

Polish Power Exchange and European markets - trading volumes and position

July 2014





Agenda

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 - POLPX – Who We Are
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 - Annual sales revenue of POLPX
 - POLPX Group – three business areas
 - POLPX members
 - POLPX implements its strategy in favorable environment
 - POLPX an important player on the energy market
 - Year 2013 – the best year ever for POLPX
- **Polish Power Exchange and European Markets**
 - Poland is one of the biggest energy markets in the EU
 - One of the key success factors is diversity of POLPX offers
 - Investment behaviour is similar on power exchanges in the region
 - Today Poland is a liquid energy market
- **Areas of POLPX's activity Commodity Market**
- **Areas of POLPX's activity Financial market**
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POLPX – Who We Are



POLPX – Who We Are

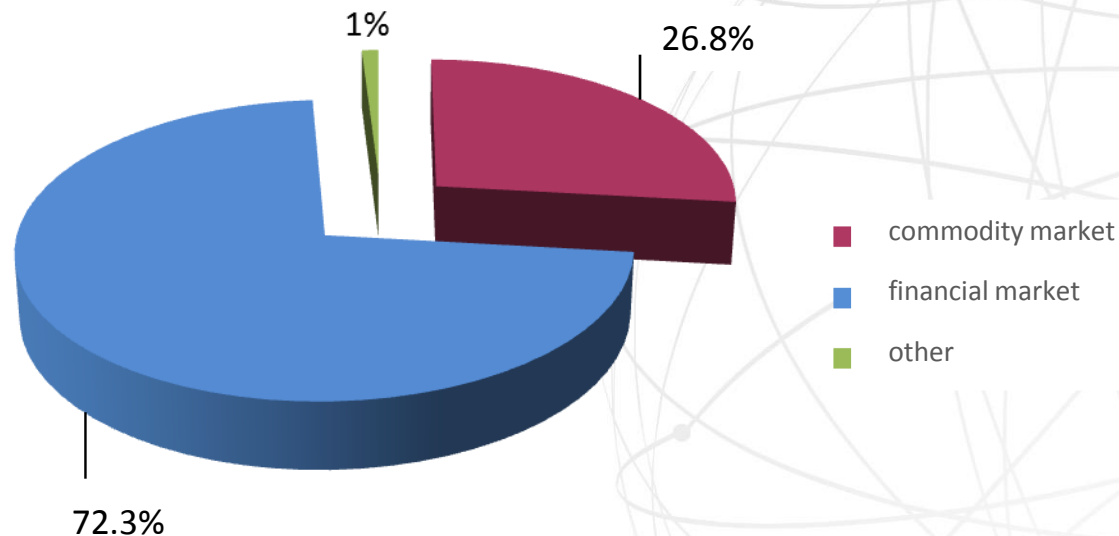
POLPX was founded at the end of 1999, on the initiative of the Minister of State Treasury, as the crucial component of electricity market liberalisation in Poland.

- **The only licensed power exchange in Poland – under the supervision of the Polish Financial Supervision Authority**
- **Since February 2012 POLPX has been a subsidiary of the Warsaw Stock Exchange**
- **Fastest-growing commodity exchange in the region – an active member of:**
 - **EUROPEX** (organisation uniting electricity exchanges based in Europe, including commodity and financial markets)
 - **APEX** (Association of Power Exchanges – a global organisation)
 - **AFM** (Association of Futures Markets)
- **POLPX operates markets for electricity, natural gas and property rights**
- **POLPX and international markets – market coupling with Sweden has been in place since December 2010. Efforts are underway to join the NWE market as part of the Price Coupling of Regions initiative**

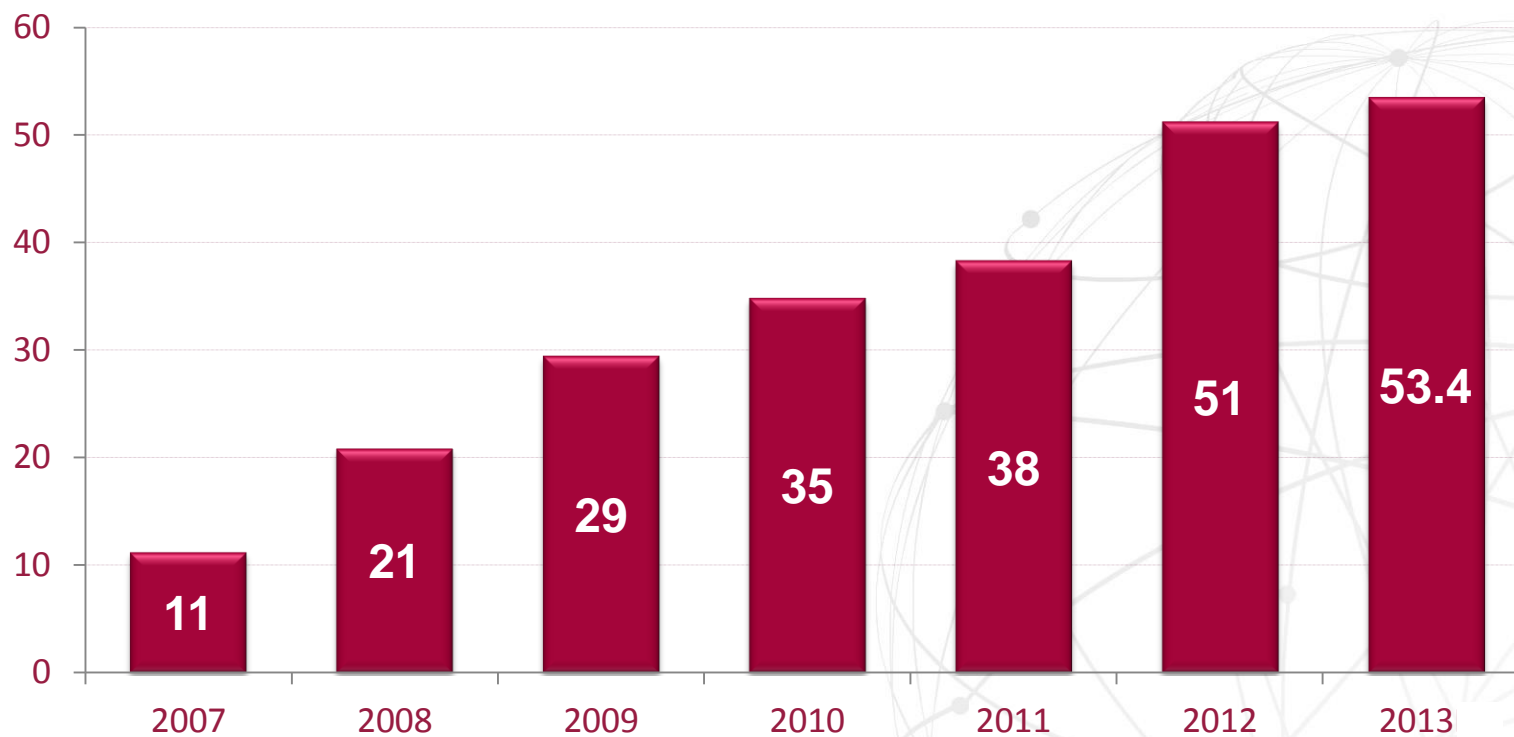


Breakdown of the WSE Group revenues in 2013

- Record-breaking revenues of the WSE Group - PLN 283.8 million
- Growth by PLN 9.9 million (+3.6%) against the 2012 level – driven by growing revenues from the commodity market – PLN 76 million (+21.3% YoY)
- Revenues from the commodity market account for 26.8% of the overall the WSE Group revenue



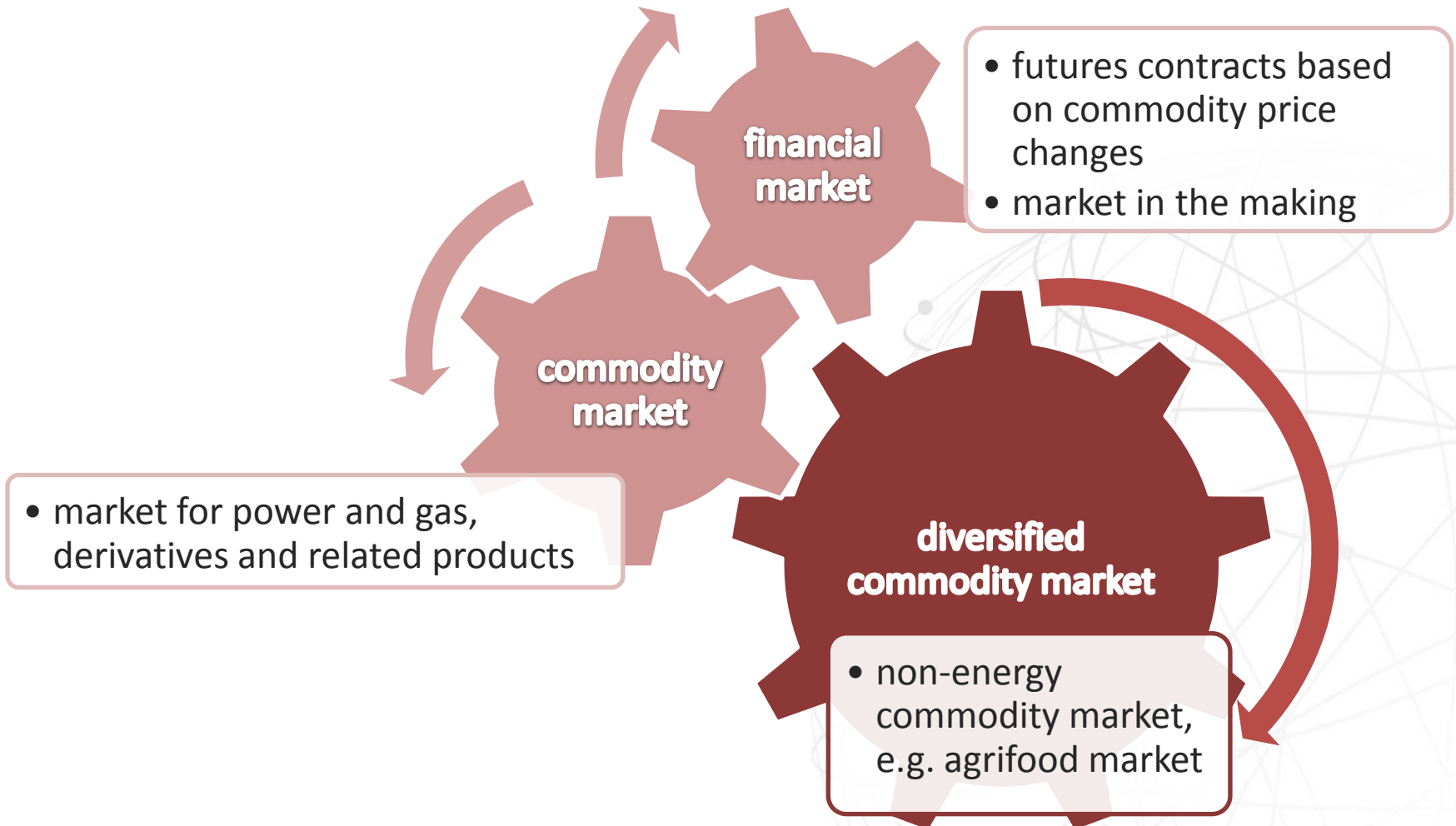
Annual sales revenue TGE S.A. (PLN mn)¹



¹ POLPX separate revenue (without Warsaw Commodity Clearing House data)



POLPX Group – three business areas



POLPX members

- **Currently, 59 entities have the status of a POLPX member, including:**
 - PGE Polska Grupa Energetyczna S.A., PGNiG S.A., GAZ-SYSTEM S.A., TAURON Polska Energia S.A., ENEA S.A., ENERGIA Obrót S.A., PKP Energetyka S.A., RWE Polska S.A., EDF Polska S.A., Vattenfall Energy Trading Sp. z o.o., Zespół Elektrowni PAK S.A., Noble Securities S.A., CEZ Towarowy Dom Maklerski Sp. z o.o., PGE Dom Maklerski S.A.
- **In total, 31 entities are actively operating on the gas market, either directly or through brokerage houses. 8 companies are admitted to transact directly.**
- **Certificate of Origin Register – currently 2003 entities are members of the COR**





POLPX implements its strategy in favorable environment

Market environment elements that facilitate and might potentially boost TGE development

Legal obligations:

- commodity exchange obligation on gas and electricity markets
 - monopoly for registers of certificates of origin

REGULATION

MARKET SIZE

Operations on seventh biggest electricity market in European Union

- domestic annual power production of approx. 160 TWh

Operations on eighth biggest natural gas market in European Union

- annual domestic natural gas consumption of 16.6 bcm

International connection with three power systems in Europe:

- NWE system via Sweden and Germany
- CEE connection via Czech Republic and Slovakia
- non-EU countries via Ukraine

GEOGRAPHY

GROWTH PERSPECTIVES

• Beginning of development of liberalized natural gas market in Poland

• Plans to launch financial market for energy products

• Activities in the international energy arena, in particular:

- participation in XBID project for international intraday market
- PCR (Price Coupling of Regions)
- Market Coupling in CEE





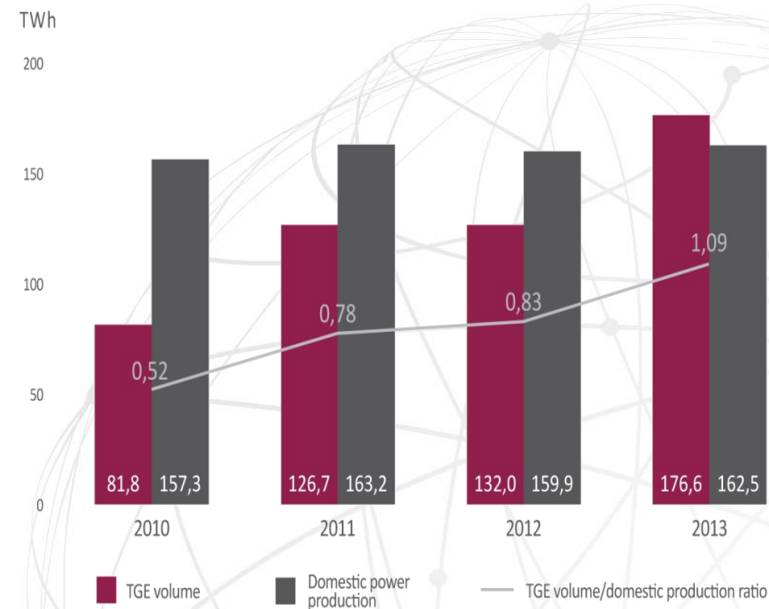
POLPX an important player on the energy market

POLPX has operated for 15 years

History of TGE



The last 4 years were a period of rapid growth



Legislation and appropriate product offers have resulted in doubling energy volume at POLPX

Year 2013 – the best year ever for POLPX

- Record-breaking volume level in the electricity markets in 2013 – over 176.5 TWh, an increase of 33.76% from 2012 (132 TWh)
- The combined volume of trade at POLPX in 2013 corresponds roughly to 108.64% of Poland's power generation for the year and 111.75% of its total consumption.

Electricity generation in Poland in 2013 according to PSE (TSO) figures – 162,501 GWh, total consumption - 157,980 GWh.

- The volume of electricity scheduled by POLPX for the following day from the CFIM, DAM and IDM markets amounts to approx. 82 TWh, which means that in 2013 deliveries contracted through the Exchange physically accounted for approx. 65% of the domestic wholesale market volume and approx. 52 % of the domestic demand for electricity
- A 35% increase on the volumes scheduled in 2012 (approx. 61 TWh) was observed.



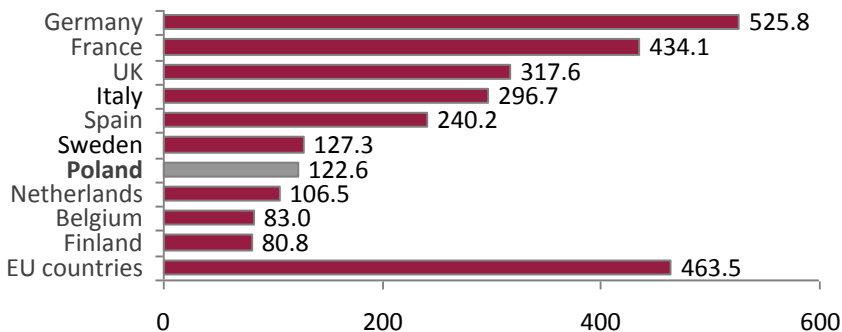
POLPX and European markets



Poland is one of the biggest energy markets in the EU

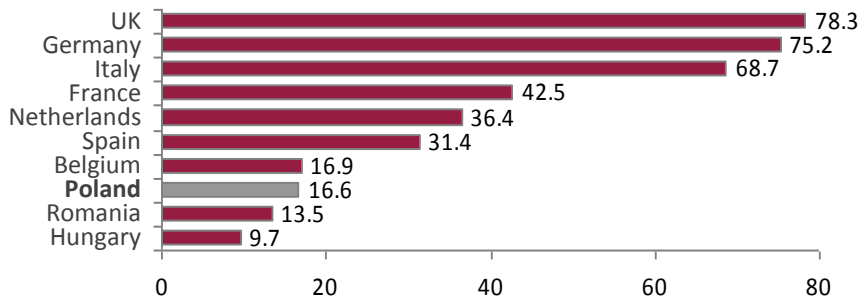
Among the top electricity consumers in the EU

Energy consumption in 2012 (TWh)

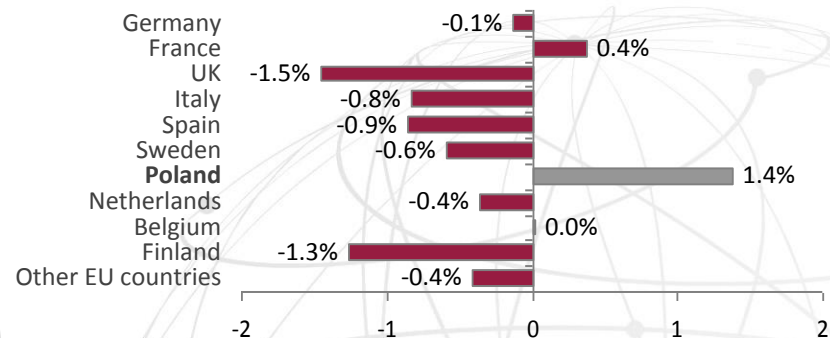


And the top natural gas consumers

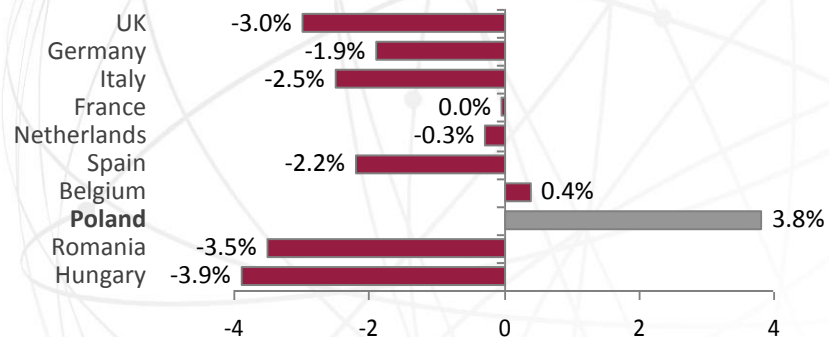
Natural gas consumption in 2012 (bcm)



The Polish market has grown at the fastest pace CAGR – Compound Annual Growth Rate of energy consumption in the EU in 2007-2012



CAGR of gas consumption in the EU in 2007-2012



One of the key success factors is diversity of POLPX offers

Product offerings at selected power exchanges

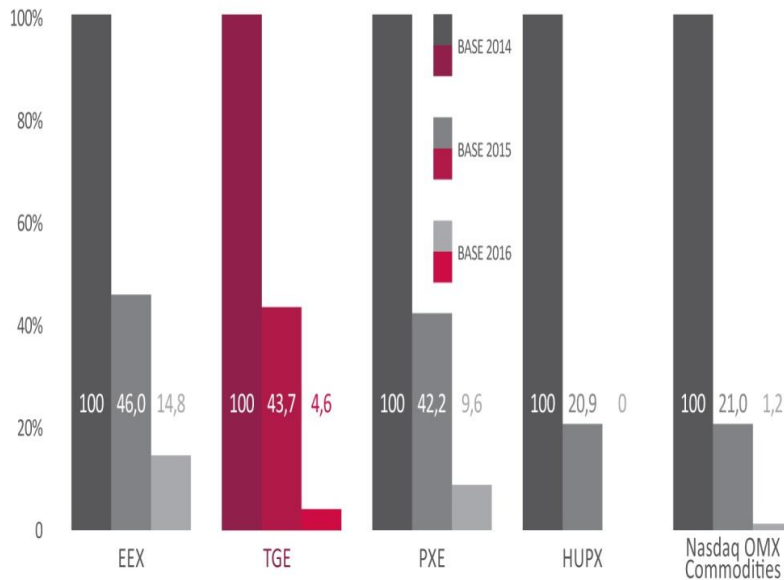
	Power				Gas			Other products
	Spot	Futures /Forwards	CO ₂	Options	Spot	Futures /Forwards	Options	
TGE	●	●	●		●	●		
HUPX	●	●						
APX	●							
EEX	●	●	●	●	●	●	●	●
Powernext	●				●	●		
ENDEX		●		●	●	●	●	●
PXE		●						
OTE	●				●			
Nord Pool	●							
Nasdaq OMX Commodities		●	●	●		●	●	●

POLPX product offers resembles those of top power exchanges in the EU. It includes spot and forwards products for power and gas

Investment behaviour is similar on power exchanges in the region

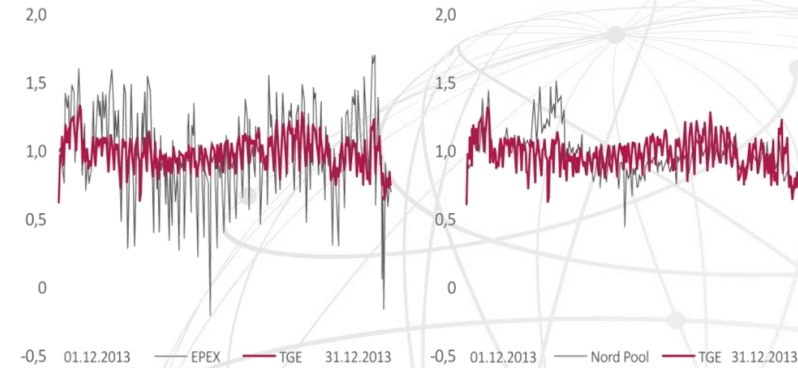
Volume of yearly BASE power contracts¹

Volume of yearly BASE contracts compared to BASE 2014

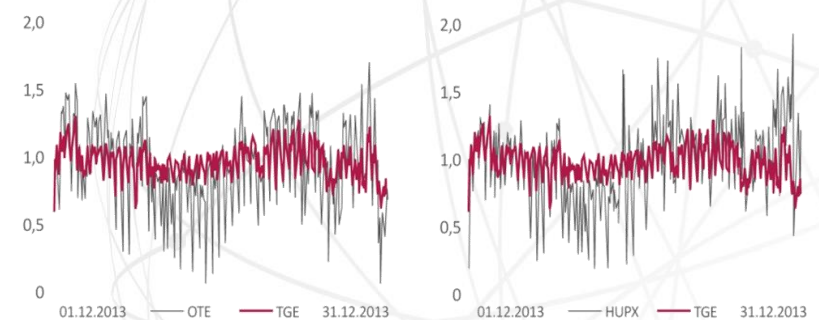


Similar price trends at neighbouring exchanges

Price trends on spot markets of NWE countries compared to TGE spot market



Price trends on spot markets of CEE countries compared to TGE spot market



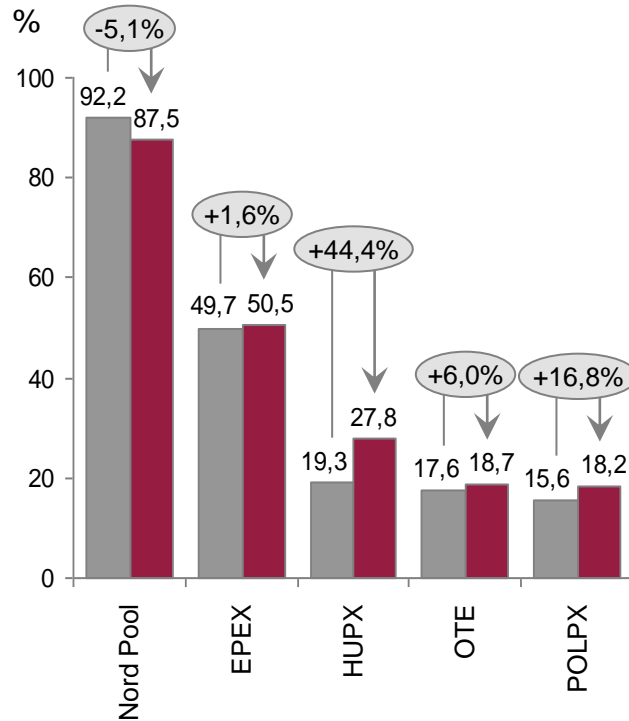
¹ As compared to total purchases of yearly BASE 2014 power contracts

Sources: Reuters, power exchanges

Today Poland is a liquid energy market

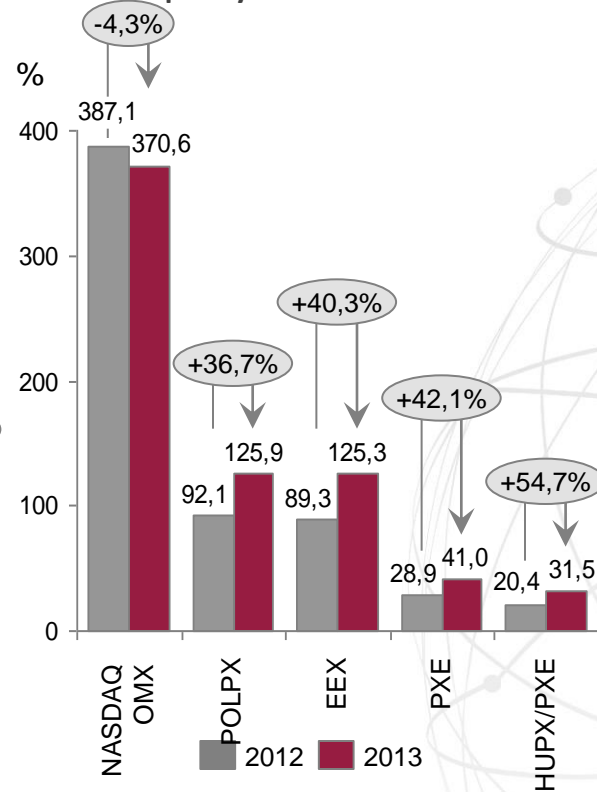
Liquidity of NWE markets is higher than in CEE

Liquidity ratio on spot markets¹



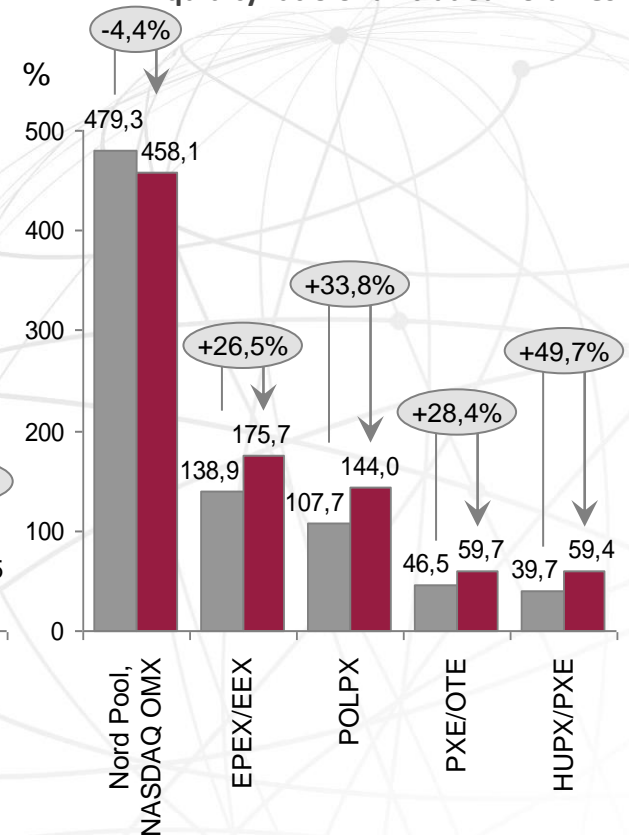
but derivatives market at POLPX is similar to EEX

Liquidity ratio on derivatives market¹



Traded volumes in Poland make the market liquid

Liquidity ratio of all traded volumes¹

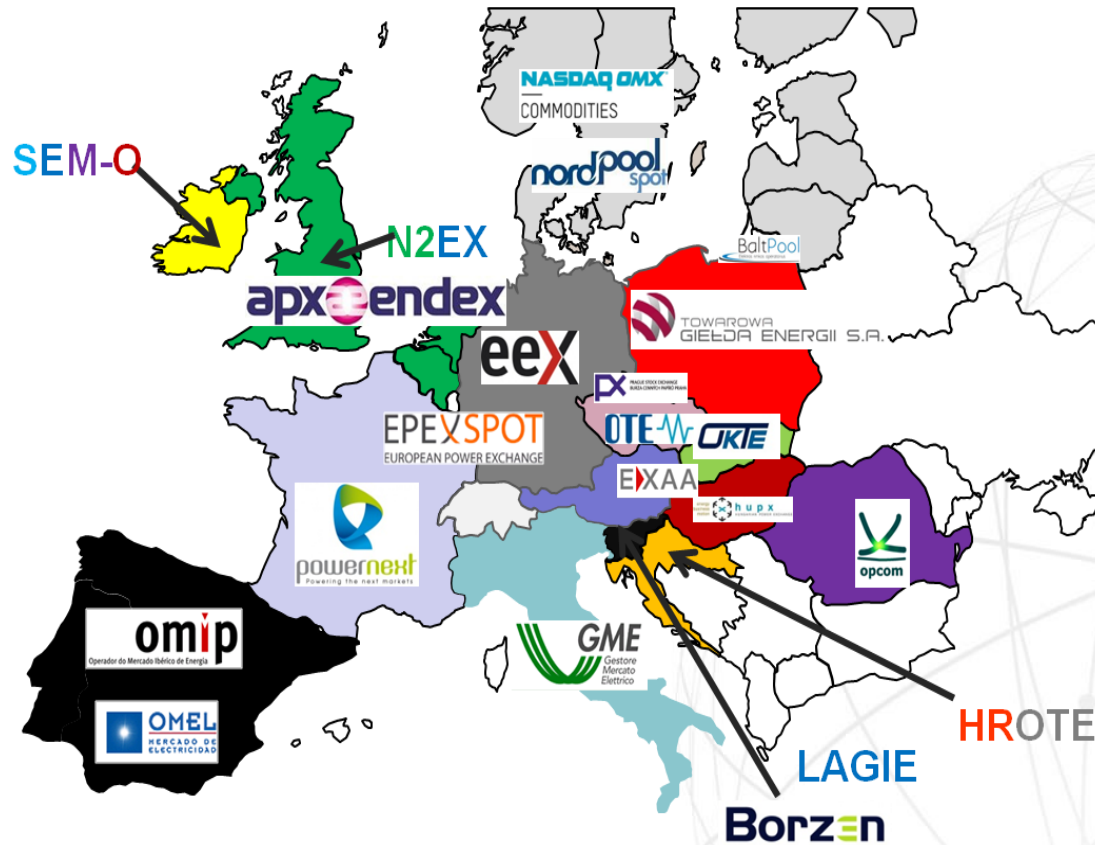


¹Traded volumes are compared to final energy consumption of electricity in 2012

Sources: power exchanges, Eurostat



Power exchanges in Europe



Areas of POLPX's activity

Commodity Market

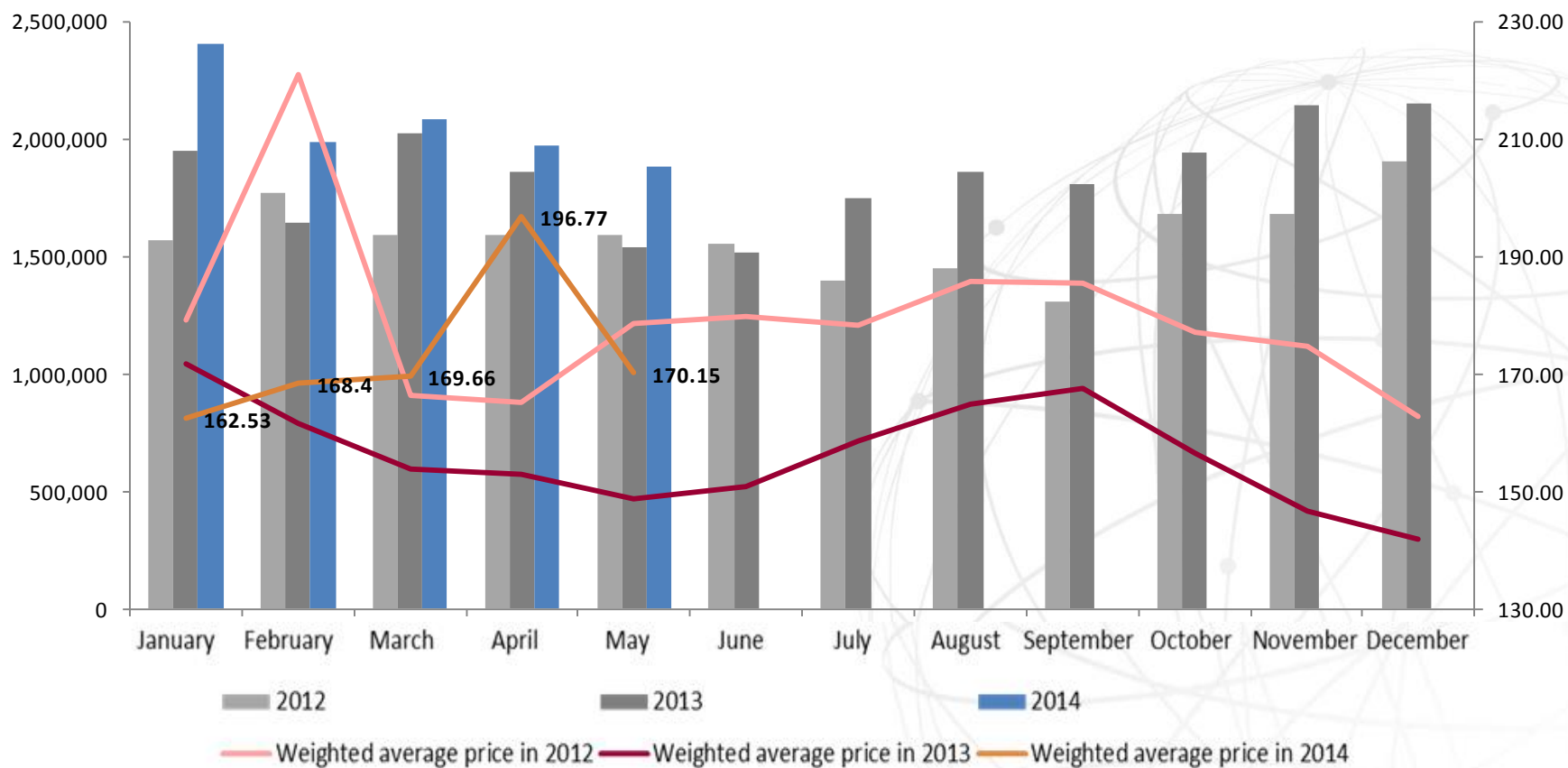


Key areas of POLPX activity – commodity market

- **Trade in exchange commodities on the following markets:**
 - **DAM&IDM** - Day-Ahead and Intraday Market for electricity
 - **DAMg** – Day-Ahead Market for natural gas
 - **CFIM** –Commodity Forward Instruments Market with Physical Delivery – for electricity and gas forward instruments
 - **PRM** – Property Rights Market – for property rights referred to in Article 2 section 2 points d) and f) of the Act on Commodity Exchanges
 - **EAM** – Emission Allowance Market for emission allowances
- **Keeping the Certificate of Origin Register**

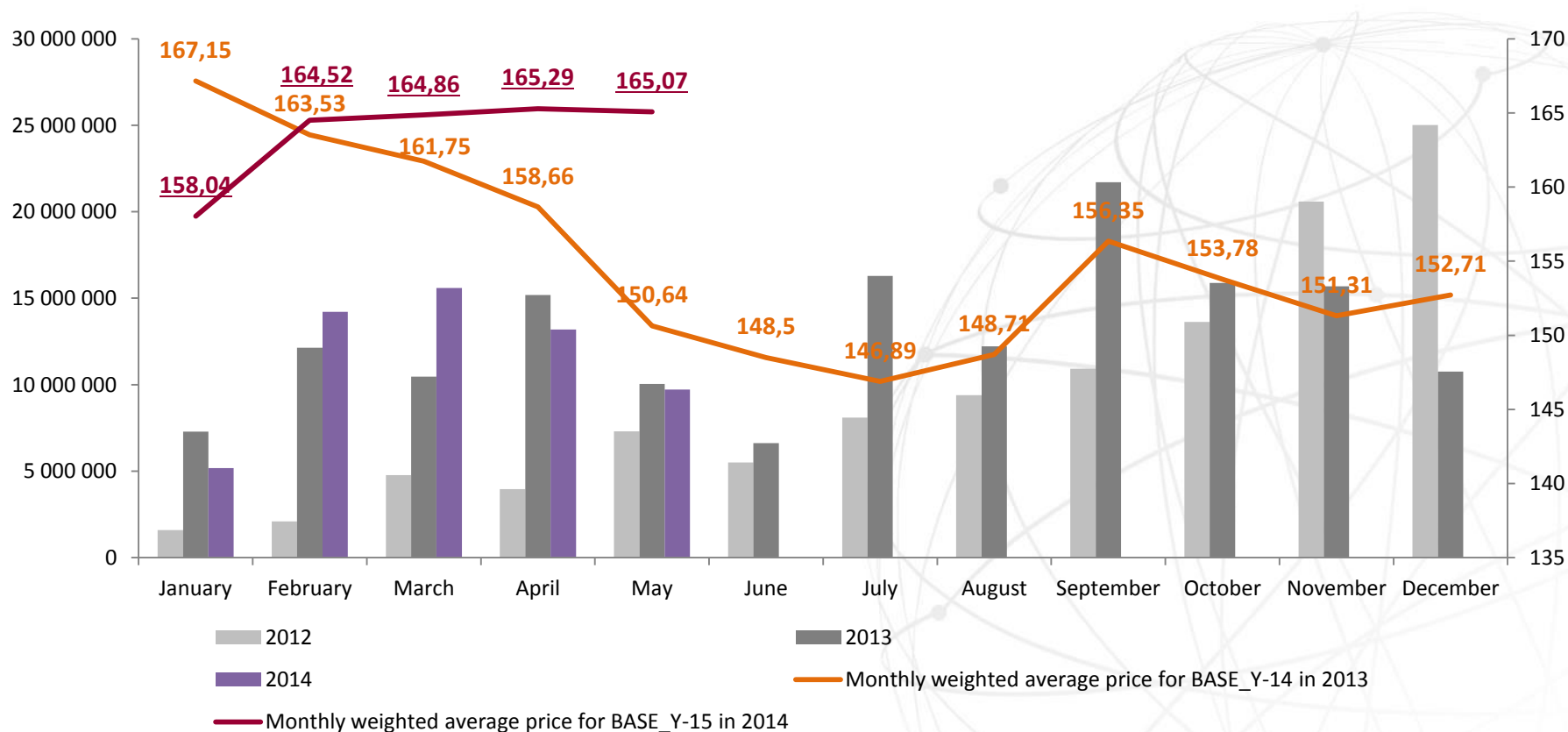
including the property rights arising from the certificates of origin, according to the principles set forth in the Energy Law Act, the Energy Efficiency Act and in the Rules for the Certificate of Origin Register maintained by the Polish Power Exchange.

Day Ahead Market and Intraday Market (DAM&IDM) for electricity – volume of trade and Average Weighted Price between 2012-2014



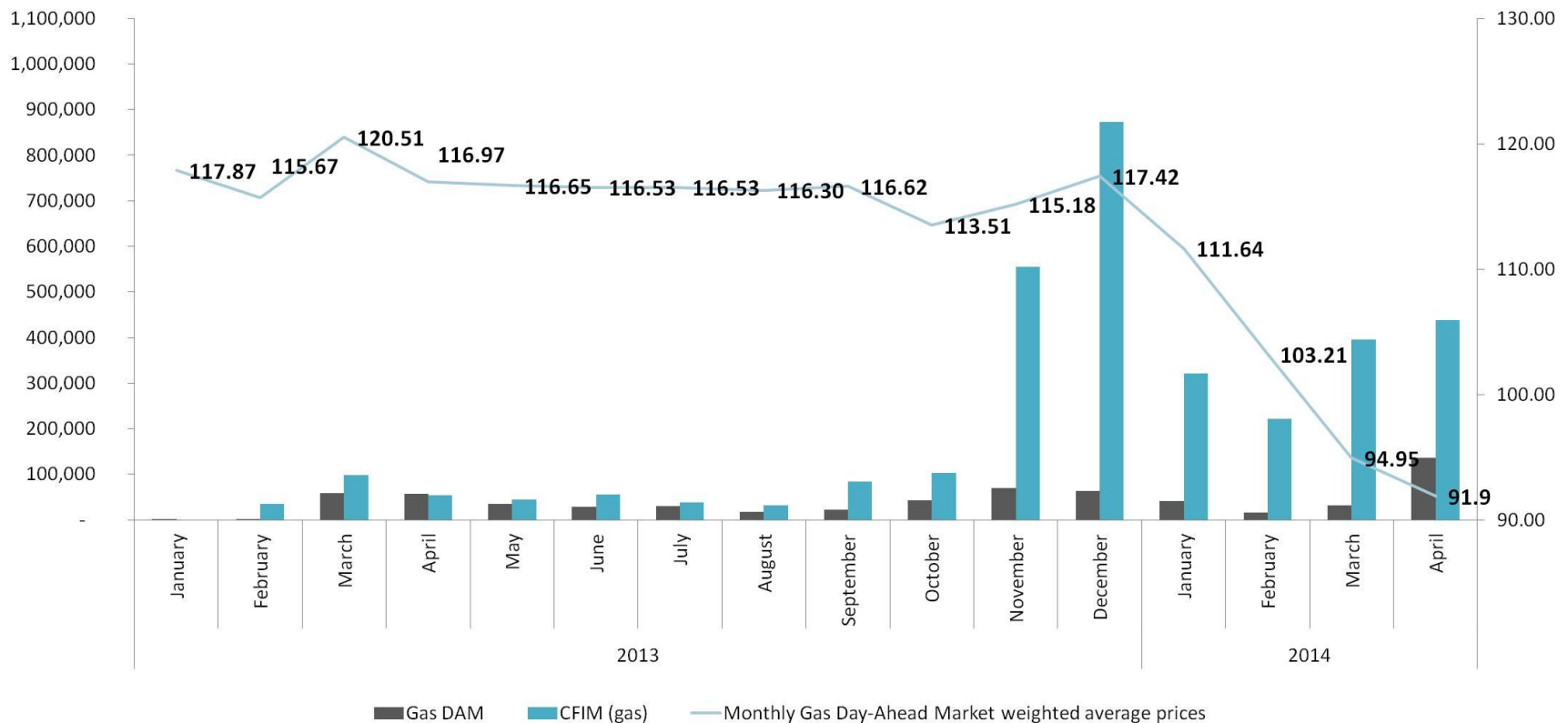
Commodity Forward Instruments Market with Physical Delivery (CFIM) for electricity between 2012-2014

Monthly volume-weighted average transaction price (MWh) for BASE_Y-14 in 2013 and BASE_Y-15 in 2014





POLPX gas market in 2013/2014 Volumes (MWh) and prices (PLN/MWh)



Areas of POLPX's activity

Financial market





Financial market

In 2015, POLPX plans to launch a financial market and offer futures contracts for electricity price index (financial contracts settled in cash).

- Futures contracts as a tool for electricity price hedging
- Futures are an easier and more flexible instrument to manage – market participants want to hedge the purchase price in the first place, without a commitment as to the volume position

Motivation for transacting in the market:

- Hedging, arbitrage and speculation
- Plans to introduce new gas-based contracts and other commodity products in the future:

Motivation for launching the financial market:

- Respond to the expectations of POLPX members, investors, customers and financial institutions
- Strengthen the position of POLPX in the region, a natural complement to the current product offering - the POLPX's Commodity Forward Instruments Market is the second largest market in Europe
- Attract new players from the finance industry, investors – Members of the Financial Instruments Market (FIM): investment companies (brokerage houses/banks – domestic and foreign) and energy companies

Legal procedure – time schedule

1. On 17 March 2014, POLPX submitted an application to the Ministry of Finance to obtain a permit to operate an exchange within the meaning of the Act of 29 July 2005 on Trading in Financial Instruments
2. Currently, the Polish Financial Supervision Authority (PFSA) is carrying out administrative proceedings concerning the above-mentioned application (extended until 20 July)
3. Decision of the Minister of Finance
4. Consultations with market participants (contracts/principles, quotations/market makers recruitment)
5. Definition of the contract standard (resolution of the POLPX Management board) and drafting of the Trading Terms
6. Application to PFSA for approval of the Trading Terms
7. PFSA decision
8. Launch of trading – 1st step of the implementation of a new trading system at POLPX

Final date of market launch depends on:
Granting of necessary licence by the MoF
Approval of the Trading Terms
Implementation of 1st part of the new trading system

FIM development prospects

In Scandinavian countries, the spot market accounts, on average, for 70% of the electricity consumption in this area.

The market for electricity-based financial instruments trades 4 to 6 times the consumption volume in the Nordic countries.

The majority of the Scandinavian market participants confirm (according to a survey carried out by regulators from the Nordic countries) that attractive options for hedging the future price on the financial market encourage them to increase the spot market volumes instead of taking long-term volume positions.

FIM development prospects, continued

- As a next step, the trading in the following instruments will be launched:
 - gas futures
 - green certificate futures
- **POLPX will present the financial market implementation plans after their acceptance by the PFSA and consultations with market participants.**



POLPX / Towarowa Giełda Energii S.A.

press@tge.pl

+48 885 885 645

+48 607 030 573

WSE Investor Relations

+48 22 537 72 50

ir@gpw.pl

