


ACER

 Agency for the Cooperation
of Energy Regulators

A market design for a future renewable-based energy system

A regulatory perspective

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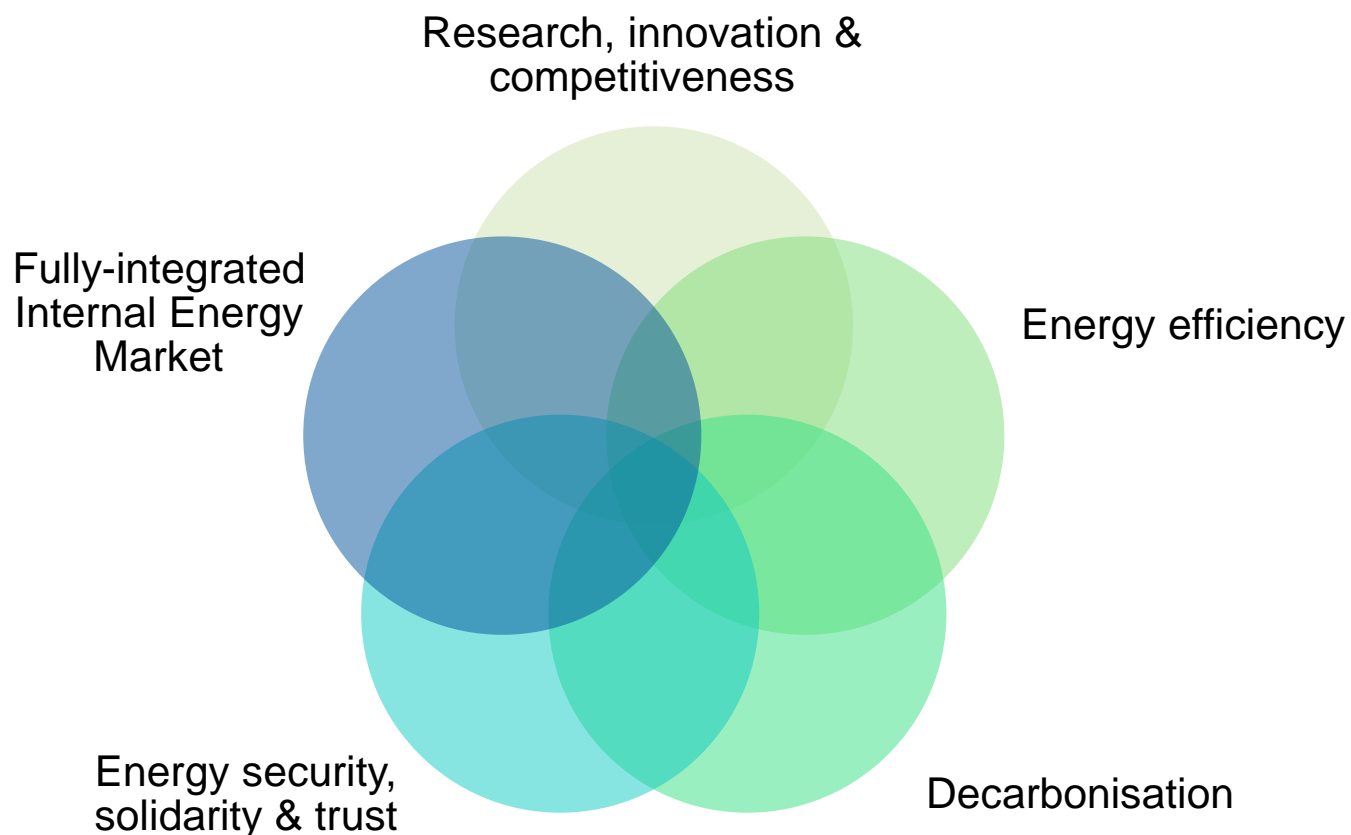
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1.1 Policy dimensions of the Energy Union

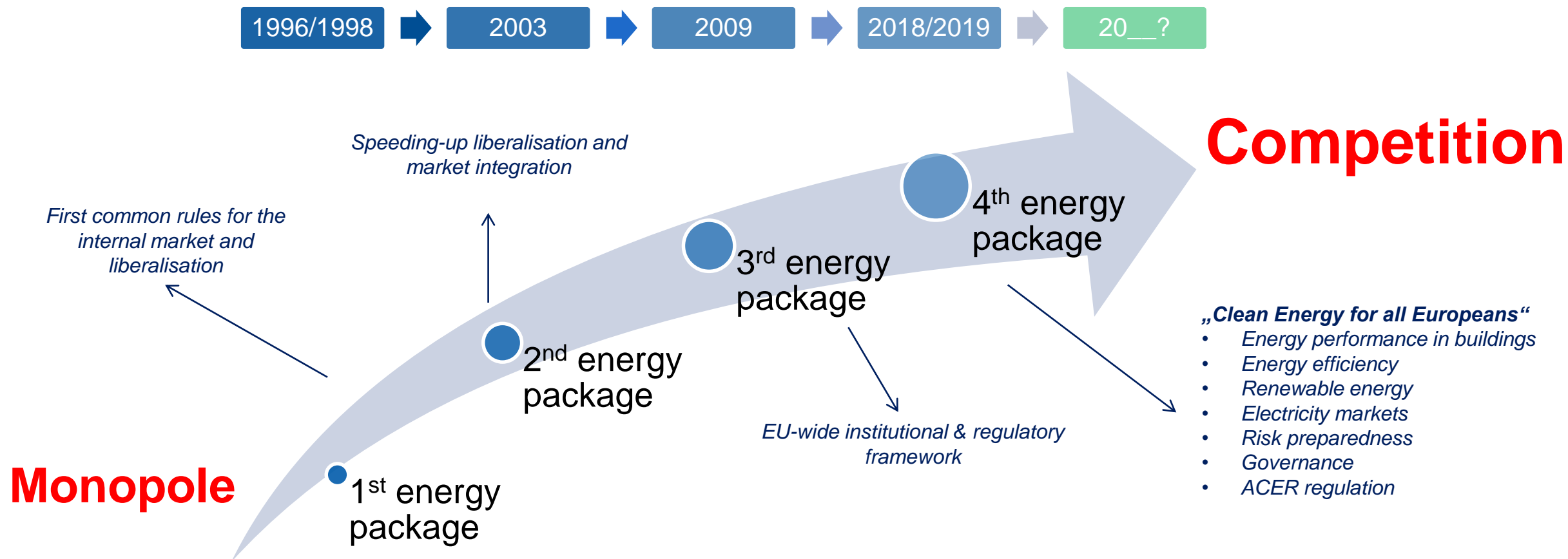
Integrating RES into the market by ensuring that there is a fully-integrated and well-functioning internal energy market in the first place!



→ closely related and mutually reinforcing dimensions of the Energy Union

1.2 Gradual liberalisation process of electricity markets

Creating a fully-integrated and well-functioning electricity market is a long and slow process...



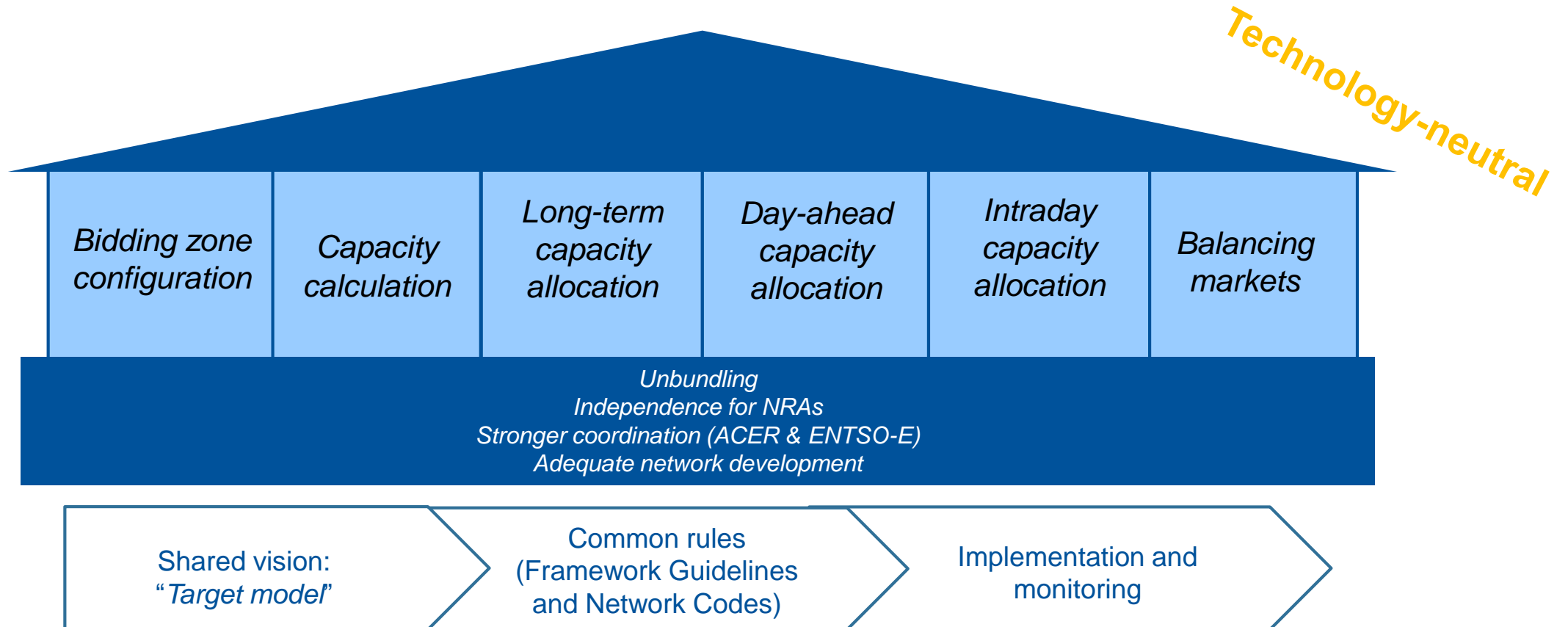
1.3 Vision of an integrated internal European electricity market by 2025

...but we have a clear vision of what we want to achieve by 2025!



2.1 Electricity target model

We expect a liquid and competitive wholesale market, including arrangements which value flexible response from all sources, ensuring high levels of system security, which can be achieved through the implementation of the electricity ‘target model’.



2.2 Electricity market integration

One of ACER's mandate is to monitor the remaining barriers to the completion of the fully-integrated internal energy market and to make recommendations on how to improve the market design.



3.1 Market integration status

The annual Market Monitoring Report (MMR) is an evidence-based analysis identifying inefficiencies and recommending how to improve the market design, with focus on cross-border issues.

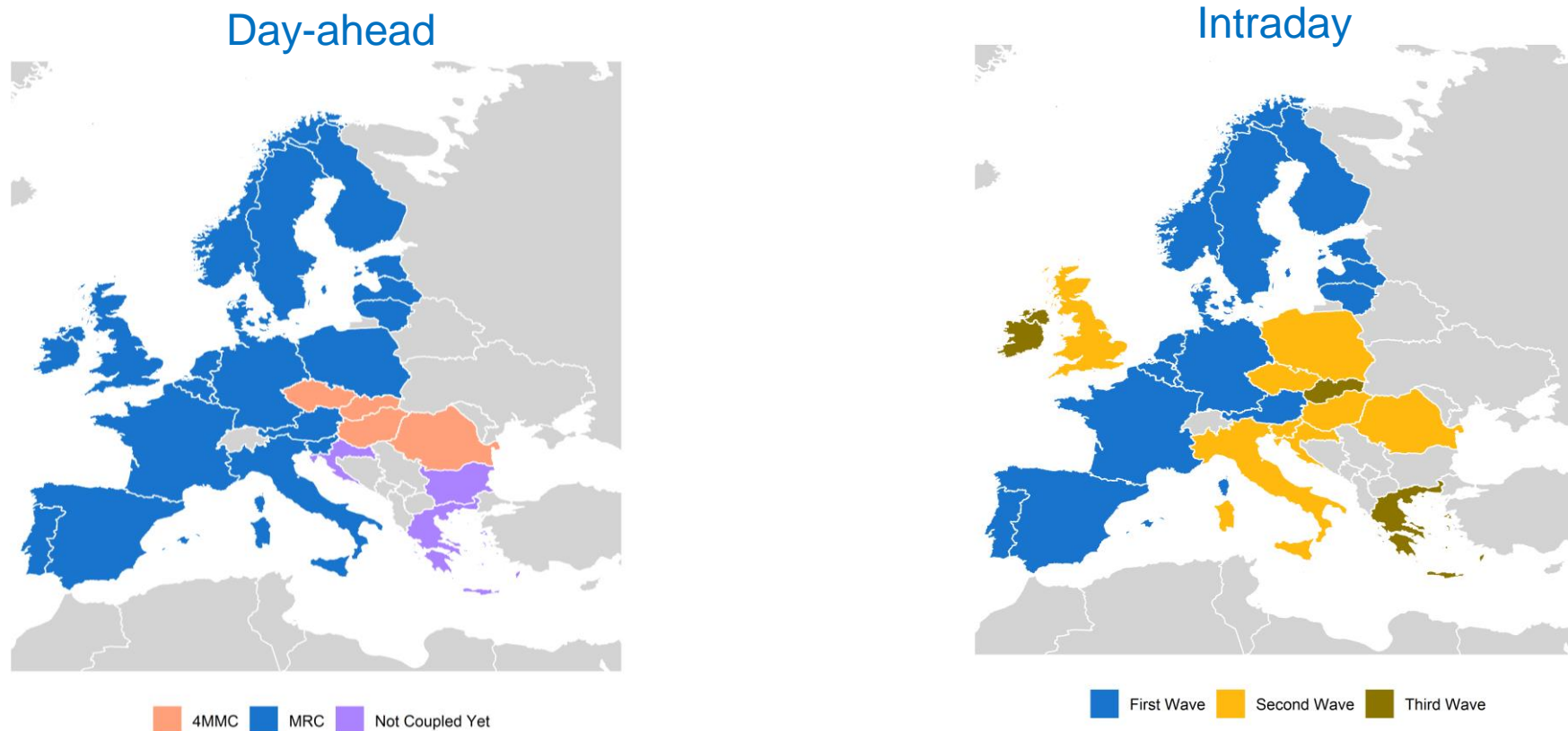


Latest edition of the MMR: <https://www.acer.europa.eu/en/Electricity/Market%20monitoring/Pages/Current-edition.aspx>

3.1 Market integration status

Our latest analysis shows that the completion of day-ahead and intraday market integration through market coupling is getting closer.

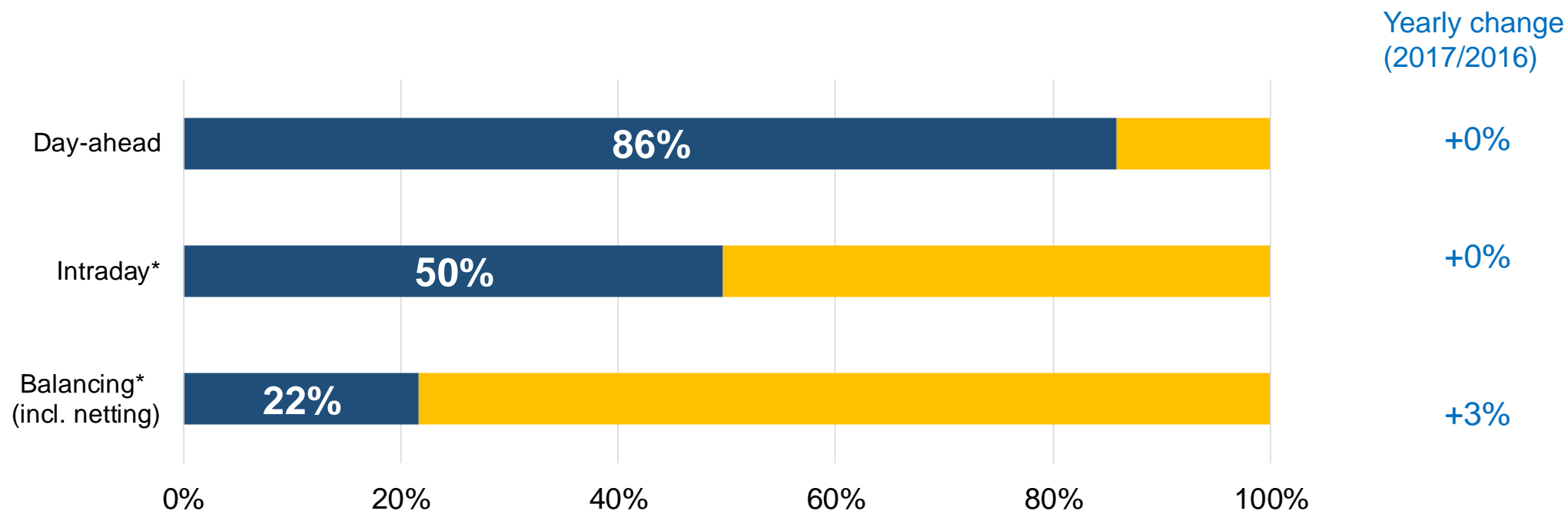
Figure 1: Implementation status of single DA and ID market coupling – October 2018



3.2 Use of existing infrastructure

The (limited) cross-border capacity made available to the market is used efficiently in the day-ahead timeframe, with room for improvement in the intraday and balancing timeframes...

Figure 2: Efficient use of interconnectors in the different timeframes – 2017 (%)

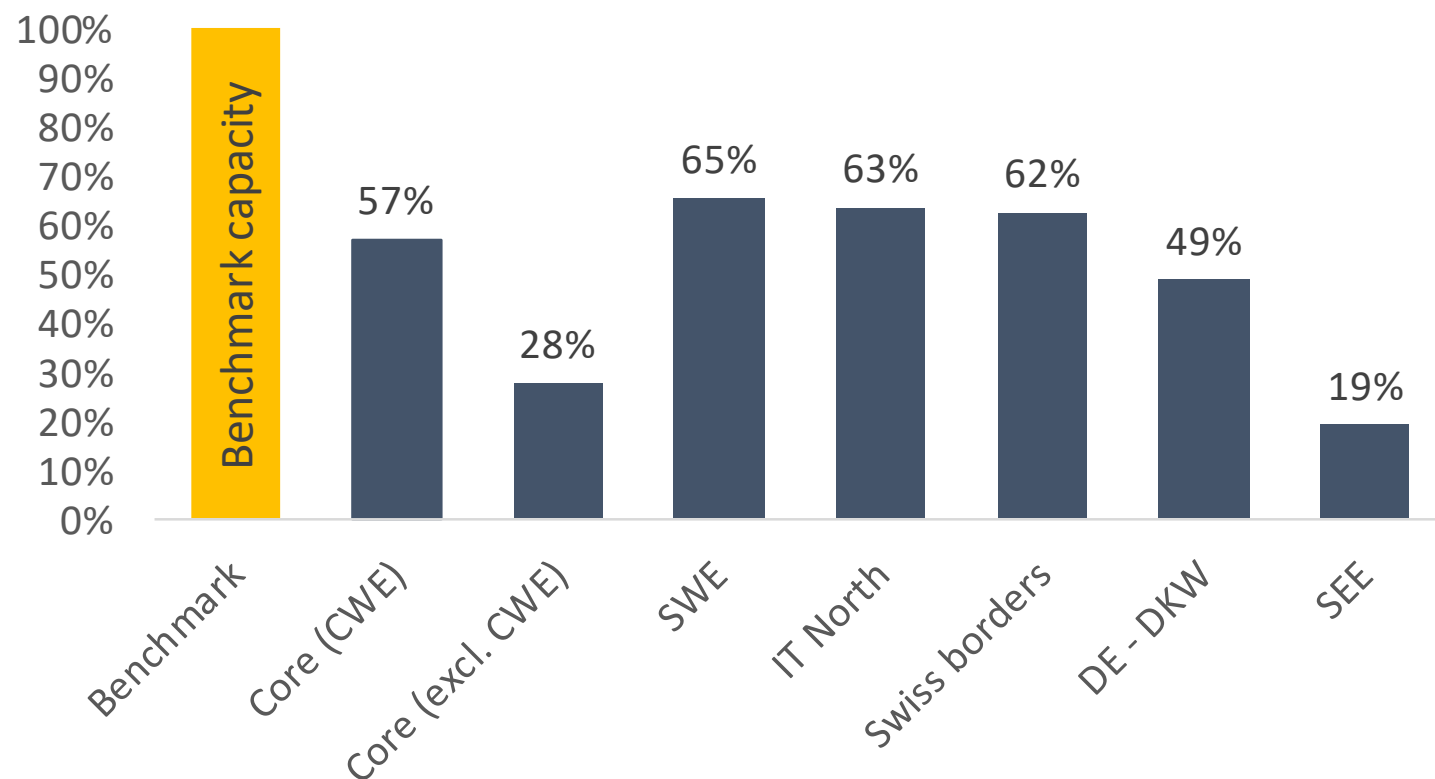


Note: * Intraday and balancing values are based on a selection of EU borders.

3.3 Capacity made available for trade

...but the low level of cross-zonal capacity made available for trading remained the main barrier to market integration.

Figure 3: Ratio of available tradable capacity to benchmark capacity on HVAC borders per capacity calculation region – 2017 (%)



Note: The benchmark capacity is calculated by ACER as the capacity which could be made available while preserving operational security. ACER extensively consulted with stakeholders, including TSOs and ENTSO-E, in order to elaborate the methodology underlying the calculation of benchmark capacities. The full methodology is available at <https://www.acer.europa.eu/en/Electricity/Market%20monitoring/Documents/ACER%20Methodological%20paper%20-%20Benchmark%20cross-zonal%20capacity%20calculation.pdf>

3.3 Capacity made available for trade

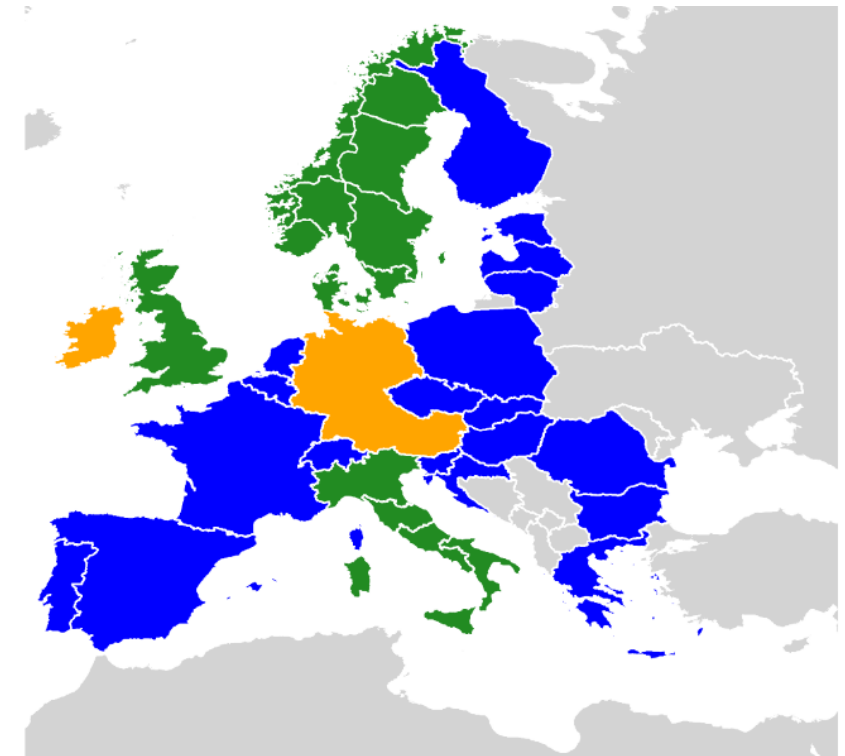
Low cross-border capacity has several underlying causes, which could be tackled.

How much?	What?	Why?
✗ 86%	Share of relevant congestions located inside bidding zones (CWE, 2017)	Internal congestions addressed by limiting cross-border exchanges
✗ 87%	Share of network capacities in relevant network elements consumed by internal exchanges (CWE, 2017)	Lack of rules to avoid discrimination, leading to free-riding on neighbours (loop flows)
✗ >2 bn €/year	Costs to handle internal constraints (50% of these costs in Germany)	The problem is so serious that TSOs still need to apply remedial actions to preserve internal exchanges

Main recommendations:

1. *Improvement of bidding zone configuration*
2. *Improvement in capacity calculation methodologies*
3. *Increased level of coordination in capacity calculation*

Figure 5: Bidding-zone vs. national borders – 2017

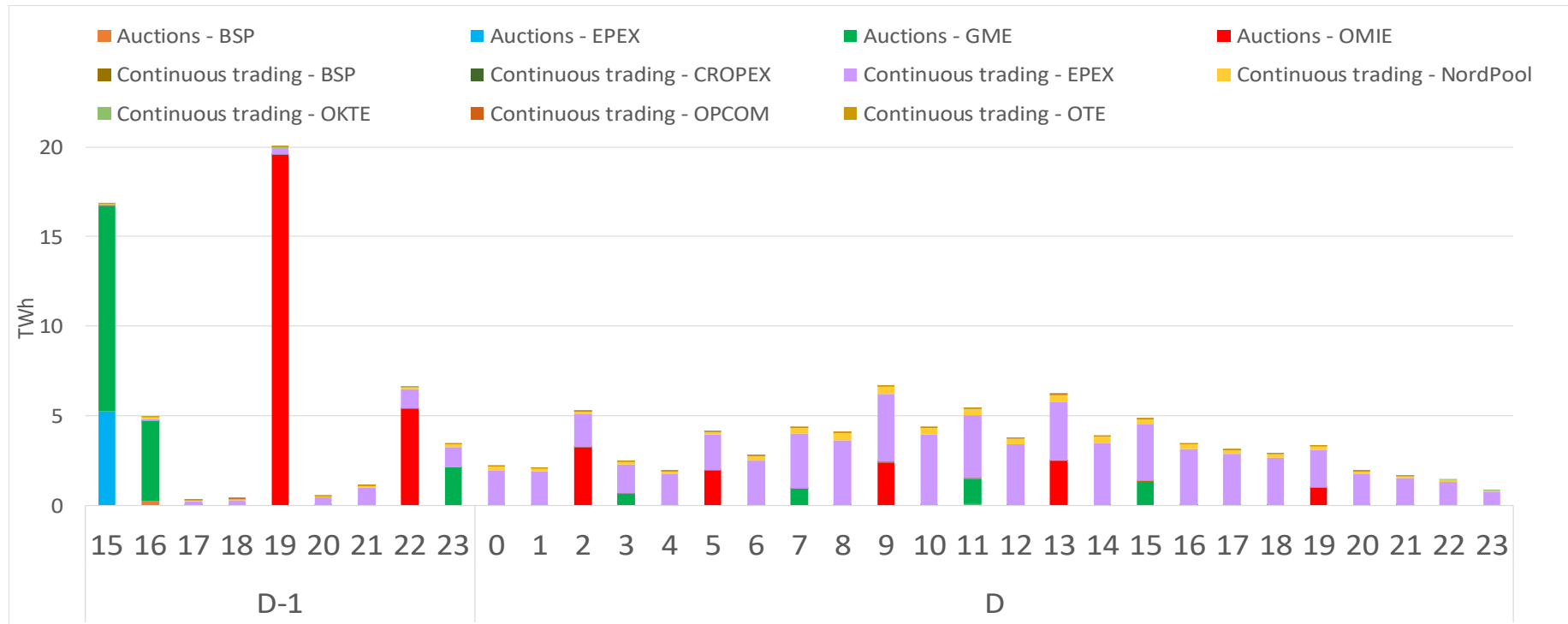


Bidding zone vs. country ■ equal ■ larger ■ smaller

3.4 Intraday markets

Intraday markets provide an effective solution for integrating vRES, enabling market participants to balance their positions closer to real-time. So the sooner the gate opens, the more trading opportunities for market participants to optimise their portfolios.

Figure 6: Distribution of total ID volumes per trading hour, per trading system and NEMO in Europe – 2017 (% volumes per hour when trade occurred on trading day D-1 and D)



Notes:

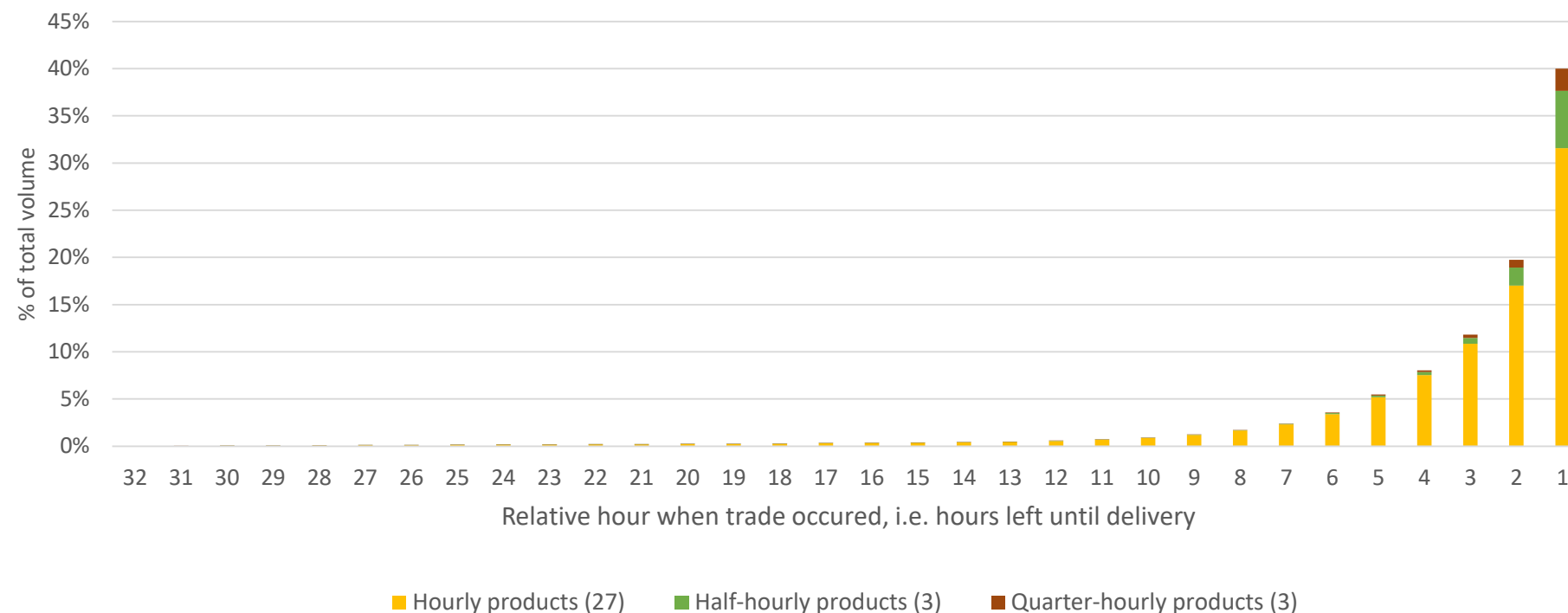
Hour n refers to the time between hour n and hour n+1.

NEMO = Nominated Electricity Market Operator

3.4 Intraday markets

At the same time, setting the gate closing time as close as possible to real time (at most 1h before delivery) provides the necessary trading flexibility, when more accurate forecasts are available.

Figure 7: Share of ID-traded volumes per relative trading hour for hourly, half-hourly and quarter-hourly products in implicit continuous markets – 2017 (% volumes of continuous trades per hour left until delivery)



Note: Hour 1 represents the trading interval between 60–120 minutes before the start of physical delivery. The number in brackets in the legend of the figure refers to the number of bidding zones included in the analysis for each traded product.

3.4 Intraday markets

Liquid intraday markets are key for vRES integration and the granularity of the offered intraday products could be an important element in attracting more liquidity (to be further monitored).

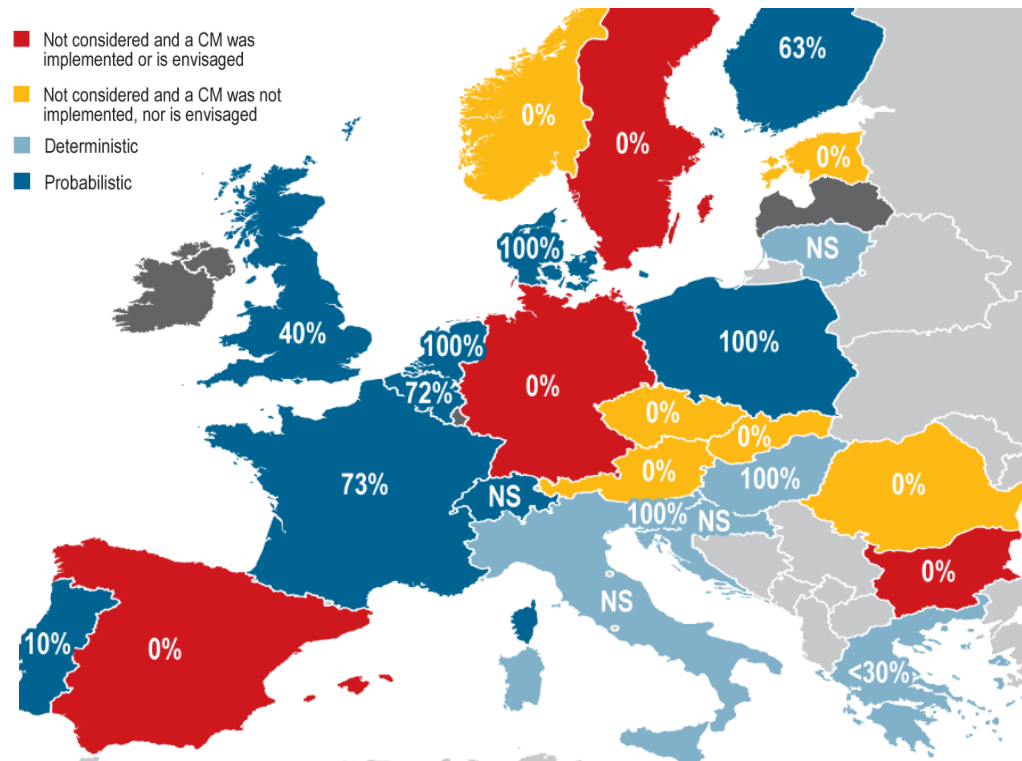
Table 1: Overview of the availability of ID products (trading mechanism and granularity) per country – 2017

MS	Auction			Continuous trading				
	Hourly	Half-hourly	Quarter-hourly	Hourly	Half-hourly	Quarter-hourly	Predefined block-order	User-defined block order
Austria	x	x	x	✓	x	✓	x	x
Bulgaria*	x	x	x	✓	x	x	x	x
Belgium	x	x	x	✓	x	x	x	x
Croatia	x	x	x	✓	x	x	✓	x
Czech Republic	x	x	x	✓	x	x	x	✓
Denmark	x	x	x	✓	x	x	x	✓
Estonia	x	x	x	✓	x	x	x	✓
Finland	x	x	x	✓	x	x	x	✓
France	x	x	x	✓	✓	x	x	x
Germany	x	x	✓	✓	✓	✓	✓	✓
Great Britain	x	x	x	✓	✓	x	✓	✓
Greece	✓	x	x	x	x	x	x	x
Hungary	x	x	x	✓	x	✓	✓	✓
Ireland**	x	✓	x	x	x	x	x	x
Italy	✓	x	x	x	x	x	x	x
Latvia	x	x	x	✓	x	x	x	✓
Lithuania	x	x	x	✓	x	x	x	✓
Luxembourg	x	x	✓	✓	✓	✓	✓	✓
Netherlands	x	x	x	✓	x	x	x	✓
Norway	x	x	x	✓	x	x	x	✓
Poland	x	x	x	✓	x	x	x	x
Portugal	✓	x	x	x	x	x	x	x
Romania	x	x	x	✓	x	x	x	x
Slovakia	x	x	x	✓	x	x	✓	✓
Slovenia	✓	x	x	✓	x	✓	✓	✓
Spain	✓	x	x	x	x	x	x	x
Sweden	x	x	x	✓	x	x	x	✓
Switzerland	x	x	x	✓	✓	✓	x	x

3.5 National adequacy assessments

In addition to integrating vRES, a well-functioning fully-integrated internal electricity market could contribute to security of supply, but national assessments underestimate the contribution of interconnectors, while capacity mechanisms emerge in an uncoordinated manner.

Figure 8: Treatment of interconnectors in generation adequacy assessments in Europe – 2016



Background: heterogeneous capacity mechanisms continued to emerge in Europe in 2017 (six mechanisms approved by the EC in February 2018).

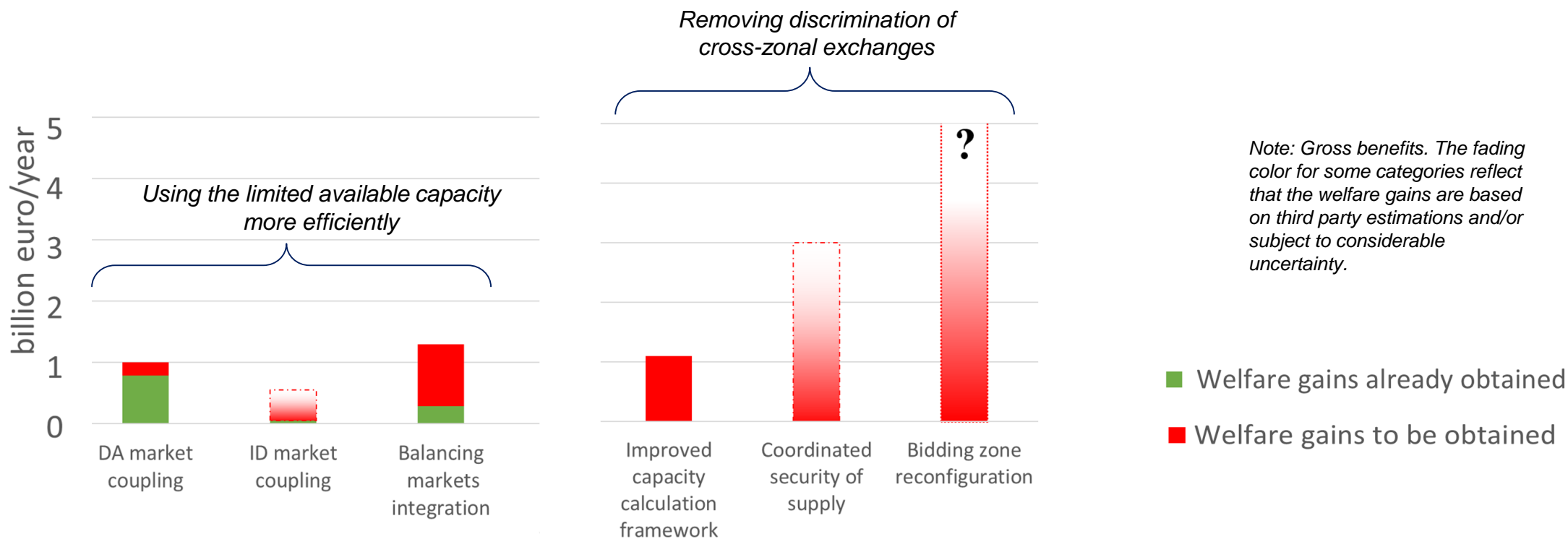
Facts: more than **2 billion euros** to be spent in capacity mechanisms in Europe in 2018, while the charges to finance capacity mechanisms are becoming a noticeable share of the wholesale prices (e.g. more than 30% of day-ahead prices in Ireland, around 5% in Greece and France).

Note: The percentages represent the ratios between the net contribution of interconnectors at times of stress, as considered in national assessments, and the average commercial import capacities. These percentages do not represent the actual contribution (in MW) which can be negligible on some borders (e.g. on some of the Polish borders).

3.6 Welfare benefits

While important progress was made towards completing the internal electricity market, any step to implement the existing legal framework or to improve the current market design, such as removing discrimination of cross-zonal exchanges, brings significant welfare benefits to all EU citizens.

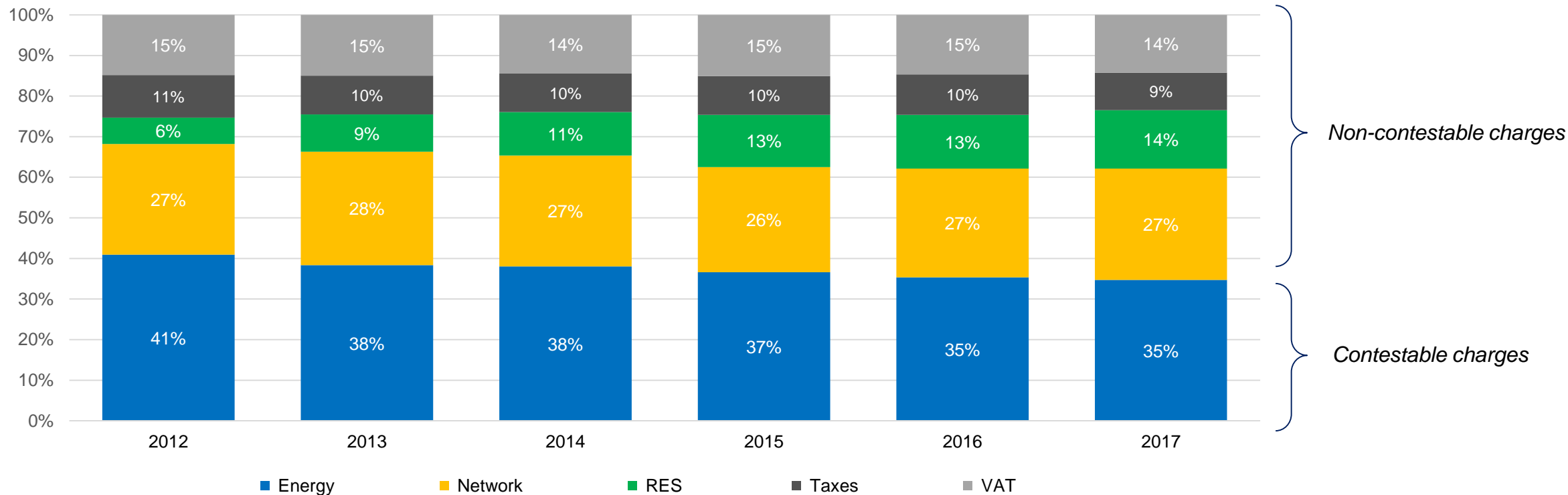
Figure 9: Social welfare benefits already obtained and to be obtained from various actions intended to increase EU market integration



3.7 Retail markets

Last, but not least, developments in wholesale markets have repercussion on retail markets. E.g. the relative share of the energy component in the total EU electricity retail price for households decreased over time, leaving less room for competition among suppliers.

Figure 10: Weighted average breakdown of incumbents' standard electricity offers for EU households in capital cities – 2012–2017 (%)



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**Thank you
for your attention!**