

IEM: Natural Gas Market

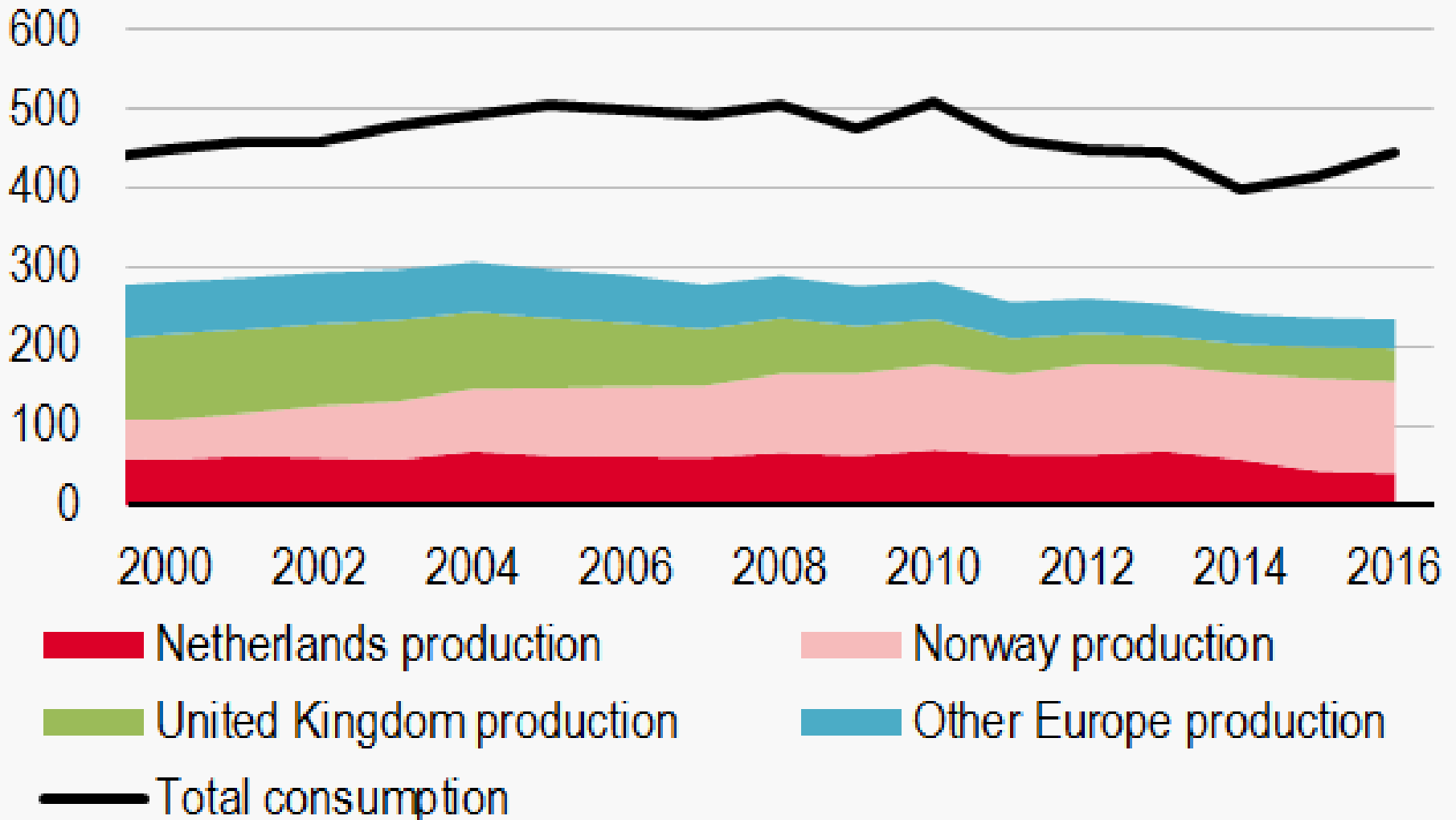
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First comments

- Since 2014 raising demand (after a decade of decreasing consumption).
- Falling domestic production.
- Import requirements projected to expand from approximately 200 bcm in 2016 to 290 bcm in 2022 (OECD Europe) – flat demand, decreasing production.
- Increasing role of the USA
- Geopolitics included. Easier to store in comparison with electricity.
- Unsuccessful call for diversification from Russia.
- Market opening and liberalisation, increased hub trading and short-term flexibility, lowering the link between oil and gas prices.

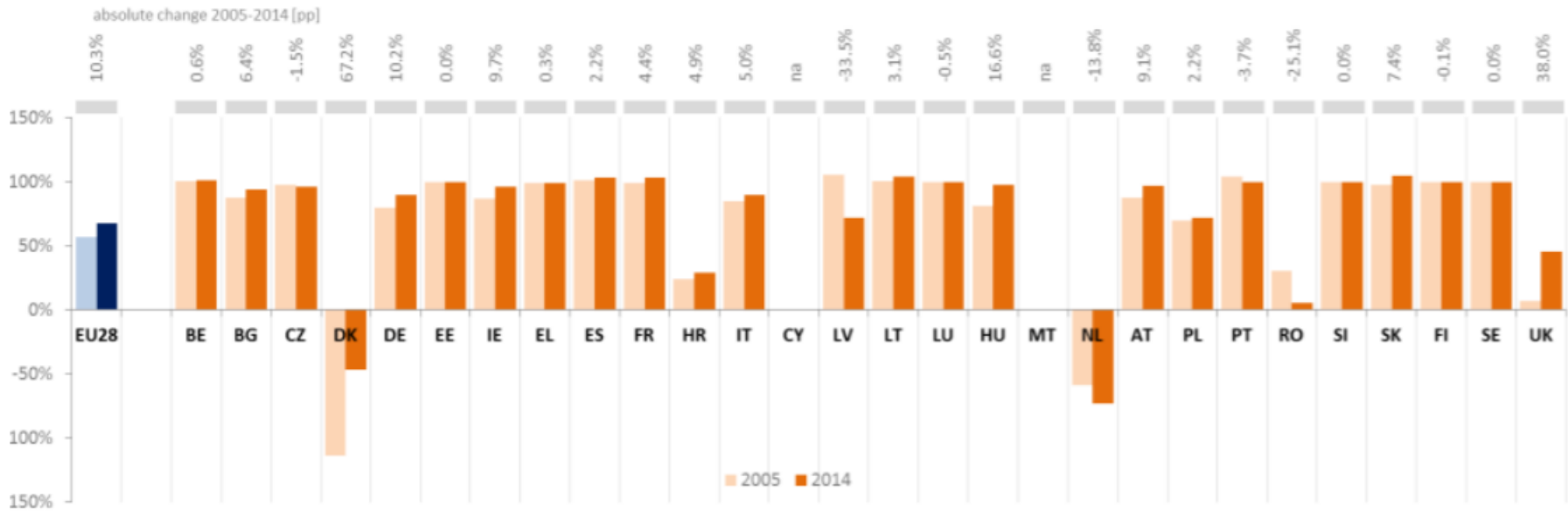
Figure 1: Gas production and consumption in OECD Europe

billion cubic metres



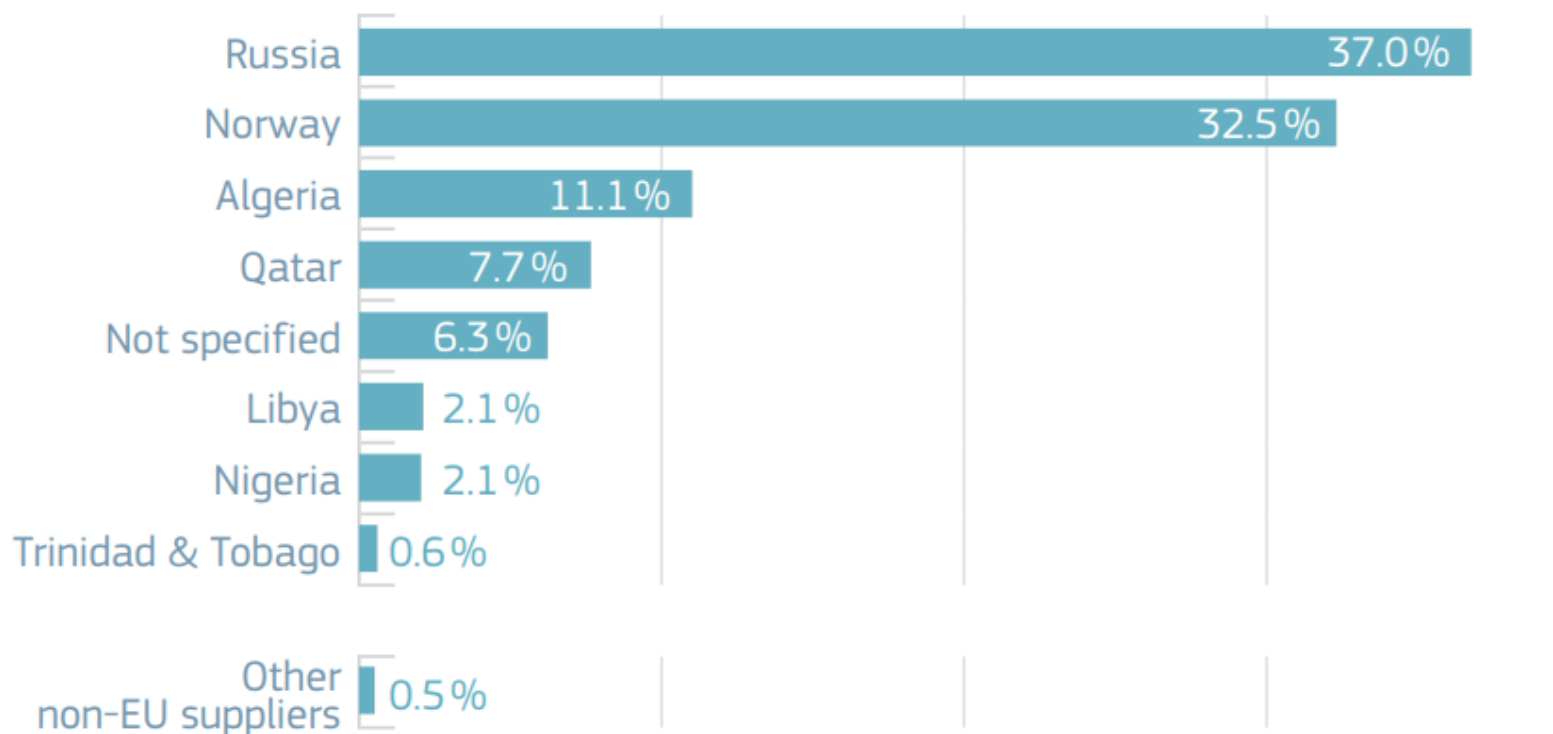
Source: BP Statistical Review of World Energy

SoS1 - A1: net import dependency - Natural Gas



EU 28 imports of natural gas (2015)

Total non-EU = 12624717 TJ-GCV

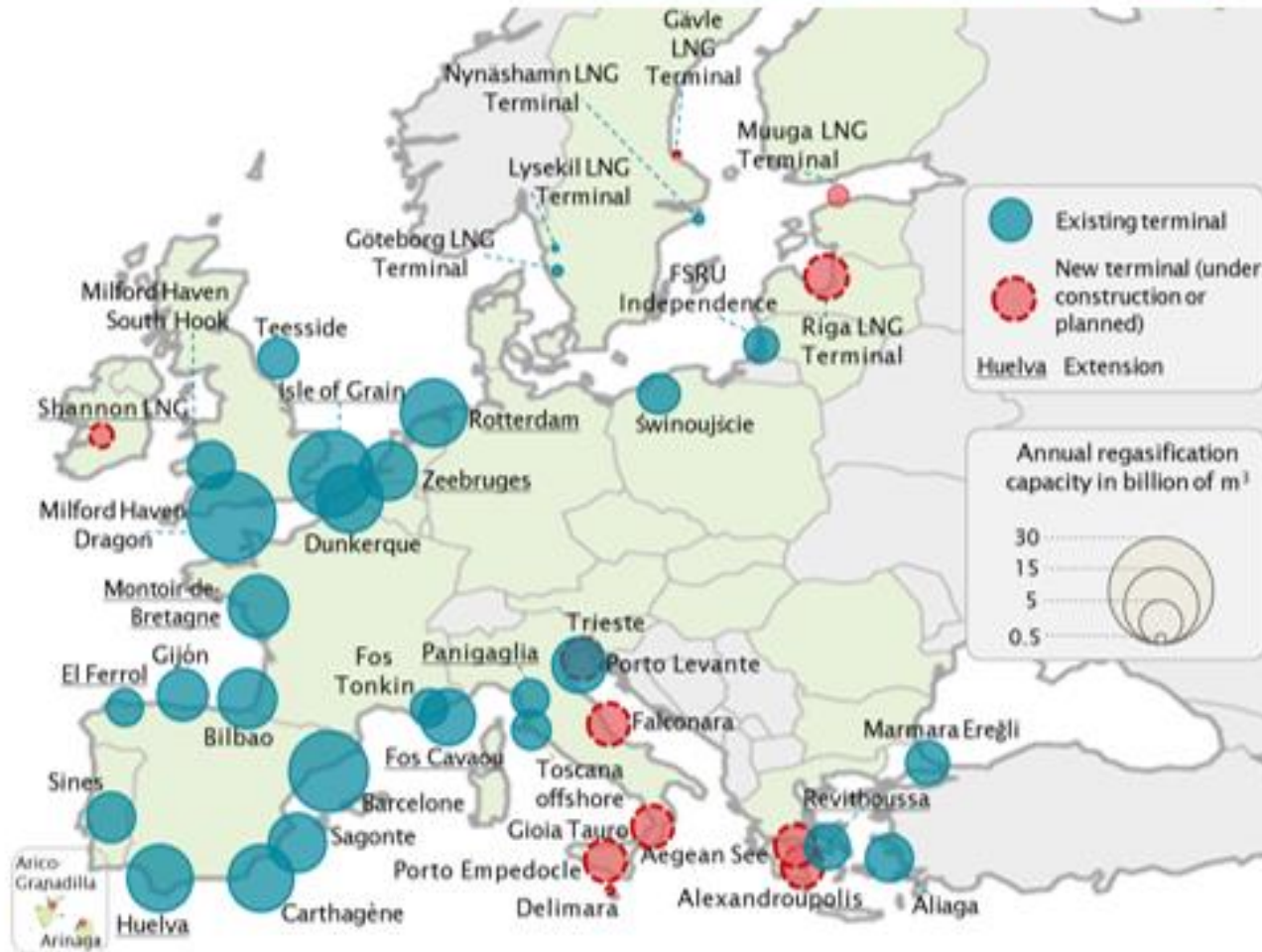


LNG

- 22 LNG terminals. Klaipėdos in Lithuania, Swinoujście in Poland and Dunkerque in France opened only recently.
- Utilisation of 23,5%.
- Higher prices in Asia and Latin America (Brazil and Argentina).
- LNG terminals used for re-export to reduce the costs and losses.

Infrastructures

Existing and planned LNG terminals in Europe



Source : GIICNL (2017), CLE (2016)

Regulation

- The same structure as in the electricity sector.
- Based on the third internal market package, an effort to increase market effectiveness, liquidity and cross-border trade.
- Strengthening of the independency and powers of NRAs and their EU co-operation (ACER).
- Active role of TSOs and their EU wide co-operation.
- Common rules for the gas market – Framework Guidelines, Network codes.
- Move from P2P to EE systems.

Organization of wholesale market

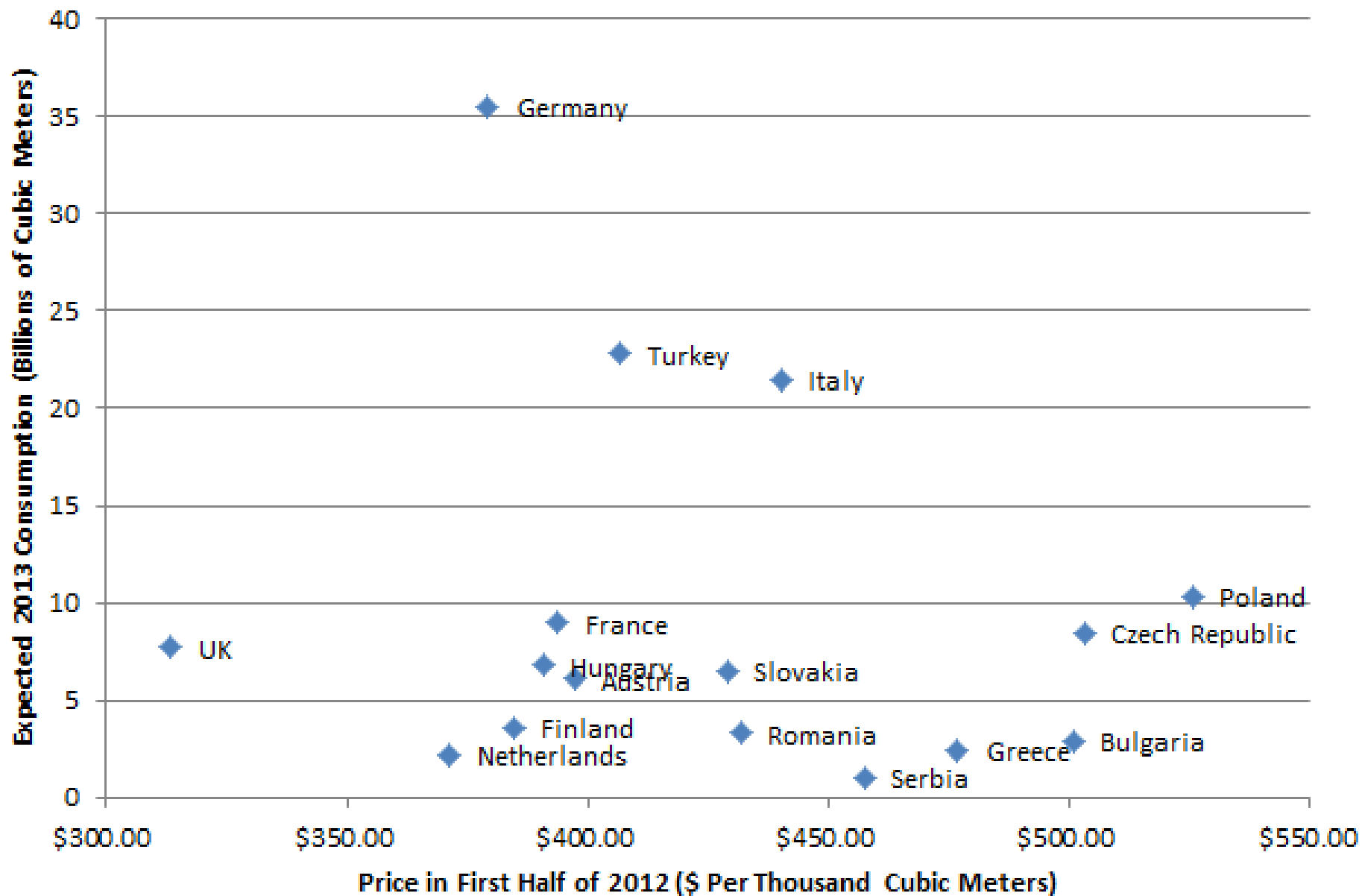
- Shift from TOP LTCs to hub trading.

Traditional gas market model

- LTC + ToP.
- Pricing formula linked to gas replacement values (oil indexation).
- Net back replacement value gas pricing.
- Territorial restrictions.
- In the EU physical fragmentation of the market.

Traditional gas market model

- Competition is limited.
- Suppliers have significant market power.
- Price arbitrage (convergence) is limited, resulting in different prices over the EU.



IEM

- Competition (TPA, unbundling).
- Common regulatory framework with independent regulatory bodies.
- LTCs and destination clauses etc. under pressure (foreclosure potential), shift to hub-trading.
- P2P replaced by EE in transportation.
- Interconnectors.

LTCs

- Anti-competitive foreclosure effects → questioned by the EU's antitrust policy.
- Gas Natural, Distrigaz, E.ON Ruhrgas, Repson, Synergen, etc.
- Not forbidden per se, but volumes locked-in under the contract, duration, cumulative effect and efficiencies are evaluated.

Territorial restrictions/market sharing

- In 2004 EC confirmed they restrict competition (GDF-ENI and GDF-ENEL contract from 1997).
- 2009 EC fined GDF Suez and E.ON for the 1975-2005 behavior, EUR553 million each (partitioning the markets regarding MEGAL pipeline).
- Intervention to the Gazprom-ENI, Gazprom-OMV, Gazprom-E.ON or Gazprom-PGNiG agreements.
- Territorial restrictions no longer acceptable on the EU market.

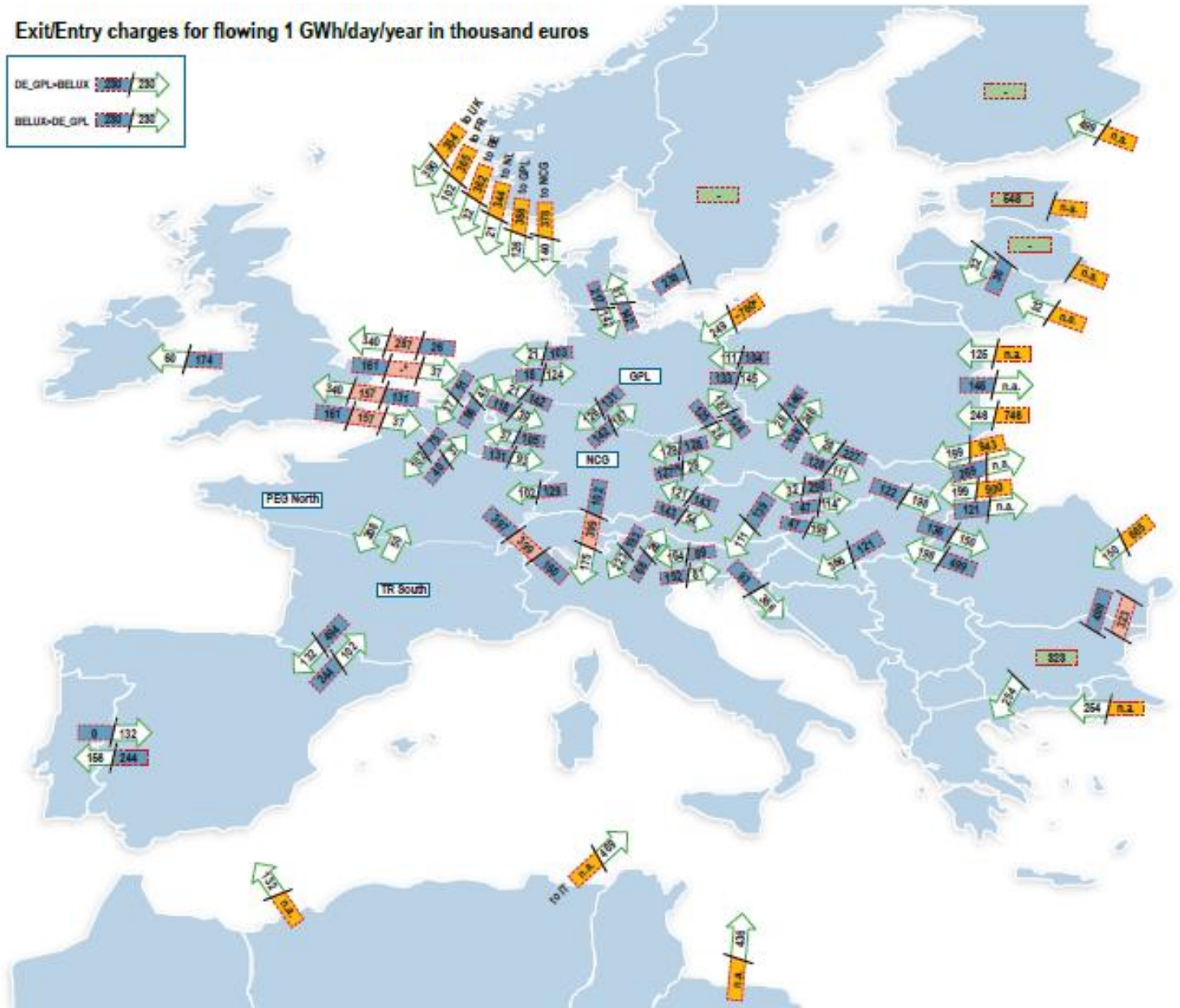
Oil indexation

- Oil products are no longer substitutes for natural gas in Europe, Gazprom, Sonatrach and some others still defends this pricing mechanism.
- Questioned by EC in antitrust proceeding against Gazprom (Sept 2011).

New mechanisms of trading and transport of gas

- Acer's Gas Target Model
 - In transport shift from Distance Based/P2P arrangements to Entry-Exit systems.
 - In trading preference of hubs (ideally with gas exchanges) at the expense of OtC.

Exit/Entry charges for flowing 1 GWh/day/year in thousand euros



IPs within EU
 IPs at EU borders

Market zones within MSs
 Within-country transmission charge

Transit - Point to Point

Hub definition

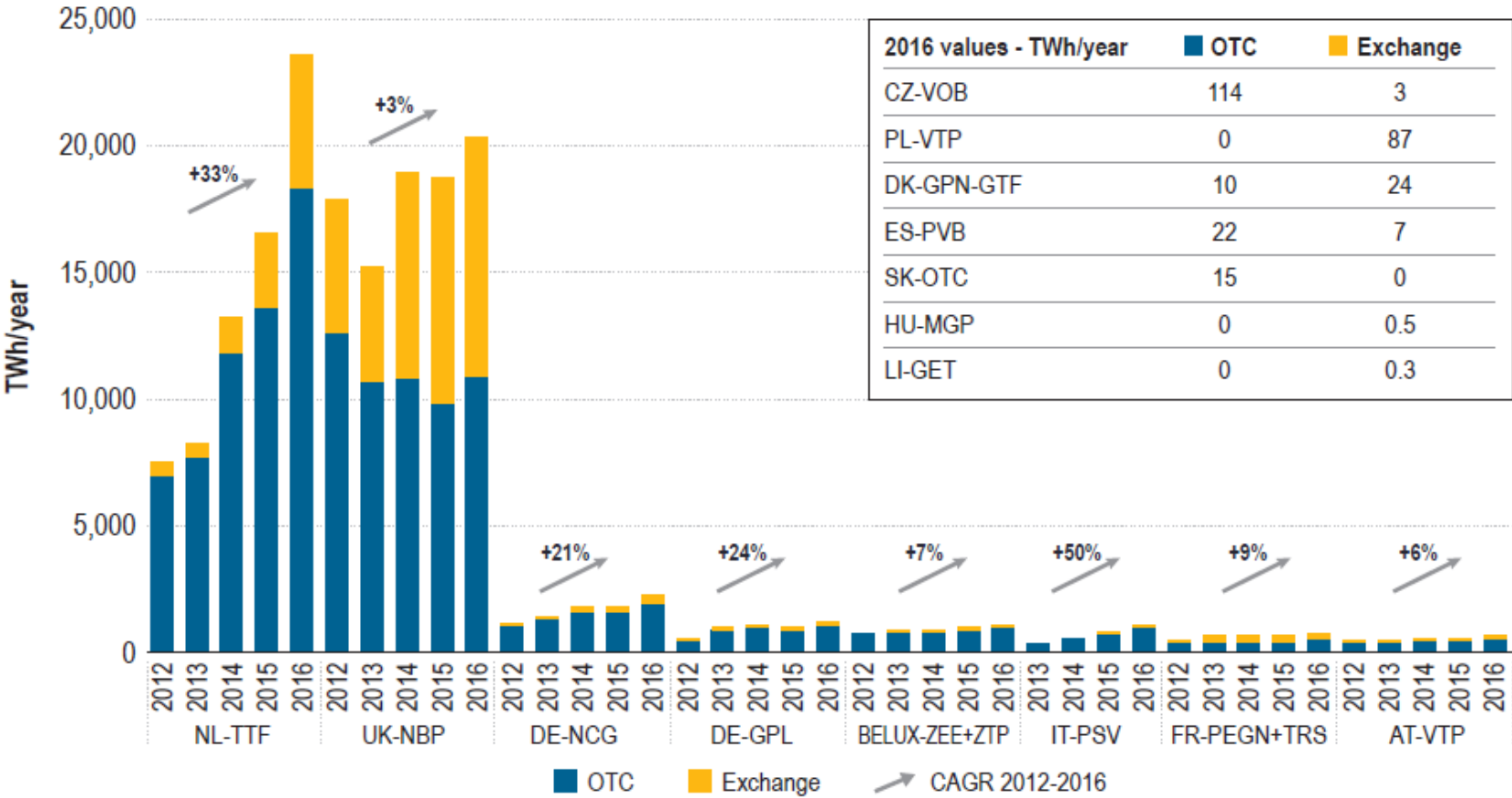
- A point (physical or virtual) at which title to gas can be transferred between buyers and sellers.
- In a physical hub, the contractual place where the gas is exchanged corresponds to a specific and well identified geographical point on the transmission system (Zeebrugge Beach).
- In a virtual hub, the contractual place where the gas is exchanged is being defined as a group of entry and exit points belonging to a whole transmission system or balancing zone (GASPOOL, NBP).
- Both types should allow OTC transaction (preferably through brokers) and Exchange trading.

Hub indicators

- Liquidity – increases when number of customers, volumes traded, number of trades and price transparency all increases.
- Churn factor – ration between the traded volumes and the physical throughput (re-trading ratio). Number of times gas volumes change hand within the hub.
- Level of concentration – the Herfindahl – Hirschmann Index – higher numbers = fewer market participants.
- Depth – significant volumes can be traded without resulting in excessive price moves.

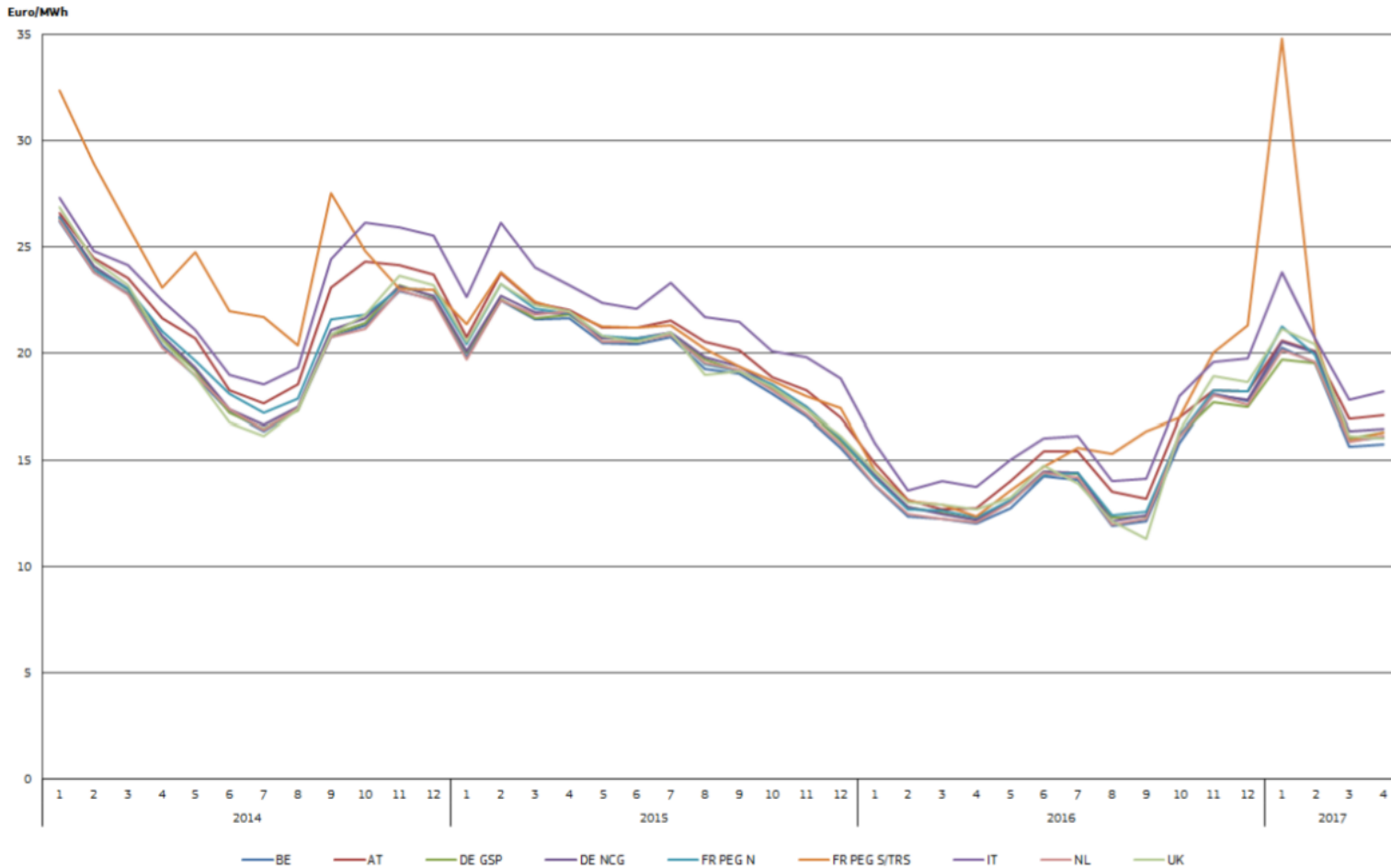


Traded volumes at main EU hubs and compound annualised growth rate (CAGR), TWh/year and %

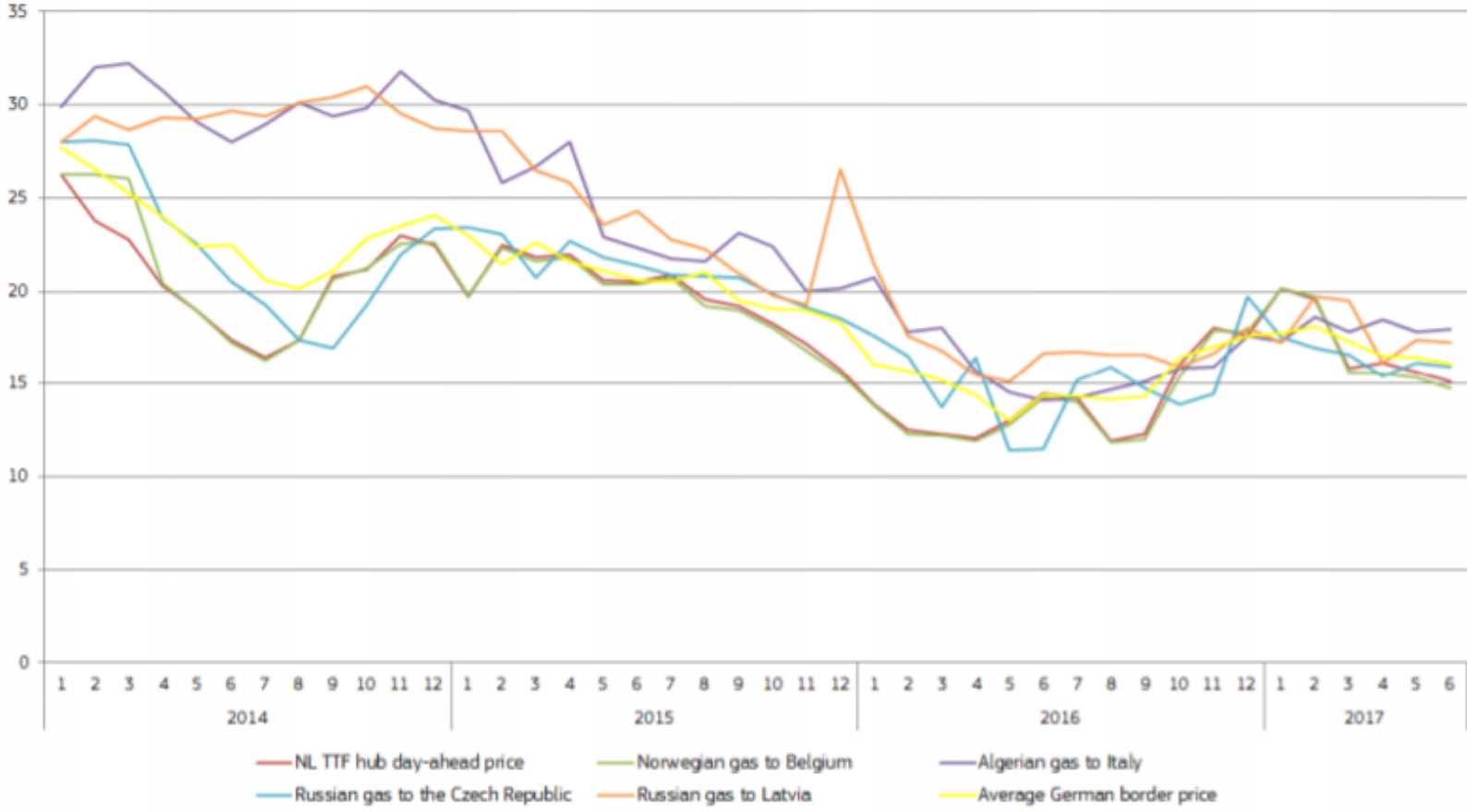


Source: ACER based on REMIT data, Trayport and hub operators.

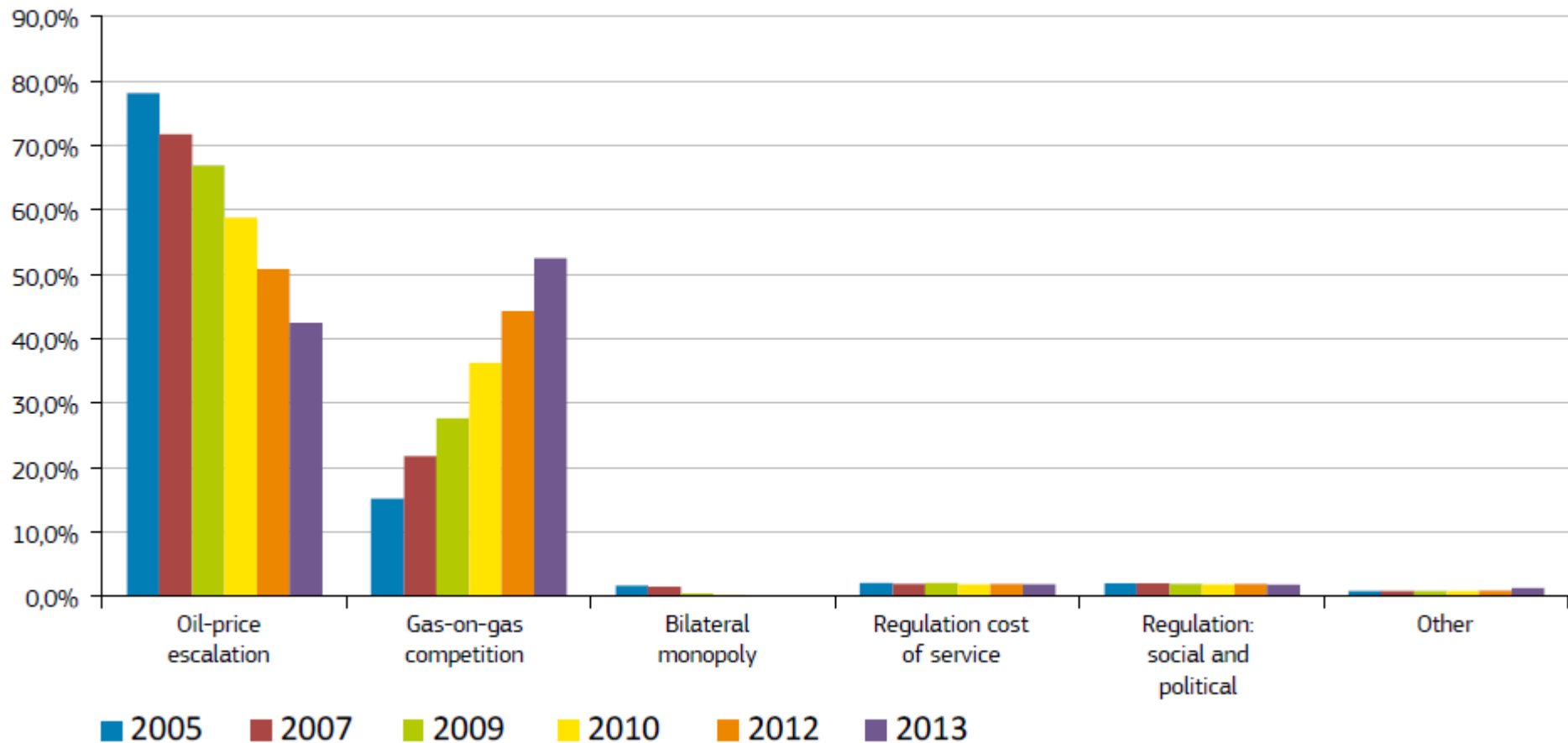
Wholesale DA gas prices on gas hubs in the EU



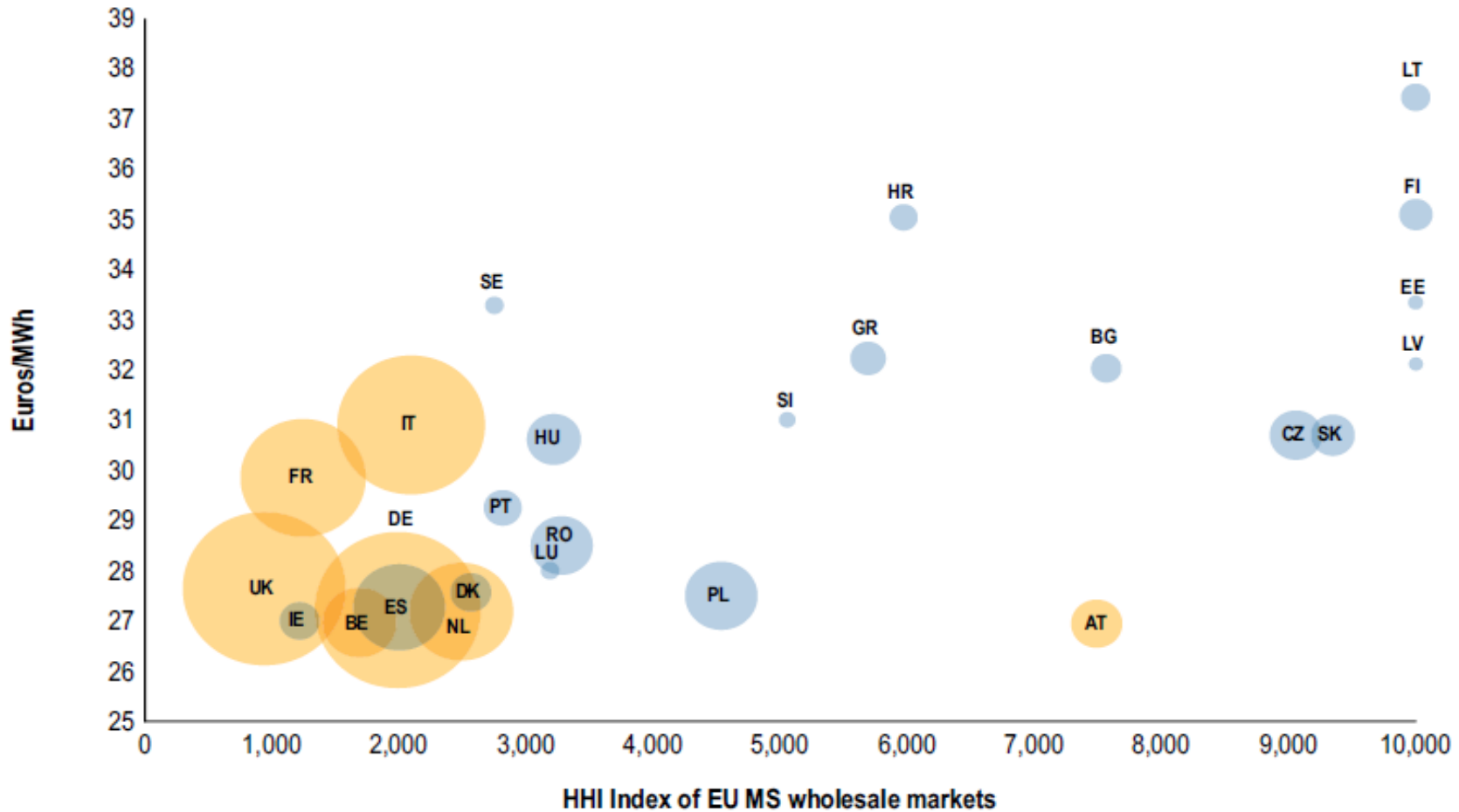
Comparison of EU wholesale gas price estimations, euro/MWh



WHOLESALE PRICE FORMATION MECHANISMS IN EUROPE: 2005-2013



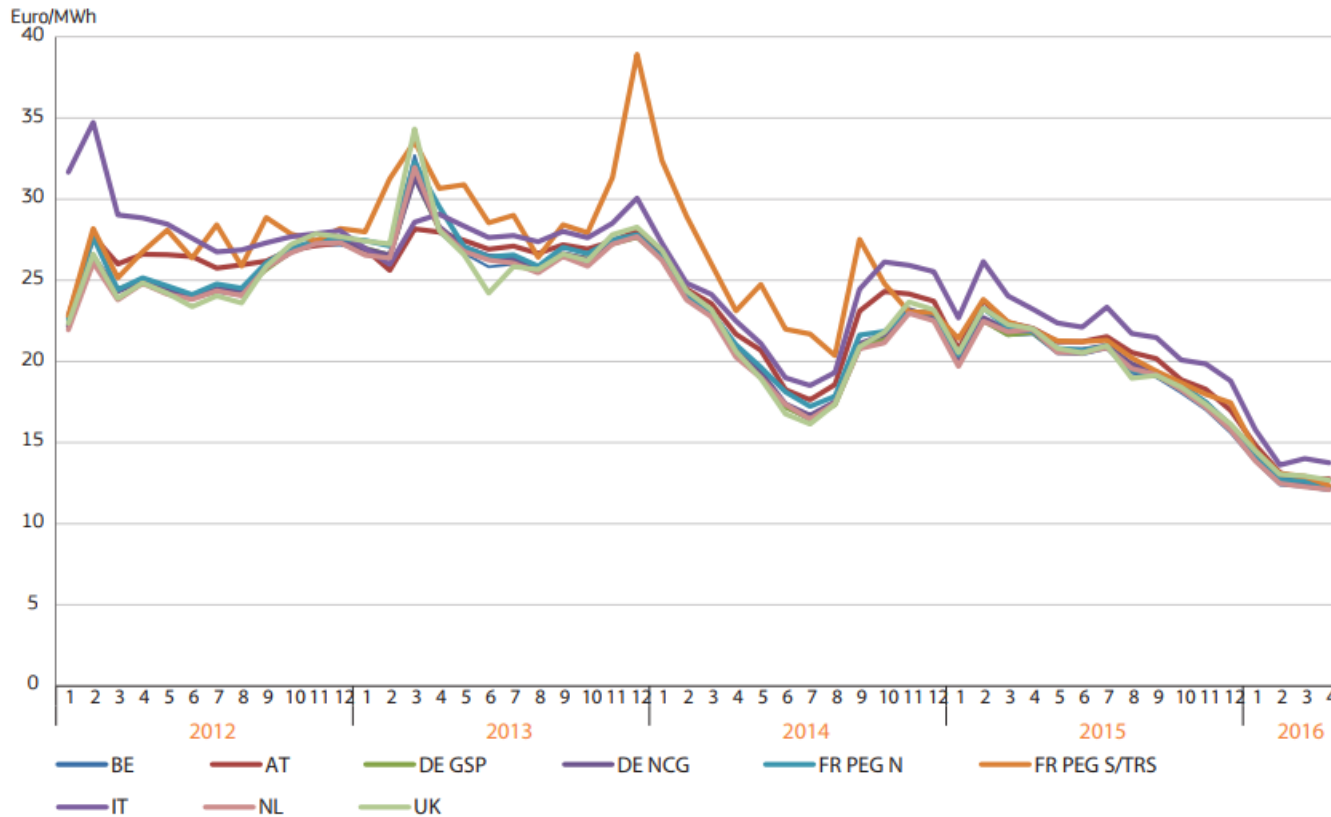
Gas wholesale prices in EU MSs compared with market concentration and gas demand – 2013 (euros/MWh)



Ex1. Impact on Gazprom's EU policy

- Gazprom forced to offer retroactive discounts on existing contracts (ENI – 7%, GdF, PGNiG, Eon; in 2013 USD 800 – 900 mil.).
 - Gazprom accepts fundamental changes in the contracts in terms of oil indexation, ToP clauses (RWE's Czech subsidiary in 2013 – Court of Arbitration of the International Chamber of Commerce).
- = Gazprom is slowly willing to accept spot indexation in its future gas contracts (5/2014 – ENI – prices aligned with the market).

Hub prices in the EU, 2012 - 2016



Ex1. Impact on Gazprom's EU policy

- Gazprom reduced the ToP minimum to 70% of annual contract quantity (from 85%), volumes taken in excess sold at hub-based prices.

= oil indexation preserved in Gazprom's contracts, but base price lowered to adjust to hub prices.

Ex2: Nord Stream 1 and 2

NS I.

- 2005 – 2012, 55 bcm. Only part of the capacity used due to the EU law restriction (50% of OPAL capacity restricted, 20% from 2016 onward).

NS II.

- To be commissioned in 2019, increasing the capacity to 110 bcm.
- Significant opposition from Poland, Baltic countries, Ukraine.
- EC requests Council of the EU for a mandate to negotiate with the Russian Federation regarding the operation of the pipeline.
- Also effort to subjugate the pipeline to the EU law.



Ex2: The Nord Stream 2 controversy

- Since the 2015 agreement project faces significant opposition.
 - Claiming that NS2 would generate „potentially destabilizing geopolitical consequences...it would strongly influence gas market development and gas transit patterns in the region (and) route via Ukraine“.
 - The NS2 project „...can pose certain risks for energy security in the region of central and eastern Europe“
- As such it should be either subjected to the EU energy acquis (third energy package) or banned for security reasons.

Ex2: Nord Stream II. controversy

- Energy security reasoning vaguely constructed:
 - „NS2 would reinforce Gazprom’s dominance in Europe...”
 - „Cheap Russian gas could limit the feasibility of imports from alternative sources via existing infrastructure or hamper the new one...”
 - „Ukraine loses both profit and leverage...”
 - „(NS2) undermines Poland’s (and Slovakia’s) energy security stemming from its role as a transit country for Russian gas...”
- Non-regulatory justification used: „(NS2.)...undermines EU’s ambition to build an Energy Union“ (diversification, limiting dependence on Russia, SoS...). Is that enough to ban the project?

Ex2: Market dominance and price manipulation

- Commission Vice-President Maroš Šefčovič and his colleague Miguel Arias Cañete, both responsible for energy, expressed concerns about the project, saying it would reinforce Gazprom's dominance as Europe's single biggest supplier of natural gas.

Ex2: Market dominance and price manipulation

- However...
- If Gazprom wanted to „pump more cheap gas“ west, it can do that already
 - 307 bcm of the combined westbound capacity vs. 147 bcm of gas exports in 2014.
 - A circa 100 bcm of surplus of fully developed gas in West Siberia that is available for sale into Europe at low marginal cost.
- Under Gazprom LTCs, buyers nominate the transferred volume (the record high exports in 2016 were driven by demand).
- Manipulating price at mature hubs is generally difficult (as the 2014 „Ukraine curtailment“ shows); Eastern European markets promised price review clauses.
- Buying more gas from Gazprom does not mean that other suppliers‘ export capacities go away (namely LNG and Norway).

Ex2: Threat to energy security of transit countries (PL, SK)

- Polish politicians from across the political spectrum have long opposed Nord Stream, claiming it undermines Poland's energy security stemming from its role as a transit country for Russian gas via the Yamal-Europe pipeline

2010



2015



Ex2: Loss of transit income

- Acknowledged for Ukraine and Slovakia, uncertain in case of Poland.
- But is this relevant security argument? As stated it rather undermines the whole case against NS2.

Compromising of security/diversification projects

- What projects? Klaipeda and Swinoujscie LNG? Norwegian corridor? N-S corridor? How does a re-routing of existing supplies change their positions?
- Re-routing of the gas flow may nevertheless require building of additional capacities to avoid bottlenecks ((calculated to €1bn of additional costs).
- Possible congestions in W-E direction separating CEE market, enabling for exercising of market power.

Ex2: The Ukraine

- The project will „strongly influence ... transit route via the Ukraine“.
- This is already happening: transit have declined to 82,2 bcm in 2016 with no prospect of recovery (NS1-Opal).
- Domestic consumption from domestic sources + reverse import from CEE markets with a premium on Gazprom price.
- SoS secured, NS2 affects incomes and leverage.
- Does preservation of transit alleviate any of Ukrainian problems?
- Pricing policy of Ukrtransgaz improving business case for NS2.

Ex2: Nord Stream I, II

= Conflict of regulatory, market based approach of EC and more (geo)politically and security driven approach of national states.

Sources

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