

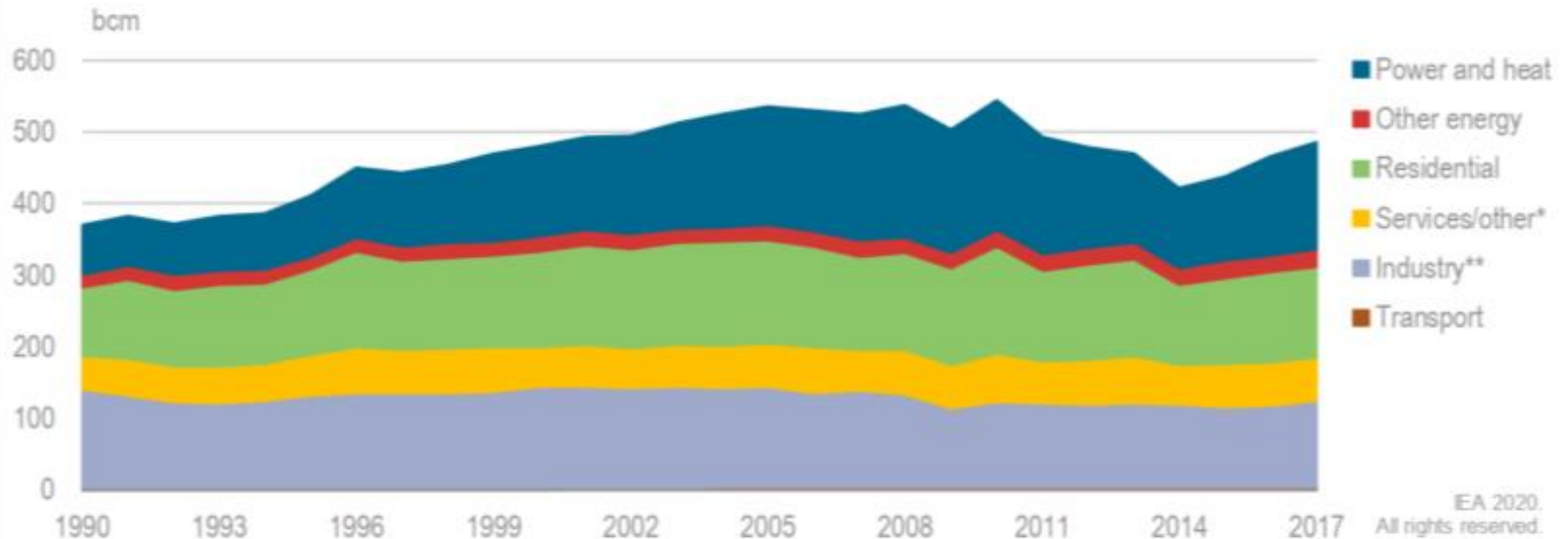
Building the IEM in natural gas

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Key characteristics

- Second largest energy source, third in electricity, first in residential sector.
- „Bridge fuel“ – a clean and flexible energy source.
- EU is the largest importing market in the world.
- Rising demand meets falling domestic production.
- Market opening with more hub trading.
- Investments in supply security and diversification.
- Easier to store in comparison with electricity.
- Significant role of geopolitics.

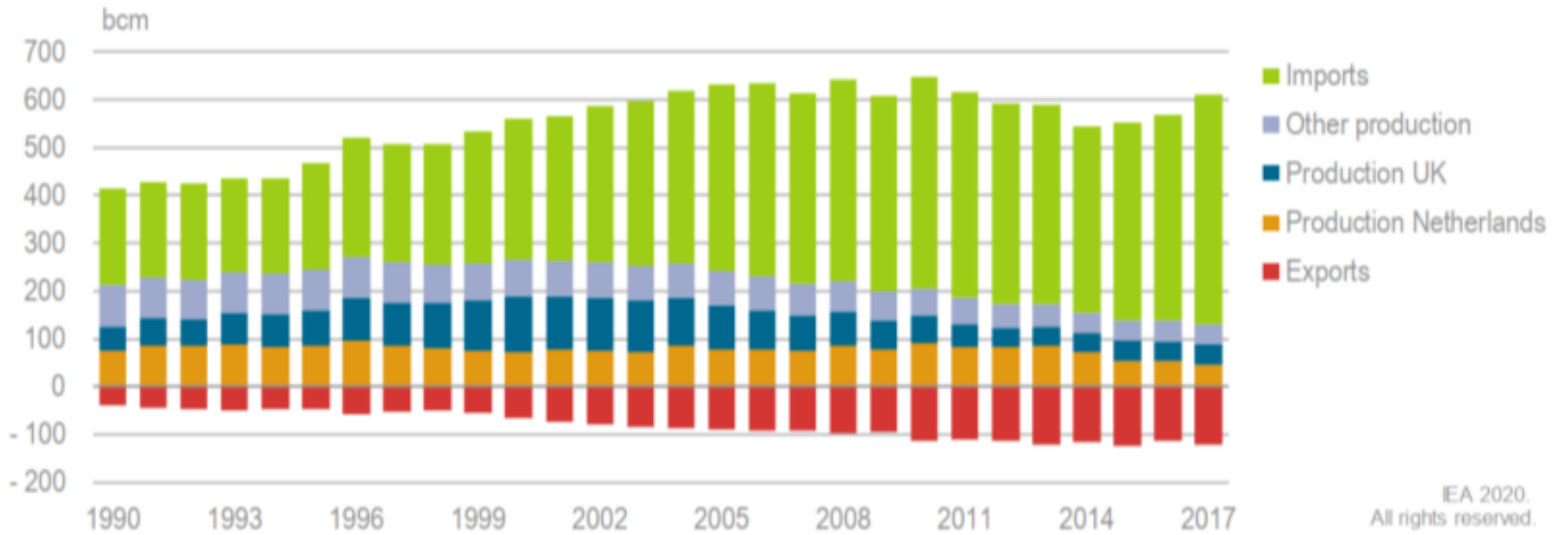
Consumption by sector



Services/other = commercial and public services, agriculture, forestry and fishing.

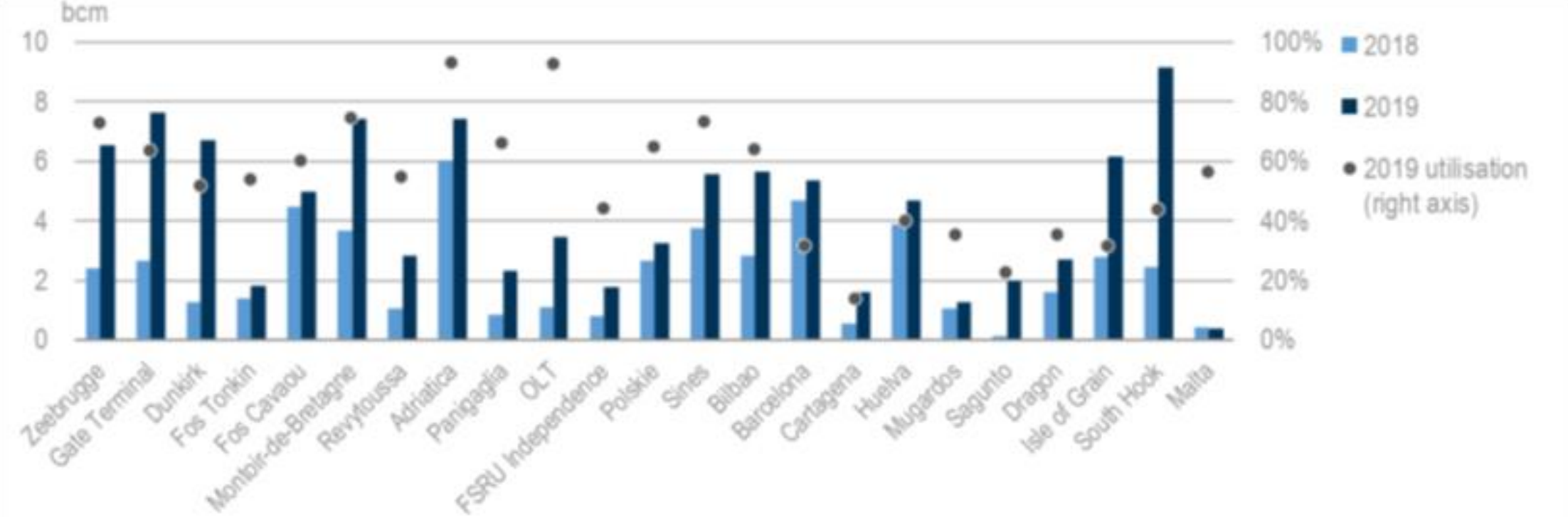
Industry = chemicals, petrochemicals, food, tobacco, non-metallic manufacturings, etc.

Supply by source



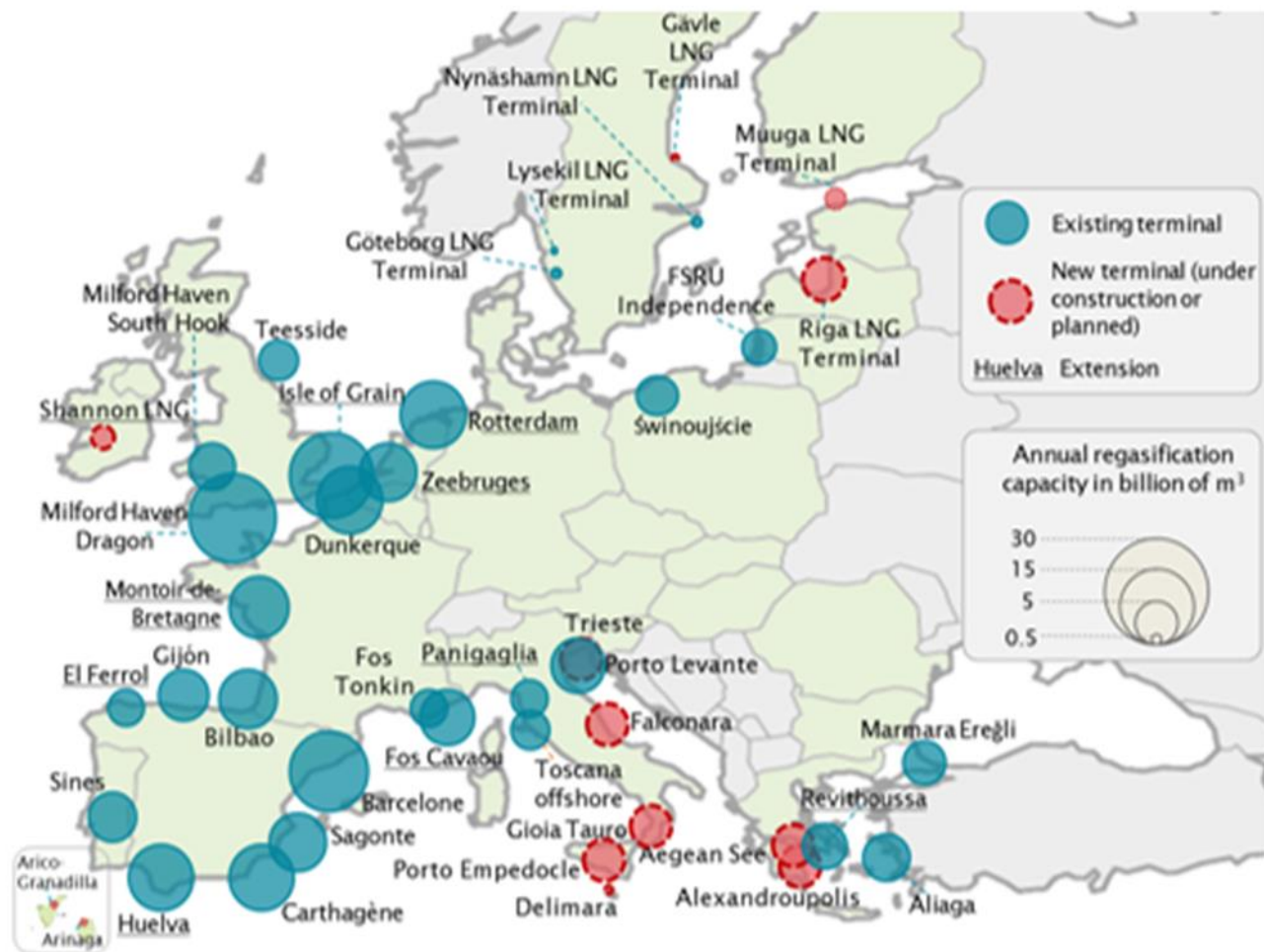
LNG

- 29 LNG terminals in 11 countries (Spain 7, France 4, UK 3).



Infrastructures

Existing and planned LNG terminals in Europe



Source : GIICNL (2017), CLE (2016)

Regulation

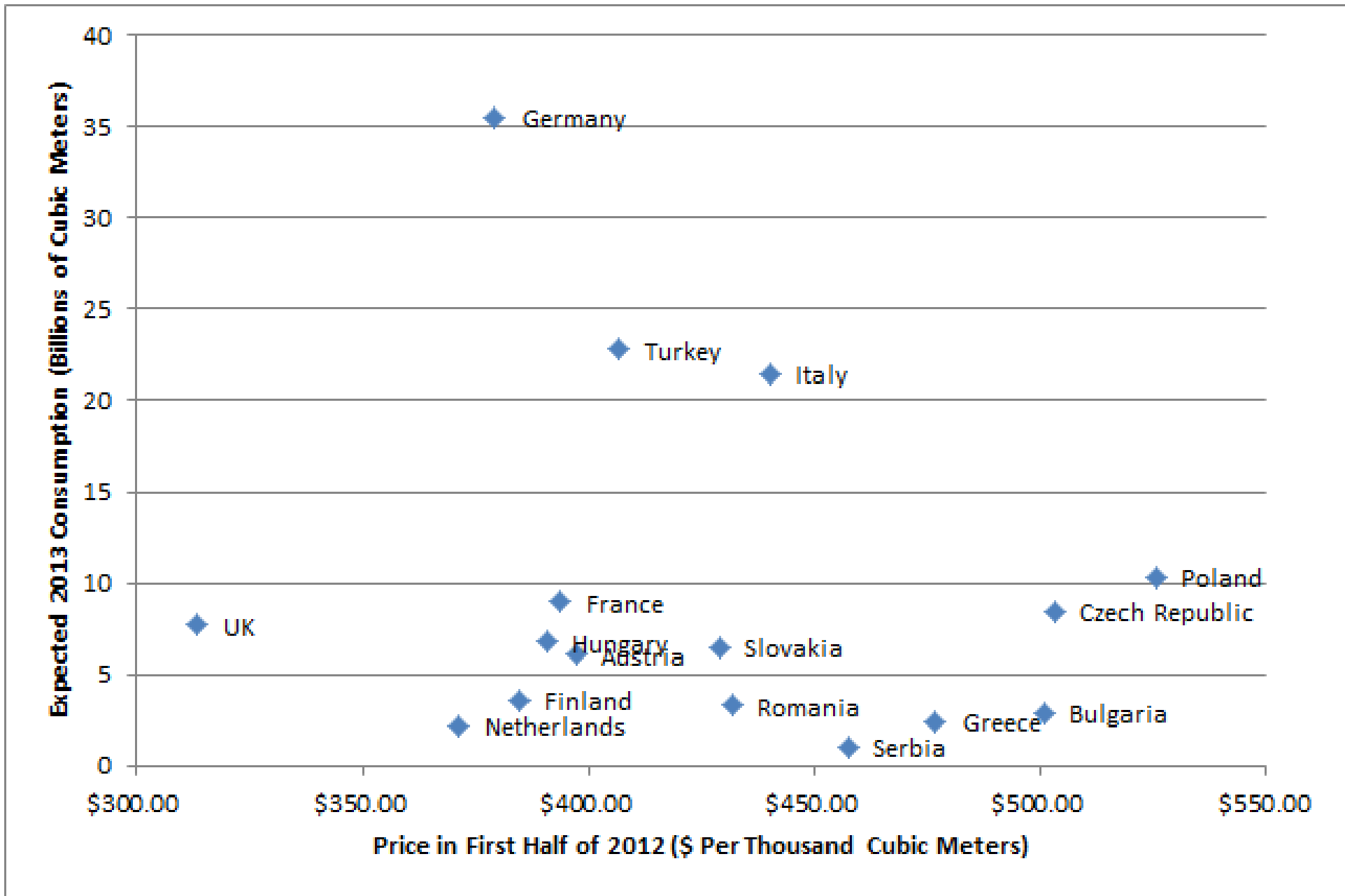
- Structure similar to that of the electricity sector.
- Based on the Energy Packages, an effort to increase market effectiveness, liquidity and cross-border trade.
- Strengthening of the independency and powers of NRAs and their EU co-operation (ACER).
- Active role of TSOs and their EU wide co-operation.
- Common rules for the gas market – Framework Guidelines, Network codes.
- Problems with TPA at some specific projects (security interconnectors, import pipelines, storage facilities).

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



Internal gas market

- Competition (TPA, unbundling).
- Common regulatory framework with independent regulatory bodies.
- Components of the traditional gas market model under pressure (foreclosure potential), shift to hub-trading.
- 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.

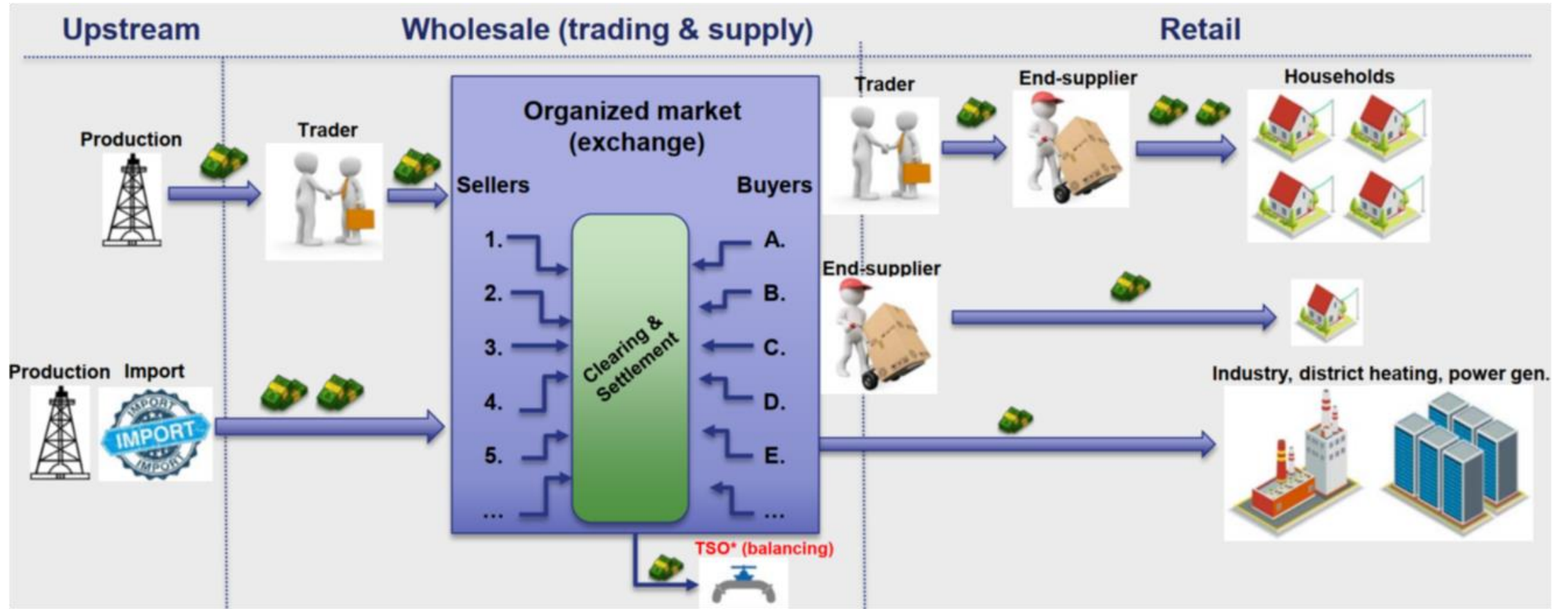
Territorial restrictions/market sharing

- 2009 EC fined GDF Suez and E.ON for the 1975-2005 behaviour, EUR 553 million each (partitioning the markets regarding MEGAL pipeline).
- Intervention to the Gazprom-ENI, Gazprom-OMV, Gazprom-E.ON, or Gazprom-PGNiG agreements.
- Territorial restrictions are no longer acceptable on the EU market.

Oil indexation

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

Structure of the wholesale market



Hub definition

- A point (either 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 defined as a group of entry and exit points belonging to an entire transmission system or balancing zone (GASPOOL, NBP).
- Both types should allow OTC transaction (preferably through brokers) and exchange trading.

Hub indicators

- Liquidity – increases when the number of customers, volumes traded, number of trades and price transparency all increase.
- Churn factor – ratio between traded volumes and the physical throughput (re-trading ratio). Number of times gas volumes change hands within the hub.
- Level of concentration – measured by the Herfindahl – Hirschmann Index. Higher numbers indicate fewer market participants.
- Depth – refers to the ability to trade significant volumes without causing excessive price fluctuations.

Ranking of EU hubs (2019)



■ Established hubs

- Broad liquidity
- Sizeable forward markets which contribute to supply hedging
- Price reference for other EU hubs and for long-term contracts indexation

■ Advanced hubs

- High liquidity
- More reliant comparatively on spot products
- Progress on supply hedging role but relatively lower liquidity levels of longer-term products

■ Emerging hubs

- Improving liquidity from a lower base taking advantage of enhanced interconnectivity and regulatory interventions
- High reliance on long-term contracts and bilateral deals

■ Illiquid-incipient hubs

- Embryonic liquidity at a low level and mainly focused on spot
- Core reliance on long-term contracts and bilateral deals
- Diverse group with some jurisdictions having
 - organised markets in early stage
 - to develop entry-exit systems

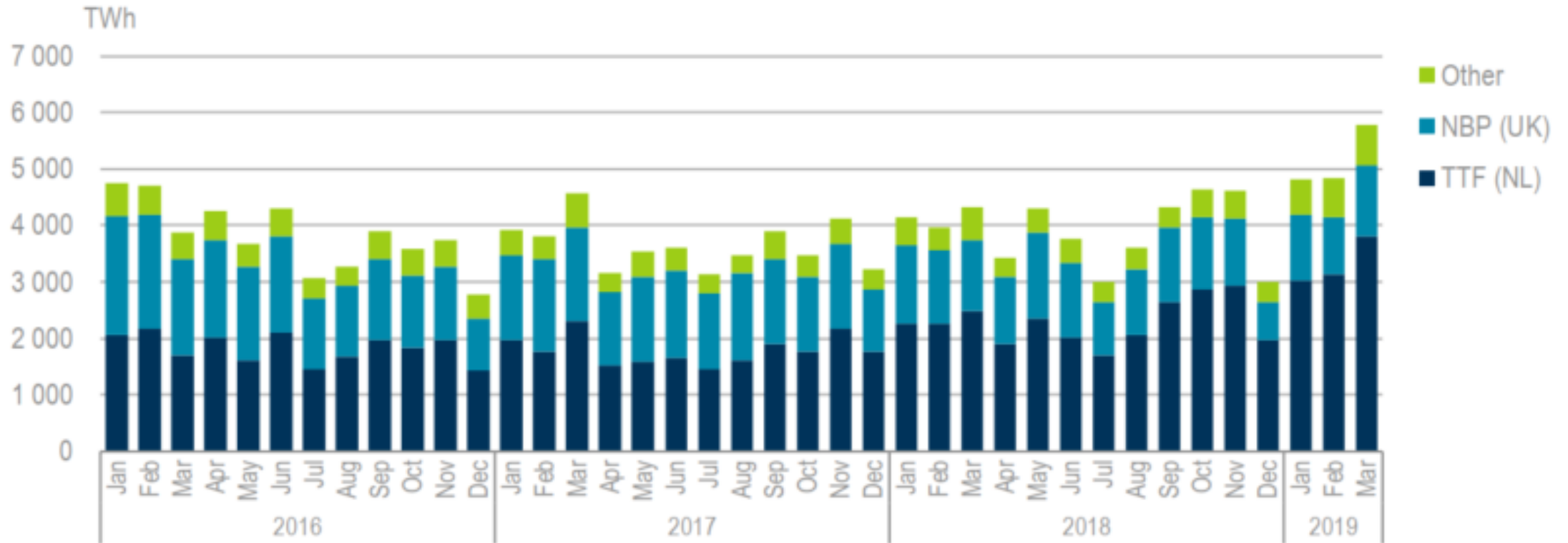
Source: ACER based on ICIS Heren and REMIT data

Entry-exit system (replacing point to point)

Entry-Exit System: a method to transport and allocate capacity in gas networks.

- The transport of gas is decoupled from the physical path, allowing for flexibility.
- Shippers book entry and exit capacities separately at interconnection points.
- Charges are based on booked capacities at entry and exit points, not on the actual route taken.
- Virtual Trading Point (VTP): A virtual location where gas can be traded independently of its physical location.
- Shippers are responsible for balancing their inputs (entries) and off-takes (exits) daily.
- Enables more active trading, as shippers can buy or sell gas at the VTP.
- Harmonization: the EU aims for a consistent entry-exit system across member states to enhance the internal gas market.

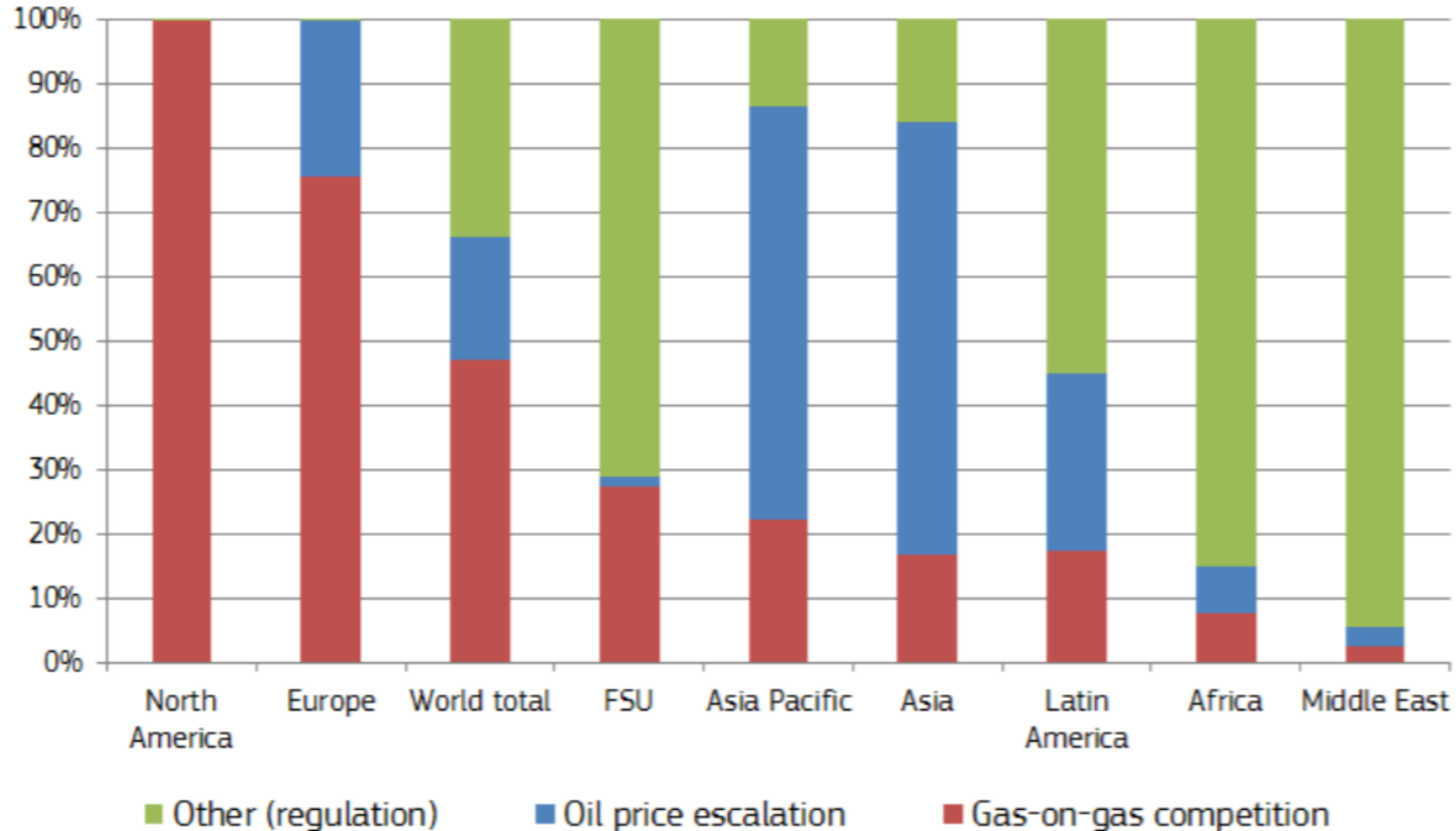
Traded gas volumes on EU hubs

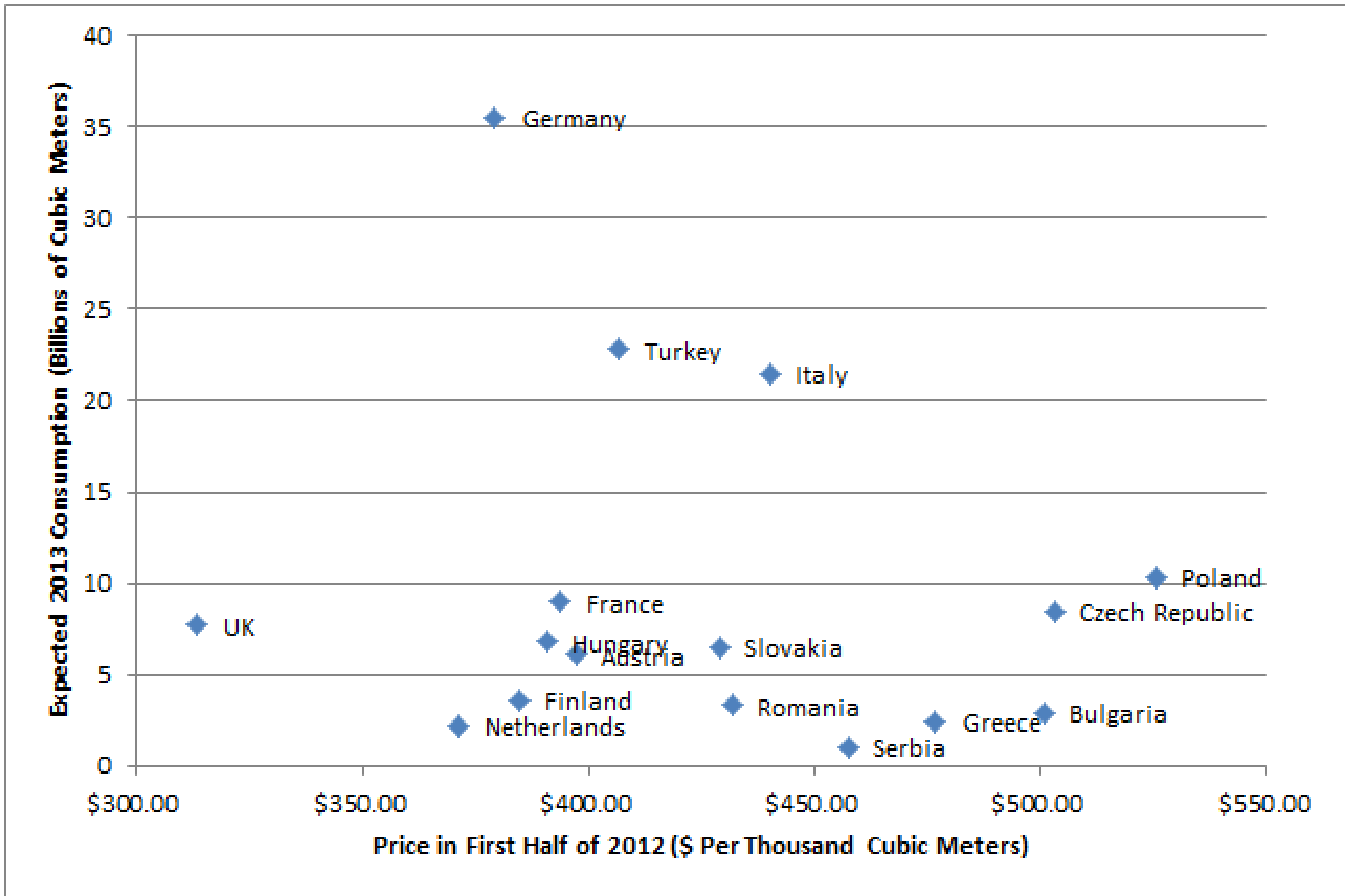


Evolution of EU and international gas spot prices



The share of gas-on-gas competition and oil price escalation, 2018





Benefits of hub trading

At least theoretically, hub trading brings:

- Price transparency
- Increased liquidity (as multiple players participate in buying and selling gas on spot and forward markets)
- Flexibility (short-term trading)
- Competition
- Decoupling from oil prices

- Diversification of supply
- Reduced risk of disputes
- Enhanced resilience (to supply disruptions)
- Market signals for infrastructure investments
- Decreased political leverage.

Drawbacks

At least theoretically hub trading brings:

- Price volatility
- Infrastructure needs and transition complexity (in the process of building hubs)
- Potential for speculation

- Reliability concerns (in cases of significant supply crunches)
- Investment signals
- Geopolitical risks.

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