


# ACER

 Agency for the Cooperation  
of Energy Regulators

# CEER

Council of European  
Energy Regulators



## The 6<sup>th</sup> Annual Report on Monitoring the Electricity and Natural Gas Markets

### Main insights

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# Outline

- Introduction
- Gas wholesale markets
- Electricity wholesale markets
- Electricity and gas retail markets
- Consumer protection and empowerment

**The Market Monitoring Report provides an in-depth year-on-year analysis of the functioning of the IEM and of the remaining barriers to its completion, providing recommendations on how to overcome them**



## Some background to the sixth MMR

### Key milestones

- 6 October: publication of the EW, GW and Retail Volumes
- 24 October: release of the Customer Protection volume
- 24 October: public presentation of the MMR
- 28 Nov: presentation to European Parliament, ITRE Committee

### Novelties

- In electricity : use of information on the CGM for continental Europe, and use of Flow-based data for CWE better to assess the level of capacity available for cross-zonal trade.
- In gas: coverage of all Gas Target Model metrics and broader and deeper analysis of market effects of Network Codes implementation
- Coverage of Energy Community Contracting Parties for some retail and gas wholesale topics.

Monitoring is still hampered by the difficulty of the Agency to collect the necessary data. In order to be able to fulfil its monitoring obligations, the Agency should be given stronger data gathering powers

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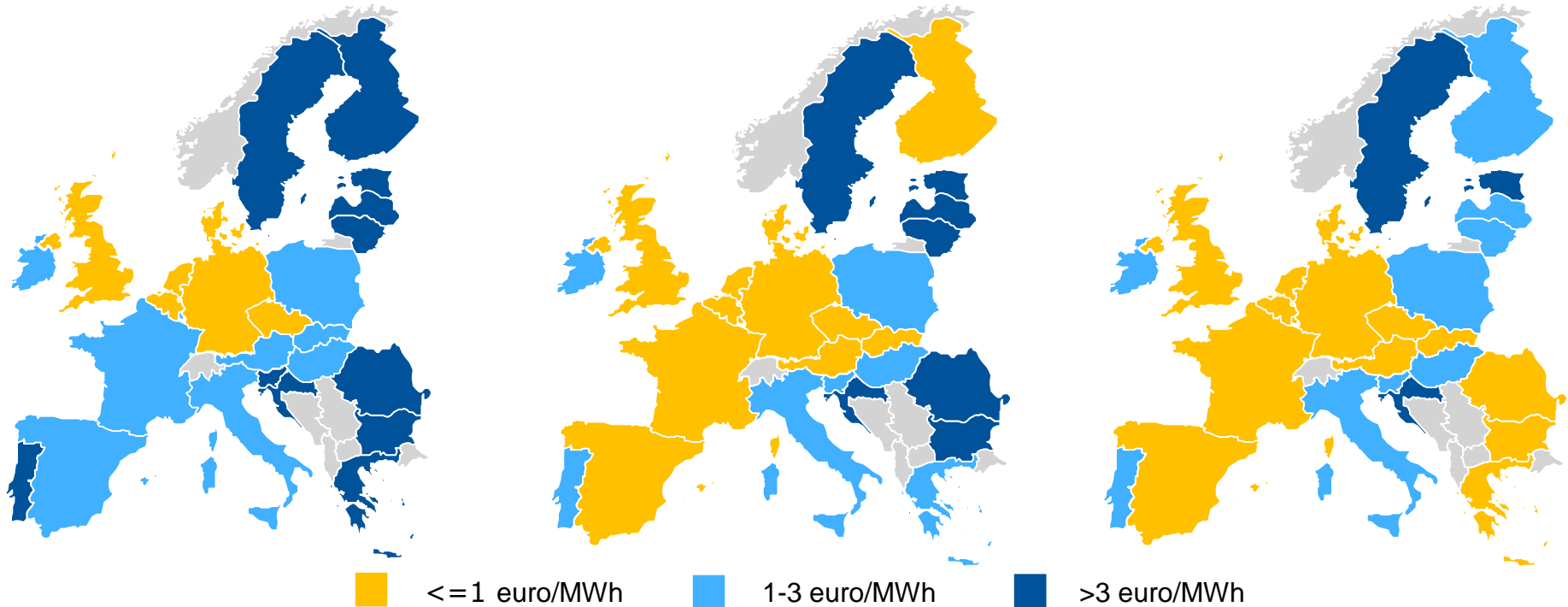
# Gas supply sourcing costs continue to decrease and converge

## Calculated gas sourcing cost\* compared to TTF - estimates

2014: TTF = 23.7 € /MWh

2015: TTF = 21 € /MWh

2016: TTF = 15.5 € /MWh



**The current regulatory model should be allowed time fully to deliver its positive results.  
Regulatory stability should be encouraged.**

\* Note: Suppliers' sourcing cost assessment based on a weighted basket of border import and hub product prices. For some countries sourcing of own production occurs at lower cost than imports (e.g. HR, RO)

# The use of gas infrastructure to supply gas reflects more and more gas-on-gas market fundamentals

## Description

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### Pipes

- Increased adaptability of gas flows
- Gas flows driven by shorter-term price signals resulting from evolving fundamentals
- Pipes – LNG competition

### LNG

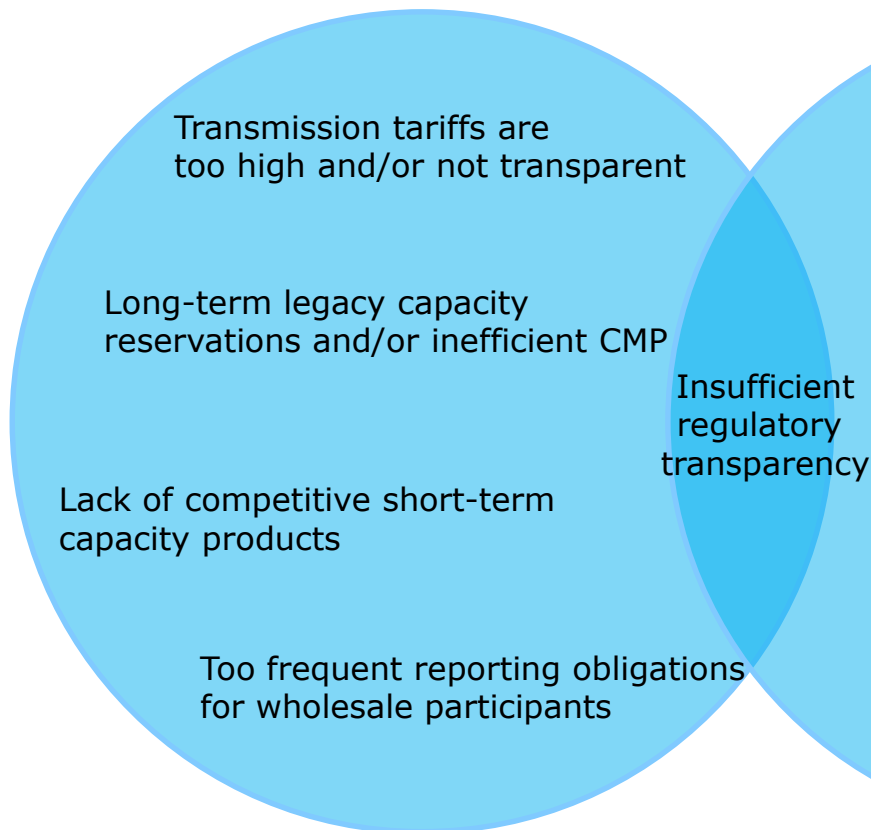
- Transition away from only point-to-point delivery and long-term oil indexed contracts
- Emergence of shorter-term contracts, reselling of cargoes and hub indexed pricing

### UGS

- Short-term supply role complements traditional security of supply role
- Market-oriented flexibility tool providing opportunity to exploit price volatility

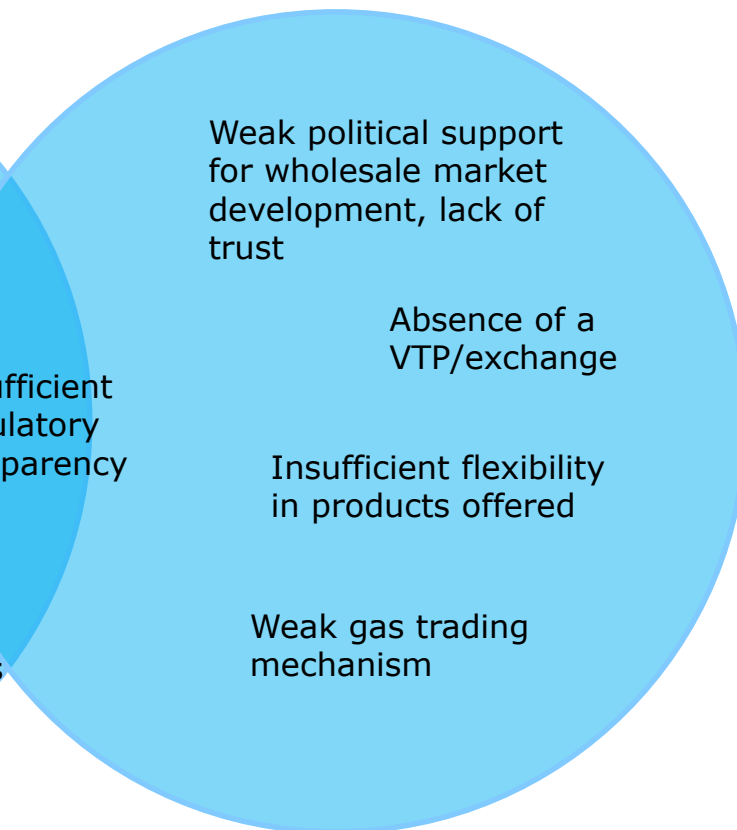
# But, market barriers continue to impact gas wholesale market functioning, indicating there is still work to be done

## Main barriers in established, advanced and emerging hubs



**Barriers centred on how market functioning can be further enhanced**

## Main 5 barriers in Illiquid hubs

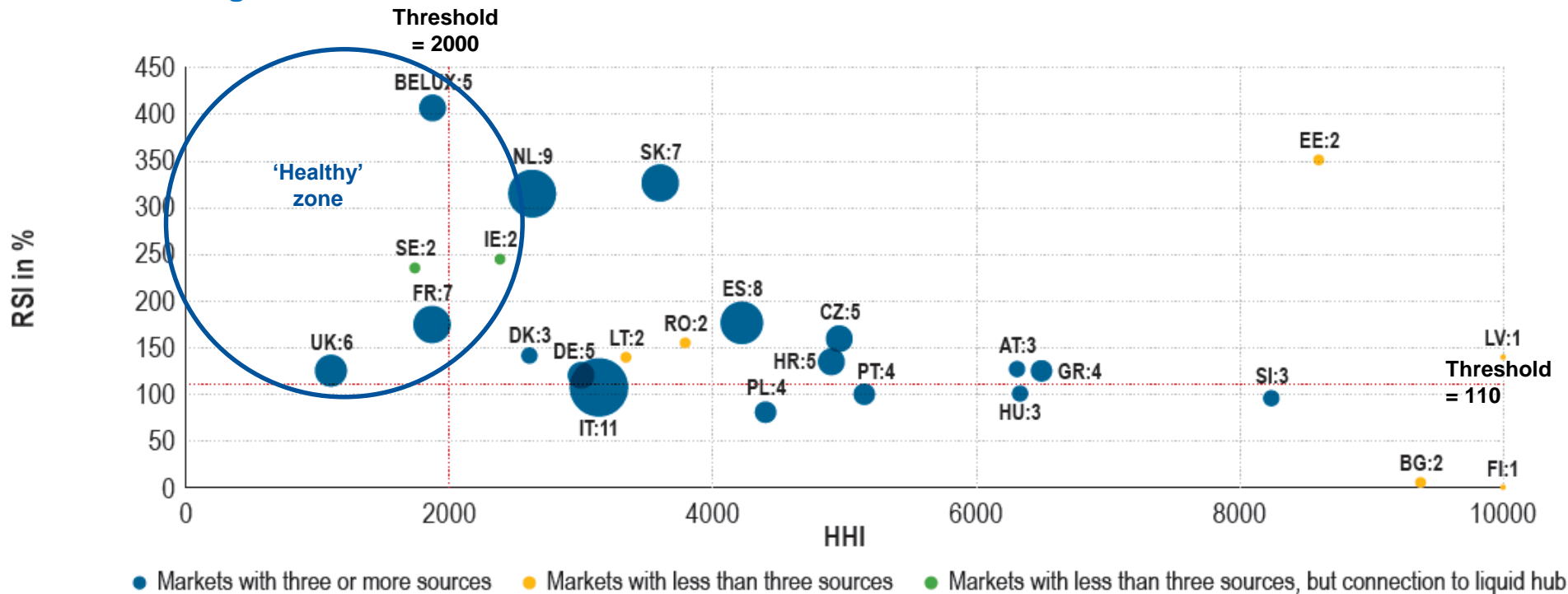


**Barriers centred on how to kick-start market functioning**



# The upstream situation significantly influences the way in which gas wholesale markets (can) perform

## ACER Gas Target Model Health metrics 2016 assessment



- A few MSs to improve interconnection. Together with market oriented access rules market functioning will improve
- A few MSs (e.g. BG, RO) lack Third Package basics (e.g. entry/exist system) which should be addressed

Note: AGTM recommends min. 3 distinct supply origin sources; HHI < 2000 for upstream supply companies and a Residual Supply Index > 110%, i.e. market has the capacity to meet yearly demand without its largest upstream supplier

## Hub development remains heterogeneous, with TTF and NBP in the lead



- Established hub: broad liquidity with sizeable forwards and price reference indexes.
- Advanced hubs: higher liquidity but 'spot/prompt' dominated.
- Emerging hubs: Low but improving liquidity. High reliance on long-term contracts.
- Illiquid-incipient hubs: Diverse group with organised markets in early stage, embryonic liquidity.

Changes in 2016 versus 2015:

- 1) VOB (CZ): from emerging to advanced hubs
- 2) OTC (SK): from illiquid to emerging hubs

- Need for further progress towards liquid markets:
  - Less liquid hubs: follow best-practice trading rules of developed hubs
  - All hubs: Investigate market integration projects

Note: Assessment made based on Gas Target Model (GTM) and other metrics

# The sizeable liquidity offered on the longer curve distinguishes TTF and NBP from all other hubs

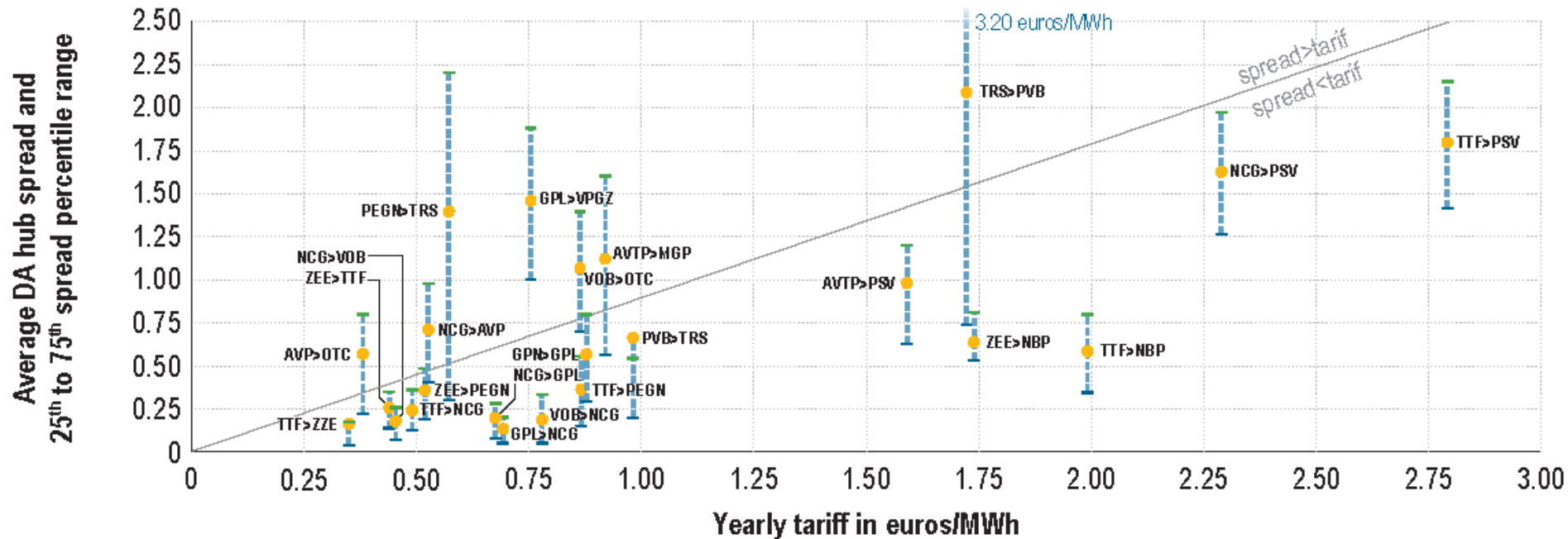
Order book depth horizon in ranges of months for bids for forward products for blocks of 10 and 120 MW – 2016





# Hub price spreads are for the majority of hubs below transportation tariffs

Day-ahead price spreads compared to yearly transportation tariffs – 2016



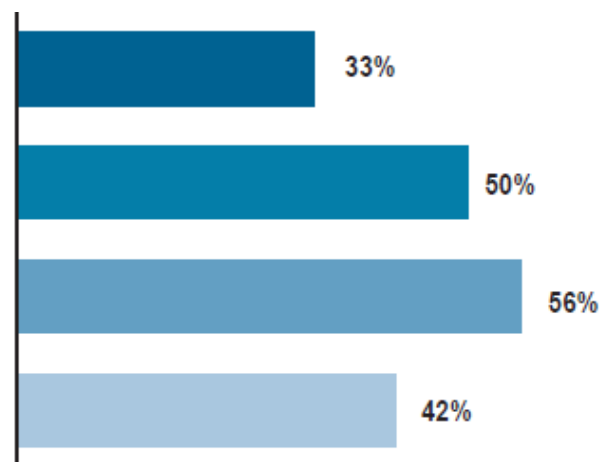
- Price spreads < tariffs: common situation in EU. Any arbitrage trading occurs around the tariff. Marginal short-run costs of LT capacity contracts determine actual spread
- Price spreads > tariffs: often includes market areas with lower liquidity or possible IP capacity constraints
- Daily tariff > yearly tariff: limits further spot arbitrage opportunities
- Shedding light on the cost reflectiveness of tariff levels is important. The re-alignment of short-term multipliers to TAR NC limits will further integrate hubs

## Hub spread and transportation tariff dynamics are one of the factors explaining the low appetite to book IP capacity - 2016

Average of firm capacity booked at IP sides - % over total technical capacity



Average utilization of IP slides - % over total booked capacity (firm and interruptible)



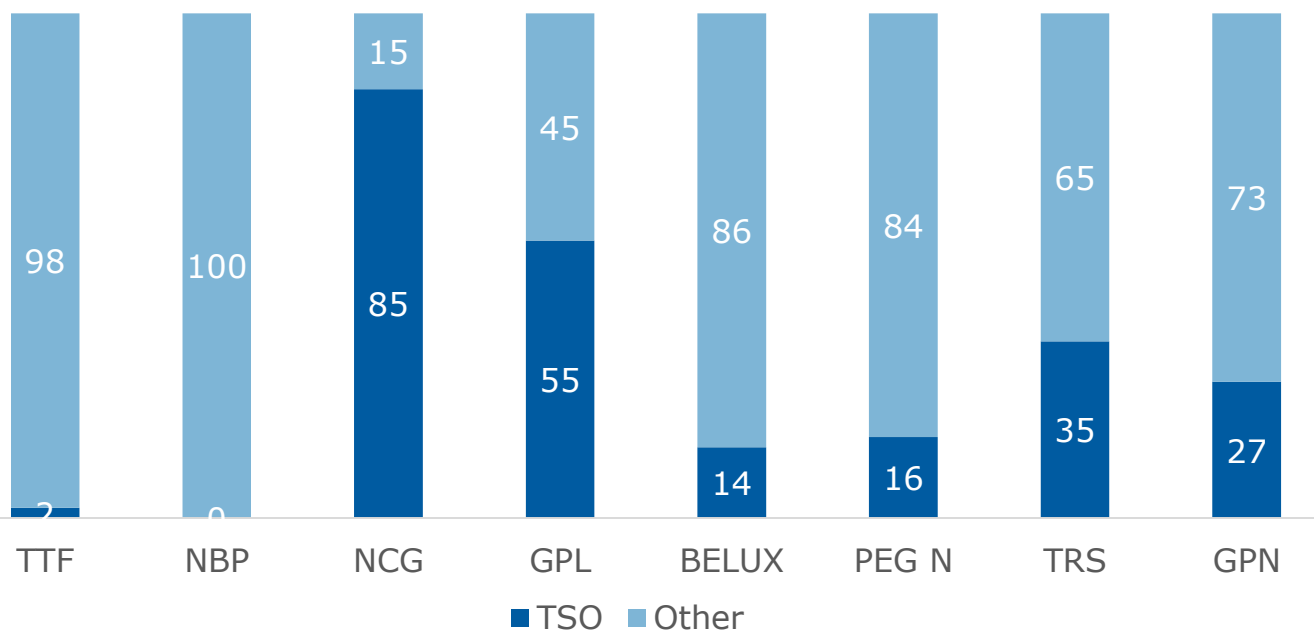
- Holistic analysis - including transportation tariffs and flows, capacity utilisation and auctions, and hub spreads – on a few selected IPs\* indicate CAM and CMP facilitate a more market driven IP operation on:
  - Capacity acquisition in those events where arbitrage on hubs spreads is profitable
  - Capacity release in case of congestion
- However, prevailing LTCs and market fundamentals influence their effectiveness. NRAs and TSOs should approach those codes at a cross-border/regional level to streamline any discrepancies in their implementation

Note: Given the problems with the data reliability of ENTSOG's TP, the Agency was only able to use data covering 50% of the database provided, and full-year data series were only usable for 50% of those selected IPs.

\* Arnoldstein/Tarvisio, Oberkappel, Mallnow

## Some market areas have a functioning market-based balancing mechanism (BAL NC), facilitating market functioning

### TSO share of total short-term products volumes traded – gas year 2015-16



- Residual TSO role : TTF, NBP and GPN best practice
- Frequent, almost real time Information provision: NL, Belux, FR BAL markets. DK and UK balancing markets also exceed min. BAL NC requirements
- Learn from best practices. Other MSs to implement BAL NC

Note: Only within-day is shown. In some cases there is also TSO activity on other types of spot markets. Many MSs are still implementing a market based BAL. German market areas BAL system modified effective Oct 2016, hence impact not included in this analysis



## Two trends could impact direction of future market integration

### LTCs expiration could impact market integration

- Historical LTCs to progressively expire but may partially be replaced with 'modern style' mid/long-term contracts
- Future capacity bookings to occur on a 'shorter term' notice
- New LT capacity to be booked chiefly by gas producers
- This may lead to lower stability:
  - Higher hub spreads (orders more at full cost, less SRMC based) and less convergence?
  - Higher transportation tariffs?
- But could also lead to more:
  - Transparent market dynamics
  - Product innovation

### Further market integration (GTM) benefits

- Still untapped potential for better market functioning (region specific)
- GTM emphasises market integration: still in early stage and potential natural evolution to larger market areas over the next 5 years
- Impact may lead to
  - Ongoing price convergence and more convergence in those market areas currently witnessing lower levels.
  - Larger market areas with more supply-side competition and scope for grid cost efficiencies.

To which degree will these trends:

- Materialise and balance each other out and
- To what extent will they coincide timewise?

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# Context

## Integrating the IEM

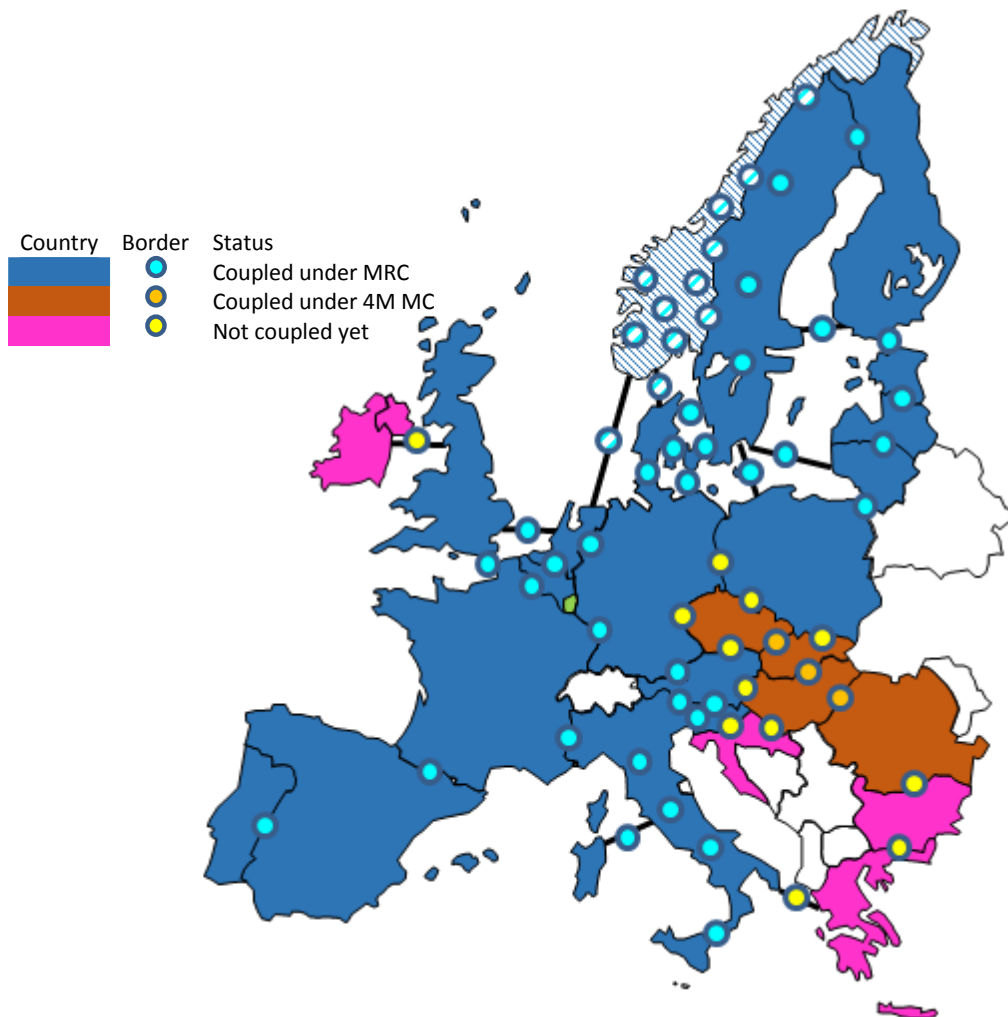


Electricity wholesale markets Volume



# Significant progress on the ground towards market integration

## Example: Implementation Status of single day-ahead market coupling



### Today:

80% of borders coupled  
46 borders coupled in a single coupling  
3 borders coupled separately  
12 borders still waiting for coupling

### Final goal:

EU-wide day-ahead market coupling with implicit auctions

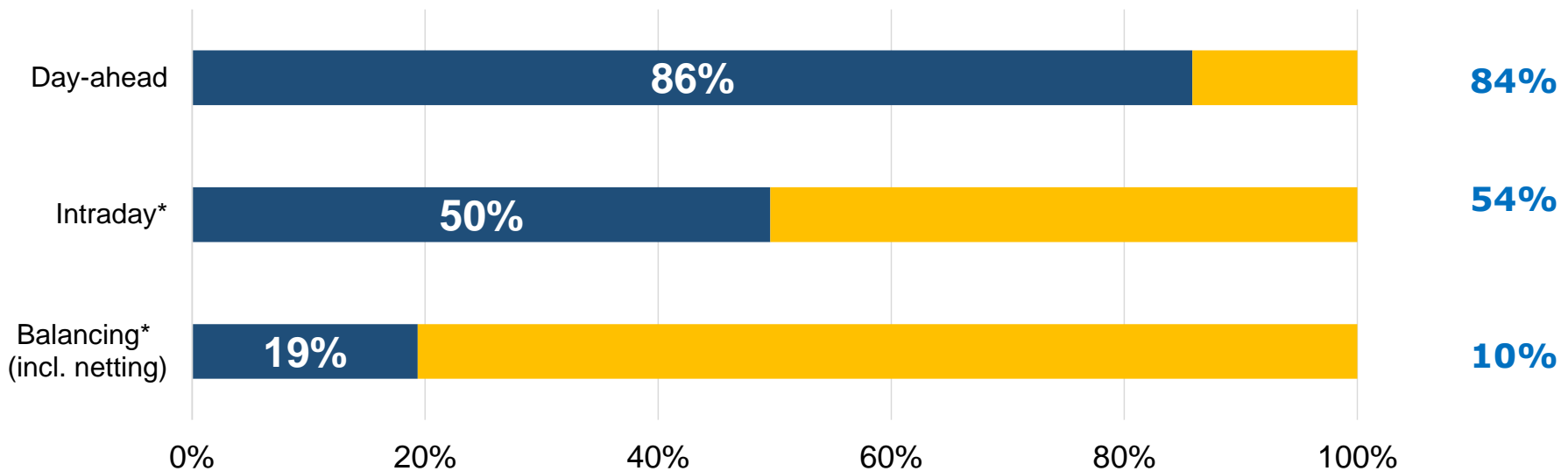
## Other achievements on the ground towards market integration

- ✓ **Forward capacity allocation:** 30 borders with harmonised allocation rules (at end 2017)
- ✓ **Intraday:** development of EU-wide platform. Envisaged go-live in early 2018
- ✓ **Balancing:** envisaged completion of several projects for imbalance netting and for the exchange of balancing services in the next coming years

## As a result, the use of cross-border capacity in the day-ahead timeframe is close to optimal, but it could be significantly improved in the intraday and balancing market timeframes

Efficient use of interconnectors in the different timeframes in 2016 (%)

2015 values



Note: \* ID and Balancing values are based on a selection of EU borders.

## Context

### Integrating the IEM

**Capacity  
available for  
cross-zonal  
trade**

Efficient  
use of  
cross-zonal  
capacity

Integrated  
wholesale  
markets

Retail  
markets

Consumer  
benefits

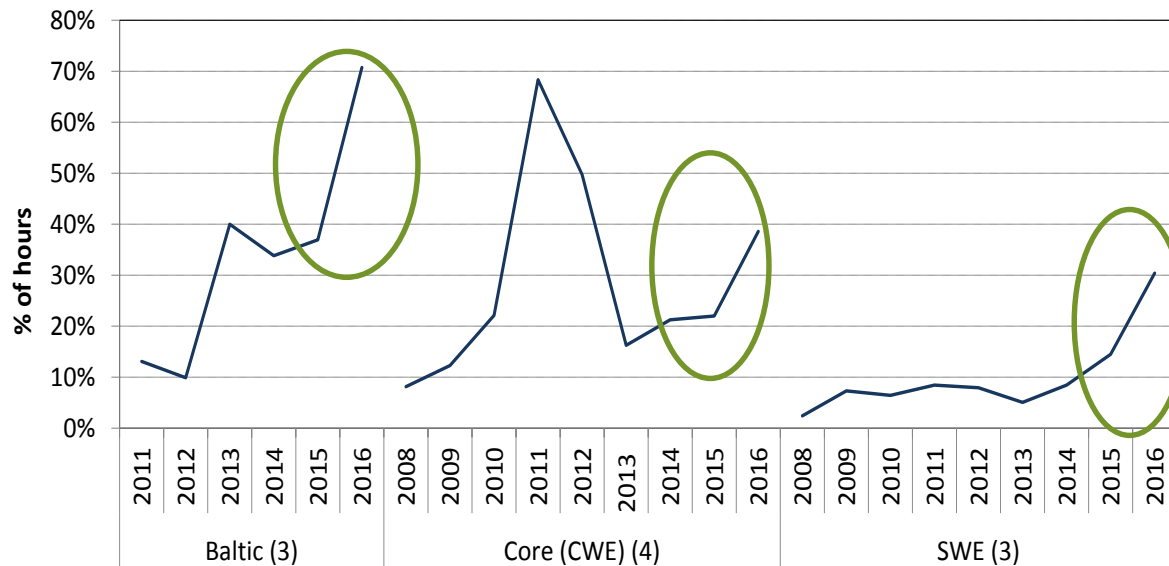
# The level of cross-border capacity made available to the market: a decisive factor for market integration

Higher capacity correlates with higher price convergence

Lack of capacity correlates with lower price convergence (i.e. higher spreads)

## Most significant increases in regional price convergence in Europe– 2008–2016 (% of hours with equal prices)

## Borders with the highest average DA price differentials– 2012–2016 (euros/MWh)



Border-direction	2016 price diff.
NL->GB	16.9
AT->IT	13.7
FR->GB	12.4
DE->CH	8.9
AT->CH	8.9
DE->FR	7.8
DE->PL	7.5
NO-4->FI	7.4
NO-2->NL	7.1
SI->IT	7.0

## **The level of cross-border capacity made available to the market: a decisive factor for market integration**

How to ensure that more cross-zonal capacity is made available for trade?

- a) A classical answer: “Let’s wait: investments in network will address this issue”
  
- b) The Agency’s answer: “Let’s change the current approach to cross-zonal capacity calculation”

## Cross-zonal exchanges are discriminated against internal (intra-zonal) ones

Illustration on the level of discrimination in the CWE region, where flow-based (FB) capacity calculation applies, in 2016.

**1- Where** are the constraints limiting cross-border trade located?

**70%** related to internal lines

**Vs**

**30%** related to interconnectors

**2- How** is the capacity of critical network elements (CNEs) shared?

**84%** "consumed" by internal exchanges

**Vs**

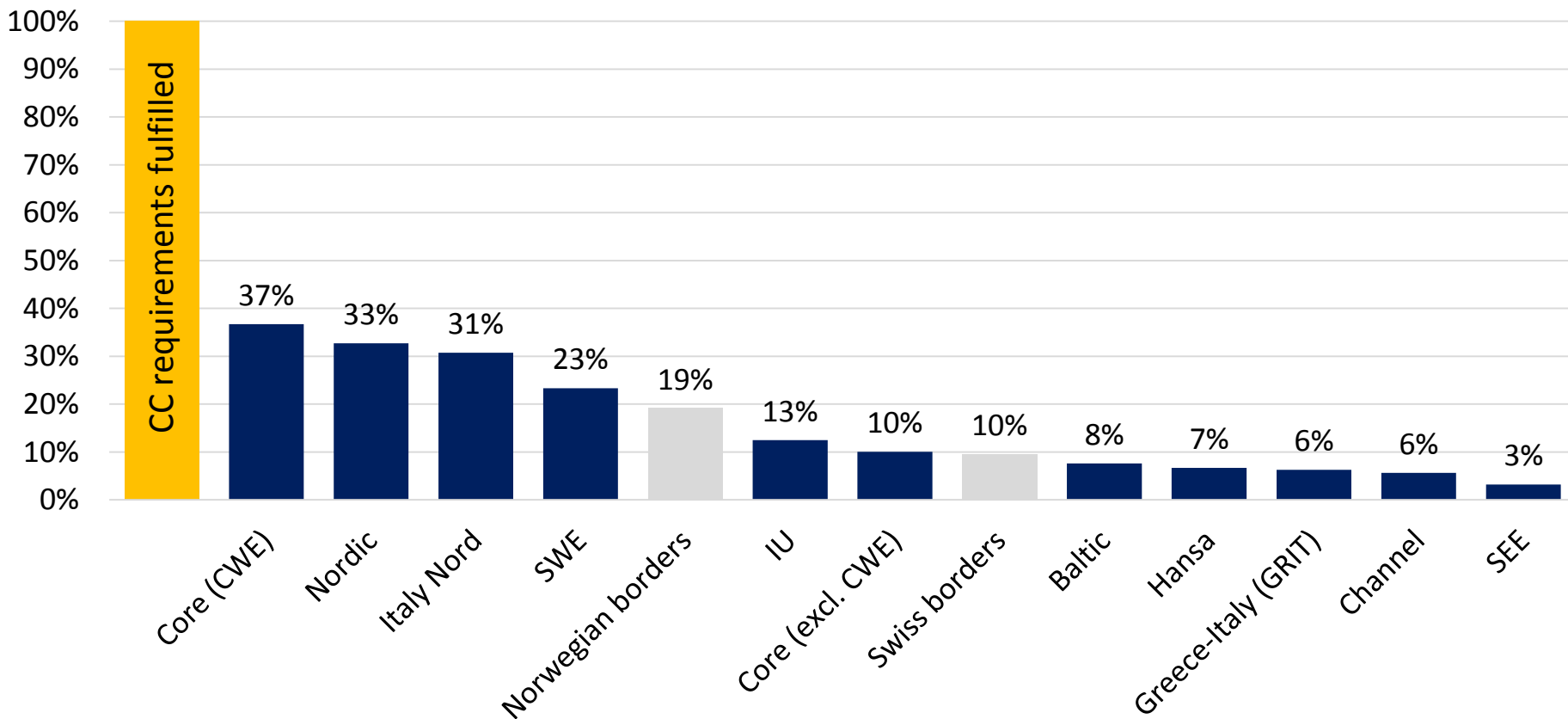
**16%** available for cross-zonal exchanges

**Important caveat:** This example in no way means that FB capacity calculation (CC) is more discriminatory than NTC-based CC. Where NTC applies, equivalent data is not available as CC is often less transparent and the scope for discrimination is higher.



## Large room for improvement in the level of TSO coordination

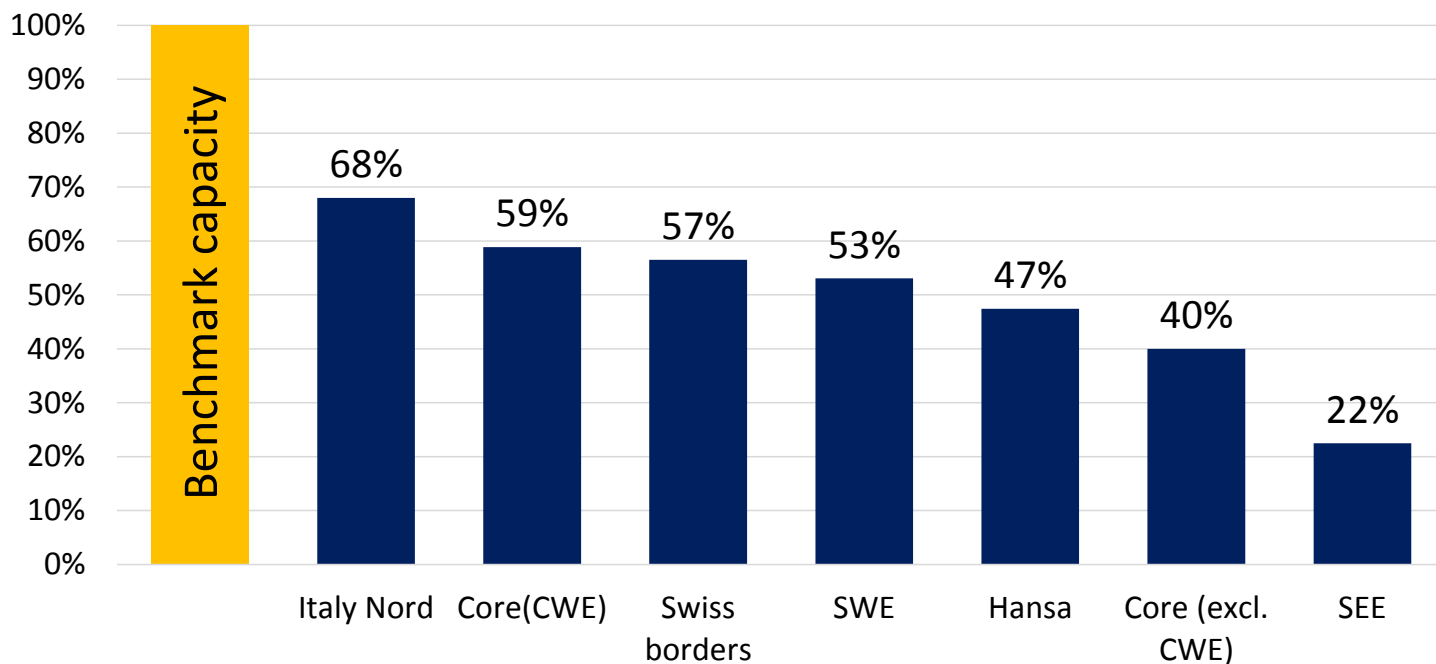
### Regional performance based on fulfilment of capacity calculation requirements – 2016 (% - scoring)



Note: Evaluation is based on frequency, coordination, use of CGM and required parameters, and hourly resolution of the applied CC methodology.

# Cross-zonal exchanges usually get the 'leftovers' of the (limited) capacity of the network

Ratio between available cross-border capacity and the benchmark capacity\* of HVAC interconnectors per region – 2016 (%)



Borders with the lowest ratio between tradable capacity (NTC) and benchmark capacity (ranked) – 2016 (% , MW)

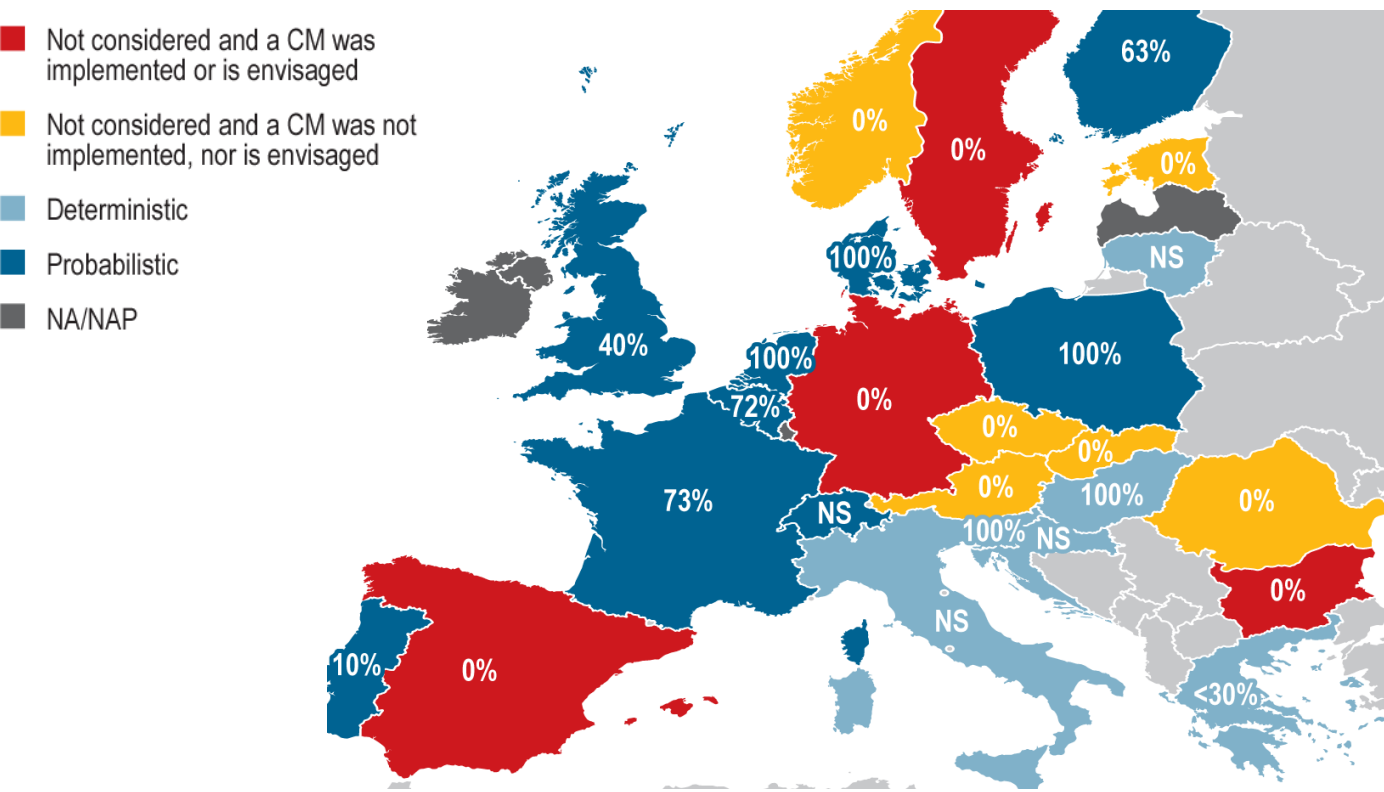
Border-Direction	ratio NTC/benchmark
DE/LU->PL	0%
CZ->PL	1%
SK->PL	2%
DE/LU->CZ	10%
RO->BG	10%
DK1->DE/LU	12%
PL->SE-4	16%
AT->CZ	28%
AT->CH	29%
DE->CH	29%
PL->LT	30%

Note: \*The benchmark capacity is calculated by ACER as the capacity which could be made available while preserving operational security.

# National adequacy assessments ignore or underestimate the contribution of interconnectors to security of supply

One third of the national adequacy assessments consider the contribution of interconnectors as being zero

## Treatment of interconnectors in national generation adequacy assessments in Europe – 2016



Note: The information shown in the map is based on the national adequacy assessments used to take a decision on whether to implement a CM or, in countries where such a decision was not considered, on the latest national adequacy assessment. The percentages shown in the table are calculated, for a given country, as the ratio between the average expected net contribution of all interconnectors during scarcity situations and the sum of the average commercial import cross-border capacity. These percentages do not represent the actual contribution (in MW) which can be negligible on some borders due to the low availability of cross-zonal capacity (e.g. on some of the Polish borders). NS means not specified.

## Recommendations to increase cross-zonal capacity

1. The Agency recommends the full implementation of the principles on cross-zonal capacity calculation included in its Recommendation No 02/2016:

The principles, in a nutshell:

- The maximum feasible cross-zonal capacity should be made available to the market rather than the left overs.
  - The costs of the remedial actions (e.g. redispatching) needed to guarantee maximum cross-zonal capacity should be fairly shared among TSOs.
2. Where the use of the available remedial actions is not sufficient to ensure an appropriate level of cross-zonal capacities, or it is found to be 'too costly', the Agency recommends that a reconfiguration of bidding zones be applied.
  3. MSs could consider setting a binding target for the availability of existing and future cross-border capacity, e.g. by defining a minimum share of physical cross-zonal capacity which should be made available for cross-zonal trade.

## Recommendations to increase the level of TSOs' coordination

1. NRAs and TSOs should ensure the effective and rapid implementation of FB capacity calculation
2. NRAs and TSOs should ensure the effective and rapid implementation of all legal provisions related to TSO coordination (e.g. those envisaged for Regional Security Centres or potentially for Regional Operational Centres in the future).
3. European Legislators and NRAs should seek ways to strengthen the role of European adequacy assessments, in particular as regards the estimated contribution of interconnectors to adequacy. An European assessment has a clear potential to provide better results than fragmented national assessments.

## Recommendations to increase transparency in capacity calculation

NRAs and/or European Legislators should request from TSOs the publication of all data generated for cross-zonal capacity calculation in a timely and user-friendly manner. This could be done on a voluntary basis or by amending the existing Regulation (e.g. the so-called 'Transparency Regulation').

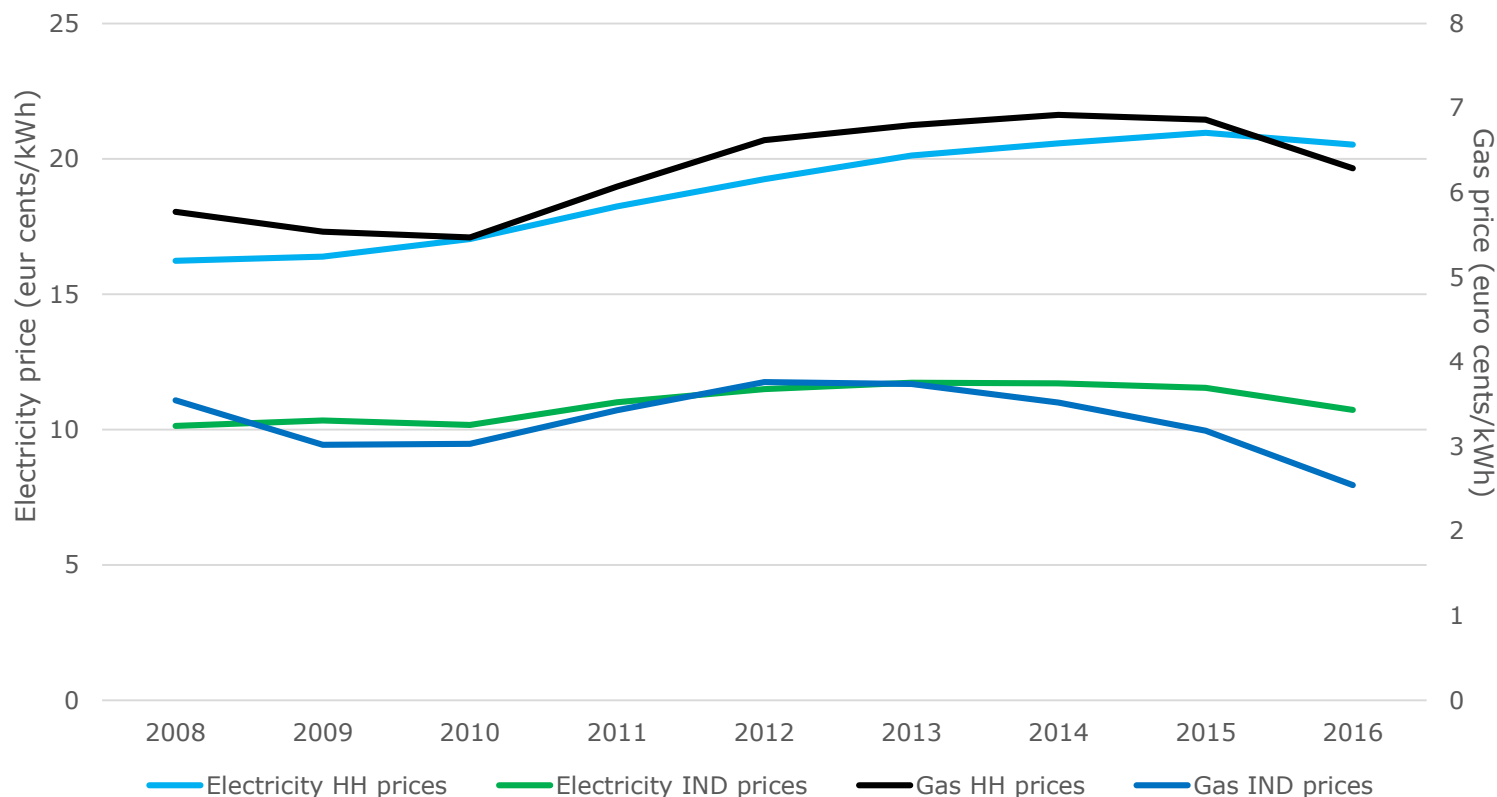
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# End-user prices for gas and electricity decreased on average for all consumer categories in 2016

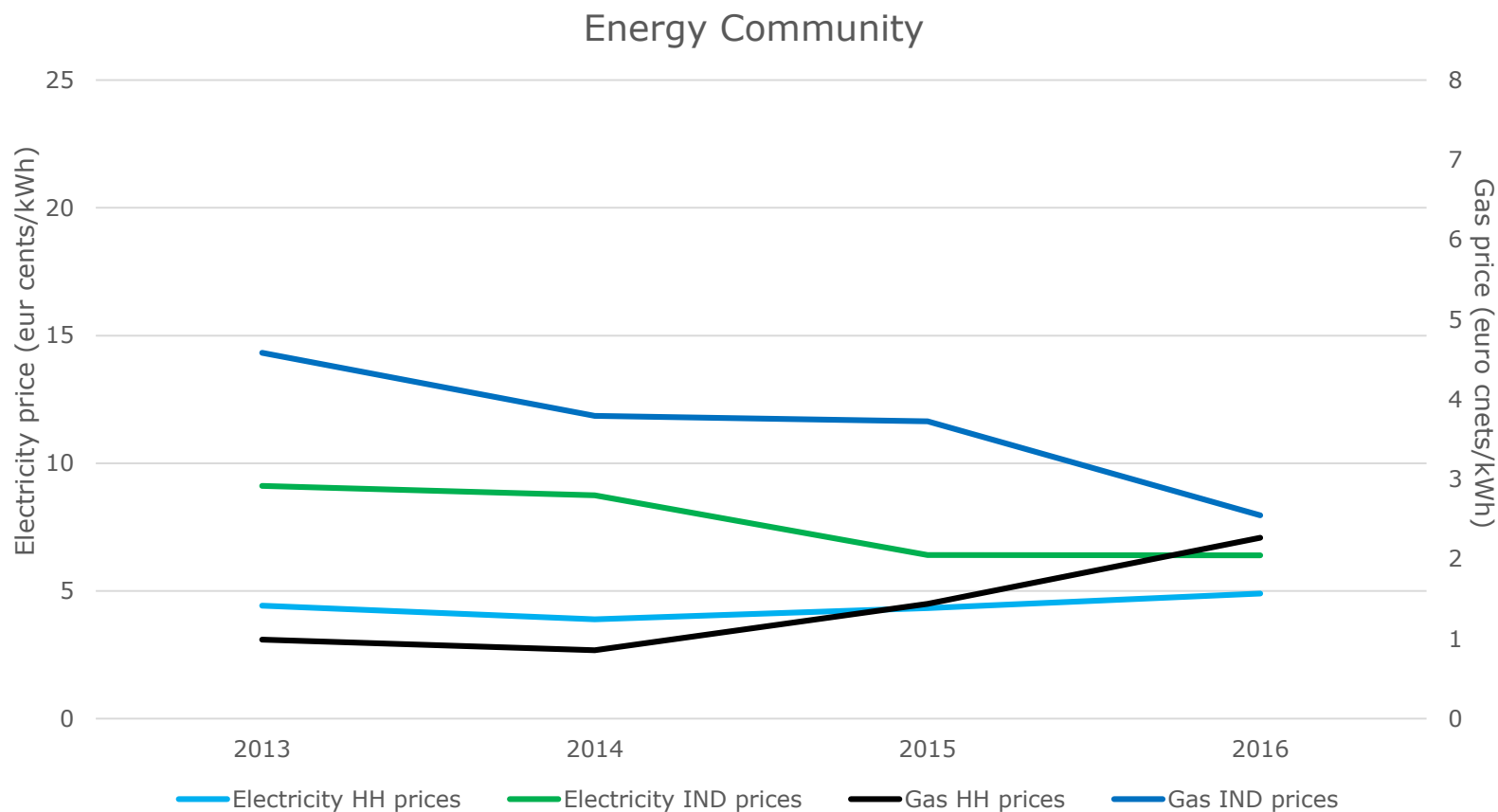
## Gas and electricity prices for households and industrials (euro cents/kWh) – 2008-2016

EU and Norway



# In the Energy Community Contracting Parties industrial and household prices are converging

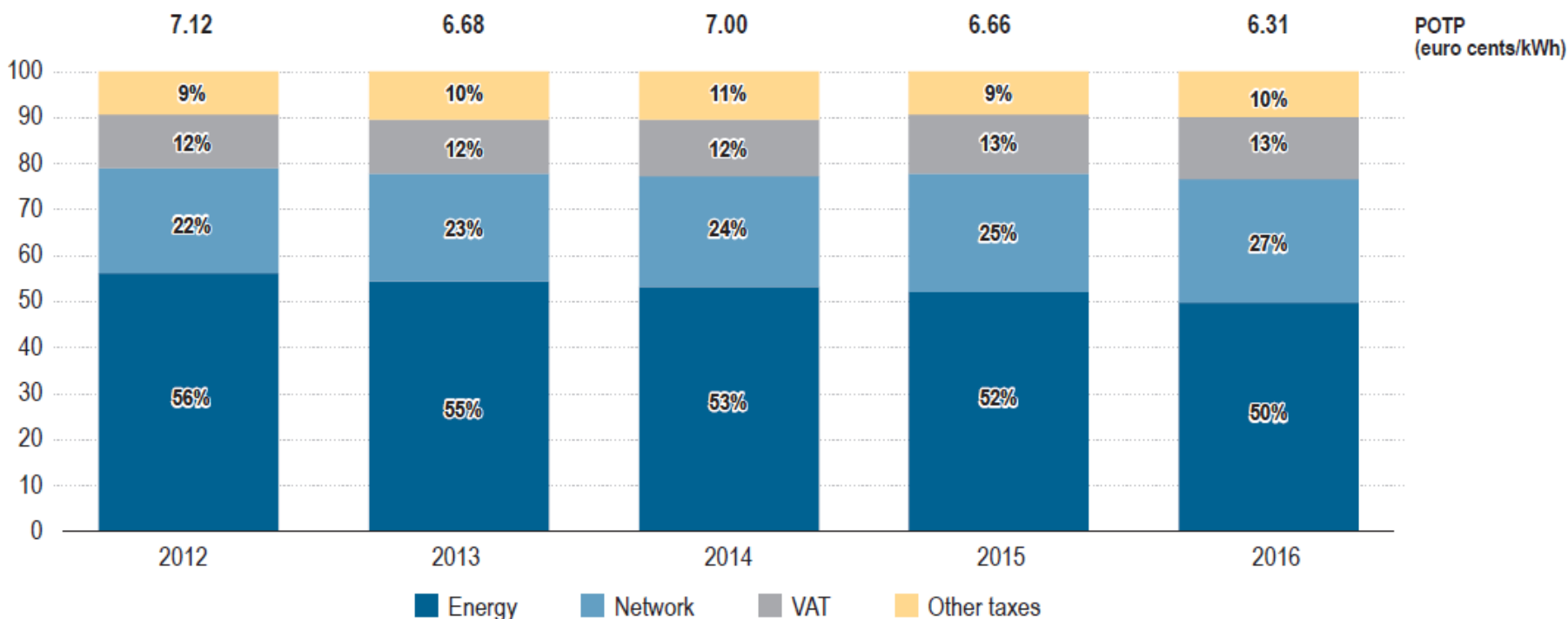
## Gas and electricity prices for households and industrials (euro cents/kWh) – 2013-2016





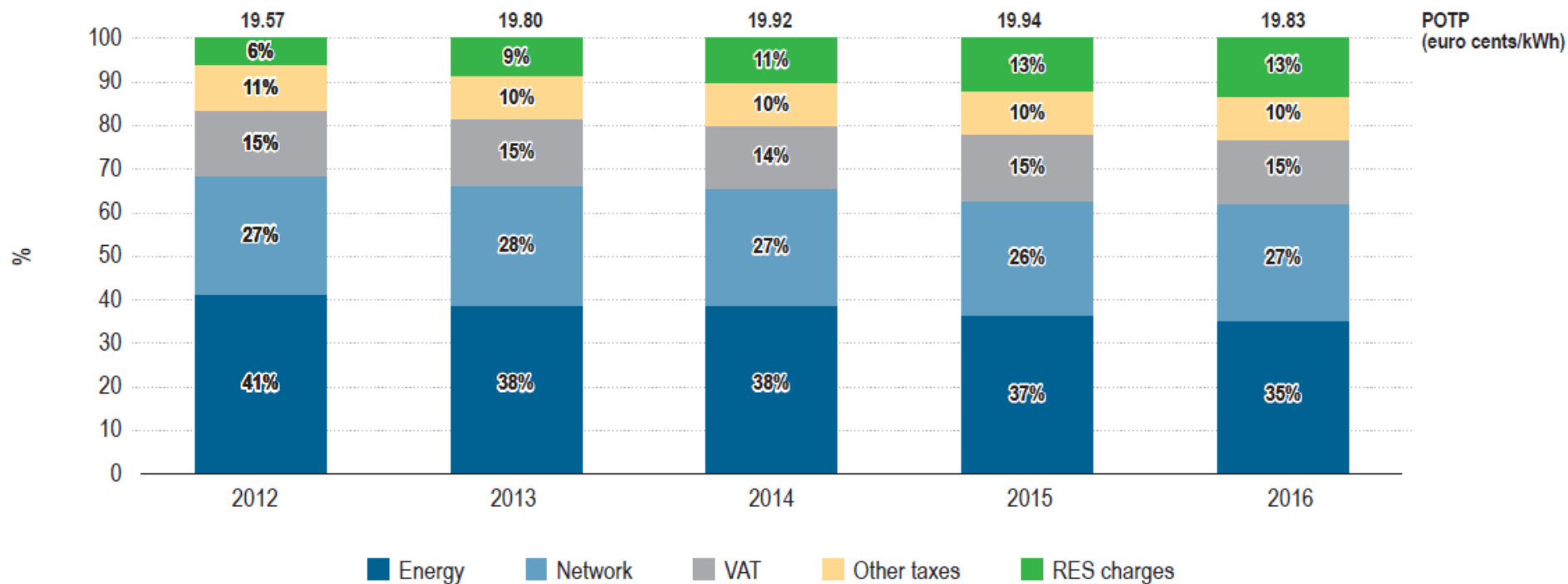
# Suppliers compete on half of the gas bill paid by EU households. Taxes and network costs represent the other half

Weighted average final gas price breakdown of incumbents' standard offers for households in capital cities of the EU (% and euro cents/kWh) – 2012 - 2016



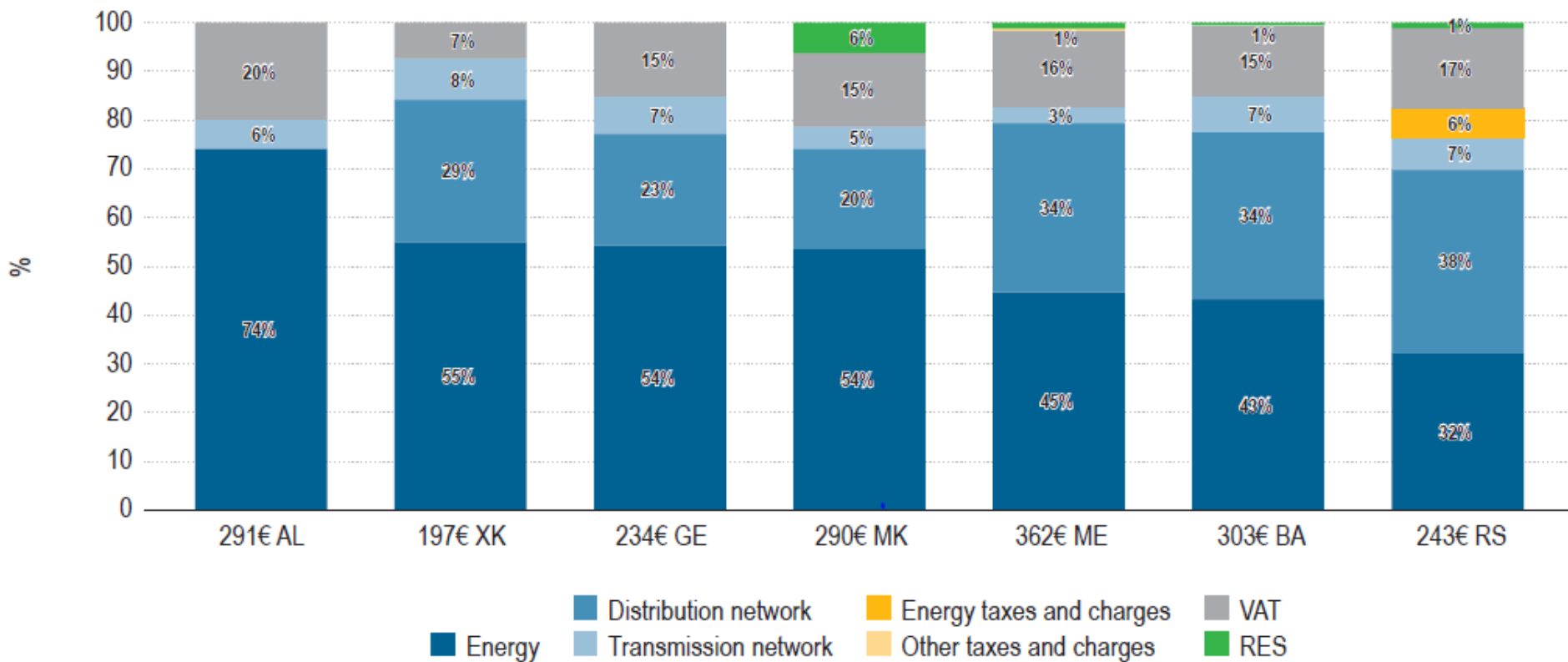
## Suppliers compete on one third of the electricity bill of EU households. Taxes and network costs represent the rest

Weighted average final electricity price breakdown of incumbents' standard offers for households in capital cities of the EU (% and euro cents/kWh) – 2012 - 2016



## Price decomposition in Energy Community shows a varied picture

Weighted average final electricity price breakdown of incumbents' standard offers for households in capital cities of the Energy Community (% and annual household bill in euro) – 2016

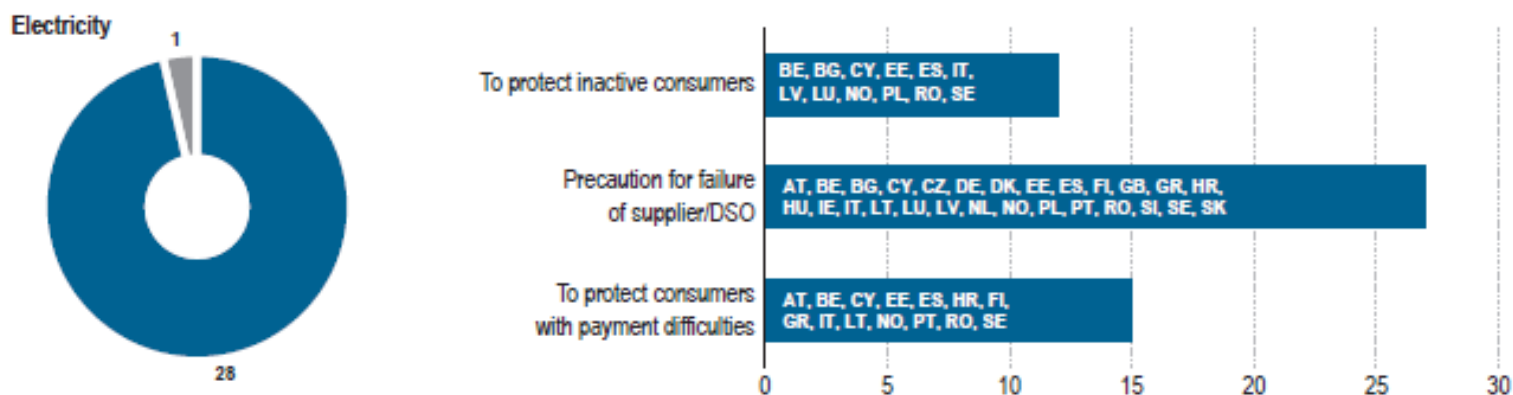


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- Gas wholesale markets
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- Consumer protection and empowerment
  - Public Service Obligations (PSOs)
  - Consumer information rights
  - Consumer choice
  - Consumer complaints and handling
  - Protection of vulnerable consumers
  - Recommendations

## Public service obligations

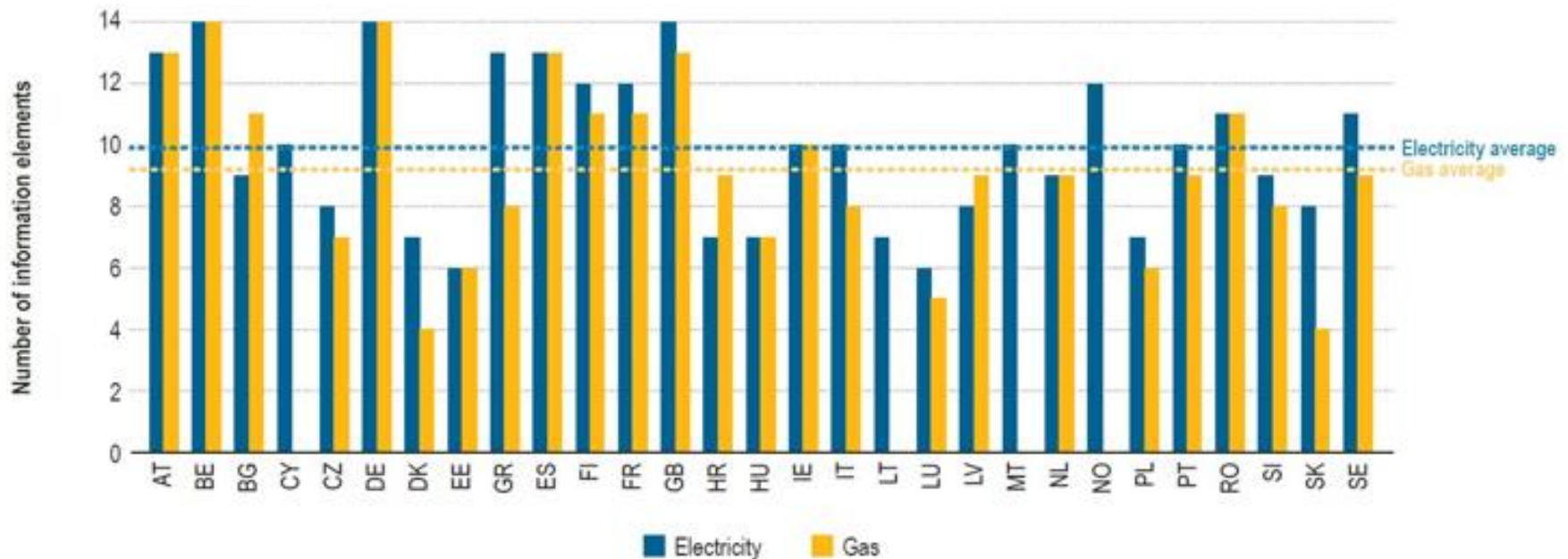
### Functions of supplier of last resort in the EU MSs and Norway by number of MSs, electricity - 2016



- Duration of disconnection gives reasonable time to settle open bills
- Disconnection rates hardly exceed 1%, some data missing
- Pre-payment meters only used in a few Member States (MSs) as substitutes for disconnections (or otherwise)

## Consumer information rights

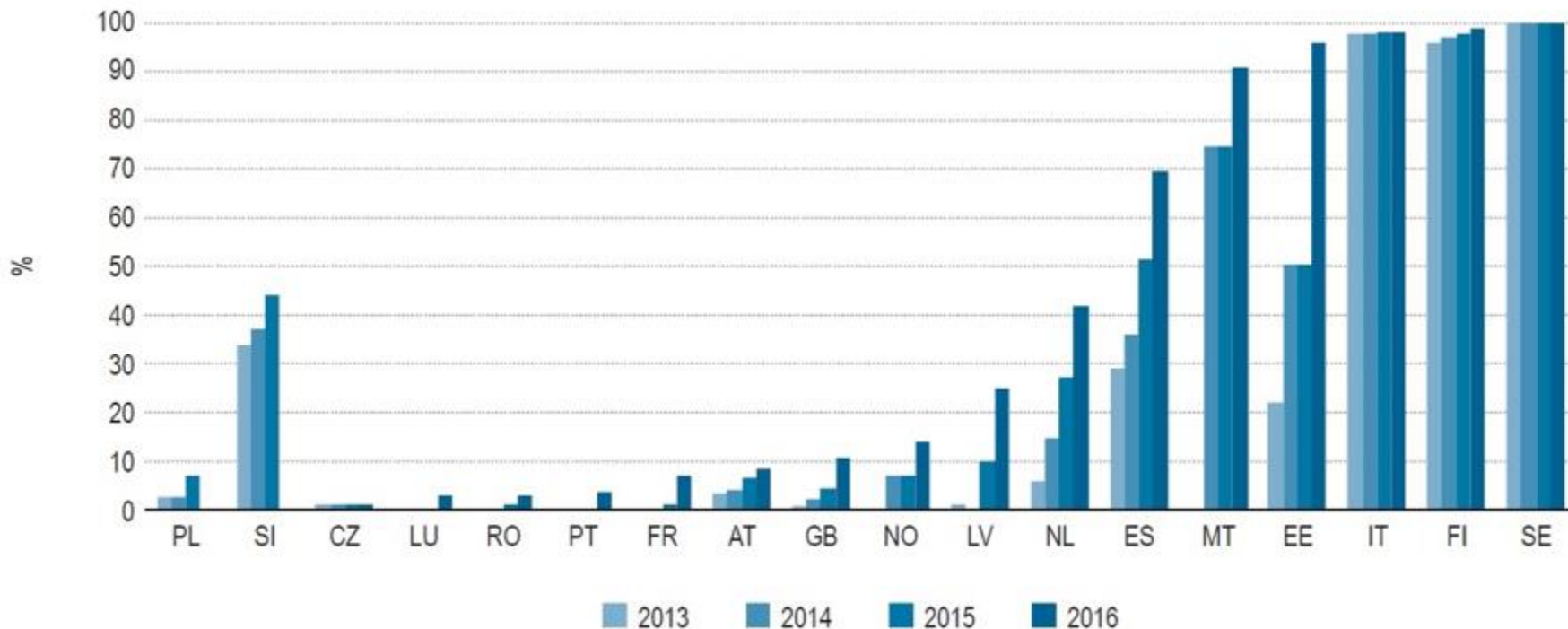
### Number of information elements on household bills in MSs - 2016



- Third Package requirements (EED) concerning information on bills extended in all MSs
- Single point of contact mostly the NRA followed by ombudsman or consumer organisation

## Consumer choice: smart meters

### Household consumers with electricity smart meters (%) - 2016



- Smart meter roll out close to 25% in European total perspective
- 17 MSs meet minimum technical functionalities as determined by EU law

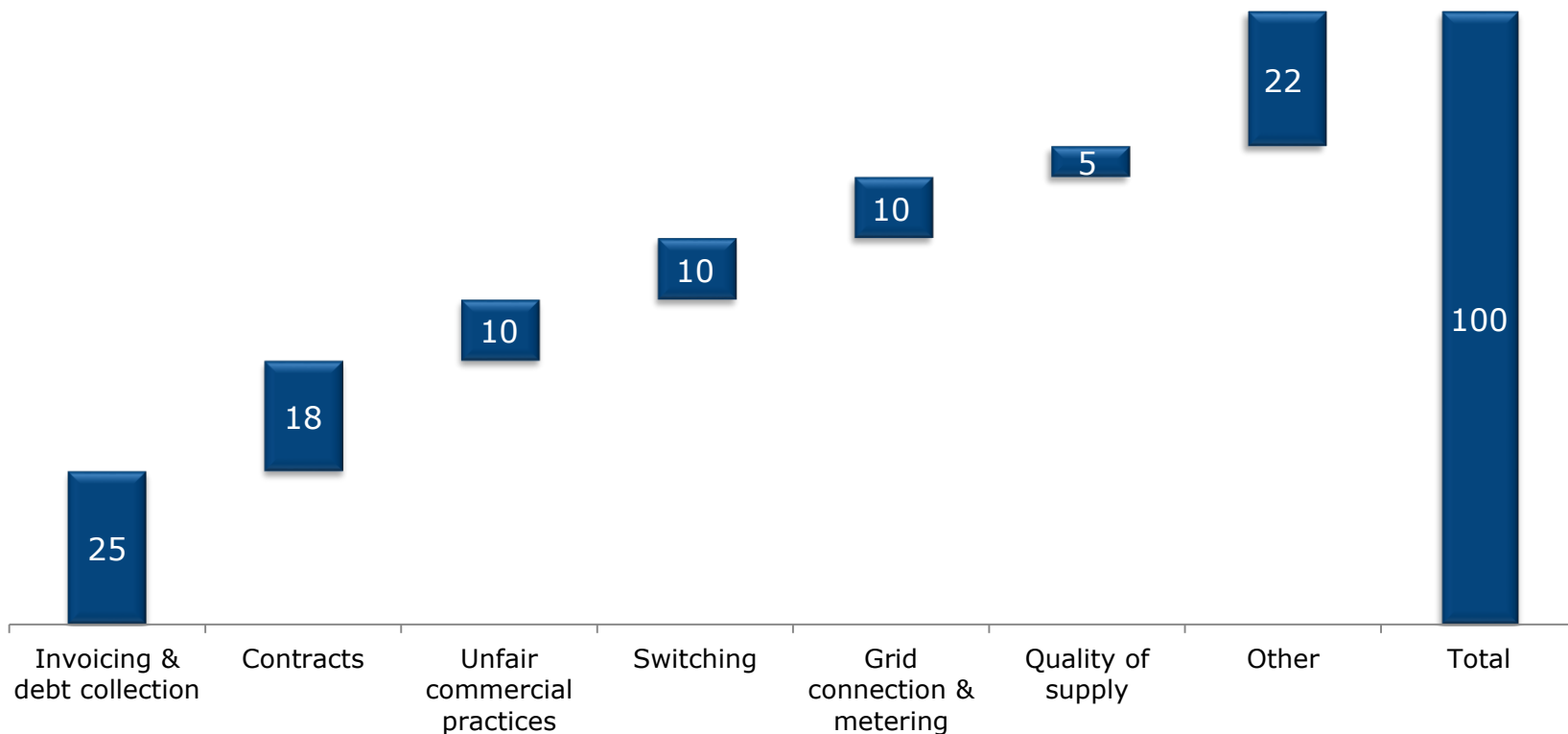
## Other consumer choice issues

- Reliable **Comparison Tools** not available everywhere
- Average **switching** duration is approx. 12 days, 3-week limit is generally respected in all MSs although start event varies greatly
- In half of MSs the switching date can be chosen
- Final **bill** comes within 5-6 weeks in almost all MSs



## Consumer complaints and handling

Consumer complaints by main categories addressed to NRAs by households for electricity across the EU and Norway (%) - 2016



- Figures available from almost all NRAs who are most often responsible for handling
- Main share of complaints is about **bills, contracts** and **commercial conduct**
- Most have statutory standards on response time

## Protection of vulnerable consumers

- MSs have in place a range of safeguards/protections for vulnerable populations (implicitly or explicitly defined)
- Intermingling with social security system causes confusion between energy/social security legislation and incomparability across MSs

## Recommendations

- Supplier of Last Resort (SOLR) or default suppliers should not lead to consumers remaining inactive on a permanent basis. SoLR mechanism should not be used as a means to keep regulated prices in place.
- **Keep bills simple.** Too much information on bills can be confusing. Suppliers should make the most of digitalisation to share information with their clients.
- There should be at least **one reliable comparison tool** per MS. Transparency of price and non-price elements should be guaranteed, by enabling consumers to filter out additional services of offers on comparison tools.
- As well as the **three-week maximum switching duration**, consumers must be informed about when the switching period starts. The 24h-technical switching process could be completed by 2022.
- **Smart meters** should have functionalities that enable consumers to easily benefit from and participate in energy efficiency and demand response/flexibility schemes.

# Thank you for your attention

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**MMR link**

<http://www.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Current-edition.aspx>