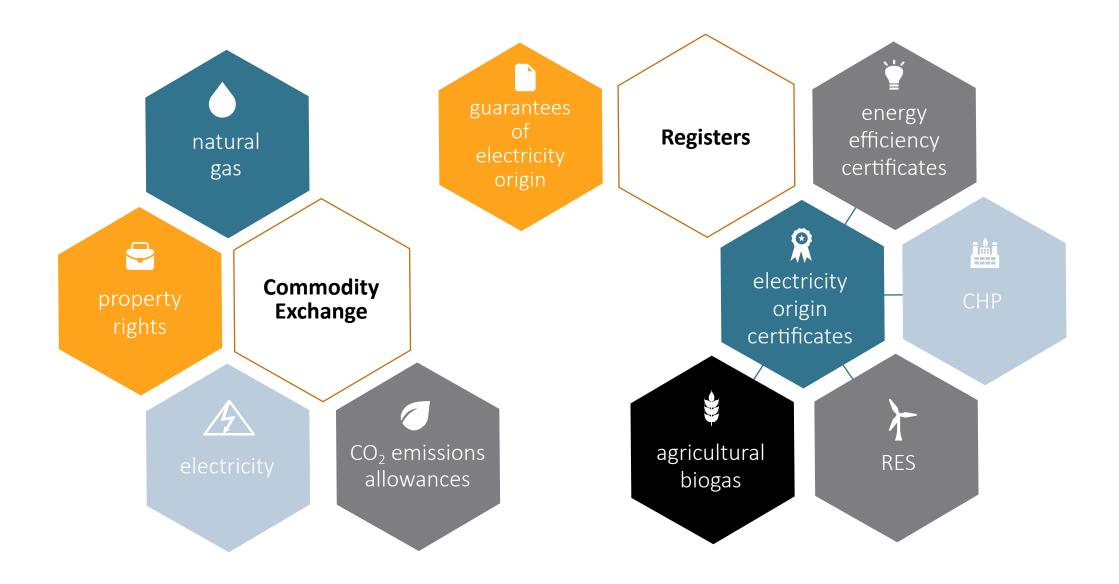
Mr Piotr Listwoń has been with the TGE Group since 2008. In the years 2010–2014, he was Deputy Director of the Clearing and Settlement Department in the Warsaw Commodity Clearing House (IRGiT) and since 2014 he worked as Department Director leading, among other things, the efforts related to the implementation of a new financial clearing model based on the cooperation of the House with the National Clearing House (KIR) and major banks in Poland in handling payments resulting from cleared transactions. Starting from 2013, he was also International Relations Development Director in IRGiT.

Piotr Listwoń graduated from the Faculty of Strategic Management of the Polish Open University (POU/Oxford Brookes University) where he also obtained an MBA degree. He has extensive experience and knowledge of trading, clearing of commodity forward markets, financial instruments market and clearing of market coupling transactions, PCR.

* Piotr Listwoń has been appointed on April 24, 2018.



TGE activities









Backgrounds



Regulatory environment

National law

- The two following amendments to the Energy Law, regarding the so-called exchange trade obligation played a key role in the development of TGE:
- amendment from 2010, that introduced the obligation to sell a certain (15%) volume of generated electricity through the exchange, whereas for generators that benefited from the public aid scheme for terminating long-term contracts for purchase of electricity and capacity (PPAs), the obligation concerned the whole volume of generated electricity. On the one hand, the amendment was to ensure greater transparency in accounting for public aid granted in connection with the termination of the aforementioned LTCs, on the other hand its entry into force became an impulse for deregulation of energy prices;
- amendment from 2013, that established the obligation to sell natural gas through the exchange at the level of:
 - 30% of the volume offered on the market in 2013:
 - 40% of the volume in 2014;
 - and 55% of the same volume from 2015;
- amendment from 2017, introduced as a part of the Capacity Market Act, that obliged electricity undertaking to sell at least 30% of electricity at the commodity market.

The legal framework described above has become a foundation for the development of a competitive domestic wholesale energy market, creating at the same time (due to the size of the domestic market) a significant benchmark for the prices of commodities in the region.

The Act on Renewable Energy Sources and the Act on Energy Efficiency that affect the development of market of property rights arising respectively from energy origin and energy efficiency certificates were also crucial for the functioning of TGE.

The most important regulations for the organization and operation of TGE, are:

- Act on commodity exchanges, which regulates the functioning of commodity exchanges and trade in exchange commodities, including the rules on creation, organizational structure and operation of commodity exchanges, exchange clearing houses, the activity of commodity brokerage houses and supervision over these institutions;
- Act on Trading in Financial Instruments: which regulatestheprinciples, procedure and conditions for commencement and pursuing activity in the field of trading in securities and other financial instruments, rights and obligations of entities participating in this trade and exercising supervision in this respect.

EU law

The development of TGE and – in the wider context – of European energy exchanges is the result of the gradual liberalization of energy markets, which in turn is the result of a prolonged legislative process at the EU level, including the adoption of subsequent packages of energy legislation (I, II, III liberalization packages). The current – third - package, which consists of directives and regulations on electricity and natural gas markets, introduced rules that made both the trade of commodities and rights associated with their transportation from the producer to the final customer, more transparent than rules that were in force 20 years ago. The EU regulations of the third package are complemented by network codes which are instruments dedicated to implement a single energy market at the EU level and comprise common principles of operation and management of energy network systems, which application aim at elimination of technical barriers for further market integration. The adoption of the above mentioned solutions and their implementation into national legal orders allowed for the rapid development of the wholesale energy markets, understood as trade of electricity and natural gas between trading companies or sales to large industrial final customers. Supplementary EU legal acts affecting the functioning of energy exchanges and TGE in particular are regulations seeking to ensure maximum transparency of wholesale energy markets: REMIT regulation and MiFID II directive.



Corporate governance

TGE is an entity supervised by the KNF–Polish Financial Supervision Authority. Thus, it carries out its activities in accordance with the Corporate Governance Principles for Supervised Institutions set by KNF. These rules define internal and external relations, including:

- relations with shareholders and clients;
- organization;
- functioning of internal supervision and key internal systems and tasks, as well as statutory bodies and principles of their cooperation.

According to the KNF, Corporate Governance Principles have to be adopted by the supervised institutions, and play a key role in corporate policy by shaping the proper rules of conduct of these institutions.

Pursuant to Resolution No. 84/23/VI/16 of the TGE Supervisory Board, TGE applies the Corporate Governance Rules for supervised institutions, with the following exceptions:

• §6 para. 1 (implementation of anonymous way of notifying to the managing or supervisory board of market abuse incidents) and § 6 para. 2 (submitting to the supervisory authority reports on notifications

of serious market abuse incidents): the application of these principles has been abandoned;

- §9 para. 1 (cooperation of shareholders) and §9 para. 6 (rules on conflict management between shareholders): these principles do not apply to TGE;
- §52 par. 1 (risk management strategy): this principle is inadequate due to the scale of activity of TGE;
- §53 to §57 (exercising prerogatives from assets acquired at client's risk): these rules are inadequate due to the subject of activity of TGE, which does not manage clients assets.



TGE and its competitors – European power exchanges

Electricity

Both the geographic position of Poland and the size of its electricity and natural gas markets predetermine TGE to play a key role as a regional player, organizing the trade of energy products and providing various opportunities in this regard to – not only domestic – of energy markets. The significance of TGE can be perceived in this context in two ways:

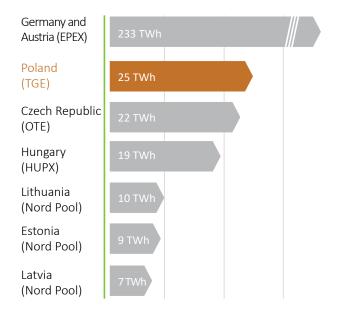
- active participation and shaping the process of integration of wholesale energy markets;
- active participation and shaping the process of integration of wholesale energy markets;

Both the continuous development of diversified products offer (which is the consequence of responding to the needs expressed by market participants) as well as the growing level of liquidity allow to predict that ultimately TGE will gradually reach the same level of maturity as

other developed markets of Western Europe, becoming in the future the key element of integrated, pan—European energy markets. In comparison with other exchanges operating in neighbouring countries and being for them a natural point of reference, TGE is characterized by the wide range of product offer that combines the futures market, electricity and gas spot markets and the financial market. Moreover, TGE enables electricity trade utilizing connections with Sweden and Lithuania, which positions TGE as a potentially key intermediary in trade between North—Western and Central—Eastern Europe.

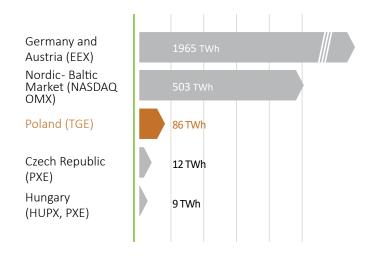
Volume of electricity traded on European Day Ahead markets in 2017

volume (TWh), 2017



Volume of electricity traded on European commodity forward markets in 2017

volume (TWh), 2017





TGE and its competitors – European power exchanges

Natural gas

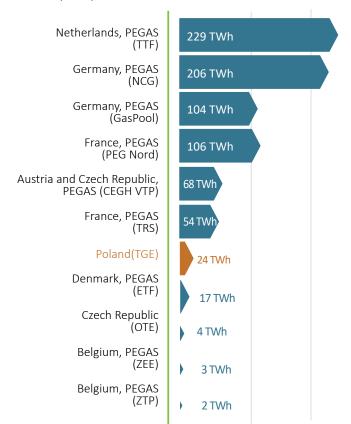
The volume of natural gas traded on TGE spot markets still deviates from the levels noted in the largest European gas hubs (TTF, NCG, GasPool, CEGH, PEG Nord and TRS),

yet, it is clearly the largest at the regional level, compared to Czech, Danish or even Belgian hubs. This is a evident signal that TGE has the potential to become at least a regional gas hub, bringing together market participants from the entire region of Central and Eastern Europe.

This thesis is even more credible if one analyses the data on European futures markets, which show that the only hub exceeding the trading volume on TGE is the Dutch TTF.

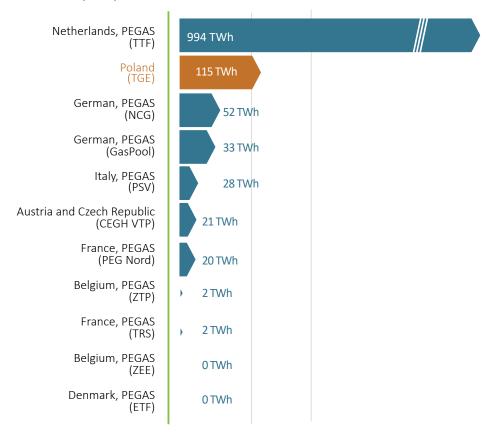
Volume of natural gas traded on spot markets in selected European hubs in 2017

Volume (TWh), 2017



Volume of natural gas traded on commodity forward markets in selected European hubs in 2017

volume (TWh), 2017





CACM and Integration of power exchanges

Implementation of CACM

TGE as a NEMO operator on the spot electricity market

Special obligations to implement new market solutions were imposed on TGE as a result of the nomination for the NEMO operator in December 2015. As such, TGE is subject to simultaneous supervision by the KNF and the President of the Energy Regulatory Office (ERO). In 2017, based on the operators cooperation agreement concluded between NEMO and INCA (Interim NEMO Co–operation Agreement), the Transitional NEMO – INC Committee (Interim NEMO Committee) was established. The document prepared in collaboration by the NEMO operators was the so–called MCO Plan (Market Coupling Operations Plan), which is an action plan for combining electricity spot markets and which describes the principles of operation of single electricity markets: the day–ahead: SDAC (Single Day Ahead Coupling) in the PCR model, and the intra–day: SIDC (Single Intraday Coupling) in the XBID model.

In December 2017, the INC Committee presented the draft ANCA agreement (All NEMO Cooperation Agreement) between NEMOs, which will be a mandatory agreement on cooperation between NEMOs for all power exchanges and will replace the existing INCA cooperation agreement.

MNA Project: Multi-NEMO Arrangements (Day-Ahead market)

The President of ERO approved a document entitled "Conditions regarding the allocation of inter—area transmission capacities and other necessary mechanisms enabling the operation of more than one NEMO in Poland" in June 2017. TGE undertook, together with EPEX SPOT and NORD POOL, consultations with Polish Transmission System Operator (Polskie Sieci Elektroenergetyczne SA) regarding the preparation of relevant operating agreements, a new version of national electricity transmission network code (IRiESP), and other regulations allowing for the safe operation of the day—ahead market in the multi—NEMO model. It is expected that the two new NEMOs will undertake competitive activities towards TGE on the Polish electricity spot market in January 2019.



CACM and Integration of power exchanges

Integration of power exchanges

2017 was a year of intense work of representatives of TGE in the working teams of the following international projects: Price Coupling of Regions (PCR), Multi Regional Coupling (MRC), CORE/CEE, Cross—Border Intraday-XBID / XBID Accession Stream, XBID LIP.

PCR Price Coupling of Regions (Day-Ahead market)

PCR single auction mechanism combines price zones managed by individual energy exchanges. The project standardizes IT solutions by developing a common transactional algorithm and a communication and data exchange system used to calculate electricity prices and allocate transmission capacity in Europe. In December 2016, TGE obtained all necessary approvals for the status of the exchange as an operator and coordinator in the PCR model. TGE is also a co—owner of the required IT solutions.

CORE Day Ahead Flow Based Market Coupling (Day-Ahead market)

CORE Day Ahead Flow Based Market Coupling (formerly CEE FB MC Project) assumes preparation by the TSOs the algorithms for calculating available transmission capacities on connections between individual national markets of the region. It covers the market of Central and Eastern Europe and ensures the integration of national markets in this region — CORE with the MRC market. Algorithms for calculating the electricity transmission capacity at the interconnection points will be created applying the flow based allocation methodology. The implementation of this project should facilitate the opening in the fourth quarter of 2020 of Polish western and southern borders for the cross—border exchange market.

XBID, XBID AS and XBID LIP (Intraday market)

Launching the European electricity Intraday market (XBID) is expected in the second quarter of 2018. TGE is currently engaged in the initiative of entities preparing to join this project — XBID Accession Stream. In addition, TGE cooperates on regional level with the NORD POOL and EPEX SPOT power exchanges and TSOs: PSE, SvK, and LITGRID on the border with Lithuania and Sweden in the scope of launching the cross border intra—day market as part of so called Local Implementation Project — LIP 16.

MRC Multi-Regional Coupling (Day-Ahead market)

Multi–Regional Market Coupling was created and is gradually expanded after the integration of regional markets in 2014/2015. This is a pan–European project for the operational integration of the day–ahead electricity market, the largest and most liquid market in Europe, covering around 90% of European energy demand. TGE has had the status of a full member of the MRC market since July 2015 and on November 15, 2017, TGE has become an active operator of this market. Poland participates in the MRC market through electricity interconnections SwePol Link and LitPol Link.



International cooperation

TGE participates in numerous projects at international level, both European and regional. The most important projects are the following.

Europex Association of European Energy Exchang

The main task of Europex is enhancement of competition on the European market by ensuring transparency of price mechanisms and implementation of a single European market for electricity and natural gas. It will ensure convergence of prices and benefit with tangible profits to consumers. The Association participates in the process of creating market—oriented solutions and conducts a dialogue with the EU institutions and other European entities shaping the future of energy markets.

TGE has been cooperating with Europex since 2005, actively participating in the following working groups: Power Markets, Gas Markets, Environmental Markets, Financial Markets, Integrity & Transparency.

Polish-Lithuanian Chamber of Commerce

In 2015, TGE became a member of the Polish—Lithuanian Chamber of Commerce, a body which is committed to creating a positive climate for Polish—Lithuanian business ventures and trade exchange between the two countries, increasing mutual inflow of investments and reducing barriers to cooperation between companies in Poland and Lithuania. Exchange of knowledge and experiences between the members is a vital activity of the Chamber. The Chamber organizes monthly club meetings for the members which are aiming at networking and knowledge sharing.

APEx Association of Power Exchanges

APEx is an international organization bringing together commodity and financial energy exchanges. In total, 50 organizations from around the world operate in its structure. The association was established to support the development of energy markets, and its main goal is to build a platform for the exchange of information and experiences between members. TGE has been a member of APEx since 2000.

AFM Association of Futures Markets

AFM is an organization of commodity and financia exchanges with 21 members from all over the world AFM is headquartered in Hungary (Budapest). AFM organizes — as a statutory activity — an AFM Annua Conference, which aims at building a platform for the interchange of information and experiences between members. The main goal of AFM is to promote and encourage the creation of new markets for derivative instruments, and support their development and market competitiveness TGE has been a member of AFM since 2014.

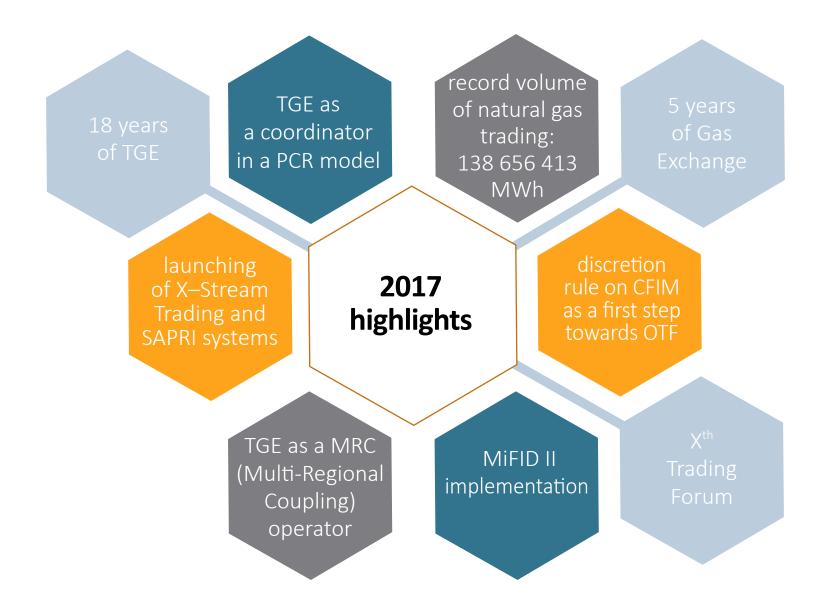






2017 Highlights







Impact of MiFID II Directive on TGE

Preparation of TGE and market participants for the implementation of the MiFID II package to Polish legal system was one of the most important tasks carried out in 2017. This covered particularly:

- designing, as part of consultations with market participants, proposals for relevant changes (regarding issues related to the electricity and gas market) to the draft Act implementing MiFID II Directive to national legal system;
- extensive consultations with market participants in order to develop the accurate formula of gradual transformation of the CFIM (Commodity Forward Instruments Market) into the OTF (organized trading facility). As proposed by the transitional provisions of the law implementing MiFID II Directive to the national legal system, TGE have to request the KNF to issue a license authorising to operate as an OTF within the time limit of 12 months after the Act enters into force;
- development, in cooperation with the KNF, the concept of "discretion", implemented to the CFIM at the end of 2017, which is the first step towards converting CFIM into an OTF;

- development, in cooperation with market participants and the KNF, and implementation of relevant changes in the rules of functioning of TGE markets in order to adjust them to the requirements of the MiFID II package, including:
 - cessation of quotations of futures contracts on the TGe24 index on the regulated market
 - termination of trade in the emissions allowances on the TGE commodity market at the end of 2017 (since allowances become financial instruments within the meaning of MiFID II) and preparation to transfer trade in these instruments to a regulated market;
 - cessation of trading in futures contracts for property rights arising from RES certificates on the TGE commodity market (which are also classified as financial instruments) at the end of 2017 and preparation to re–launch trading in this product as a financial instrument after the implementation of MIFID II, on the converted CFIM;

 adaptation of IT systems, both in terms of issues related to the requirements imposed by new regulations on trading platforms as well as broadly expanded issues related to reporting for supervising authorities

The developed solutions enable optimal – from the point of view of market participants – adjustment to the MiFID II package. Due to the appropriate transformation of markets and instruments in order to comply with new legal requirements, in accordance with the solutions adopted and agreed with KNF, there will be no need to obtain CCP status by IRGiT for the purposes of clearing of instruments listed currently on the TGE.

As a result, TGE will comply both legally and technically with the provisions of the MiFID II package and relevant national regulations.



X-Stream Trading and SAPRI systems



X-Stream Trading

On 31 May 2017, TGE launched the new Nasdaq's X–Stream Trading system. New technological solutions enable TGE to provide services at the highest quality level and flexibly expand its operations with other commodity and derivative instruments in the future. The X–Stream Trading system allows TGE: to provide comprehensive services for multiple markets and a wide spectrum of orders and assets as well as support for market animators. Moreover it enables implementation of strategies on the derivatives market, processing of market data and complete risk management while maintaining position in real time, as well as control and supervision over the market.

Nasdaq's solutions are among the most used in the world and provide abilities to support orders at a rate of 100 000 per second, with an average delay of less than 40 microseconds.

SAPRI Trade

On November 15, 2017, TGE started operations as a full-fledged PCR coordinator and operator on the European Multi-Regional market Coupling (MRC). The SAPRI IT system, an additional new technology provided by Nasdag, enables TGE to handle energy trading on international connections, and to become member of exclusive group of European exchanges that have the ability to effectively operate and compete on the dayahead commodity market. The status of MRC market member and participation in the PCR project gives TGE the possibility of active and full-scale participation in regional market projects and the implementation of EU electricity market mechanisms in cooperation with European exchanges and transmission system operators. Currently, cross-border trading in electricity in the PCR model is carried out on the Polish borders with

Sweden and Lithuania. In the future, this model will be applied also on other interconnection points of Polish electricity system.

The SAPRI system is dedicated to service the dayahead trade in the PCR standard, facilitates the process of order transferring in the PCR model and also enables the handover of advanced types of orders. SAPRI ensures full security of the trading system while enabling cooperation with other European power exchanges.

As a result of the changes introduced in the transaction system, TGE will offer transactions on the day—ahead electricity market in two sessions. During the morning session only local (from the Polish market) transactions will be concluded, while the midday session will comprise also cross—border transactions in the PCR model (SwePol Link and LitPol Link interconnections). The technical abilities of the electricity exchange will result from the transmission capacity in each of the directions defined daily for each individual hour by Polish TSO, Polskie Sieci Elektroenergetyczne SA. The new system will provide the opportunity to increase the standard of services offered by TGE and the comfort of participation in the spot market.



Trading Forum and 5 years of the Gas Exchange

Xth edition of the Trading Forum

Trading Forum is an annual event, organized by TGE and IRGiT, covering a three—day cycle of lectures and special events, including expert meetings. It is a platform for the interchange of experience as well as development of solutions for the optimization of trading strategies among participants of electricity, natural gas, and property rights markets. An informal atmosphere of the event promotes mutual assimilation of energy industry stakeholders, familiarizing themselves with the latest information on markets run by TGE, in particular in the scope of planned changes and modifications of rules on trade or clearing.

The Xth edition of the Trading Forum took place from 5th to 7th of June last year in Iława, in which — one might say as a form of recognition by stakeholders — a record number of participants took part. The subject matter of meetings and presentations focused primarily on challenges generated by the dynamic regulatory environment (adaptation of TGE markets to MiFID II package) and implementation of new IT solutions — the new transaction system: X—Stream Trading of Nasdaq.

As part of the Trading Forum, TGE has traditionally honoured the most active companies and brokers operating on its markets in the previous (2016) year by granting dedicated statuettes.



TGE and IRGiT celebrated 5th anniversary of gas exchange market on 20th December 2017

The creation of a gas exchange in Poland is the result of the implementation of EU rules on the functioning of the liberalized natural gas market. The designers were motivated by the intention to create an optimal mechanism of price creation in a competitive wholesale market. TGE and the Warsaw Commodity Clearing House (IRGiT) were responsible for the whole organizational feature of the project with the crucial assistance of Polish gas TSO, GAZ-SYSTEM S.A., which secures physical gas supplies to customers. In September 2012 KNF approved the gas trading regulations on the TGE. A significant moment for the development of the gas exchange in Poland was the introduction of the legal exchange obligation. It requires to sell via natural gas exchange 55% of the volume of high-methane gas inflowing the Polish transmission system. Due to the exchange obligation the gas market exchange gained adequate liquidity and dynamics and became an attractive trading platform for market participants. At present TGE is the largest organized wholesale natural gas market in Central and Eastern Europe.

The role of the Gas Exchange

5 years after its inauguration, the gas exchange has become an integral part of the Polish gas market, playing an important role as the:

- hub of supply and demand, enabling market forces to operate unreservedly and being a liquid centre for wholesale natural gas trade in Poland;
- originator of reliable wholesale natural gas prices, created in the most competitive conditions and also as a benchmark for the other, bilateral transactions on the gas market;
- guarantor of safe trade due to systemic solutions and control procedures effectively protecting market participants against the risks of market abuse and unfair trade practices;
- centre of market information, available to every natural gas market participant, providing them with a possibility to make the well–grounded business decisions, based on published data of eg. prices and volumes and their volatility





Product offer



Comparison of TGE and other European energy exchanges' product offer

Exchange/products	Spot market (IDM and DAM)	Commodities Forward Market	Financial instruments	Options
TGE			*	
NordPool				
Nasdaq OMX Commodities				
EEX (group)				
PXE (group EEX)			**	
OTE				
HUPX		***	****	
ICE Endex				
CEEGEX				

^{*} listings of futures contracts on TGe24 indexes were suspended on 29.11.2017, ** on EEX, *** by special purpose company HUDEX.



TGE's product offer – Energy Markets

Intraday Market

Intraday Market

Participation in IDM allows market participants to adjust contract positions on the day before and during the day of energy delivery. The IDM is traded on the day preceding the Delivery Day and on the Delivery Day with hourly contracts, that are detailed in the specification and in accordance with the IDM Listing Schedule included in the Detailed Rules of Trade and Settlement (for electricity or gas) for the IDM.

Day-Ahead Market

The electricity Day—Ahead Market was the first market launched within half a year after the registration of TGE, as a physical spot market for electricity.

One of the basic goals of the DAM is to create point of reference for market participants for prices set in other contracts (both electricity and natural gas) concluded on wholesale markets in Poland. Therefore, this market has the subsequent functions:

- enables market participants to preliminary balance their contractual positions;
- facilitates an indirect estimation of the energy companies value through the estimation of goods produced or traded by them, i.e. electricity or natural gas;
- generates significant investment signals for construction of new generation capacities (for electricity).

Commodity Forward Instruments Market

Commodity Forward Instruments Market (CFIM) for electricity enables to perform transactions with standard forward products for the supply of electricity in the same volume of energy in each hour of contract performance.

This market also facilitates trade of futures contracts with physical delivery of natural gas (CFIMg), which gives the possibility to conclude transactions with standard forward products for the supply of natural gas in a fixed volume on the hours of execution for monthly, quarterly, annual, and seasonal periods. There are contracts traded with gas delivery 24 hours a day.

Financial Instruments Market

The rules of operation of the TGE Financial Instruments Market are parallel to these employed for many years on the futures market of the Warsaw Stock Exchange SA.

Derivative financial instruments available on TGE facilitate

- arrangement of stakeholder's energy policy in one place;
- optimal management of the purchase and sales portfolio.
- securing against the risk of energy price changes

 without the need to take a part in the physical market

Operation of futures market was suspended in November 2017 due to the TGE adaptation to the MiFID II package.

Settlement of transactions concluded on the Financial Instruments Market took place on the terms specified by the Warsaw Commodity Clearing House (IRGiT).

Emission Allowances Market

Emission Allowance Market (EAM) is an integral part of the national and EU Emissions Trading System (EU ETS). Its main participants are operators of installations participating in the European CO₂ emission allowances trading system and all entities interested in trading of these allowances.

Quotations used to be held (before suspension at the end of 2017) from Monday to Friday in the continuous trading system. The market consisted of the spot contract lines for the supply of ${\rm CO_2}$ emission rights under the national and EU Trading System for ${\rm CO_2}$ Emission Allowances



TGE's product offer – Property Rights Market/Registries

Property Rights Market

Property rights are an instrument for supporting generation of electricity from renewable sources, cogeneration and also energy efficiency measures. These rights constitute a separate category of energy products in the TGE offer and they arise from certificates of origin relating to:

- production of electricity from renewable sources (instruments: PMOZE and PMOZE_A), so-called "Green certificates";
- production of electricity generated from agricultural biogas from 1 July 2016, (PMOZE_BIO instrument), so-called "Blue certificates";
- combined heat and electricity generation (cogeneration) in installations below 1 MW of capacity or installations fired with gaseous fuels (PMGM instrument), so-called "Yellow certificates";
- combined heat and electricity generation (cogeneration) in installations fired by methane released and captured in hard coal mines, or gas obtained from biomass processing (PMMET instrument), so-called "Purple certificates";
- combined heat and electricity generation (cogeneration) in other generating facilities (PMEC instrument), so-called "Red certificates";
- production of agricultural biogas and its introduction to the gas distribution network (PMBG instrument), so-called "Brown certificates";
- energy efficiency, which are obtained by entities carrying out investments aimed at reducing the amount of energy consumed (instruments: PMEF, PMEF_F, PMEF_XX), so-called "White certificates".

Registries

Certificate of Origin Register

The Certificate of Origin Register (COR) was established in 2005. It is a key element of the support scheme for producers of electricity from RES and CHP (combined heat and electricity generation). Centralization of registration ensures the reliability of the system and its transparency.

The main tasks of COR are:

- identification of entities that are entitled to property rights arising from certificates of origin;
- identification of property rights arising from certificates of origin and the amount of electricity corresponding to these rights;
- registration of certificates of origin and property rights arising from them;
- recording of transactions concerning property rights and the status of ownership of property rights arising from certificates of origin;
- issuing documents confirming ownership of property rights in the register, which are then used by the Energy Regulatory Office in the process of redemption certificates of origin.

Guarantees of Origin Register

Guarantees of electricity origin are part of the EU environmental policy, that enables identification of the sources and fuels from which electricity is generated. Due to the fact that it is impossible to mark the electricity itself, a system of documents (guarantees) was established. These guarantees starts to exist in the very moment of generation of electricity, and expire when they are transferred to the end user. First introduced for energy from renewable sources (RES), and thus became an additional stimulus for the development of this sector. There are examples of electricity trading companies that guarantee their customers supplying 100% of the energy coming from renewable sources or even from specific installations. Property rights do not arise from guarantees of origin.

The Guarantees of Origin Register (GOR) was launched at TGE in 2014. Guarantees – issued by the President of the Energy Regulatory Office – are recorded into the TGE IT system. System users can then trade guarantees or transfer them to final customers as an evidence of purchase of electricity from renewable sources. It is also possible to request TGE for a document confirming to the end customer that the electricity it has purchased comes from a renewable source.



TGE's product offer – Steam Coal Price Indexes

Polish hard coal is a key fuel for an economic development of the Polish energy industry, providing the electricity system with 24–hour availability and flexibility necessary in the context of growing penetration of renewable energy sources. Transparency and predictability of prices on the power coal market is therefore a prerequisite for the country's energy security. The generation of electricity from coal is becoming more and more ecological, effective and flexible.

Publication of steam coal indexes is a response to the need indicated by market participants concerning access to the reliable and transparent knowledge about its prices. The market reference price, while determined using objective algorithms, will facilitate taking commercial decisions by market participants and managing financial risks.

Participants of the Polish market have been able so far only to use the indexes and indicators published on the European market, for example by the companies McCloskey, Platts and Argus. However, its use on the domestic market was difficult due to the fact that in practice these were only information on current European and global price trends. Nevertheless, formulas indexed to prices in Netherland's and Belgium's harbours enhanced by transportation costs were used.

The basic role of steam coal price indexes is providing information, both for the parties of the transaction, as well as for market analysts and observers. The second

important function is to establish a reference price for bilateral contracts, since its prices are increasingly associated with market price indexes. Hence, the indexes may act as a base instrument on the markets of financial products and derivatives in forward contracts, in swap contracts on the OTC market and in futures contracts, thanks to which they can be used as a reference level in hedging contracts.

TGE publishes together with Industrial Development Agency (Agencja Rozwoju Przemysłu SA - ARP) two coal price indexes. They present the commercial value of raw material of a certain quality in terms of range, sulfur content and calorific value as well as specified delivery conditions. The Polish Steam Coal Market Index consists of two indexes:

- PSCMI®1 index, which reflects the level of prices of energy dusts in a given class sold to public and autoproducer power plants;
- PSCMI®2 index, which reflects the price level of energy dusts of a given class sold to industrial and municipal heating plants, other industrial recipients and other domestic recipients.

Indicators are calculated as a weighted average of monthly deliveries that meet the quality criterion of the index. The price of a monthly product is determined as a weighted average of transactions carried out on the Polish Steam Coal Market invoiced in a given calendar month.

From the ARP ex–post data on monthly sales volumes of coal (in tons) with the price of steam coal sales loco mine are used, whereby:

- data on transactions that meet the quality criterion of steam coal for a given index are selected from the data pool;
- for the selected data, the average price weighted by transaction volume in PLN/t and in PLN/GJ is calculated;
- data are anonymized;
- dusts supplies to the relevant group of recipients.



Information policy/Exchange Information Platform

One of the measures aimed at building transparent and competitive wholesale electricity and natural gas markets is information policy. TGE, as one of the few energy exchanges in the EU, provides its members and other stakeholders with access to broad market information through:

- permanent access to current and archival information on the website;
- daily published Kurier TGE, containing a comparison of data from the results of the session from the last two days;
- a monthly TGE report presenting aggregated periodical data from markets operated by the TGE;
- a continuously updated Exchange Information Platform (GPI).



Exchange Information Platform

TGE created the Exchange Information Platform (GPI) in 2014. It is an embodiment of the initiative of the President of Energy Regulatory Office, who recommended the creation of single, publicly available information platform for the electricity market. Thanks to GPI, market participants and all stakeholders have access to an organized and transparent summary of data on the energy system in Poland. Furthermore, GPI is also a dedicated platform for publishing inside information in accordance with the requirements of art. 4 of the REMIT Regulation, regarding planned and unplanned unavailability of generation capacity.

The Exchange Information Platform includes three data segments:

• urgent market messages

enables entities obliged by the REMIT Regulation to publish information on planned and unplanned power losses of generation facilities. The data is publicly available to everyone (in the information part), and in the reporting part to authorized entities (obliged to publish inside information within the meaning of the REMIT Regulation) with appropriate access;

• electric power data system

consists of data on the planned and actual power demand and generation capacity needed to meet that demand. Publications cover daily and short—and long—term plans, as well as the balance of intersystem exchange as part of the internal European market;

TGE Markets

presents basic price indexes and trading volumes on markets operated by TGE.



TGE's product offer - Reporting mechanism/Settlement system

REMIT and MiFID II Reporting Mechanism

TGE provides market participants that are required by the provisions of the REMIT Regulation to report to the Agency for the Cooperation of Energy Regulators (ACER) data on orders and transactions concluded on the wholesale electricity and gas market with a service of transaction data reporting via RRM (Registered Reporting Mechanism). The service allows:

- reporting orders and transactions concluded via organized trading platforms;
- OTC transaction reporting;
- so—called backloading of contracts concluded before the entry into force of the reporting obligation for a given category of contracts.

The below numerical data show the range of use of RRM TGE by market participants as at the end of 2017:

- 15 924 175 reported operations regarding exchange orders;
- 8 254 186 reported exchange orders;
- 3 158 648 reported stock transactions;
- over 95 000 of the OTC transactions reported;
- over 107 200 market reports sent to the ARIS system;

- over 24 850 OTC reports sent to the ARIS system;
- over 550 entities using reporting services which represents over 90% of participants in the Polish energy market;
- 1475 users have access to the RRM TGE system.

Settlement system

An important advantage of trading on wholesale energy markets via TGE in comparison to trade carried out in the OTC formula (eg. through bilateral contracts) is the incomparably higher level of security of each transaction resulting from the regulatory requirements of TGE as an institution supervised by the KNF.

Settlement of transactions on TGE are made by means of Warsaw Commodity Clearing House (IRGiT), which as the first in Central and Eastern Europe (founded in 2010) operates Clearing House and the Settlement House, bearing full responsibility for finalizing the transactions concluded through TGE. Furthermore, IRGiT is a representative of TGE members and manages currency risk in intersystem transactions related to the Scandinavian market.

Conducting activities related to the settlement of transactions concluded on the TGE with the use of a separate, dedicated company, constitutes an additional guarantee of independence of TGE operation, and

ensures full security to trading participants in the financial certainty of concluded transactions. The applicable regulations and settlement system are very flexible and allow IRGiT to adjust both the forms and the amount of collateral deposits, to match the risk level associated with the business profile of a given market participant. The continuous implementation of high-quality and reliable IT systems, adapted to the constantly evolving regulatory and market environment, allows at the same time to enhance the applied settlement model towards being more and more user–friendly and intuitive. Responding in this way to the needs of market participants undoubtedly contributes to facilitating the conclusion of transactions and creates additional safeguard of the TGF interests.





TGE in 2017



TGE in 2017

At the end of December 2017, the status of a member on the Commodity Market was held by 72 companies. The number of members of the Certificate of Origin Register as at 31 December 2017 was 3 444 (increase by 474 members in 2017). There were 330 entities – members of the Guarantees of Origin Register at the end of 2017.

2017 was the second consecutive year during which liquidity on the electricity market was negatively affected by gradually lowering the volume of mandatory sales through exchange. Therefore, there was expected decline in the volume of trade in electricity on Commodity Forward Instruments Market. In 2017, the decrease in obligatory sales also affected the spot market, where the volume was lower than in the record year 2016 – yet it should be noticed that the level from 2015 was exceeded. On the natural gas market, where recently there were no such negative regulatory changes, for the second consecutive year, the annual turnover was the highest in the history of TGE. This time, however, it resulted from the increasing activity on the futures market, where the trading volume exceeded the previous record recorded in 2014. This impressive outcome was the effect of the high activity of participants as far as commodity supply in 2017 and in subsequent periods is concerned. However, the upward trend in the turnover on the spot market, which has taken place virtually since the beginning of its existence, eg.

from the end of 2012, was brought to a close.

For trading in electricity and natural gas derivatives, year 2017 was difficult due to the MiFID II Directive coming into force in 2018, the provisions of which give these instruments a new status and impose new obligations on entities organizing and effecting trade in such instruments.

The law deregulating gas prices for industrial customers entered into force in October 2017 which, from the point of view of TGE as the organizer of the wholesale market, should be assessed as beneficial, as importance of energy exchange in the process of price setting for this group of recipients will increase. In December 2017, the provisions on the obligation to sell electricity through the regulated market were changed, increasing its level to 30% of generated energy.

Last year an amendment to the law on renewable energy sources also entered in force. The subject of the amendment was a change in the rules for calculating the so–called unit substitute fee – departure from the fixed rate of PLN 300.03/MWh in favour of the amount grounded on the index calculated on the basis of session transactions completed in the previous calendar year. The amendment affected the course of OTC deals indexed to the level of the unit substitution fee, while remaining with

no effects to the revenues of the TGE Capital Group.

The amendment to the act on stock of crude oil, petroleum products and natural gas, and on principles of dealing with threats to the State's fuel security and disruption on the oil market, adopted in July 2017, has changed principles of natural gas mandatory storage. A general obligation, without any exceptions for energy undertakings, has been introduced. As a result, some of entities that used to be exempted from natural gas mandatory storage obligation resulting from import of natural gas have ceased the import. The following President of Energy Regulatory Office's data depict the result:

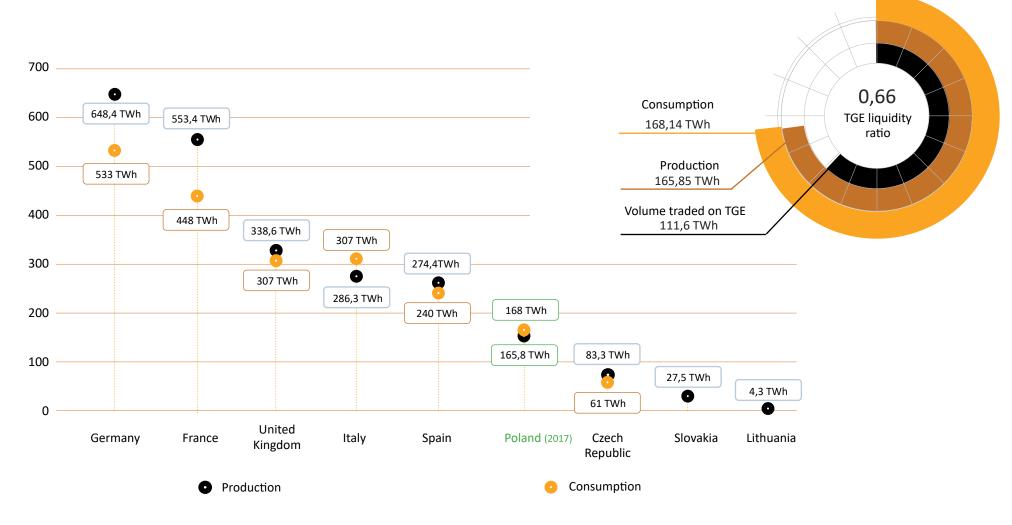
70 entities hold OGZ license (natural gas international trade license) at the beginning of 2017 whereas only 58 entities had this license in December 2017. The significant decrease in the number of entities engaged in trade activity (by 17%) affected natural gas exchange market.



Electricity production and consumption

Electricity production and consumption in selected EU countries (data as of 2016)

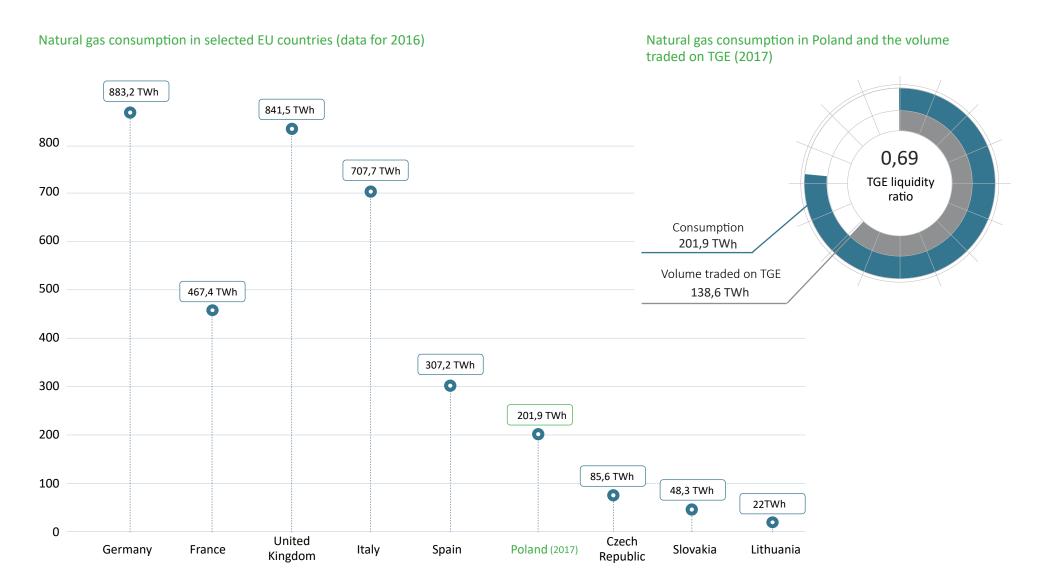
Electricity production and consumption in Poland and the volume traded on TGE (2017)



Sources: PSE, ERO, TGE, BP Statistical Report, enerdata



Natural gas consumption



Sources: PSE, ERO, TGE, BP Statistical Report, enerdata



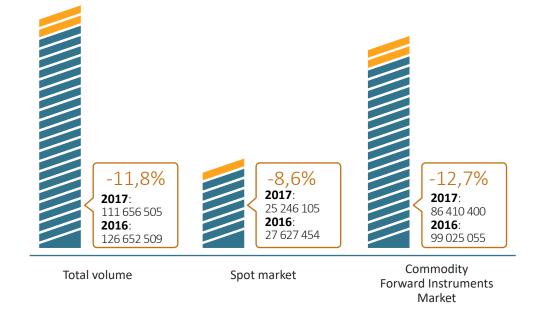
Electricity – volumes

The volume exchanged on the spot markets (DAM and IDM) decreased in comparison to 2016 by 8.6% and equalled to 25,246,105 MWh. One of the reasons was the reduction of the actual volume of mandatory electricity sales through the commodity exchange. The obligation was imposed on electricity producers entitled to receive state aid due to the termination of long—term contracts for purchase of electricity and capacity (PPA). Thus, gradual decrease in number of entities receiving state aid resulted in decrease in traded volumes.

The Commodity Forward Instruments Market, on the other hand, had seen the volume of turnover compared to 2016 lowered by 12.7%, which in absolute numbers meant a decrease down to 86,410,400 MWh in 2017. The main reason for the decline was — as in the case of spot markets — the cut in the mandatory volume of electricity sold through the exchange, stipulated in Article 49a para. 2 of the Energy Law Act (ie. concerning generators receiving support in connection with the termination of PPAs). Additional factor was the uncertainty of market

participants related to the implementation of the MiFID II Directive into national law, which particularly affected business behaviour in the first half of the year and transformed into significant reductions of turnover on futures markets in other EU countries.

Total electricity volume traded on TGE in 2017 (MWh)

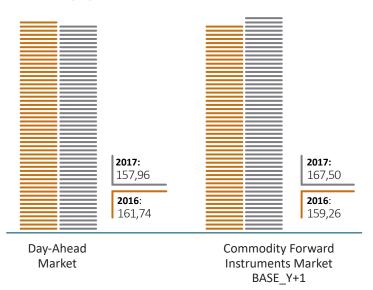




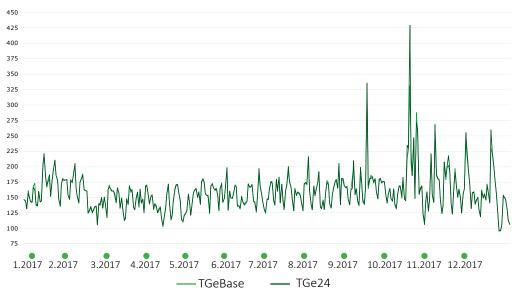
Electricity – prices

Prices on the TGE spot market remained in 2017 at a relatively low level, which was the opposite trend in comparison to other European exchanges, where prices rather were increasing throughout the year. However, growth was observed on the futures market – mainly for energy supplies in subsequent years: 2018 and 2019.

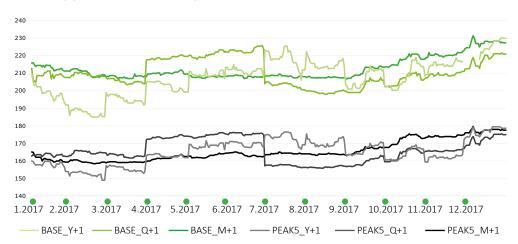
Electricity - prices (PLN/MWh)



Electricity prices on Day-Ahead Market (PLN/MWh)



Electricity prices on Commodity Forward Instruments Market (PLN/MWh)





2017 was the best year in the history of natural gas trading on TGE. The volume of turnover reached a record level of 138,656,413 MWh (increase by 21.1% compared to 2016). This impressive result was due to the high volume of trading on a futures market, which reached

level of 114,664,140 MWh (growth of 27.6% as compared to 2016). On the spot markets (DAMg and IDMg), the volume amounted to 23,992,273 MWh (a slight decrease compared to 2016 by 2.5%).

Total volume of natural gas traded on TGE in 2017 (MWh)

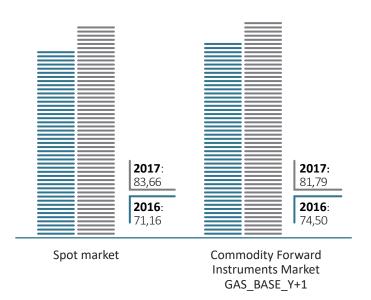




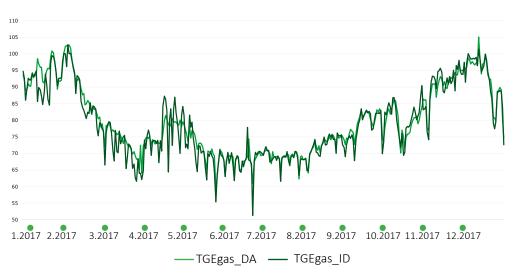
Natural gas – prices

With regard to price growth, it should be pointed out that the weighted average price on the spot markets in 2017 amounted to 83.66 PLN/MWh, which is by 12.50 PLN/MWh more than in 2016. On Commodity Forward Instruments Market for gas, the weighted average price of the contract with delivery in 2018 (GAS_BASE_Y-18) was 81.79 PLN/MWh in 2017, ie. 7.29 PLN/MWh higher than the analogous price of the GAS_BASE_Y-17 contract noted in 2016.

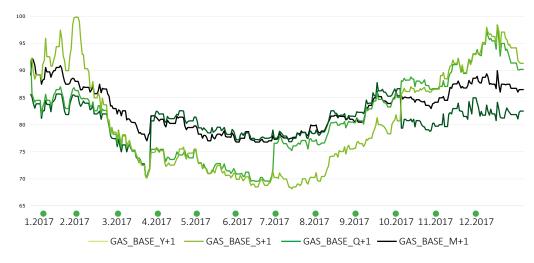
Natural gas - prices (PLN/MWh)



Natural gas prices on spot market (PLN/MWh)



Natural gas prices on Commodity Forward Instruments Market (PLN/MWh)





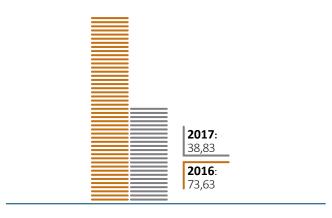
Property rights (green certificates)

The total volume of trade in property rights for electricity in 2017 amounted to 59,092,597 MWh. This volume represents an increase by 16.7% compared to 2016. In December, this volume amounted to 5,188,830 MWh – 29% more than in December 2016.

The volume of trade in green certificates alone (PMOZE and PMOZE_A instruments on the Property Rights Market and instruments on Commodity Forward Instruments Market) amounted to 30,055,941 MWh in 2017, which is 23.6% higher than in 2016. The volume of green certificates contracted at Property Rights Market sessions amounted to 10,031,341 MWh (increase by 35.9% YoY), and in case of instruments on CFIM – 1,070,000 MWh (increase by 121.5% YoY).

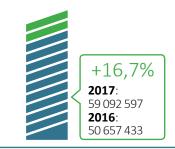
The weighted average price at Property Rights Market sessions in 2017 for the PMOZE_A instrument was 38.83 PLN/MWh, which signifies a decrease by 34.80 PLN/MWh as compared to 2016. In December, this price increased in comparison to November by 3.14 PLN/MWh, to the level of 44.94 PLN/MWh.

Property Rights (green certificates) - prices (PLN/MWh)



Weighted average price at PRM sessions (PMOZE A instrument)

Property Rights - volumes (MWh)



Volume of trade of electricity property rights



Volume of trade of green certificates on Property Rights Market



Volume of green certificates traded on Commodity Forward Instruments Market



RES in 2017

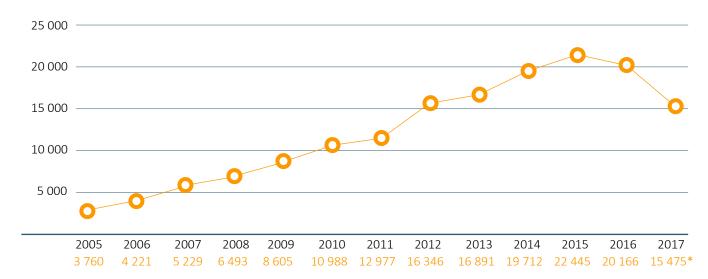
The volume of electricity generated from RES and the installed capacity of RES

To indicate a wider context, the data on the volume of electricity generated from RES since 2005, confirmed by issued certificates of origin, are provided below.

Regardless that the data for 2017 were not complete at the time of publication of this report, it is hard not to notice the downward tendency that had begun already in 2016 concerning the volume of electricity produced from RES, being awarded the certificate of origin. Undoubtedly, one of the reasons for this movement are changes in the system of support for renewable sources, consisting in the introduction of the so-called the auction system.

Nonetheless, it is worth to analyse other magnitude, essential to the development of RES: installed capacity of renewable energy sources.

The amount of electricity generated from renewable energy sources between 2005 and 2017, confirmed by certificates of origin, issued until December 31, 2017 (GWh).



*Data for 2017 include only certificates issued until December 31, 2017. As at the date of the report, the full 2017 figures that were to be published after the first quarter of 2018 were not known. At the same time, according to the ERO, as at 31 December 2017, the procedure for issuing the certificate of origin covered 2,305 GWh of the volume of electricity generated from RES in 2017.

Source: ERO



Installed capacity, as can be seen from the underneath data, has been steadily increasing over the past 13 years, although it should be noted that there is significant decline in the growth rate in the last year; an increase of just under 150 MW, compared to over 1 400 MW in 2016.

Installed capacity of RES in the years 2005–2017 (MW)



Source: ERO



Property rights (efficiency certificates)/ Guarantees of Origin Register

Property rights (efficiency certificates) – volumes and prices

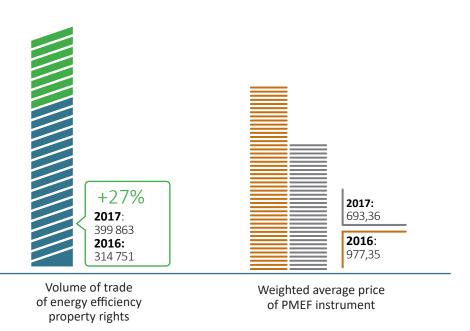
The turnover of so-called "white" certificates (PMEF) significantly increased in 2017. Turnover of session transactions amounted to 247,163 TOE whereas the respective value for non–session transactions was 152,700 TOE. Thus, the total volume of trade in property rights for energy efficiency in 2017 amounted to 399,863

TOE. This means the best result in the history of quotations on TGE and an increase by 27% YoY. The average weighted annual price on sessions dropped by PLN 283.99 PLN/TOE, to reach 693.36 PLN/TOE. In December, this price fell in relation to November by 83.57 PLN/TOE and amounted to 385.56 PLN/TOE.

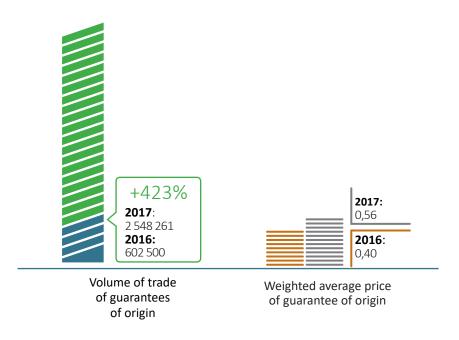
Guarantees of Origin Register – prices and volumes

330 companies were active participants of the Guarantees of Origin Register at the end of 2017. The transaction volume in 2017 amounted to 2,548,261 MWh, which is a significant increase compared to the previous year (602,500 MWh). As for the weighted average price (0.56 PLN/MWh), the change was less spectacular, although also noticeable (0.40 PLN/MWh in 2016).

Property rights (efficiency certificates) - volumes (toe) and prices (PLN/toe)



Guarantees of origin - volumes (MWh) and prices (PLN/MWh)





Steam coal price index – according to ARP data – loco mine for public and autoproducer power plants (PSCMI 1) at the end of December 2017 amounted to 212.66 PLN/t (increase by 0.59% compared to November 2017), and the price for 1 GJ of energy increased by 0.73 % reaching the price of 9.64 PLN/GJ. Whereas steam coal price index loco mine for industrial and municipal heating plants (PSCMI 2) increased by 6.69% at the same time and it amounted to 273.82 PLN/t. In terms of price per unit of energy the index increased by 6.5%, reaching the price of 11.31 PLN/GJ.

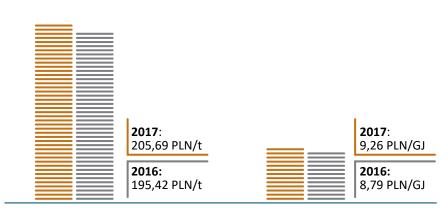
The change in month indexes compared to December 2016 amounted to 22.17 PLN/t for PSCMI 1 (increase by 11.64%) and 60.08 PLN/t for PSCMI 2 (increase by 28.11%). In the case of prices of 1 GJ of energy the price increased respectively YoY by 1.03 PLN/GJ (11.96%) and 2.51 PLN/GJ (28.52%).

Quarter index PSCMI 1 amounted to 210.95 PLN/t and 9.54 PLN/GJ. This represents an increase by 2.92% and 2.58%, respectively compared to the third quarter. Quarter index PSCMI 2 amounted to 259.50 PLN/t and 10.70 PLN/GJ. This represents an increase by 8.99% and 6.15%, respectively compared to the third quarter.

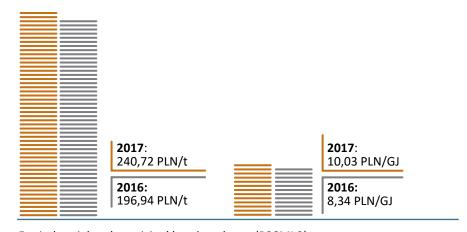
Quarter index PSCMI 1 increased YoY by 21.10 PLN/t (11.11%) and 0.96 PLN/GJ (11.19%); PSCMI 2 increased YoY by 51.58 PLN/t (24.81%) and 2.04 PLN/GJ (23.56%).

Yearly index PSCMI 1 amounted to 205.69 PLN/t and 9.26 PLN/GJ. This represents an increase YoY by 5.26% and 5.35%. Yearly index PSCMI 2 amounted to 240.72 PLN/t (it increased by 22.23%) and 10.03 PLN/GJ (it increased by 20.26%).

Steam coal price index (PLN/t and PLN/GJ)



For public and autoproducer power plants (PSCMI 1)



For industrial and municipal heating plants (PSCMI 2)





CSR



Corporate Social Responsibility

RESPECT Index

On December 14, 2017, the WSE announced a new composition of the socially responsible companies index (RESPECT Index). As a result of the verification carried out by Deloitte, 28 companies will be included in the 11th edition of the index, including three new ones: Agora, Inter Cars and mBank, and two returning – Bank Ochrony Środowiska and Jastrzębska Spółka Węglowa. Subsequently, in the next edition of the RESPECT Index, the number of qualified companies is the highest in history. The RESPECT Index is a continuation of the activities of the Warsaw Stock Exchange, undertook in 2009, which resulted in the creation of the first index of responsible companies in Central and Eastern Europe.

The RESPECT Index project aims to select companies managed in a responsible and sustainable manner, but also strongly emphasizes the investment attractiveness of companies, which is characterized by quality of reporting, level of investor relations or information governance.

The periodical survey is addressed to Polish companies listed on the WSE Main Market and is aimed at updating the composition of the RESPECT index.

The RESPECT Index, as a result of verification of the fulfilment of the specific criteria, includes exclusively listed companies acting in accordance with the best management standards in the field of corporate governance, information governance and investor relations, as well as in the areas of ecological, social and labour policies.

CSR Strategy

TTGE has adopted a Strategy for Corporate Social Responsibility (CSR) of the WSE Group, which provides market participants unequivocal signal confirming that the TGE carries out its business objectives within the Group WSE responsibly and as transparent as possible, while conducting regular dialogue and cooperation with representatives of all stakeholders. Social, ethical, sustainable development, and environmental issues are important elements that shape daily activities of TGE. The implementation of the CSR Strategy is aimed at continuous improvement of the broadly understood quality of the domestic capital market, in particular with the use of such activities as educational programs, promotion of the highest standards in the field of corporate and communication governance, cooperation and active dialogue with market participants, as well as stimulating cooperation and contacts between the stakeholders themselves.

The CSR strategy of the GPW Group is based on four key elements:

- activities for the market;
- educational activity;
- relations with employees;
- activities for the environment.

Relations with employees

Taking care of the highest standard of safety and comfort of its employees and pursuing CSR goals, TGE adopted and implemented in 2015 the **Occupational Safety and Health Policy**. The implementation of health and safety standards is a clear confirmation that caring for a healthy, safe and friendly work environment and supporting the development of employees' professional potential is one of the key priorities of TGE.

Another element of the efforts of TGE to ensure appropriate relations both between workers themselves and workers and the authorities of the Company, is the adoption of the **Code of Ethics** (used by all TGE employees), which is a set of values and principles aiming to ensure the functioning of the TGE not only in accordance with applicable law, but also in a fair and ethical way. The adoption of this document enables employees to apply rules of conduct that promote a culture of action in accordance with applicable law, as well as in a way that respects ethical criteria as well as rights of all energy market stakeholders.

An equally important component of the Corporate Social Responsibility Strategy realized by the TGE is the popularization of **employee volunteering**, under which the companies from the TGE Capital Group provided financial support to the Care and Education Institution in Franciszków (Łódzkie Voivodeship, Kutno District) and two Family Children's Homes in Ruszków. Every year employees of the TGE Capital Group prepare Christmas packages for pupils, as well as run seasonal collections of clothes and help in obtaining equipment necessary for these facilities.



Environmental activities

TGE treats the environmental protection issues as one of the foundations of its activity as a participant in the European energy market. Hence, the Company adopted the **Environmental Policy** in 2015. This document is based on TGE's key obligations to care for reducing the impact of its activities on the natural environment through:

- operating in accordance with public law and internal regulations regarding the protection of the natural environment;
- continuous care for the prevention of environmental pollution and setting goals in the field of environmental protection and regular monitoring of their implementation;
- rational use of electricity;
- efficient management of paper;
- attention to reducing CO₂ emissions;
- conducting responsible waste management;
- promoting ecological attitudes among its clients, including the TGE Members;
- providing employees with information increasing environmental awareness.







Towarowa Giełda Energii S.A.

Książęca Street 4 00-498 Warsaw

tel.: +48 22 341 99 12 fax: +48 22 341 99 10

tge@tge.pl

Market Operations Department

Helpline: +48 22 341 99 66 fax: +48 22 341 99 20

bcg@tge.pl

Business Development Office

market@tge.pl

GPI/REMIT Office

gpi@tge.pl

Registry Office

Helpline: +48 22 341 99 24 fax: +48 22 341 99 25

rejestr@tge.pl

Press Office

press@tge.pl



