



POLISH POWER EXCHANGE (TGE) IN THE EUROPEAN POWER AND GAS MARKETS



TOWAROWA GIEŁDA ENERGII
TRADING / GUARANTEEING / EDUCATING

tge.pl

The TGE Group consists of three entities that play complementary roles in creating a friendly and safe business environment for market participants.



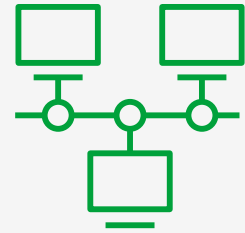
TGE has been implementing innovative solutions in the field of trade in energy and agricultural products for over 20 years, ensuring the safety of trading on its markets. It is the Poland's only licensed commodity exchange authorised to operate a regulated market.



Warsaw Commodity Clearing House is responsible for transaction clearing and risk management with respect to the markets operated by TGE.

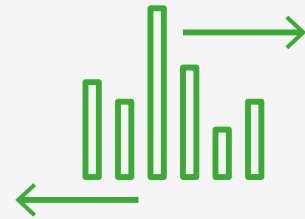


Info Engine acts as a commercial and technical operator and is responsible for balancing; it is also implementing processes for the marketing of PV engineering solutions.



Integrating the market

TGE acts as an integrator and creator of wholesale trade in Poland. The wide range of exchange products reflects the needs of market participants.



Creating prices

The concentration of trading in one place allows for the determination of a reference price, which serves as a point of reference for bilateral transactions concluded on the balancing market and is the basis for the calculation of price indices.



Guaranteeing secure trading

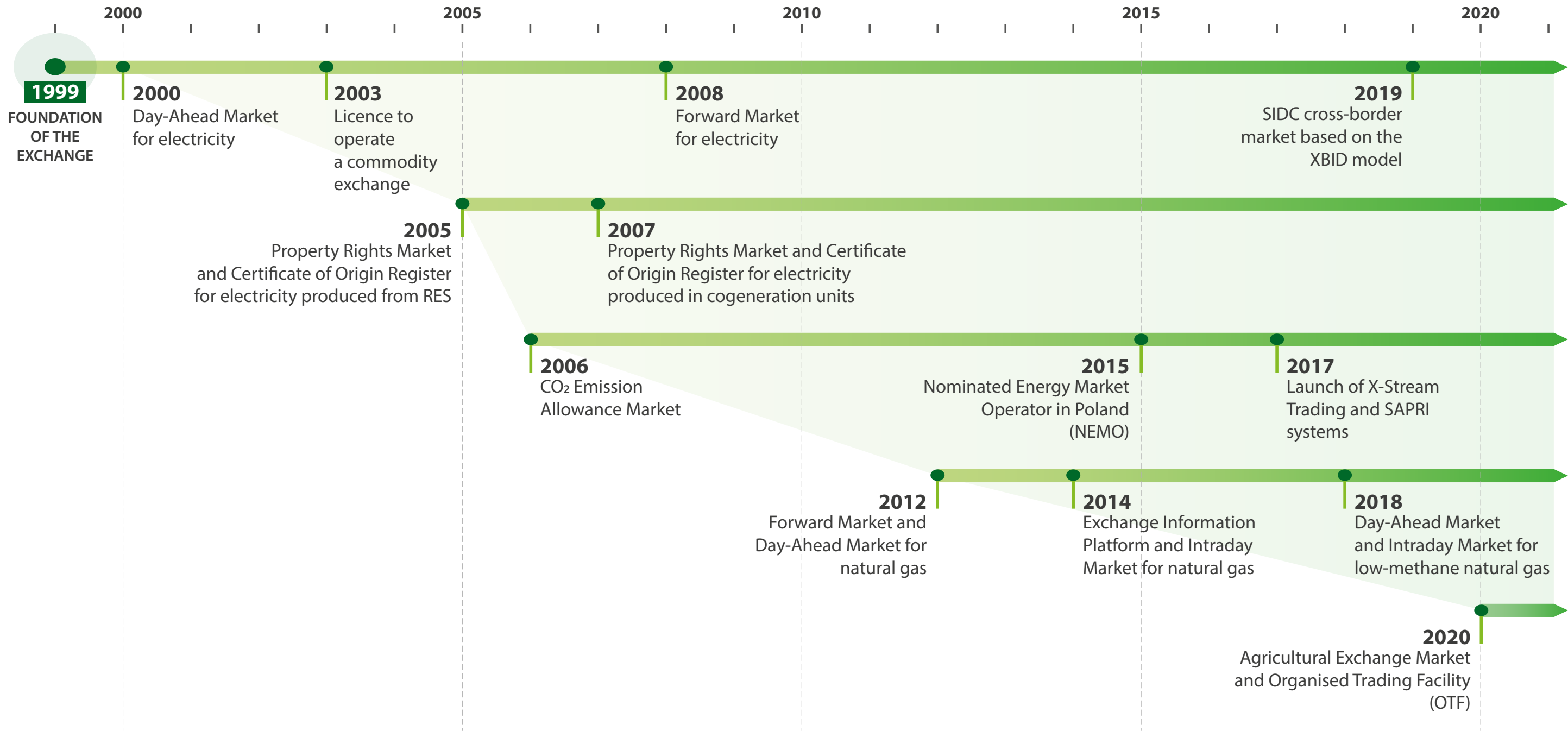
All markets operated by TGE guarantee full security of trading. The implemented systemic solutions and surveillance procedures effectively protect market participants against risks related to counterparty financial condition, manipulation or unfair trading practices.



Providing market information

TGE ensures access to reliable and up-to-date market information for its members and other interested parties. This enables them to make informed business decisions. TGE publishes market data through its platforms including:

- > tge.pl,
- > tge.gpi.pl,
- > air.tge.pl.





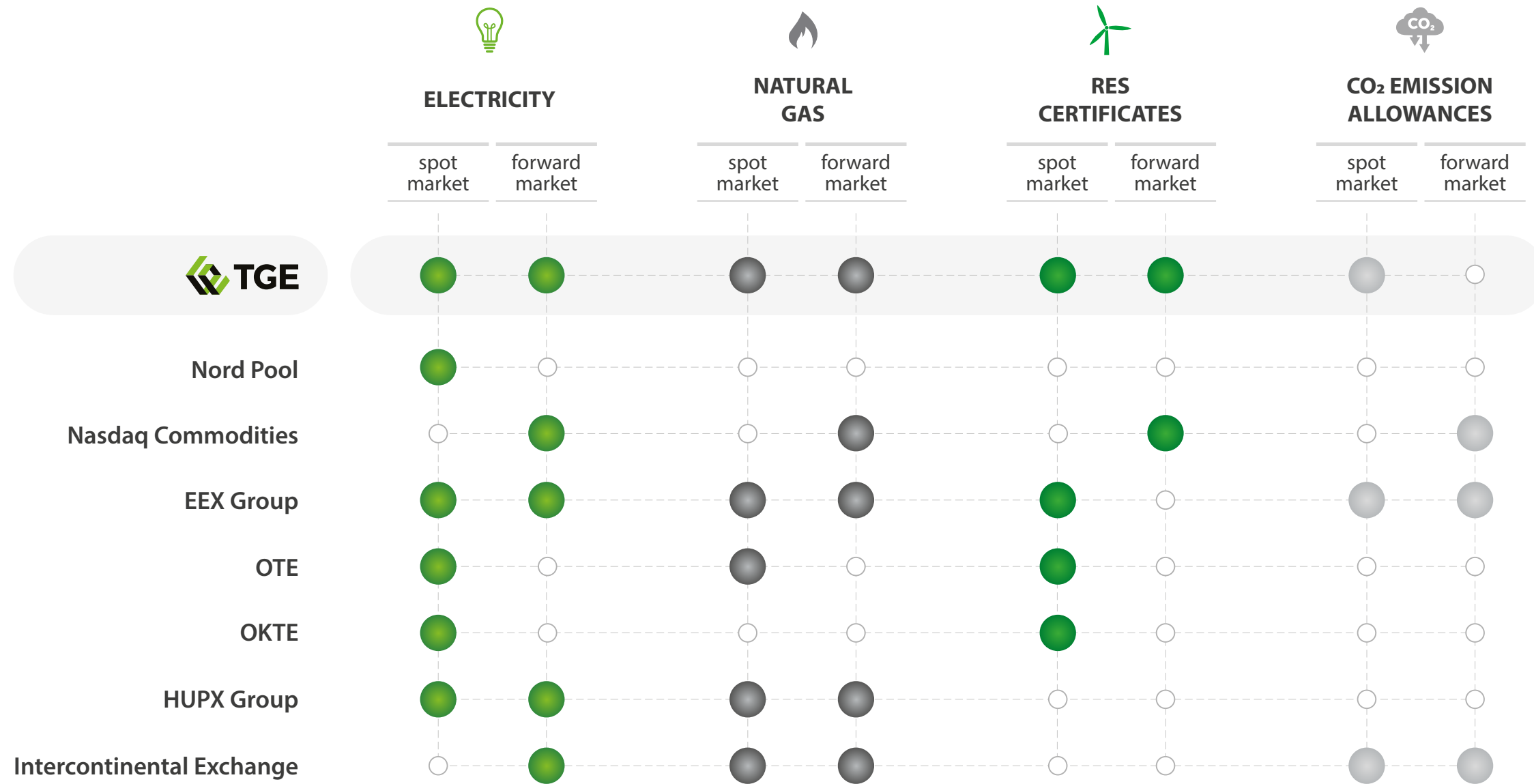
TGE's members have the opportunity to enter into transactions on both the forward and spot markets for electricity, natural gas and property rights.

TGE operates a regulated financial market where CO₂ emission allowances are currently traded.

In March 2020, TGE expanded its offering by adding the Agricultural Exchange Market where wheat, rye and corn are traded.

The Register of Certificates of Origin and the Register of Guarantees of Origin play an important complementary role in TGE's activity as systems supporting the producers of electricity from RES and cogeneration units.

TGE's offering stands out among other exchanges in Europe because of its comprehensiveness and wide range of products and services available under one roof.



IRGiT licenses



EXCHANGE CLEARING HOUSE

Polish Act on Commodity Exchanges



CLEARING HOUSE

Polish Act on Trading in Financial Instruments



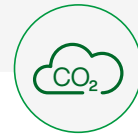
Electricity



Natural Gas



Property Rights



European Union Allowances



Agricultural and Food Commodities (Wheat, Rye, Corn)

Forward

Forward

Forward

Day-Ahead (including PCR)
Intra-Day (SIDC)

Day-Ahead
Intra-Day

Spot

Spot

Spot

IRGiT (based in Warsaw, Poland)

- > Provides services in the territory of Poland
- > Clearing is carried out in PLN

50

Employees

57

Clearing Members

226

Entities cleared via Brokerage Houses

10

Clearing Banks

Foreign members

→ MiFID II allowed OTF trade

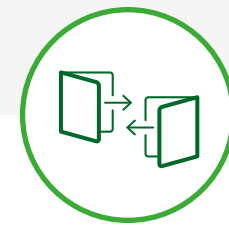
→ Significant costs in CCP / MiFID II regime:



**CAPITAL
REQUIREMENTS**



**TECHNICAL AND
ORGANIZATIONAL
REQUIREMENTS**



**INTRADAY CASH
COLLATERAL (LIQUIDITY
REQUIREMENTS)**



**LIMITED FORMS
OF COLLATERAL**

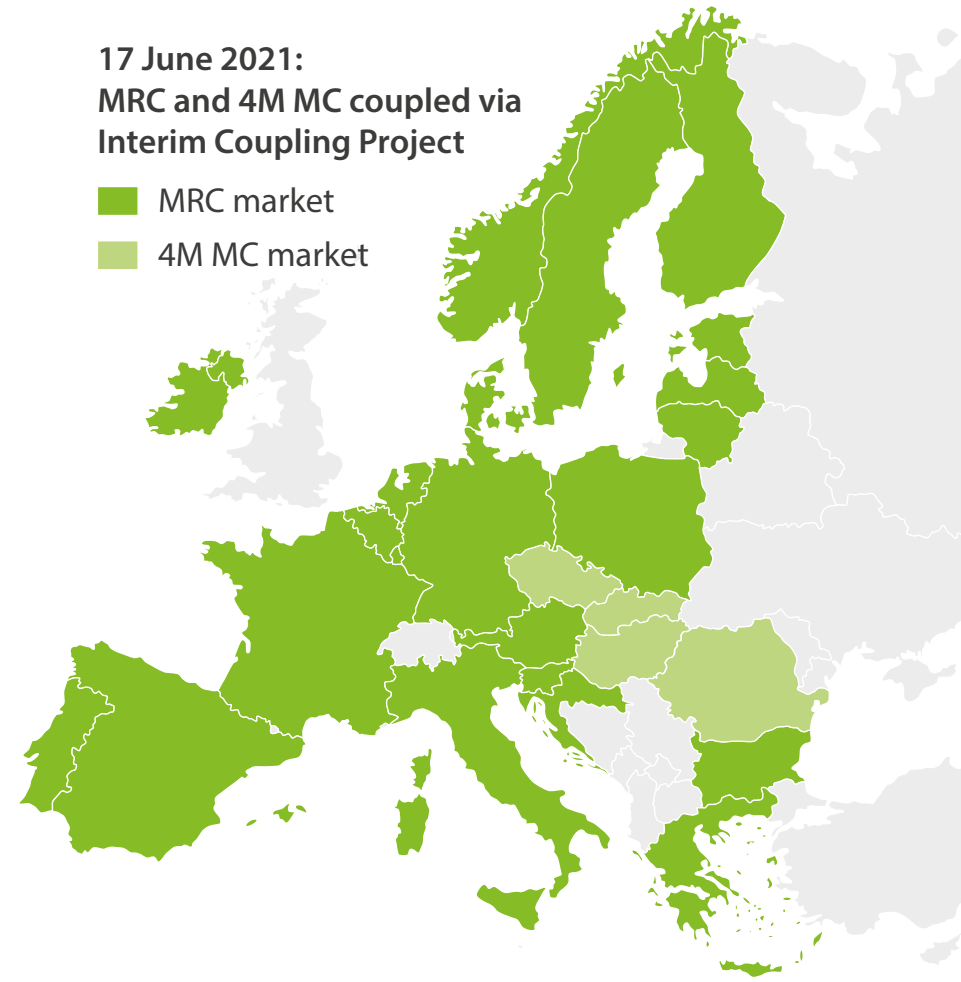


**RIGID
REGULATIONS**

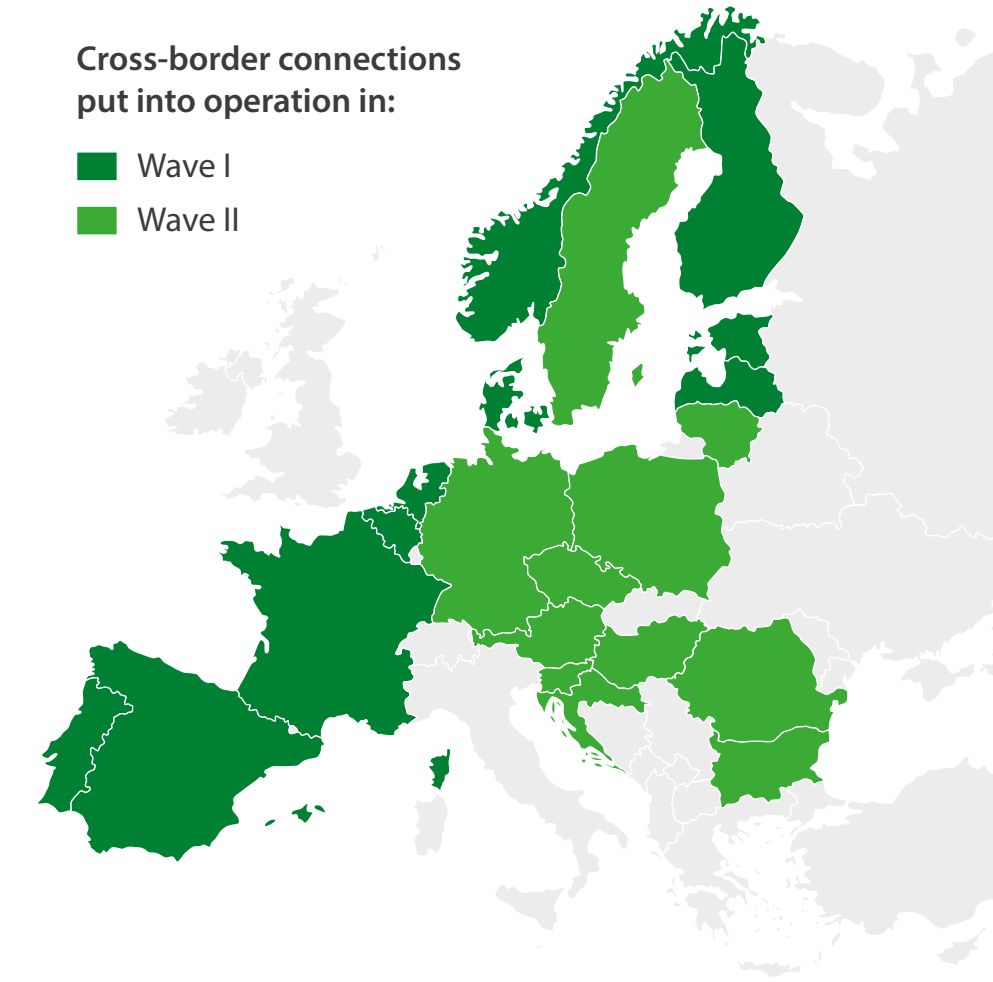
▶ These factors **drive up market participants' cost** of functioning in the CCP clearing model

For over 10 years, TGE has been actively participating in projects aimed at building a common electricity market. On 2 December 2015, the President of the Energy Regulatory Office recognised TGE as the **Nominated Electricity Market Operator (NEMO)**, the decision was extended for additional 4 years in December 2019.

- › Market coupling enhances efficiency of trading by promoting competition, and contributes to effective use of generation and transmission capacity across Europe.
- › **Market integration contributes to social welfare in the coupled regions.**

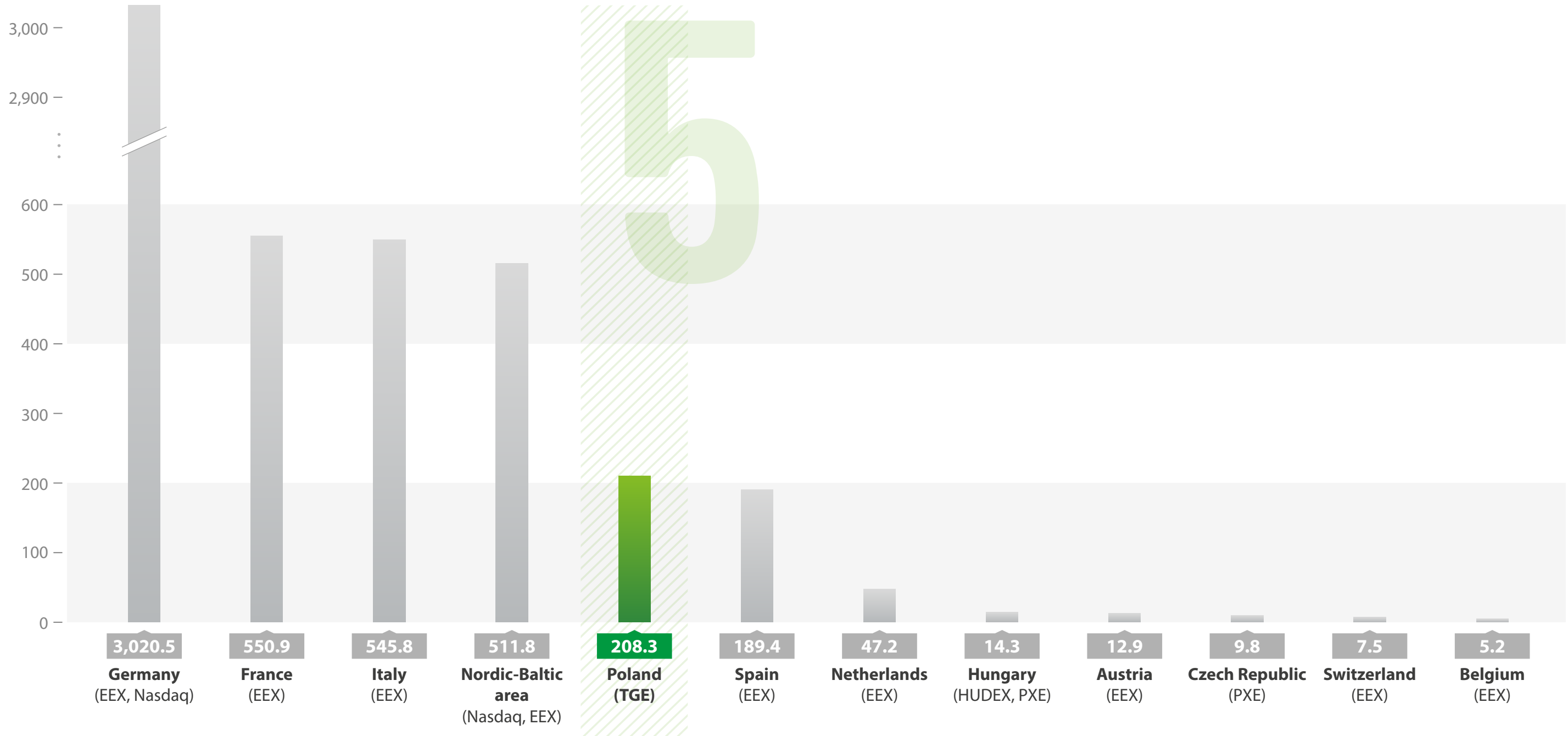


SDAC – Single Day-Ahead Coupling
(Day Ahead Market, PCR model)

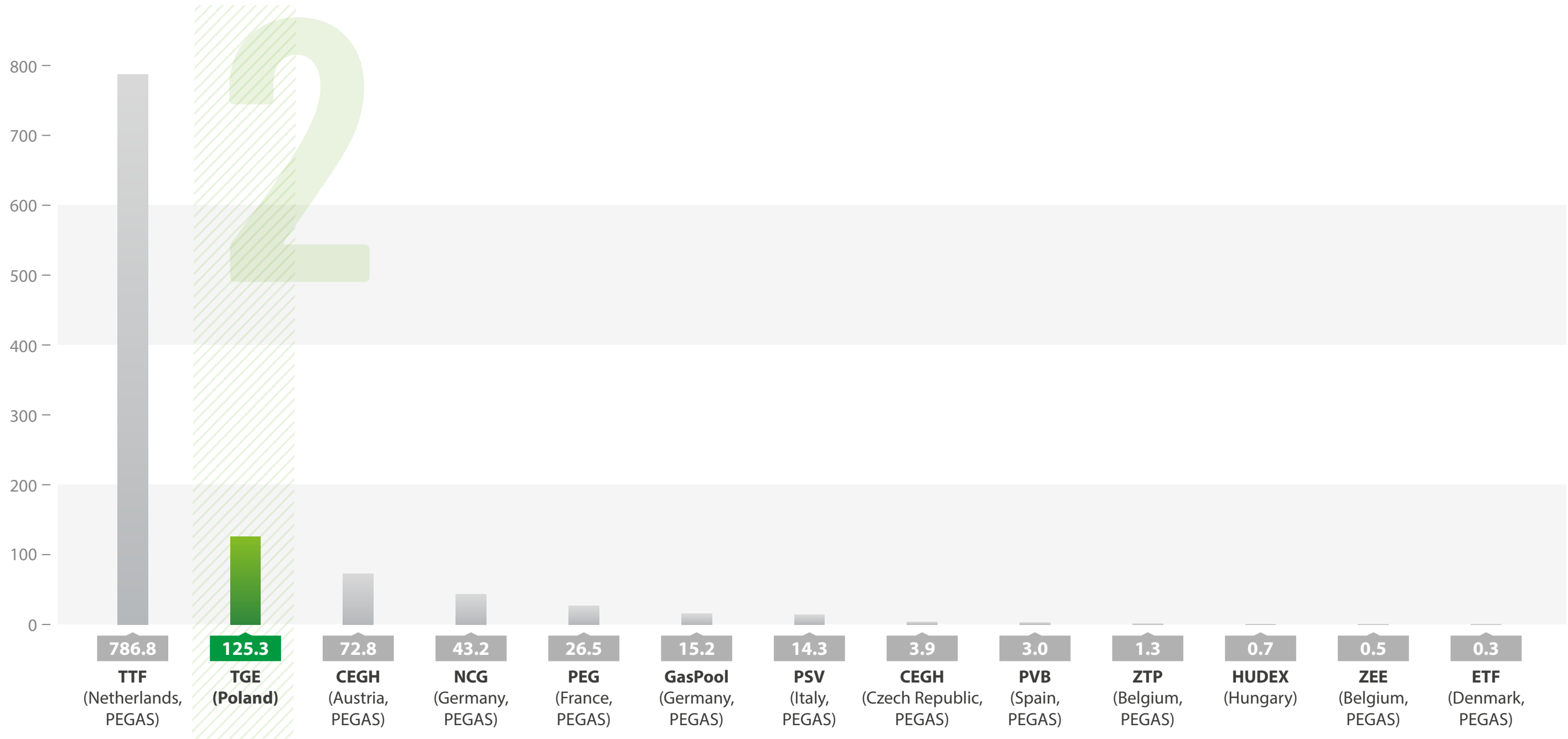


SIDC – Single Intraday Coupling
(Intraday Market, XBID model)

ELECTRICITY TRADING VOLUME ON SELECTED FORWARD MARKETS IN EUROPE IN 2020 (TWh)



NATURAL GAS TRADING VOLUME ON SELECTED FORWARD MARKETS IN EUROPE IN 2020 (TWh)

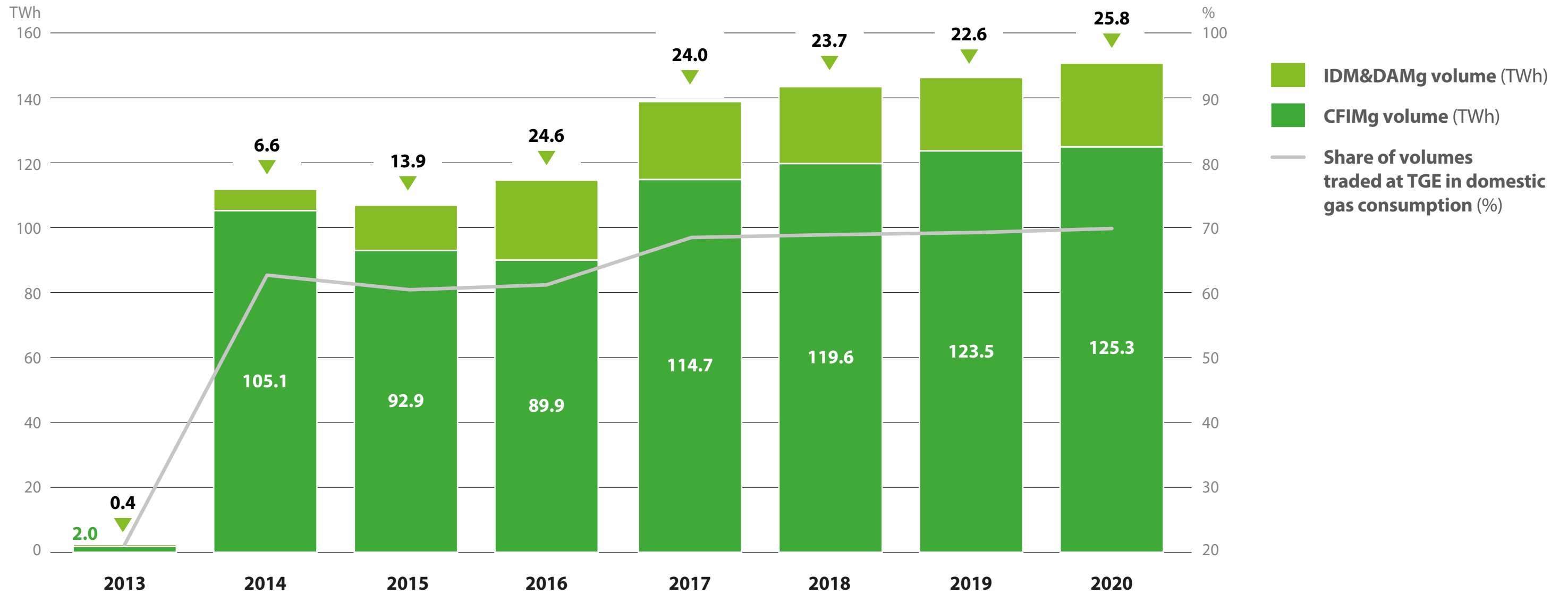




<p>December 2012</p> <ul style="list-style-type: none"> › Opening of the gas market
<p>Operation of the gas market</p> <ul style="list-style-type: none"> › 2012 – High-methane gas › 2018 – Low-methane gas
<p>Growing number of participants</p> <ul style="list-style-type: none"> › 28 entities operating directly › 82 entities operating through brokerage houses
<p>Compliance with national and EU regulations</p> <ul style="list-style-type: none"> › Spot market – commodity exchange › OTF – regulated by MiFID2
<p>Activity supervised</p> <ul style="list-style-type: none"> › Polish Financial Supervisory Authority and Energy Regulatory Office
<p>Wide offer</p> <ul style="list-style-type: none"> › Broad range of products and services “under one roof” (spot and forward markets, trading and clearing services)

MARKETS	<p>TGE Gas spot markets (Commodity exchange)</p> <hr/> <p>8 AM – 3.30 PM 7 days</p>		<p>TGE Organized Trading Platform</p> <hr/> <p>8 AM – 2 PM Mon-Fri</p>	
	SEGMENTS	<p>Day Ahead</p>	<p>Intraday</p>	<p>Remit carve out gas products</p>
PRODUCTS	<p>Gas instruments daily/weekends (sat/sun) delivery periods</p>	<p>Hourly gas instruments with delivery for every hour of the day, separately</p>	<p>Wholesale gas forwards with delivery (weekly, monthly, quarterly, seasonal, yearly)</p>	
TGE TRADING SYSTEM	<p>X-Stream Trading (by NOMX)</p>			
IRGiT CLEARING/ SETTLEMENT	<p>IRGiT Exchange Clearing House (IRGiT GIR) Commodities clearing/settlement</p>			
IRGiT CLEARING SYSTEM	<p>X-Stream Clearing (by NOMX)</p>			

Volume traded on natural gas market



PEP2040

- Natural gas as a **"bridge fuel"** in the Polish energy transition – PEP2040

Power industry

- Investment in new generation capacity to replace coal-fired baseload power plants will provide the flexibility required by RES

Transformation in district heating

- Natural gas will be replacing coal

Potential of "green gases"

- TGE has joined the hydrogen and biomethane partnership

Governmental programme "Gas Hub"

- Qualitative changes on the Polish gas market

New infrastructure means new opportunities for trade

- GIPL, Poland-Slovakia interconnector, increased LNG regasification capacities (Świnoujście, Bay of Gdansk)

INFRASTRUCTURE

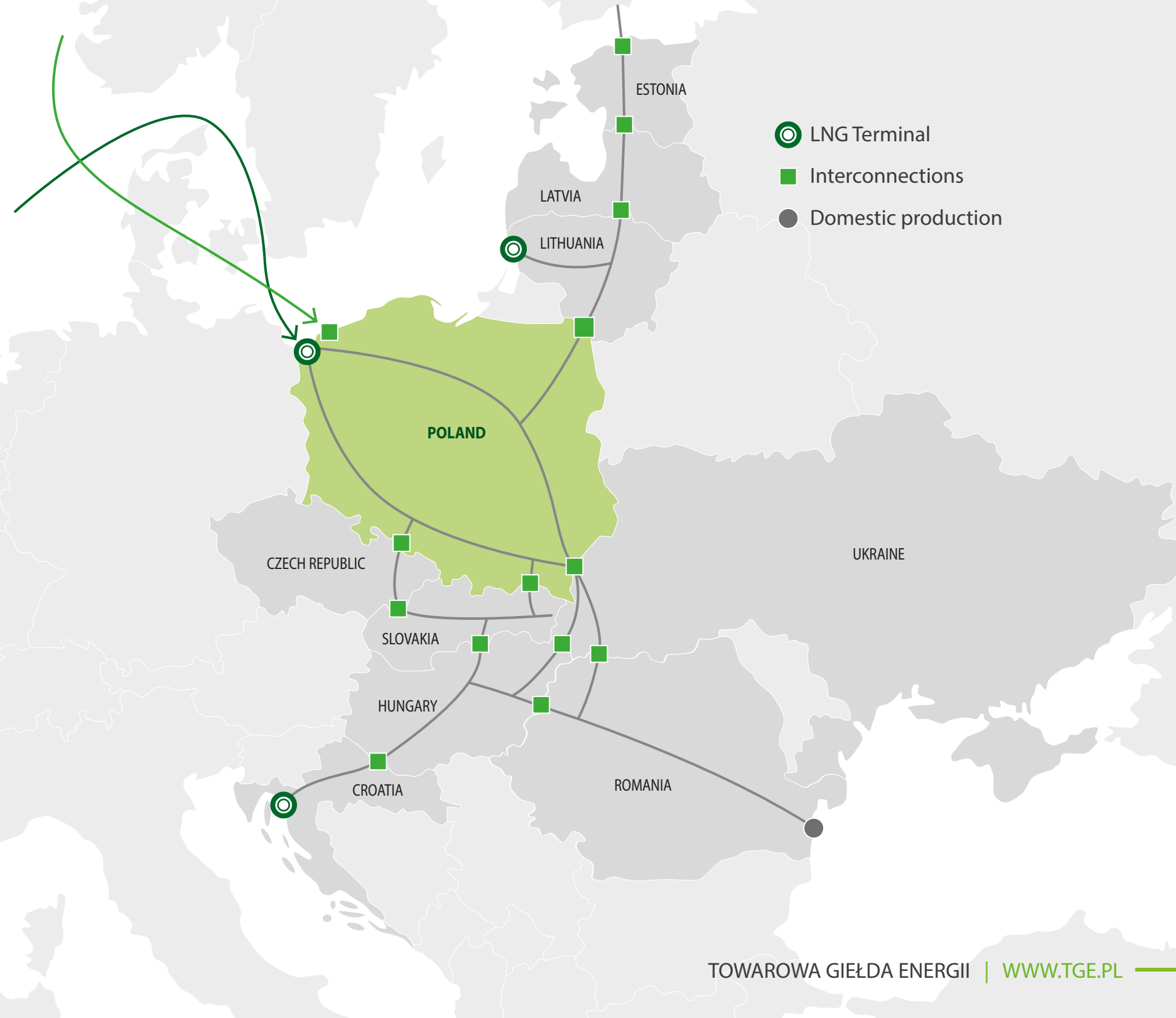
- > Targeted approach to infrastructure needs
- > Regional integration through domestic pipelines and interconnections

SOURCES OF SUPPLY

- > Norway, LNG, Southern Gas Corridor, domestic sources
- > Integrated regional market in Central Eastern and South Eastern Europe

CROSS-BORDER TRADE IN THE REGION

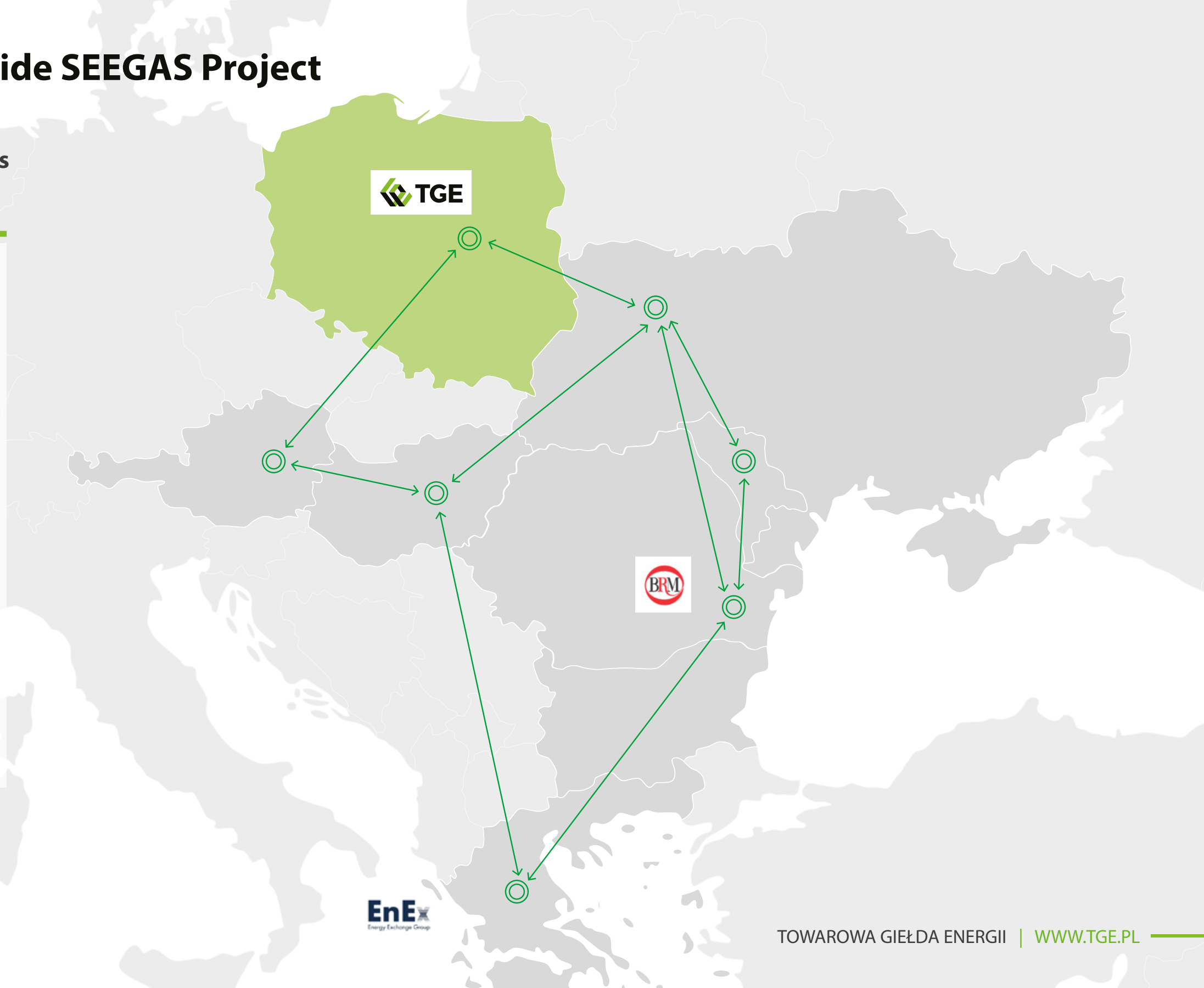
- > New business offers
- > Development of exchange platforms



Exchanges are very important stakeholders for the SEEGAS Project

- > Exchanges have made a significant contribution to today's liberalized pan-European energy market
- > The Project could trigger faster interconnection and interoperability and decrease the time to market
- > Early common standards would lower the cost for integration in the future which is in any way inevitable

⊙ SEEGAS Project Partners (Hubs/TSOs)
Hubs and Virtual Trading Points



THANK YOU FOR YOUR ATTENTION

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www.tge.pl | www.gpi.tge.pl



Trading
Guaranteeing
Educating