


# ACER

 Agency for the Cooperation  
of Energy Regulators

## **The 5<sup>th</sup> Annual Market Monitoring Report Electricity Wholesale Markets findings**

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**Ljubljana – 21 September 2016**

**The Market Monitoring Report provides an in-depth year-on-year analysis of the remaining barriers to the well-functioning of the IEM and provides recommendations**



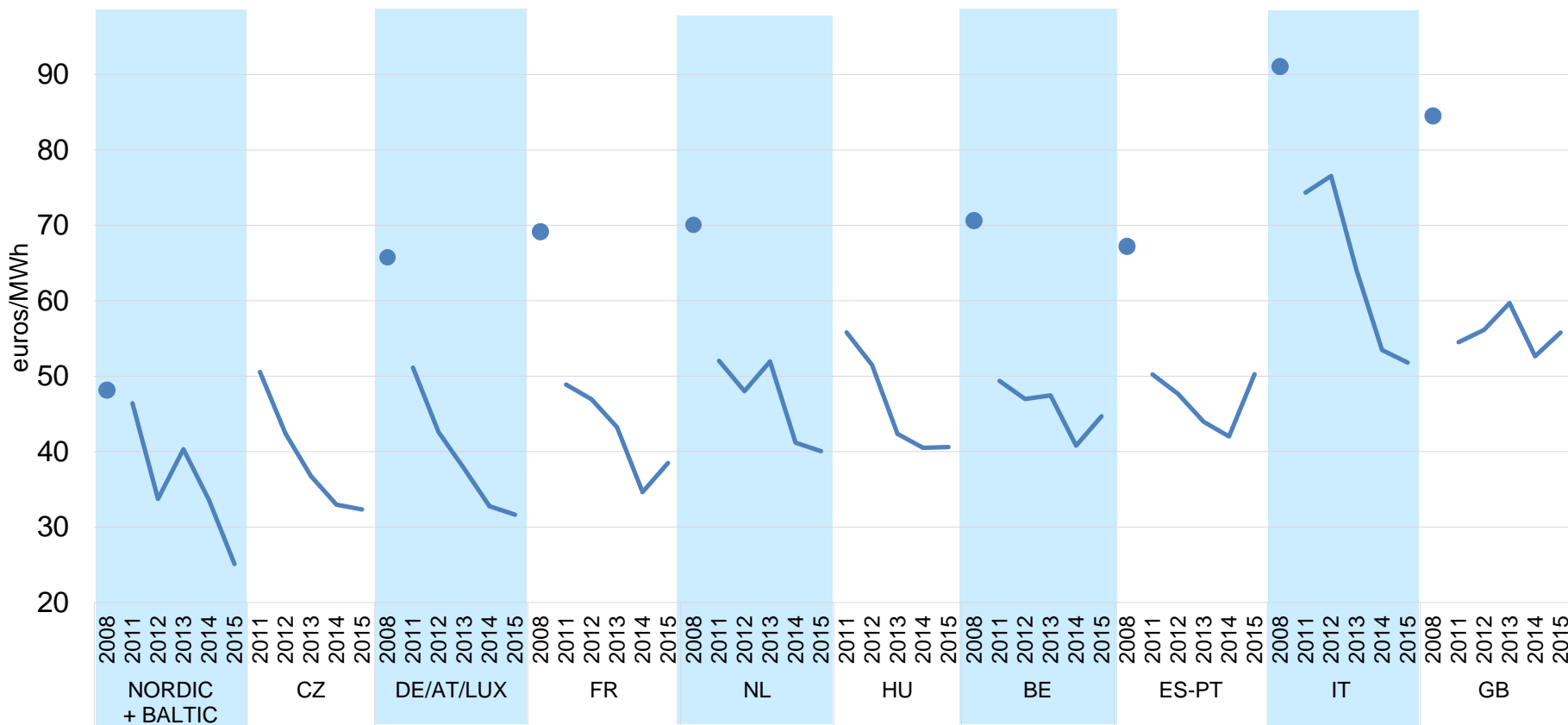
## Content

- Developments
- From physical to commercial CB capacity
  - Amount of CB capacity available to the market
  - Capacity calculation
  - Unscheduled flows
- Wholesale markets performance and use of the available cross-border capacity
  - Forward markets
  - Day-ahead (DA) markets
  - Intraday (ID) markets
  - Balancing markets
- Conclusions

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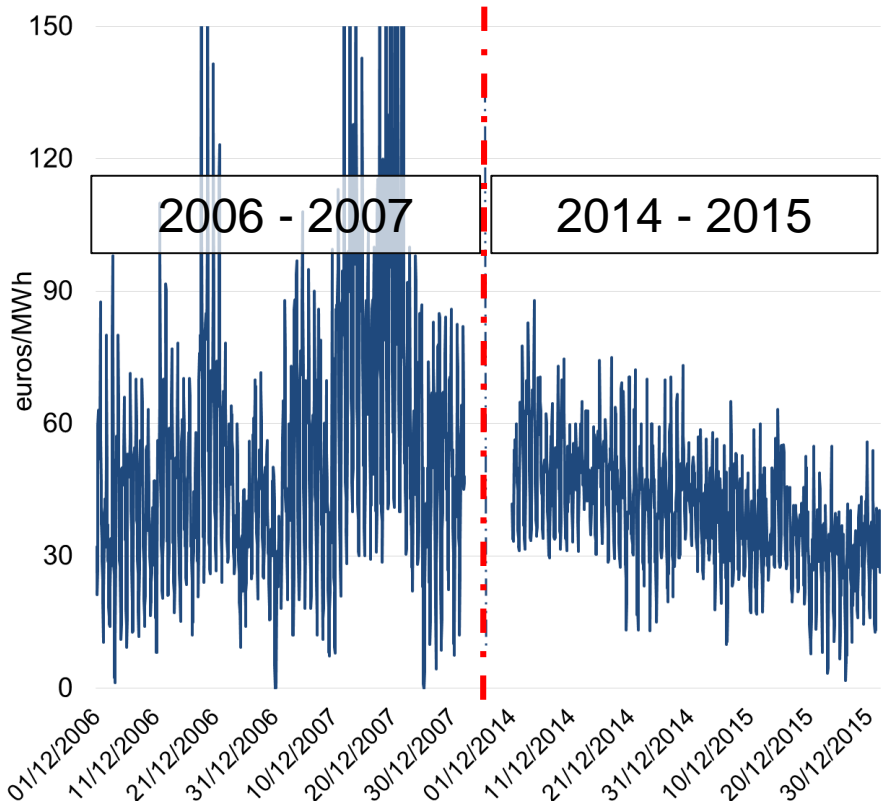
**The decreasing trend of wholesale prices continued in 2015 although this trend seems to be ending in some markets partly due to demand increase in many markets – EU demand increased by 2.1% in 2015**



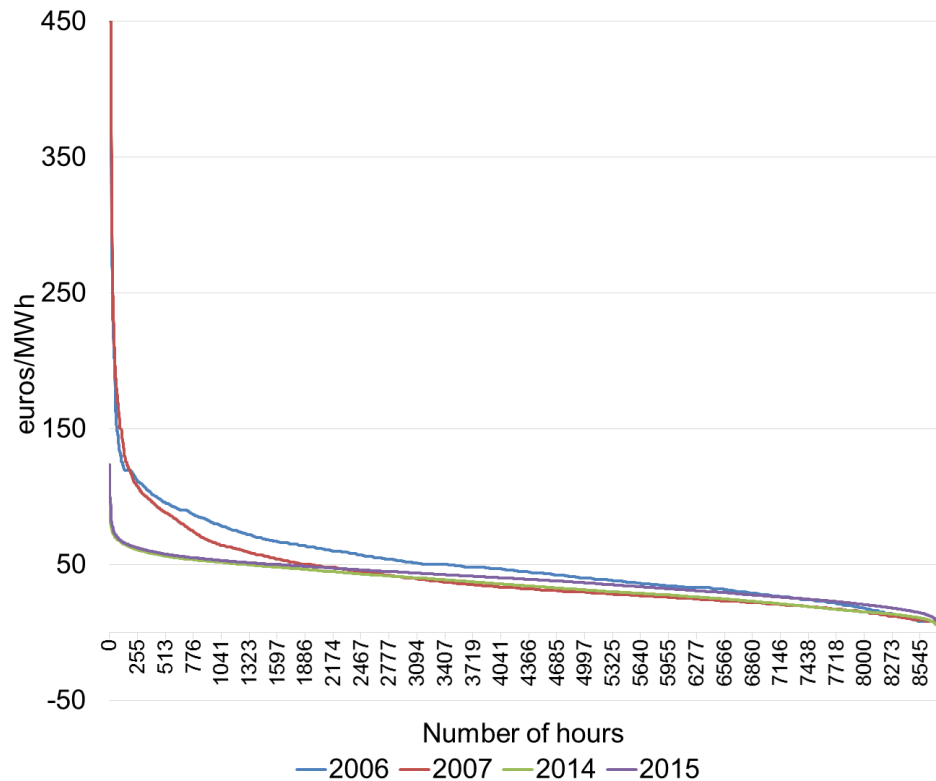
**Evolution of DA wholesale electricity prices in different European power exchanges – 2008–2015 (euros/MWh)**

● Refer to 2008 prices.

## Against 'predictions', the increasing frequency of overall low-price periods is not accompanied by an increased frequency of price spikes



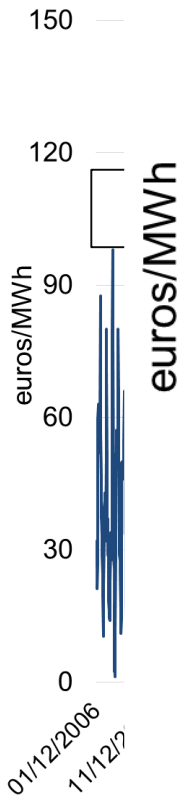
Hourly DA prices in the Netherlands - December 2006, 2007, 2014 and 2015 (euros/MWh)



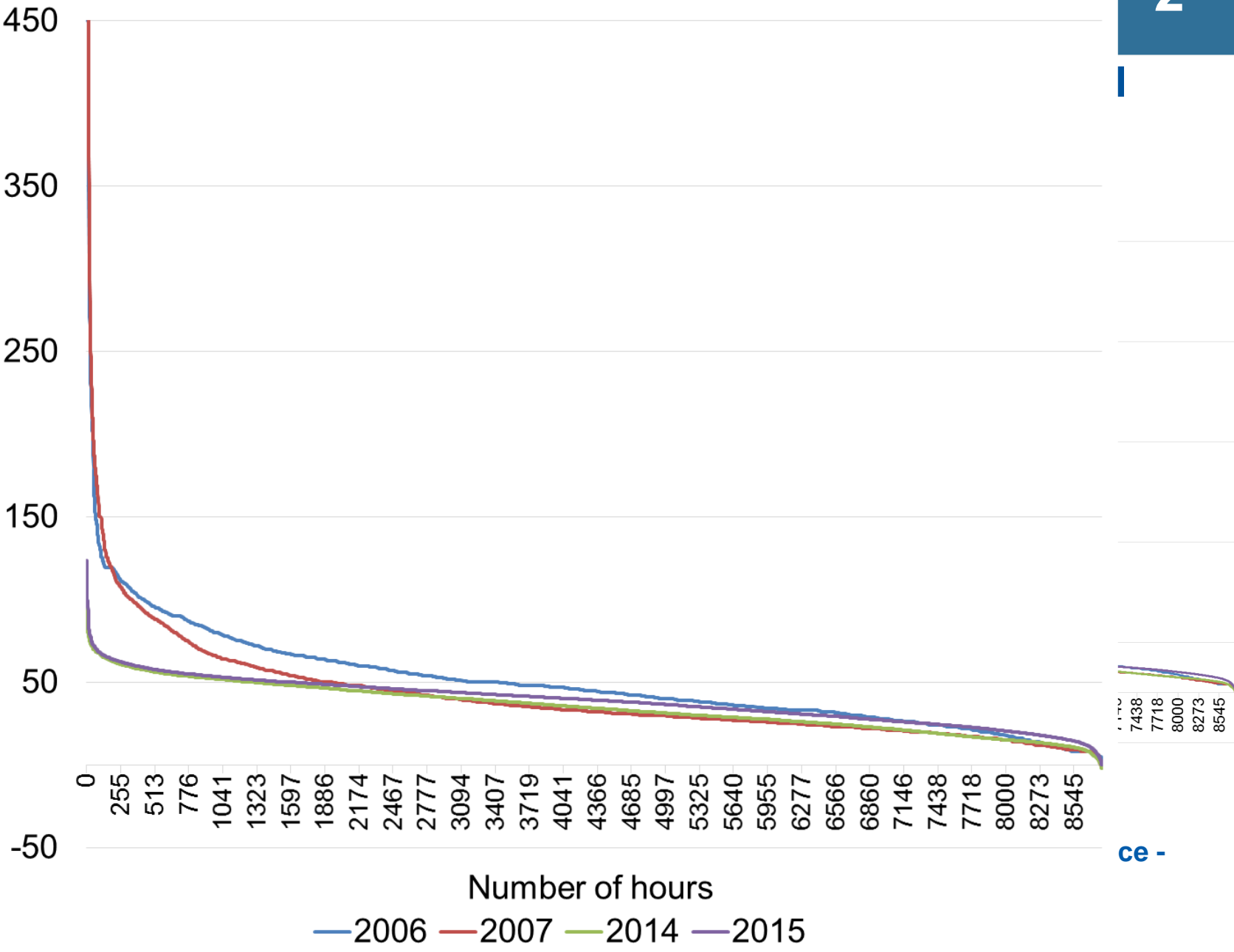
Wholesale DA price duration curve in France - 2006, 2007, 2014 and 2015 (euros/MWh)



Aga low freq



Hourly 2006, 2



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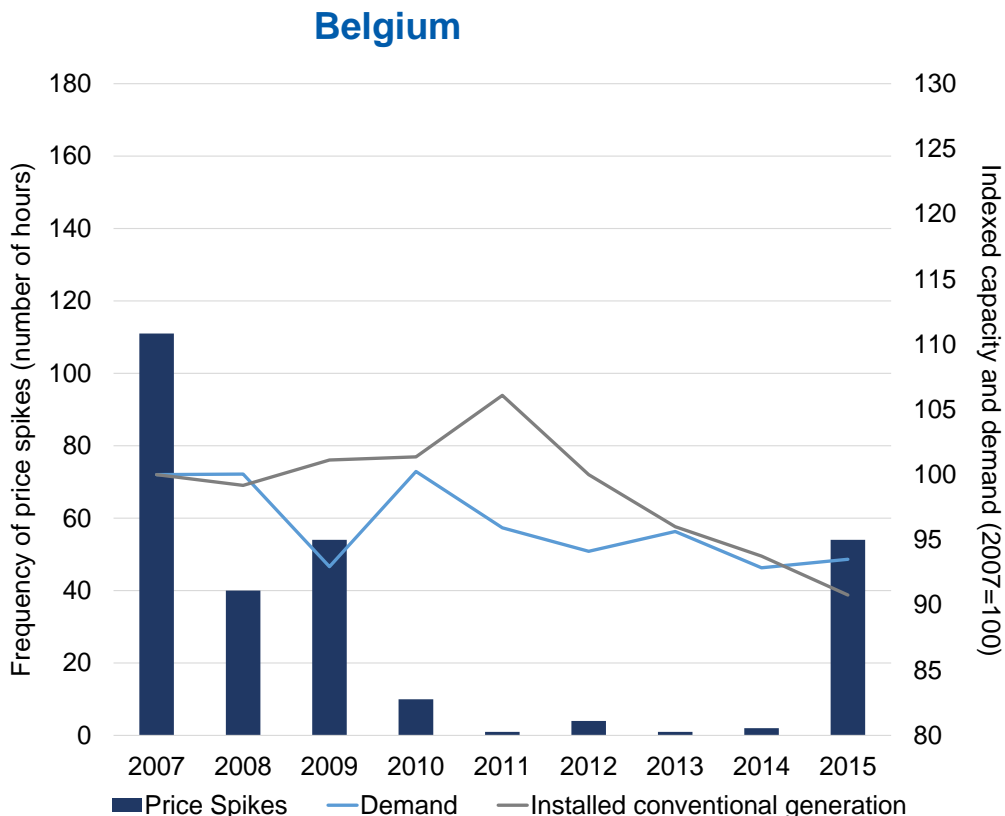
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## Why do we see low price levels?

- i. Market failure (sometimes argued)  
...or just**
- ii. Markets are reflecting fundamentals**



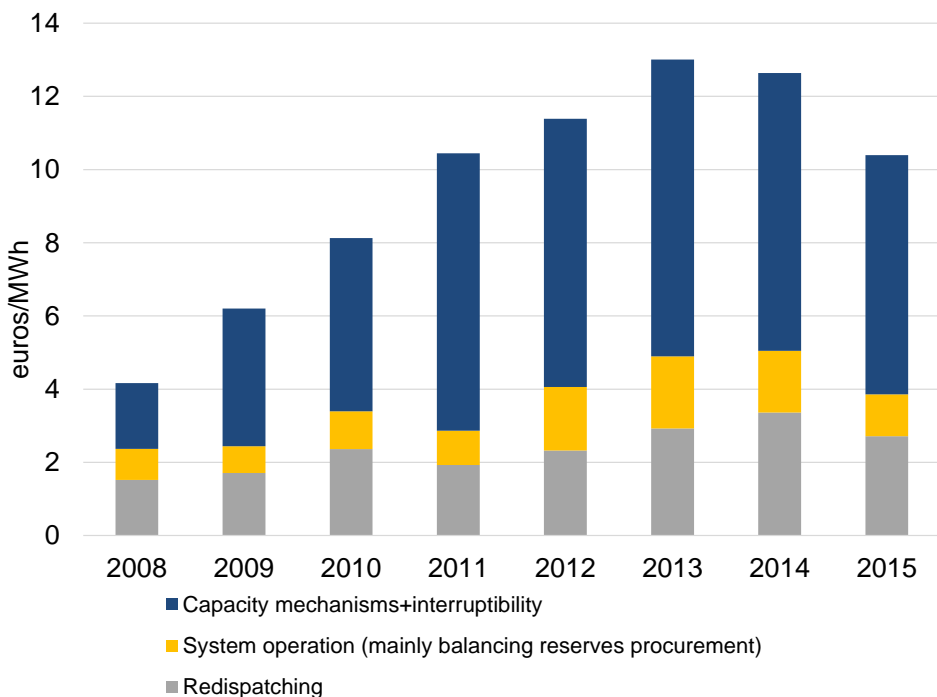
The report shows that markets are reflecting an excess of supply (e.g. overall margin in Europe is 13%, 2-3 times the standard), which explains the lack of price spikes



Evolution of the aggregated installed conventional generation capacity and aggregated energy demand (indexed to 2005 = 100) and the frequency of price spikes (number of hours per year) in the Netherlands and Belgium – 2007 to 2015

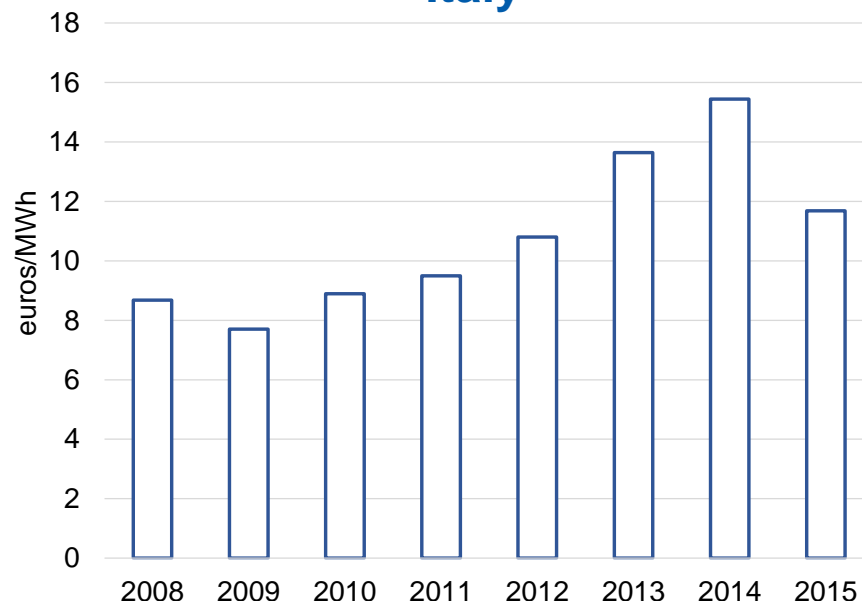
## An increasing part of the costs for producing electricity are not recovered through wholesale market prices but through increasing charges to end-consumers to remunerate CMs\*

### Spain



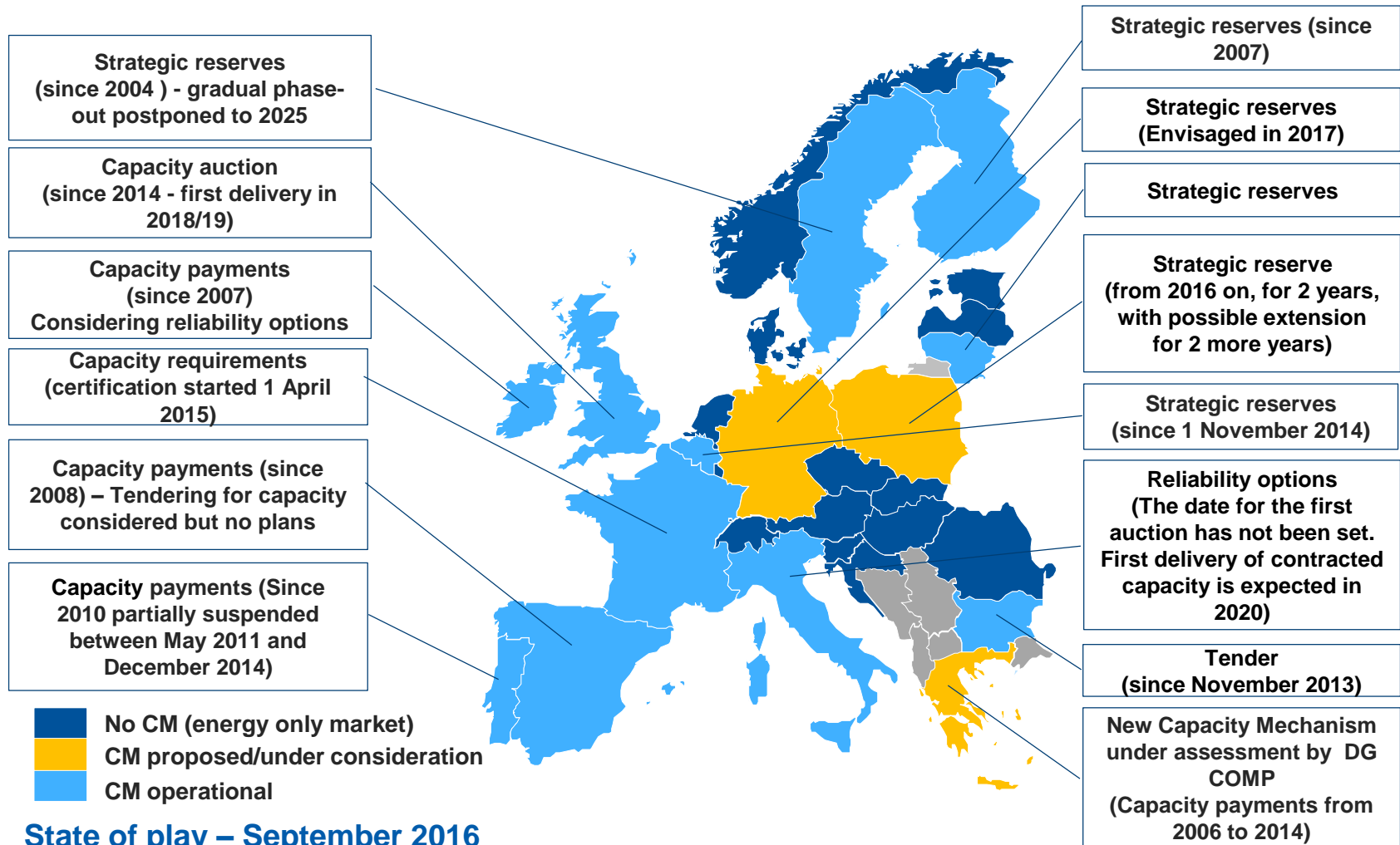
**Charges to end-consumers to fund capacity payments and the costs associated with re-dispatching actions and system operation in Spain – 2008 to 2015 (euros/MWh)**

### Italy

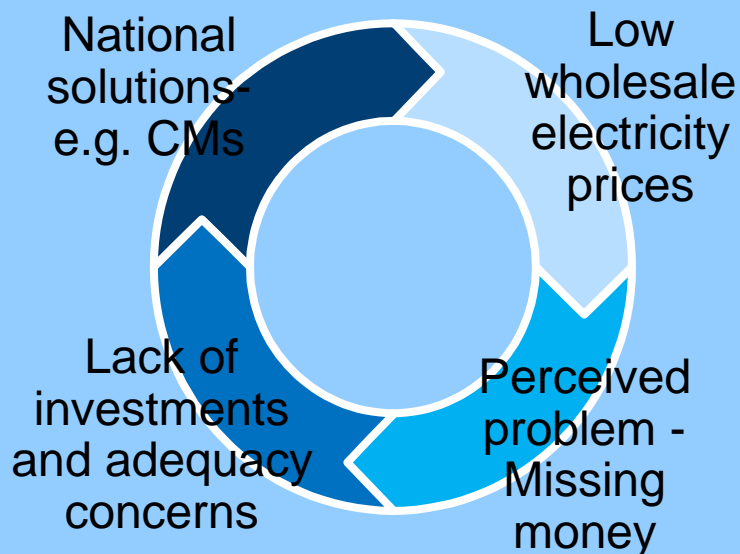


**Aggregated costs of redispatching, balancing, capacity payments charged to household consumers in Italy – 2008 to 2015 (euros/MWh)**

## Uncoordinated development of capacity mechanisms (CMs)



## National solutions tend to address a missing money problem but these uncoordinated policies are creating a vicious circle away from an efficient IEM design



- National markets are interdependent
- National measures impact also adjacent markets
- How efficient and sustainable will these measures be?

Better to act on a EU wide level

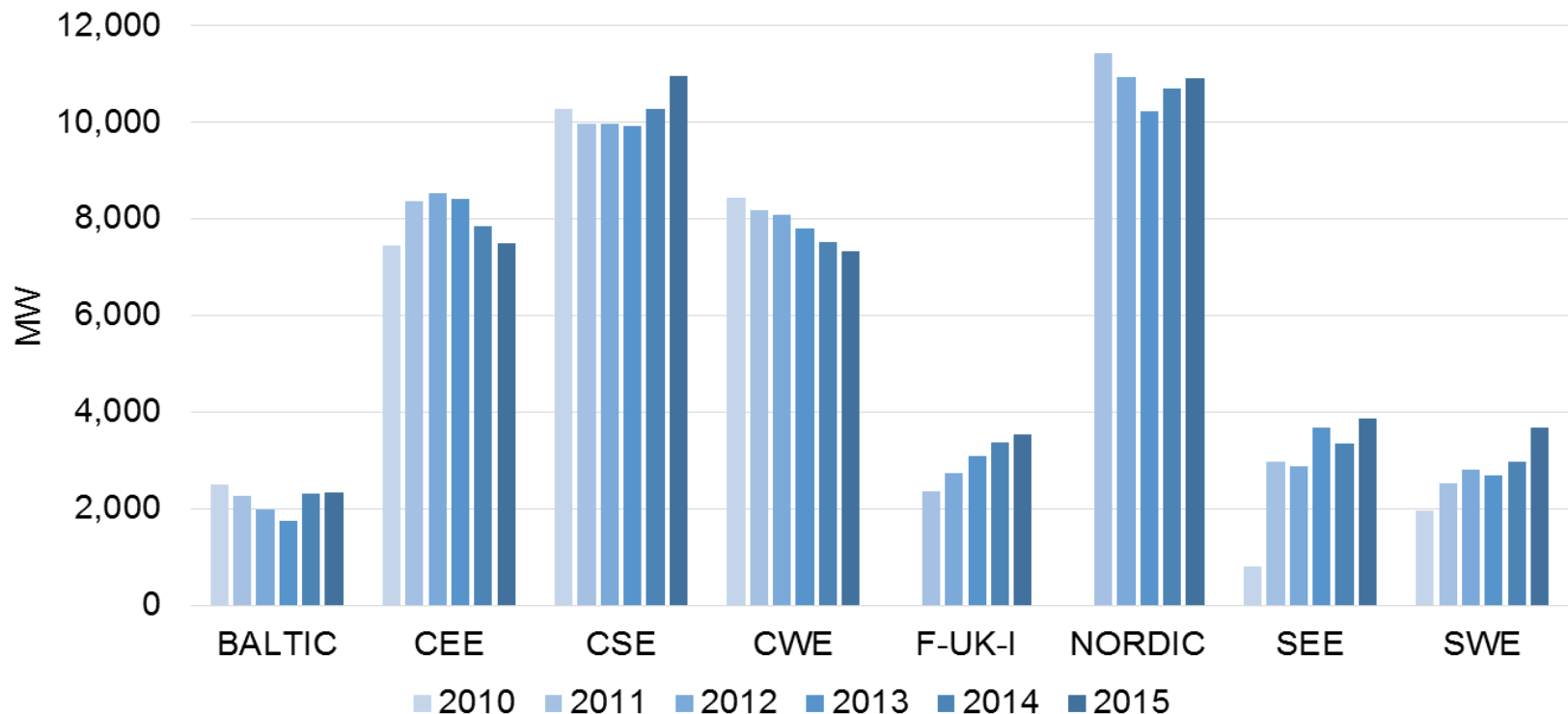
- Fully integration of the IEM
- Make markets work
- Better use of existing cross-border capacities

=> see next slides...

## Content

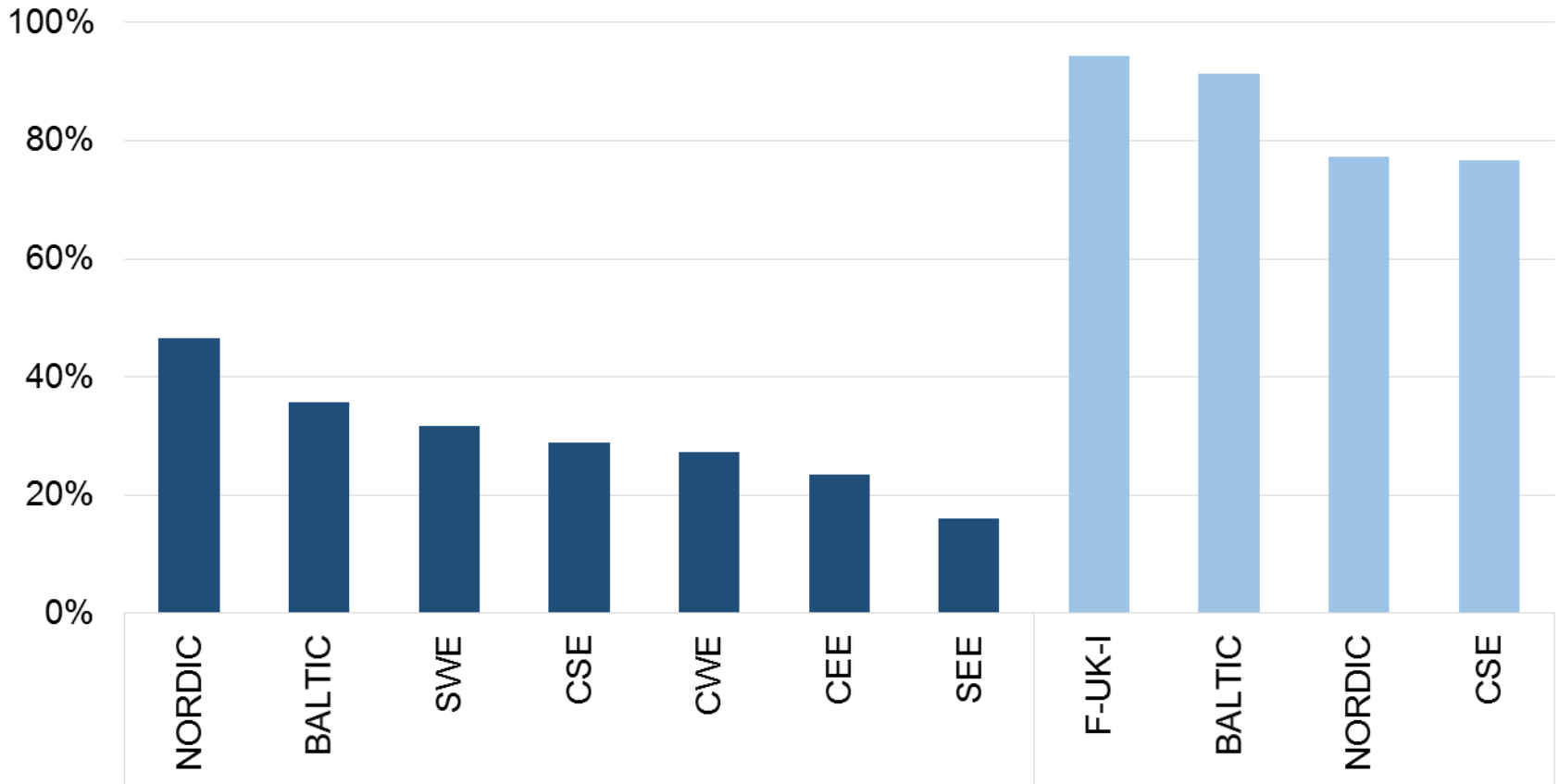
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**Despite investments in the transmission networks and some improvements in capacity calculation methods, the volume of tradable XB capacities has remained relatively limited**



**NTC averages of both directions on cross-zonal borders, aggregated per region – 2010–2015 (MW)**

**In Europe on average 84% of HVDC and only 28% of HVAC interconnector's physical capacity is used for trading**



**Ratio between tradable capacities and aggregated thermal capacity of interconnectors – 2015 (% , MW)**

## Limitations of cross-zonal capacity

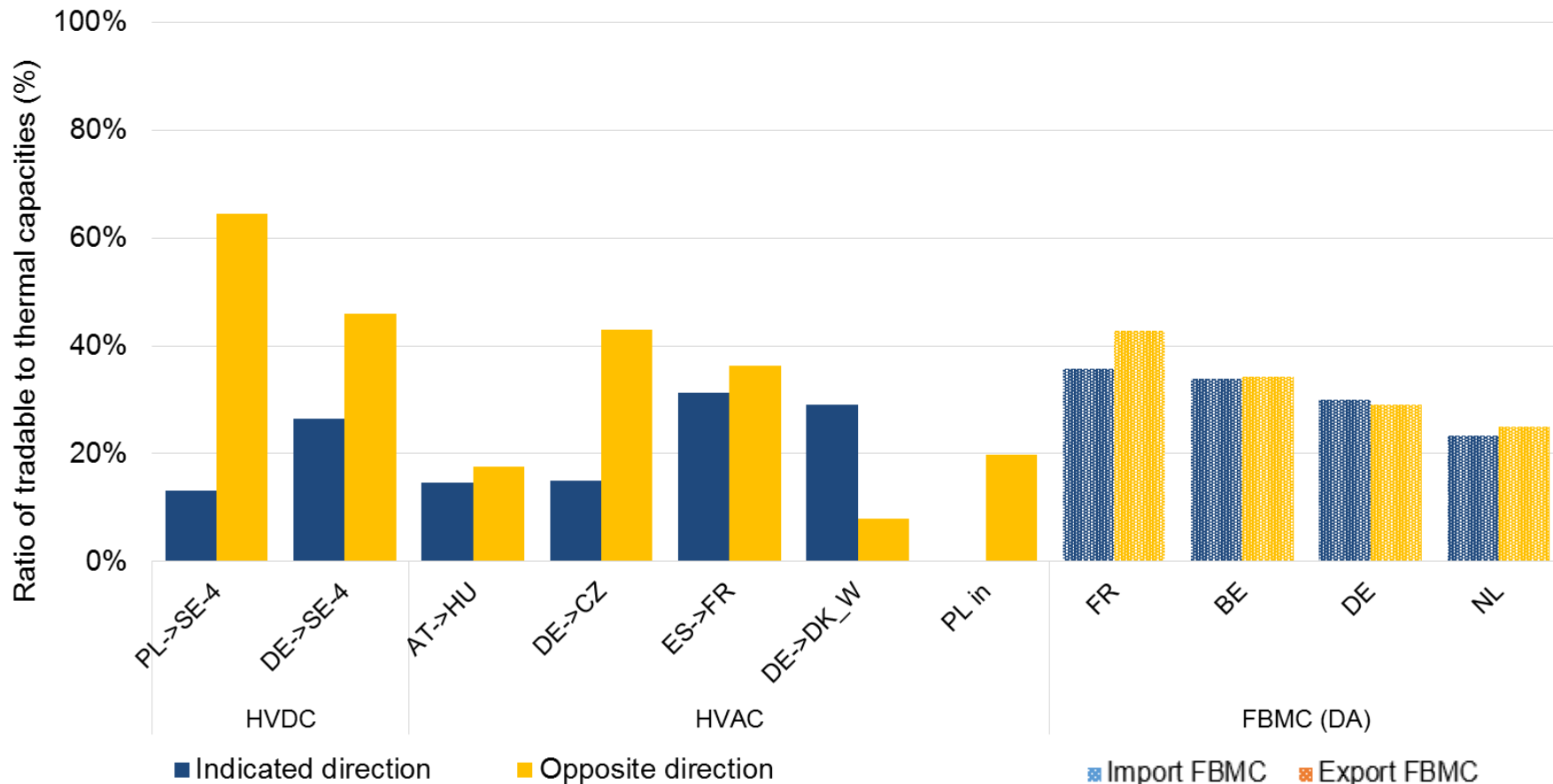
In general, physical cross-zonal capacity can be limited during the capacity calculation process, beyond what is needed for the application of N-1 criterion and a reasonable level of reliability margin, for the following three reasons to:

1. accommodate planned **grid maintenance** works during a certain period;
2. accommodate **flows resulting from internal exchanges** (i.e. Loop Flows) and flows resulting from non-coordinated capacity allocation on other borders (i.e. Unscheduled Allocated Flows); and
3. **relieve congestion** inside a bidding zone (control area).

Empirically disentangling these reasons would require detailed data, which are currently not available.



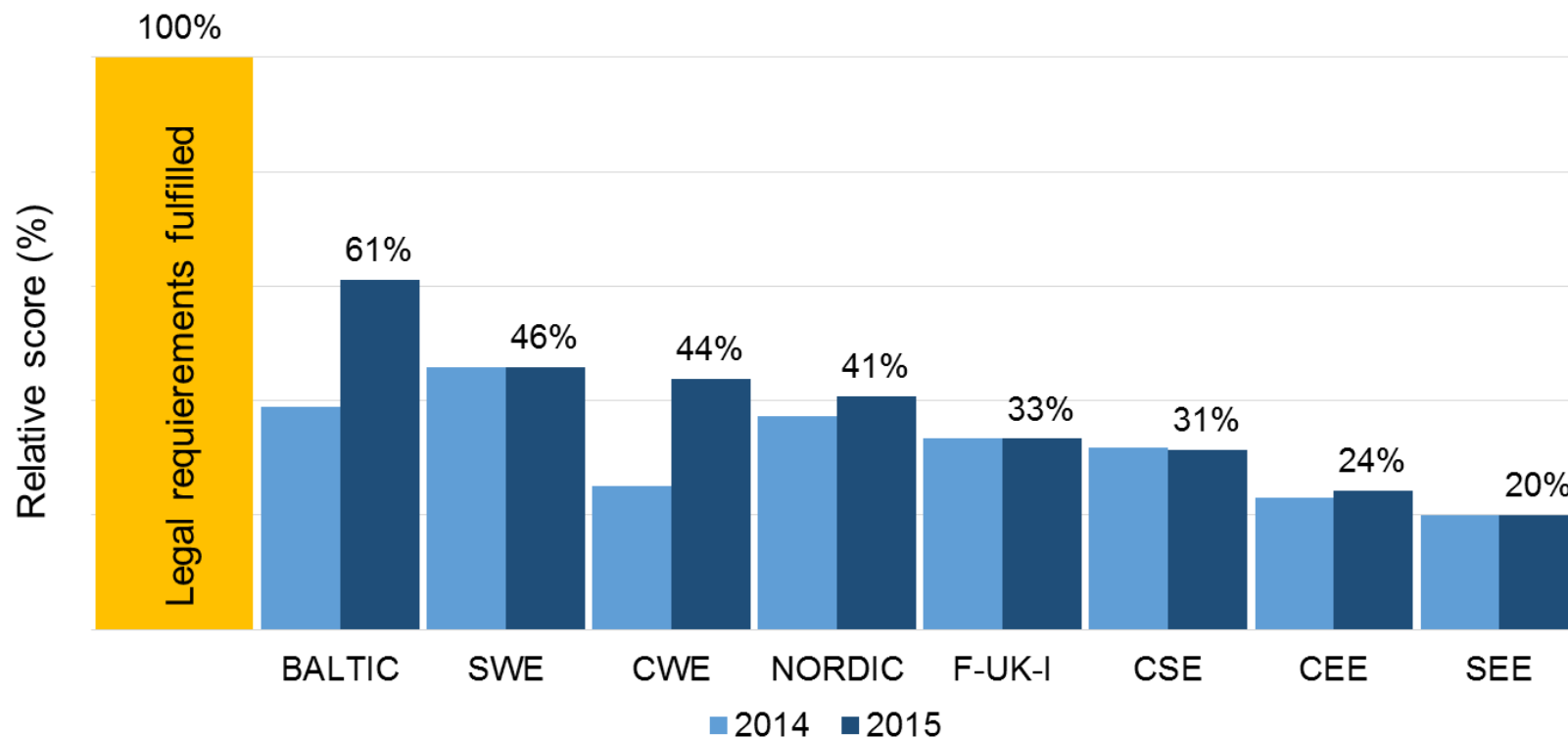
## In more detail... a few examples



**Ratio between tradable capacities and aggregated thermal capacity of interconnectors – 2015 (% , MW)**

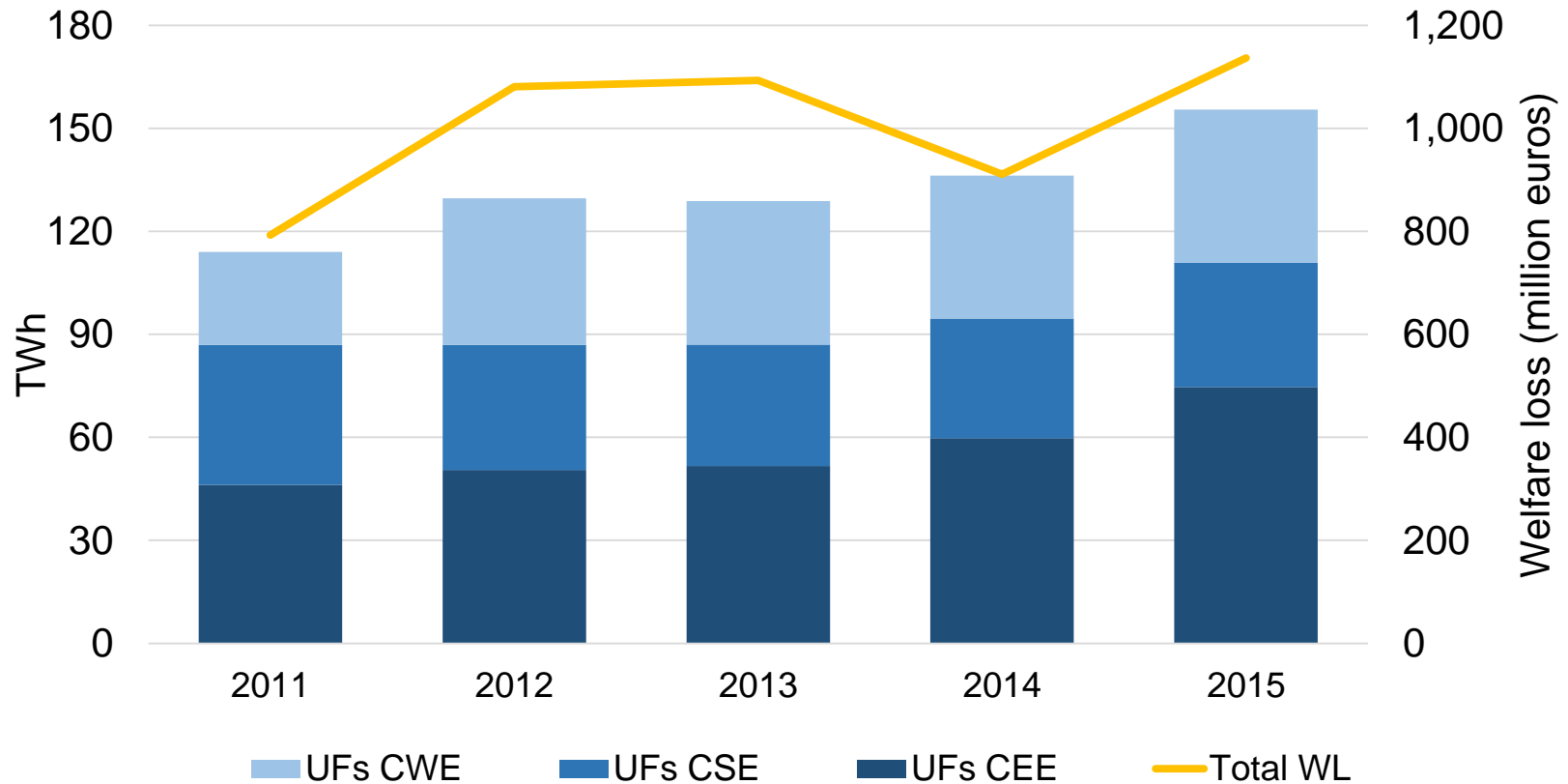
## Coordination in capacity calculation (CC) can be further improved

Bilateral or partly coordinated CC method is applied on many borders, on some borders, CC is not applied in a specific timeframe



**Regional performance based on fulfilment of capacity calculations requirements – 2014-2015 (%)**

**UFs increased in the three regions by 14%, in CEE by 25%**  
**Estimated loss of social welfare due to UFs increased to 1,137 million euro**

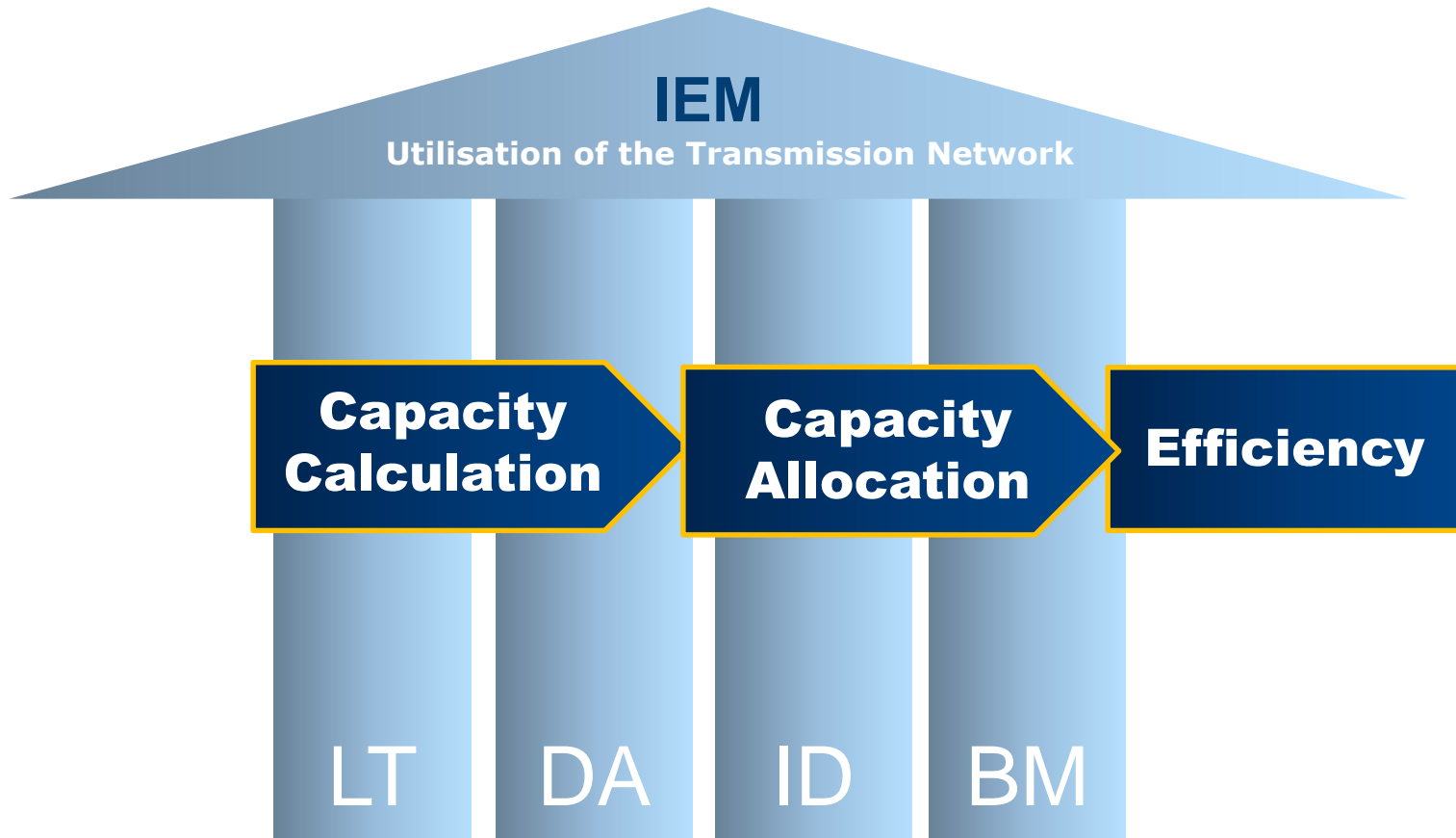


**Absolute aggregate sum of UFs for three regions and estimated welfare loss - 2011–2015 (TWh, euros)**

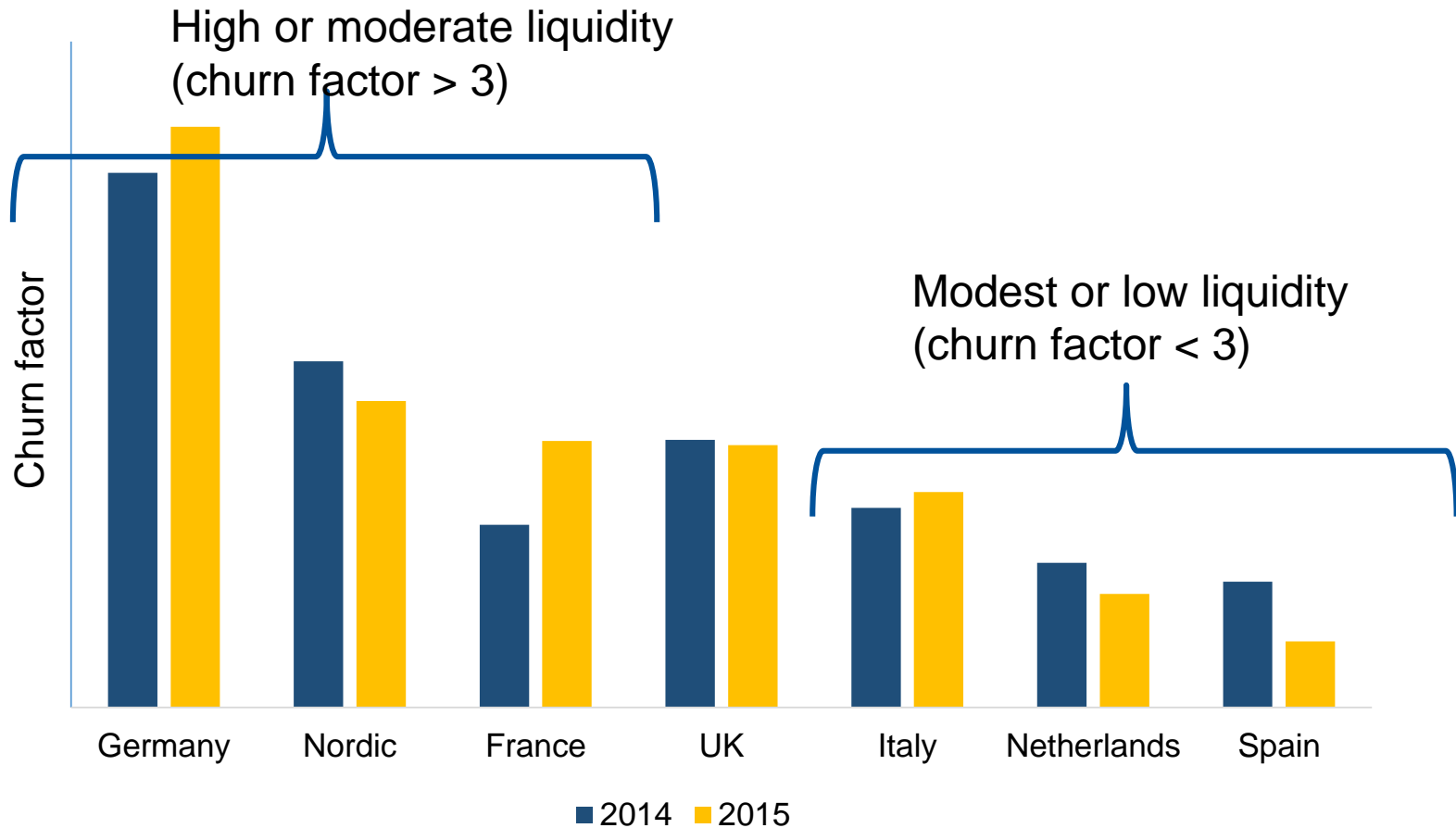
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# Context and focus of the monitor for wholesale market integration



**Forward markets are essential for market participants for example in retail competition. But liquidity in forward markets is still low in most countries**



**Churn factors in a selection of European forward markets – 2014 and 2015**

## Given the low liquidity in national markets access to efficiently priced cross-border hedging tools is key

### *Analysis done on prices of cross-border hedging tools:*

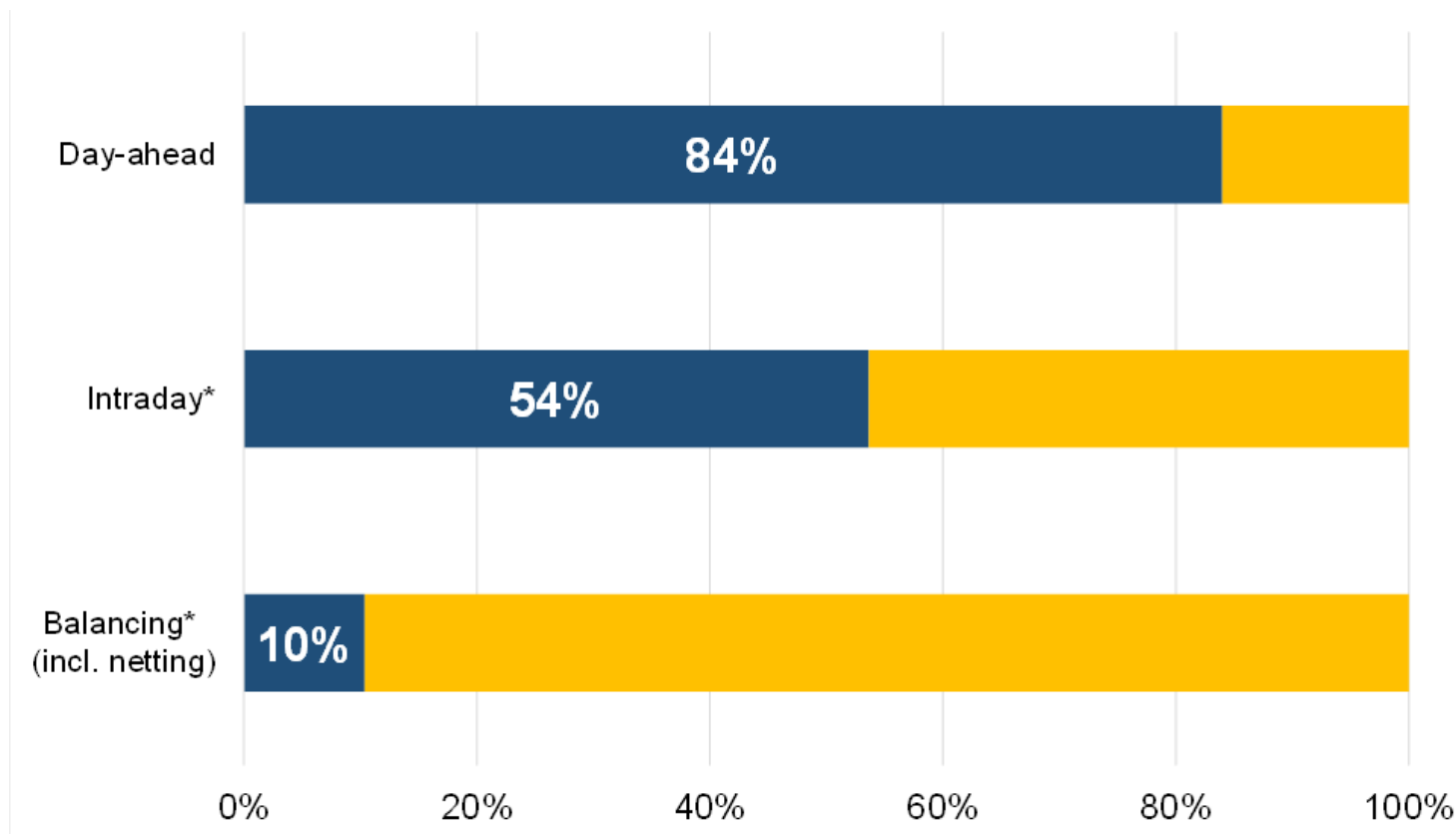
*Consistency between price of the cross-border hedging tool (markets A to B) and the underlying market price differentials (A-B price spreads). Main indicators: Risk premia*

- » *Large 'negative' risk premia: Decrease congestion rents (TRs) and increase network tariffs*
- » *Large 'positive' risk premia: May be a barrier for non-incumbent suppliers*

### *Main findings:*

- » *TRs: Price formation of TRs is impacted by following factors, which will be partly addressed with the upcoming Forward Capacity Allocation Guideline*
  - Lack of DA market coupling
  - Curtailments and weak firmness regimes
  - Unavailability (often called "maintenance") periods
  - Other local issues (e.g. 'green' levies or ex-post 'fees')*Italian borders recorded the largest 'negative' risk premia*
  
- » *Financial markets (e.g. contract for differences, so-called EPADs in Nordic market)*
  - (Potentially) limited liquidity contributing to high risk premia in some BZs (e.g. DK\_E)

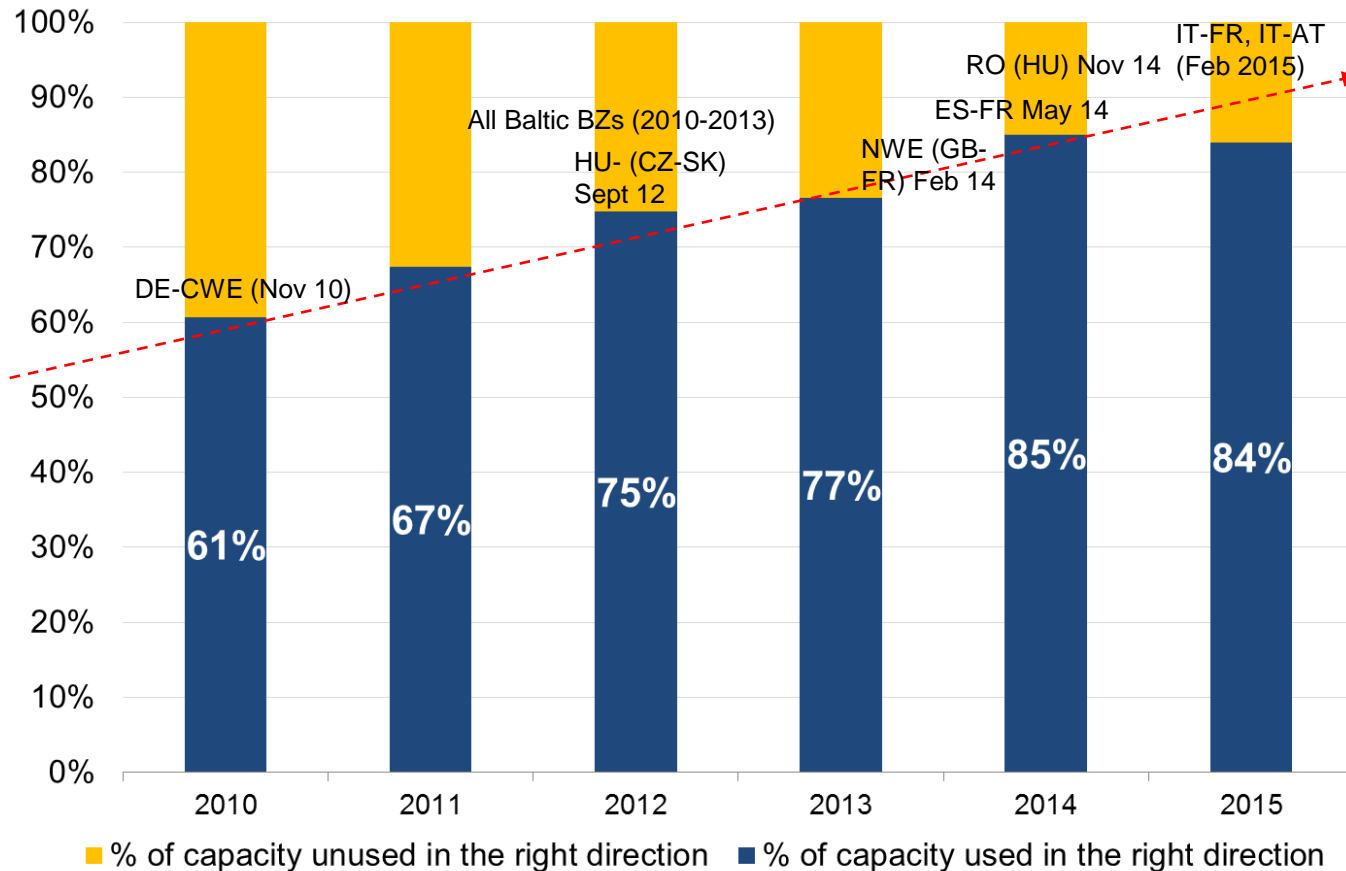
**The use of cross-zonal capacity in the DA timeframe is close to optimal, but in the ID and balancing market timeframe it can be significantly improved**



**Efficient use of interconnectors in the different timeframes in 2015**

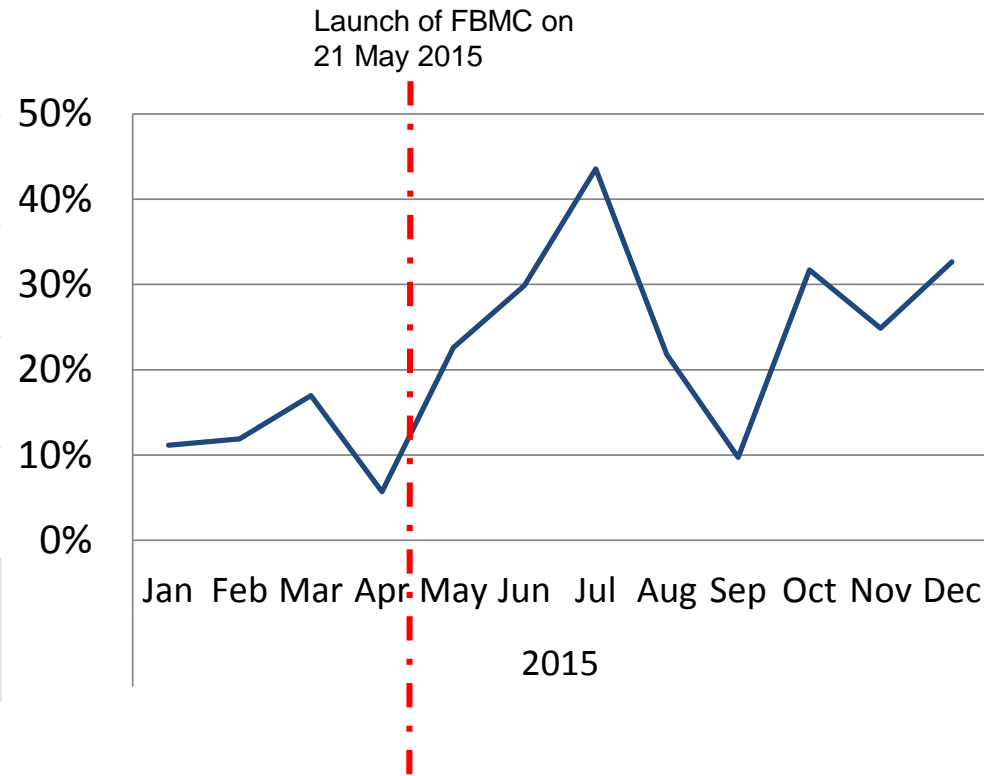
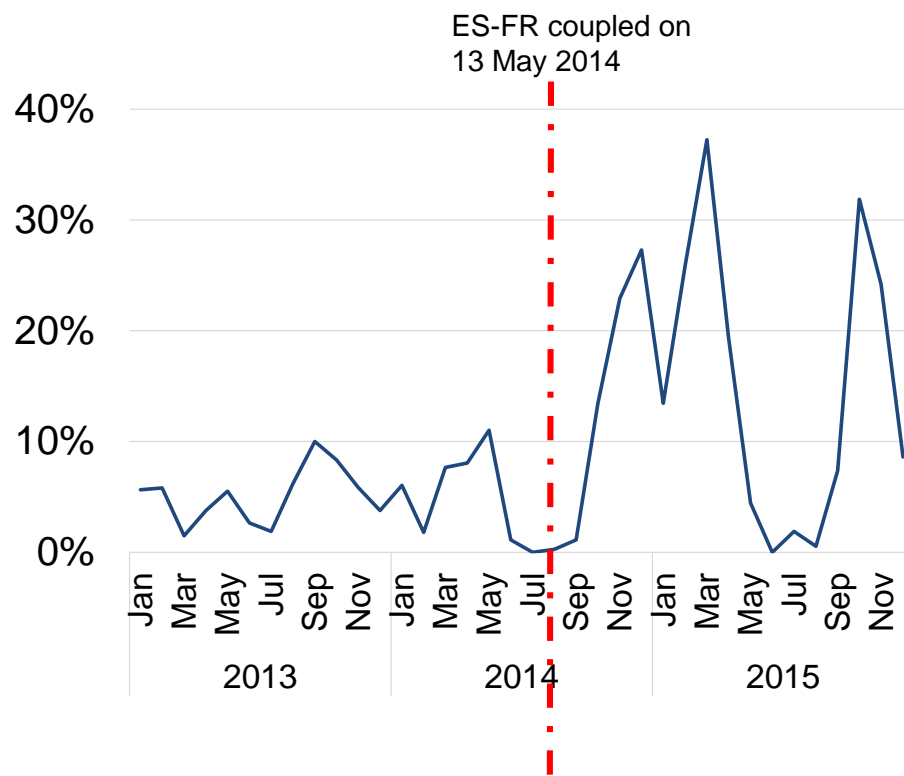


**Currently 84% of all DA CB capacity is used in the right direction. The remainder 16% can be achieved with the extension of MC to all Europe**



**Percentage of available capacity (NTC) used in the 'right direction' in the presence of a significant price differential, all EU electricity borders – 2010 (4Q)–2015 (%)**

## MC and FB MC continued to be contributing factors to price convergence



**SWE evolution of DA price convergence – 2013 to 2015 (% of hours)**

**CWE evolution of DA price convergence – 2015 (% of hours)**

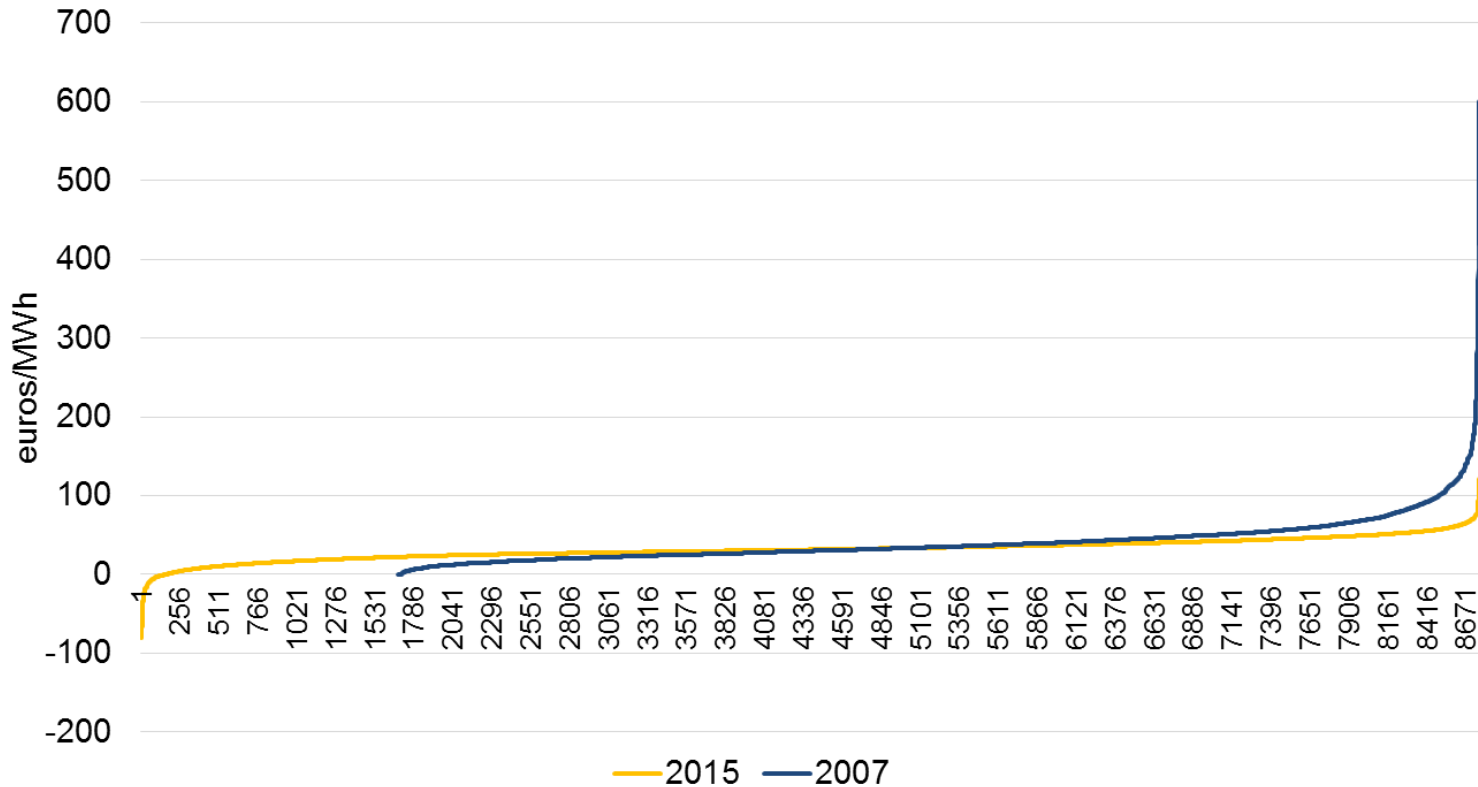
## The increasing importance of ID markets is reflecting in growing liquidity in ID markets (mainly in the German and neighbouring markets)

*Following aspects contributed to increase liquidity in Germany in recent years*

- Increasing the share of RES generation units subject to balancing responsibility (although 43% still remain exempted)
- Success of 15-minute products (including auctions) and its extension to CH and AT
- Measures to avoid that imbalance charges are set below DA-ID prices (although this does not ensure cost reflectivity fully)

**ID traded volumes as a percentage of demand in a selection of markets – 2011 to 2015 (%)**

**Currently, ID prices are providing limited incentives to invest in flexible resources or to encourage demand response. The flattening of the ID curve is reflecting sufficient flexible capacity and...**

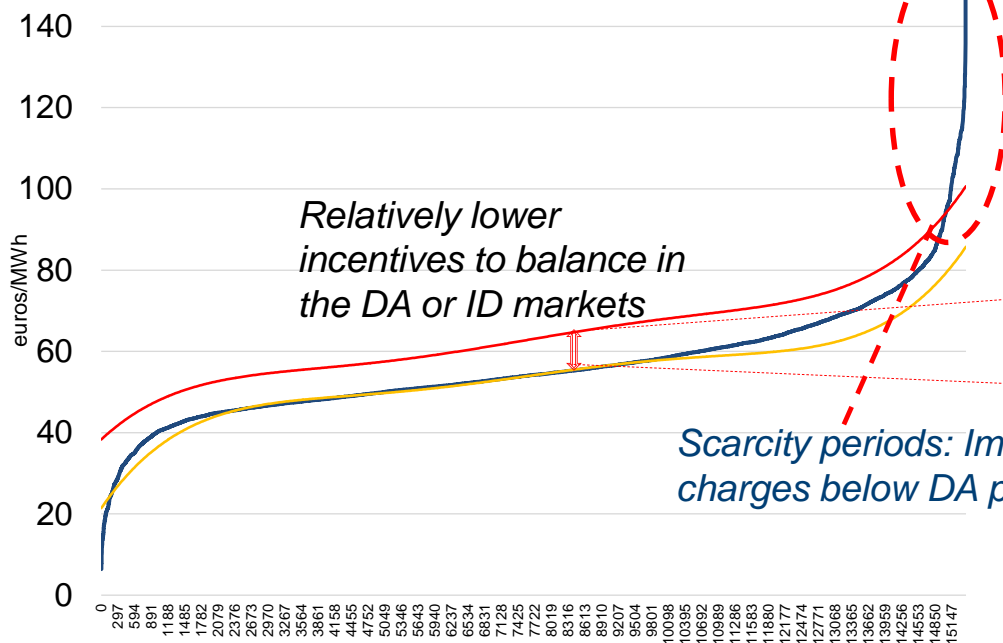


**Average ID hourly prices in Germany – 2007 and 2015 (euros/MWh)**

...this is also the consequence of limited incentives provided by imbalance charges, due the insufficiently applied cost-reflectivity

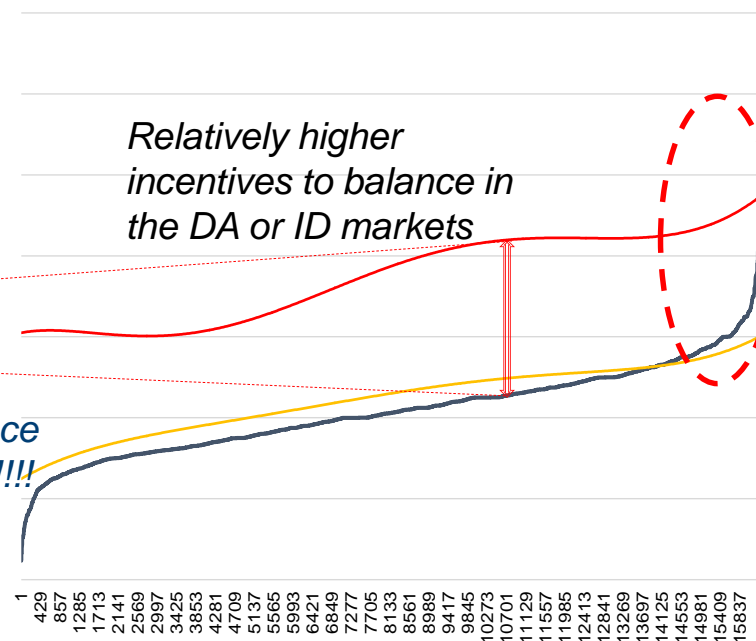
## Great Britain

Balancing energy prices are pay as bid and the procurement of capacity sets (partly) the price of balancing energy activation.



## The Netherlands

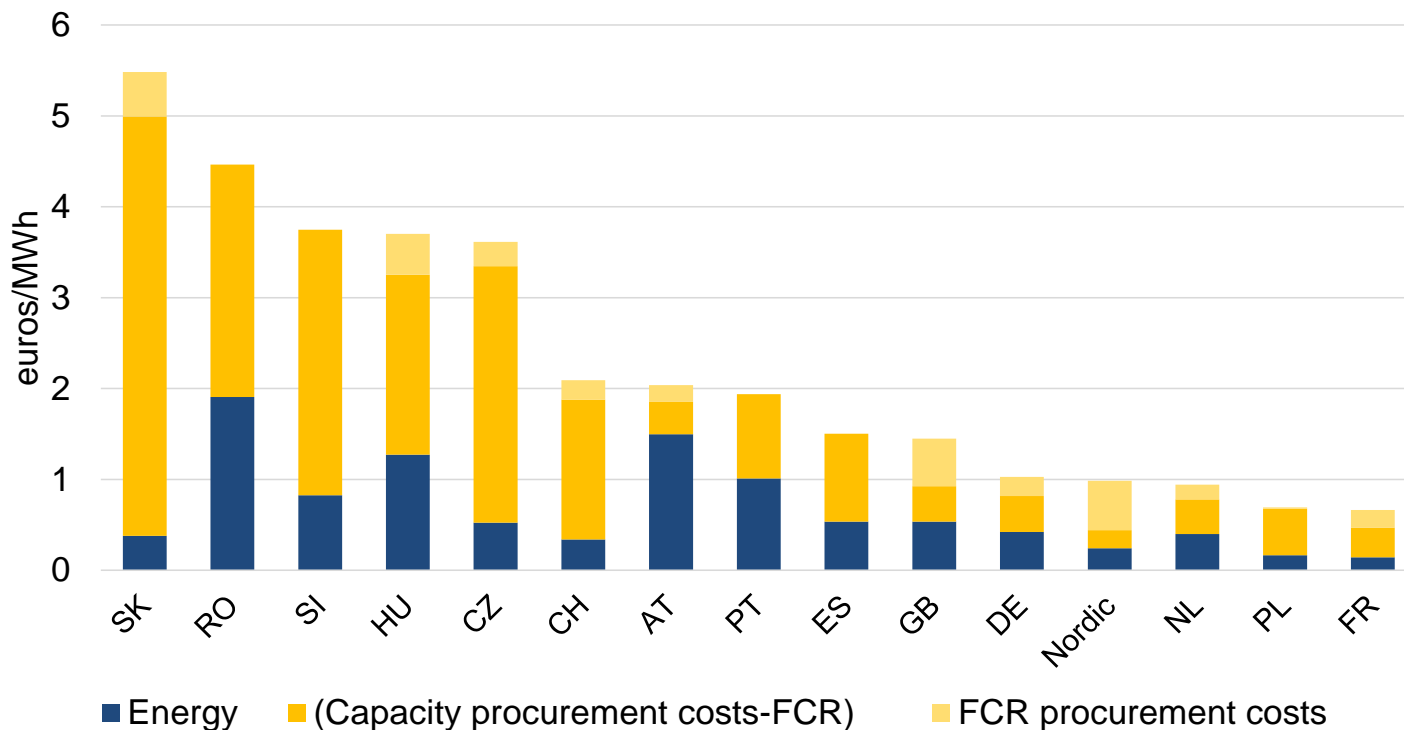
Imbalance charges based on marginal pricing and the procurement of capacity does not set the energy price



DA prices      ID prices      Imbalance prices (short BRPs)

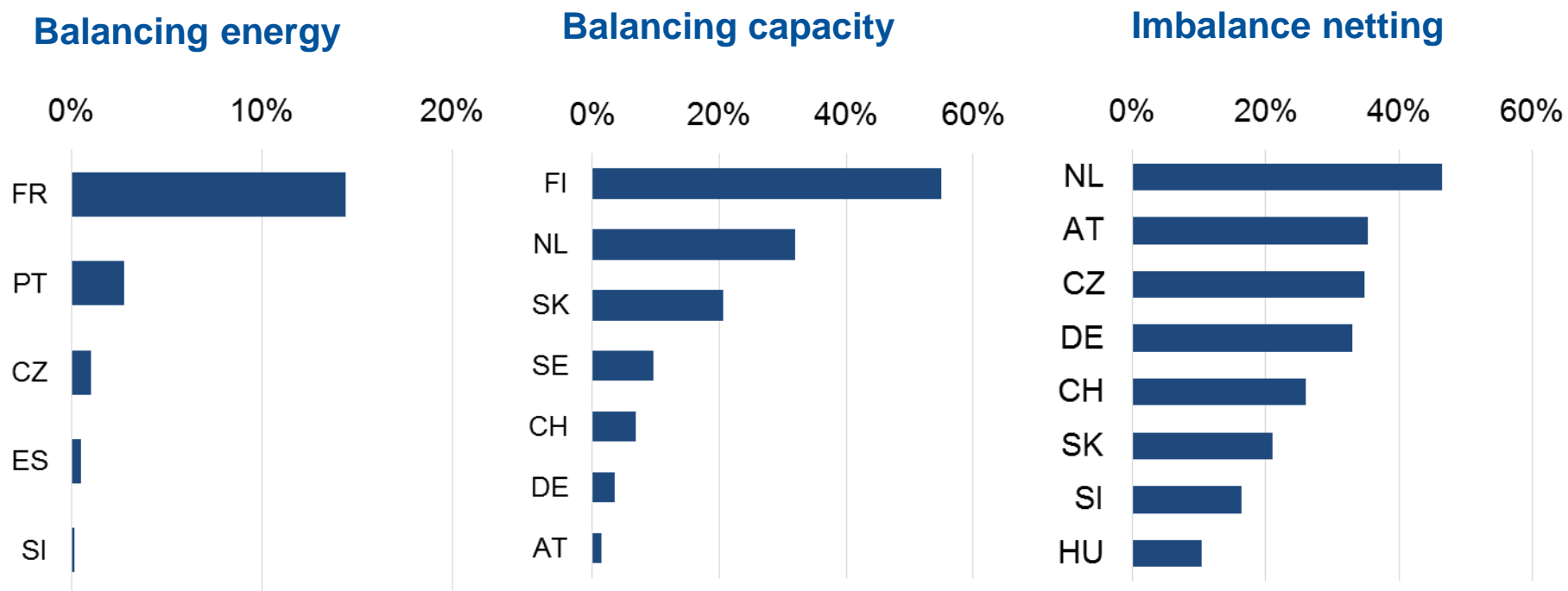
Imbalance charges (short BRPs), DA and ID prices at times of 'shortage' (negative system imbalance) in two European markets in 2015 (euros/MWh)

**...further balancing energy prices (hence imbalance charges) are often dampened by the procurement of capacity, which still represents the largest share of the overall costs of balancing**



**Overall costs of balancing (capacity and energy) and imbalance charges over national electricity demand in a selection of European markets – 2015 (euros/MWh)**

**Exchanges of balancing services in the EU is still limited. The main exceptions are France (balancing energy), the increased exchange of FCR (reserves) and overall imbalance netting which is successfully applied across more than one third of EU borders**



**Cross-border exchange of balancing services: balancing services activated abroad as a percentage of national needs – 2015 (%)**

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- In the Agency's view the **declining prices and the declining presence of scarcity prices** in most markets since 2008 are the consequence of a surplus of generation capacity, rather than a market failure.
- Simultaneously, a **number of electricity system services** (CMs, redispatching or procurement of balancing capacity) **are increasingly remunerated outside the electricity wholesale price**. This inhibits the market to render a price that reflects the true value of the electricity supplied.
- The relative **low ratio between tradable capacity and thermal capacity** suggests that cross-border capacity is reduced beyond the N-1 criteria, in order to address either internal congestions or unscheduled flows. This leads to a potential loss of social welfare.
- **Cross-zonal capacity calculation** methods could be significantly **improved** in terms of transparency, coordination and efficiency.

- **Liquidity in forward markets is in general limited**, which emphasises the importance of efficient cross-border hedging tools. **There is room for improvement in the price formation of TRs and a need to further monitor the liquidity** of financial cross-border hedging tools. Both are crucial to increase retail markets competition.
- The overall use of cross-zonal capacity in the **DA timeframe is close to optimal**, but **it can be significantly improved** in the **ID and balancing market timeframe**.
- **There is a close interaction between liquidity in ID markets and the design of balancing markets**, in particular as regards the presence of exemptions for balancing responsibility and the application of cost-reflectivity to imbalance charges.
- **There is a risk that a sub-optimal procurement of balancing capacity** inhibits balancing energy prices from reflecting the real-time conditions of the system. This crucial to ensure that both generation and demand see the benefits to respond to the immediate needs of the system.

Recommendations on wholesale electricity markets will be published for all Volumes\* in the Main Document on 9 November 2016

**Thank you  
for your attention**

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