



## Fundamentals of the gas market

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- I. **General introduction to natural gas and gas markets**
- II. State of play in hub development
- III. Factors influencing hub development

# What is a gas market?



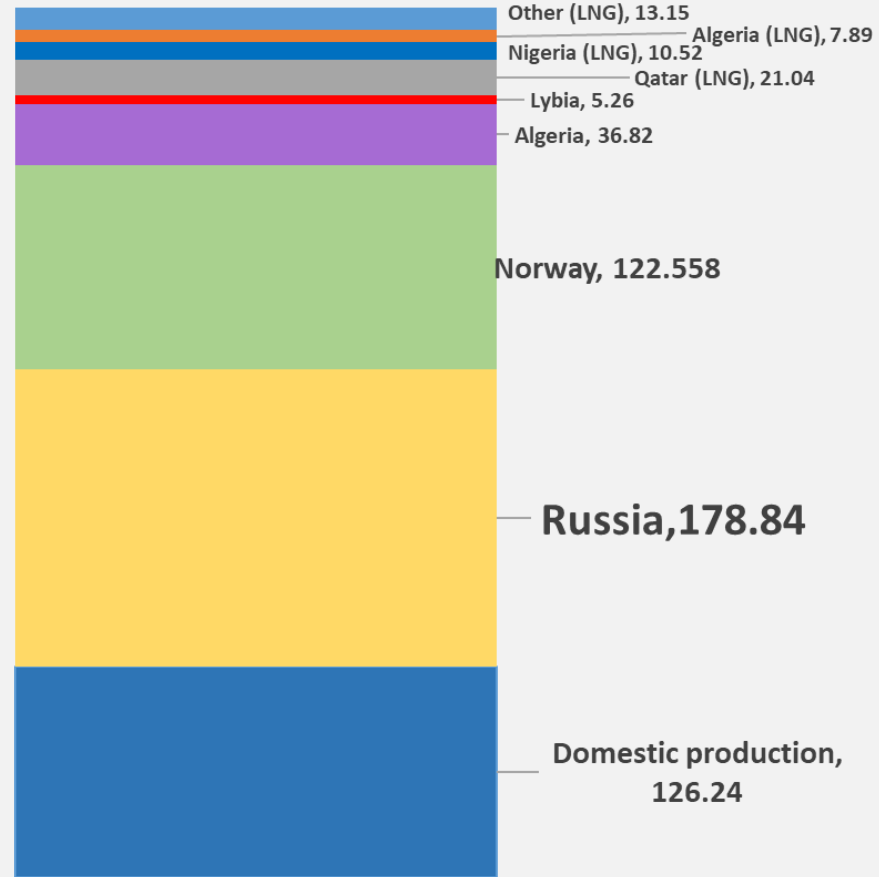
Image credit: [flowcycle.hu](https://www.flowcycle.hu)

# The EU gas supply mix (bcm)

Total EU gas demand: ~ 526 bcm/y

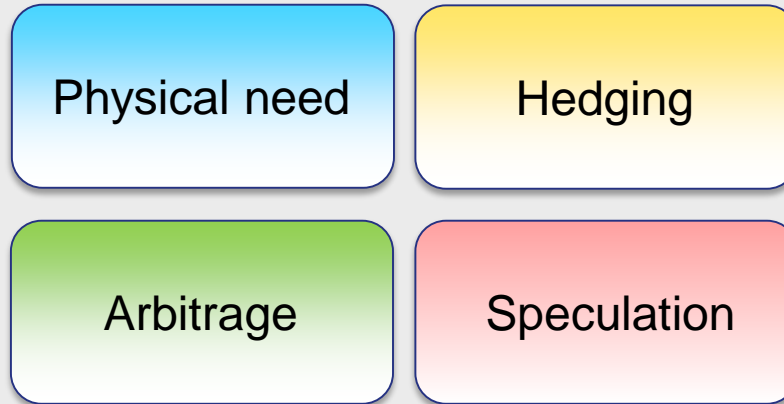
Gas power plants: 21% of EU electricity generation

76% imports



# Why trade?

## In general:



## In gas particularly:



# Some definitions



## Gas hub

Natural gas hubs tend to be **at the heart of gas infrastructure networks** such as pipelines and liquefied natural gas (LNG) terminals. The hub is **used as a central pricing point** for the network's natural gas. In some cases, a financial derivative contract is priced off gas delivered at this point as well. (*Reuters*)

## Gas exchange

A gas exchange allows a shipper or trader to buy or sell gas [...] **without** the other party to the gas transfer **being known** to the shipper or trader. The **gas exchange operator** is responsible for bringing together the volumes of gas offered and the volumes of gas requested and facilitates the financial transaction. If gas is traded on a gas exchange, the gas exchange operator will carry out the nomination on behalf of the shipper, where the balance of all transactions between the gas exchange and the shipper or trader is nominated. A subscription is required for trading on the gas exchange. (*TTF*)

## Trading platform

means an **electronic platform** provided and **operated by a trading platform operator** by means of which **trading participants** may post and accept, including the right to revise and withdraw, **bids and offers for gas** required **to meet short term fluctuations** in gas demand or supply, in accordance with the terms and conditions applicable on the trading platform and at which the transmission system operator trades for the purpose of undertaking balancing actions (*BAL NC*);

## Virtual trading point

A **virtual trading point** is a **non-physical hub for trading** in natural gas markets, for which "there is a virtual trading point (VTP) for each market area, representing all entry and exit points in that market area. (*Wikipedia*)

# *Classification of products*

## ***Short term – spot markets***

- From hourly (within day) products;
- To multi day products (balance of the month).

## ***Medium term – prompt and forward markets – “near-curve products”***

- From one calendar month;
- To one quarter.

## ***Long term – forward markets – “far curve products”***

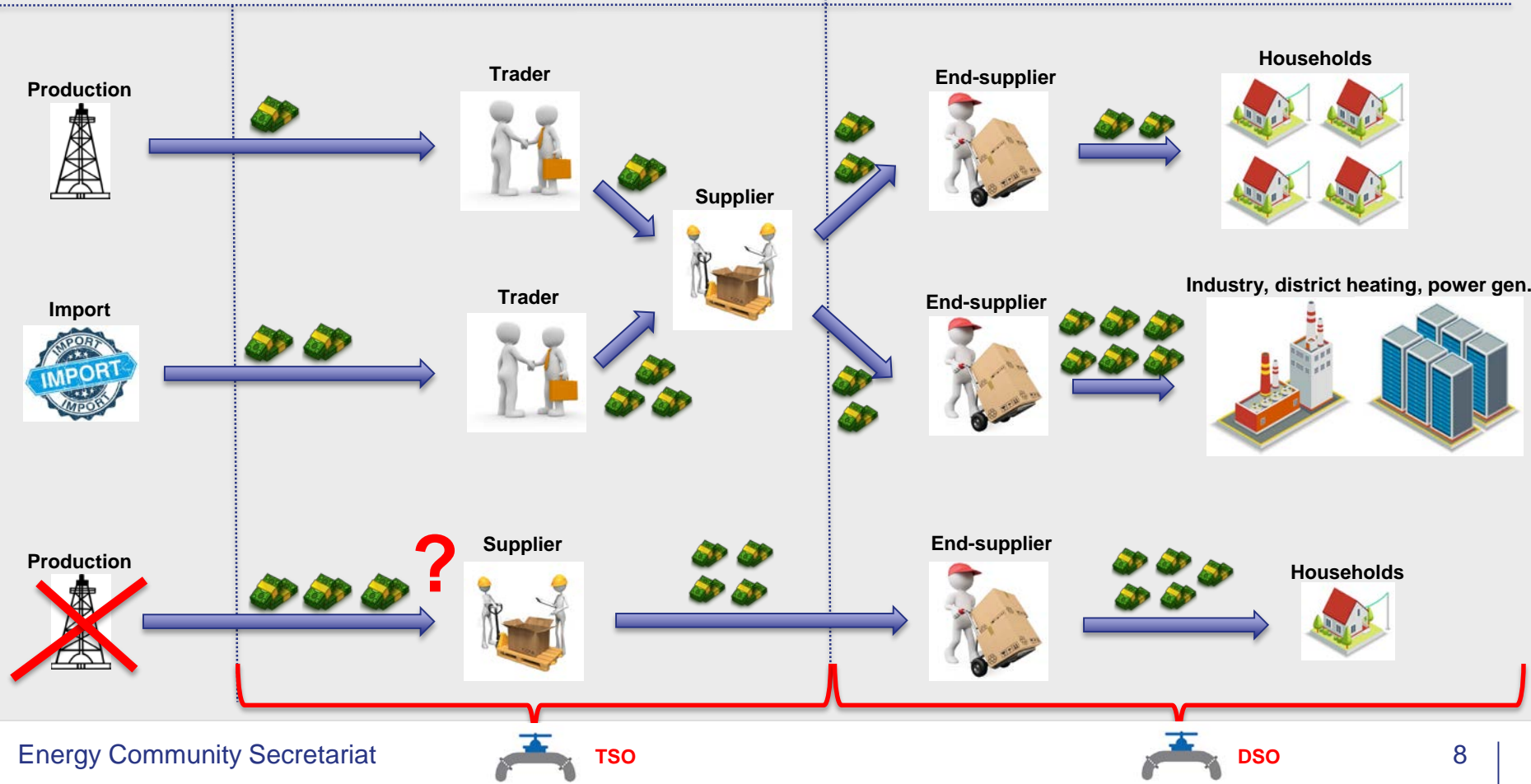
- From half a year (Season) products;
- To one calendar year.
- Could be farther in the future as well...

# “Traditional” gas markets (post 3<sup>rd</sup> Package)

## Upstream

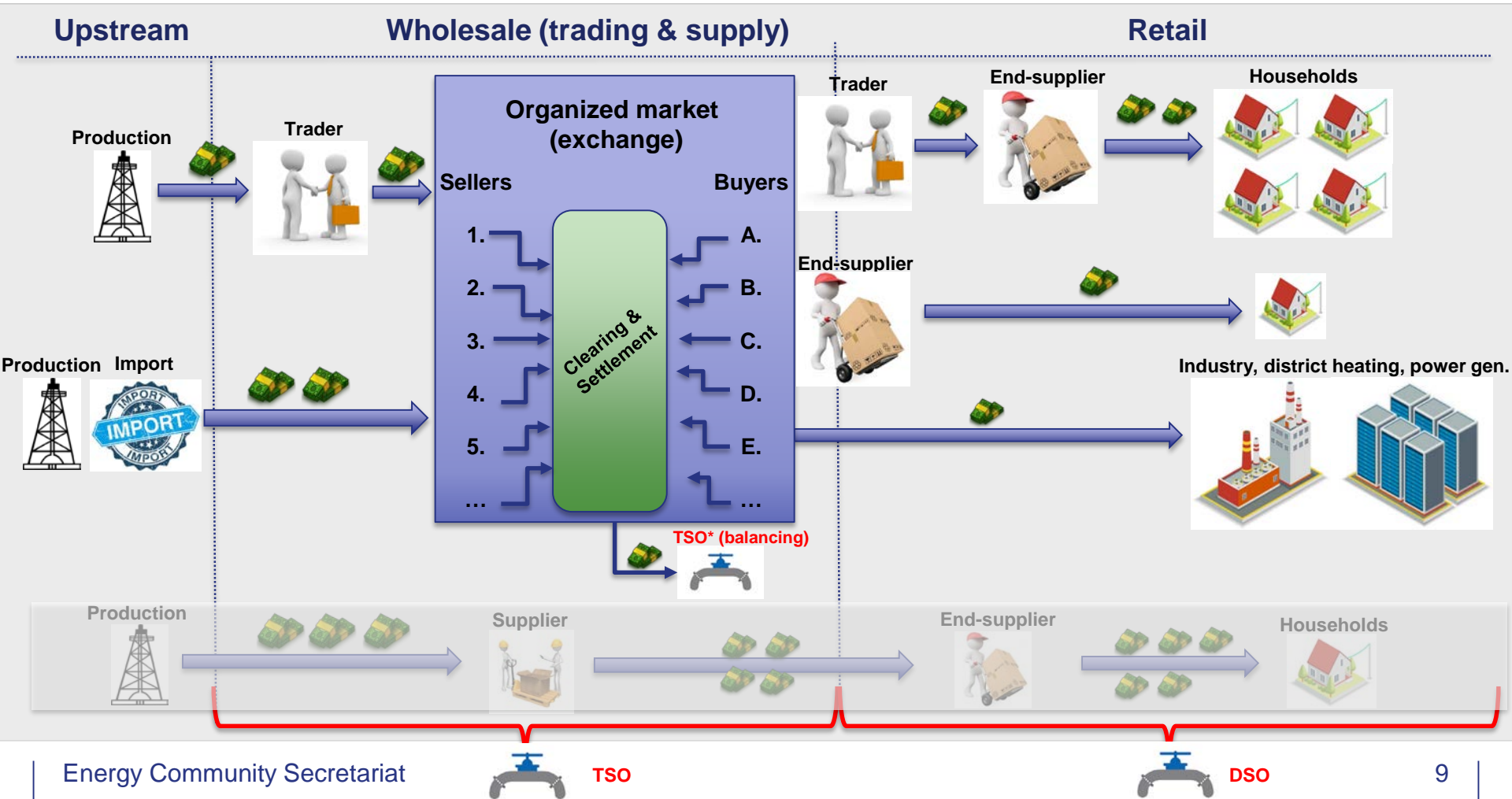
## Wholesale (trading & supply)

## Retail





# An "organized" market



# How to get there?

## Quotes

“Bulgaria has at its disposal large quantities of gas at our three deposits, up to 200 billion cubic metres of gas will reach this hub...from the Black Sea,” he said. “We cannot develop this gas hub unless we get the European Commission’s approval.” (Source: [Politico](#))

“We are moving one step closer to becoming an energy hub with this project,” the Turkish president also said. (Source: [Hurriyet Daily News](#))

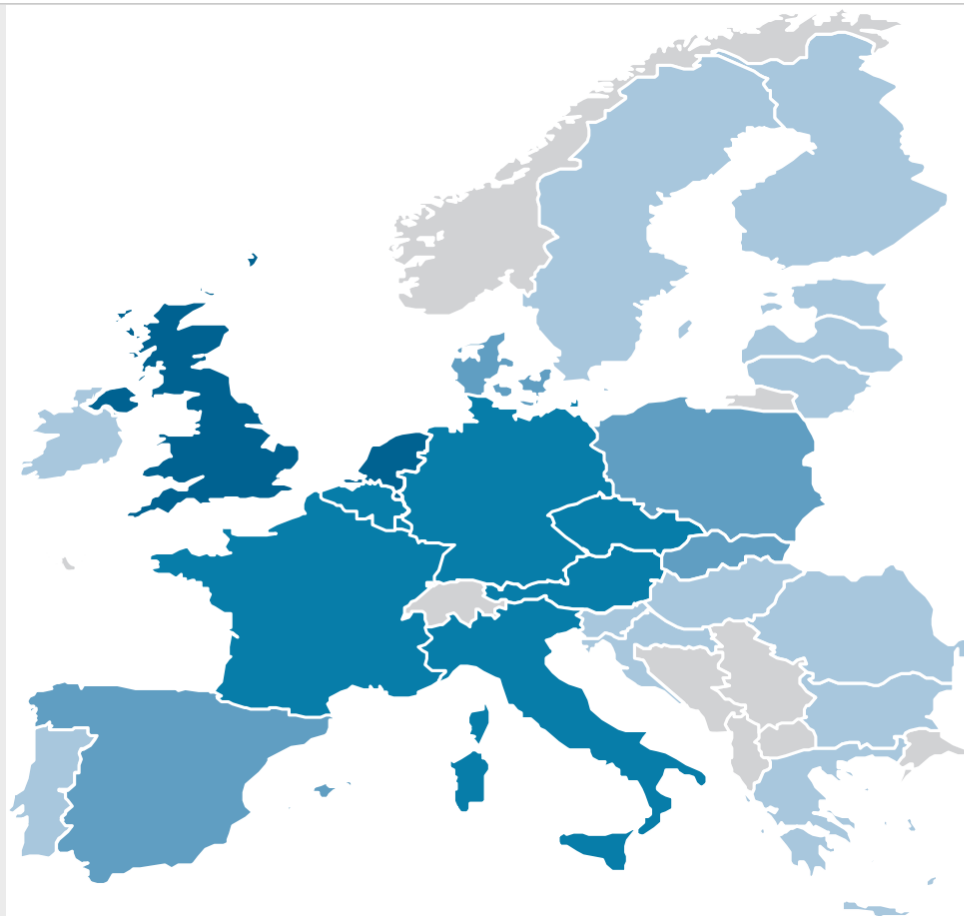


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# Different phases of maturity



## ■ 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

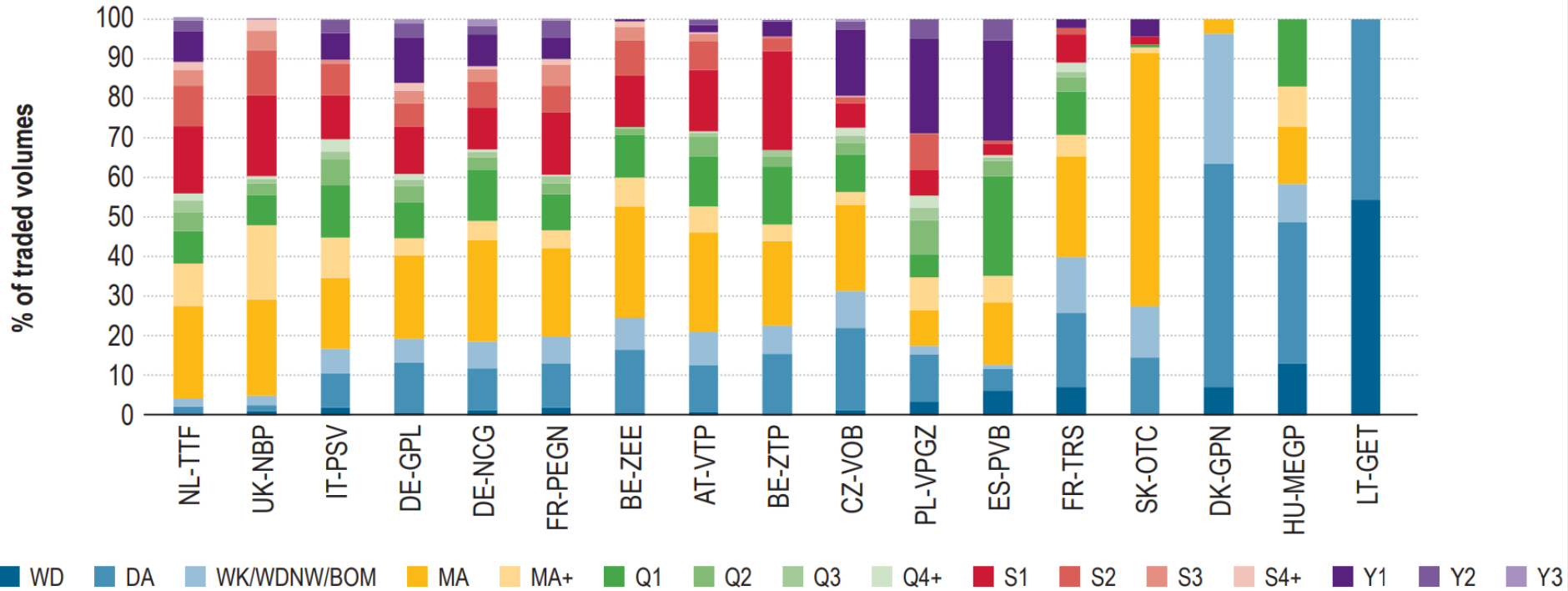
- Improving liquidity from a lower base taking advantage of enhanced interconnectivity and regulatory interventions
- High reliance on long-term contracts and bilateral deals

## ■ 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

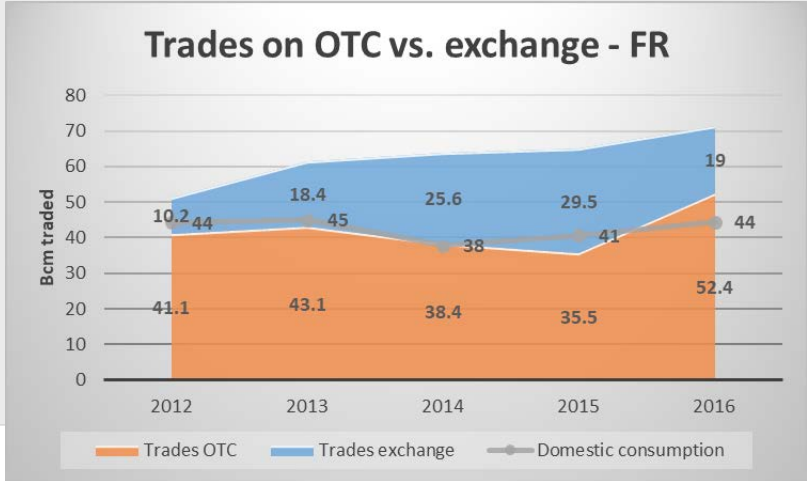
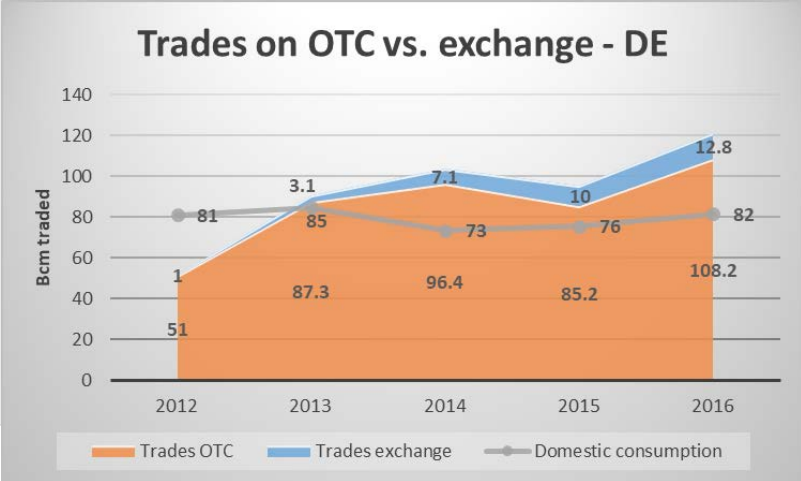
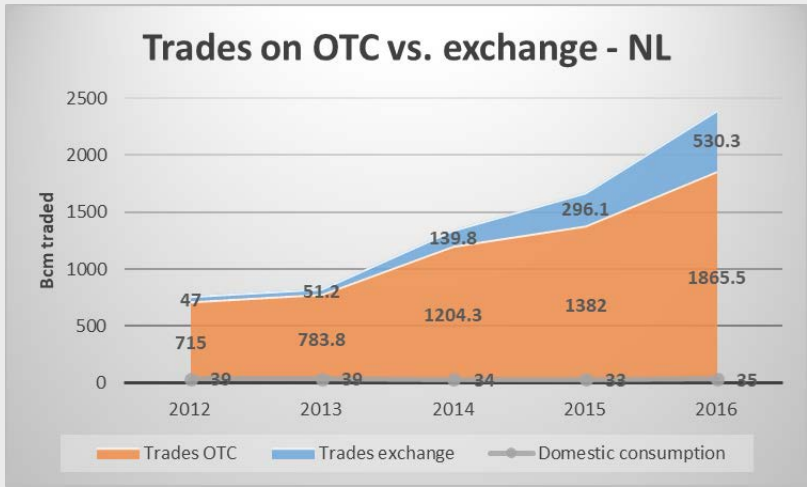
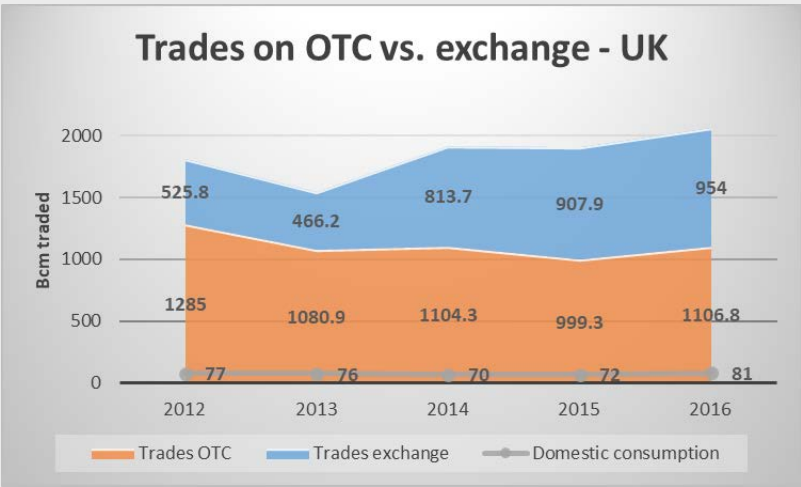
Source: [ACER Market Monitoring Report 2018](#)

# Breakdown of traded volumes per product at EU hubs – 2017 - % of traded volumes



Source: [ACER Market Monitoring Report 2018](#)

# A long way from OTC to trading on the exchange



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## High rate of import dependence – the availability of supplies based on producer policy

- Equinor (NO) – optimizing non-contracted production on the NWE hubs;
- Sonatrach (ALG) – more spot trading and hub-indexed export contracts & spot LNG shipments;
- Gazprom (RU) – increasing position, contract revisions (hub indexations, direct hub-based sales) reacting to competitive pressure;
- Global LNG – largely depends on other markets e.g. Asia – BUT! NBP & TTF price benchmark for global LNG
- Export to UA
- Impact of oil-indexed LTCs on hub prices (6-9 month price lags) & ToP



## Access to cross-border capacities can foster or block trade and market integration

- Long-term bookings from legacy contracts still dominate the capacity landscape but in a decreasing share (from 93% to 84%) – also define dominant flow directions;
- The infrastructure use in general is converting into more short-term trade → TSO revenues? Decreasing rev. coupled with system overcapacity? → Is the EU gas system oversized?
- Flows and infrastructure use can highly affect hubs e.g. restrained flows via CH to IT, UK Rough UGS closure, falling NL production higher DE imports, expiry of LTCs on BBL, higher gas flows through Nord Stream (tariff competition vs. the UA route),
- No connections = no market integration (CESEC)

*Thank you very much for your attention!*

## ***Market participant needs metrics***

- Order book volume
- Bid-ask spread
- Order book price sensitivity
- Number of trades

## ***Market health metrics***

- HHI
- Nr. of supply sources
- Residual Supply Index
- Market concentration for bid and offer activities
- Market concentration for trading activities