



4th EEAG Working Group on capacity mechanisms

Working Group with MS
15 June 2016

Agenda

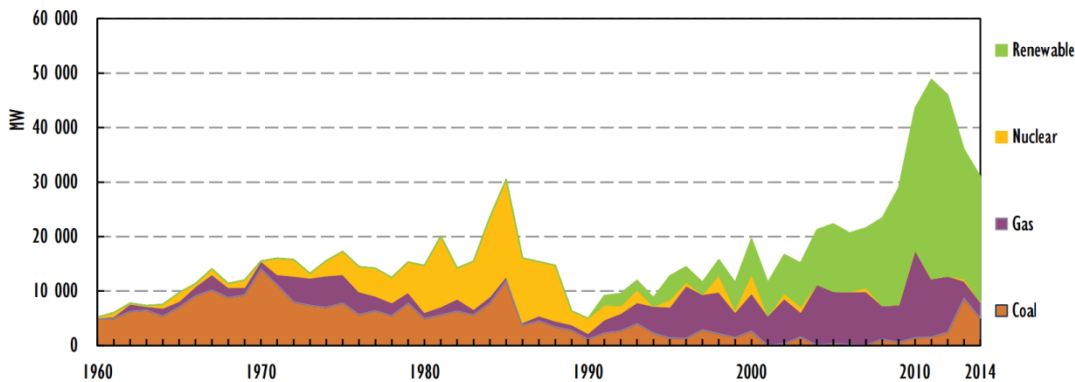
- 14:30 - 14:45: Registration and welcome coffee
- 14:45 - 16:10: Part I: the Sector Inquiry into capacity mechanisms
- 16:10 - 16:15: Break
- 16:15 - 17:30: Part II: explicit cross-border participation in capacity mechanisms

Part I: the Sector Inquiry into capacity mechanisms

The Sector Inquiry

1. What did we do and find so far?
2. What is in the planning for the next six months?
3. Feedback and discussion

Why are Member States introducing capacity mechanisms?

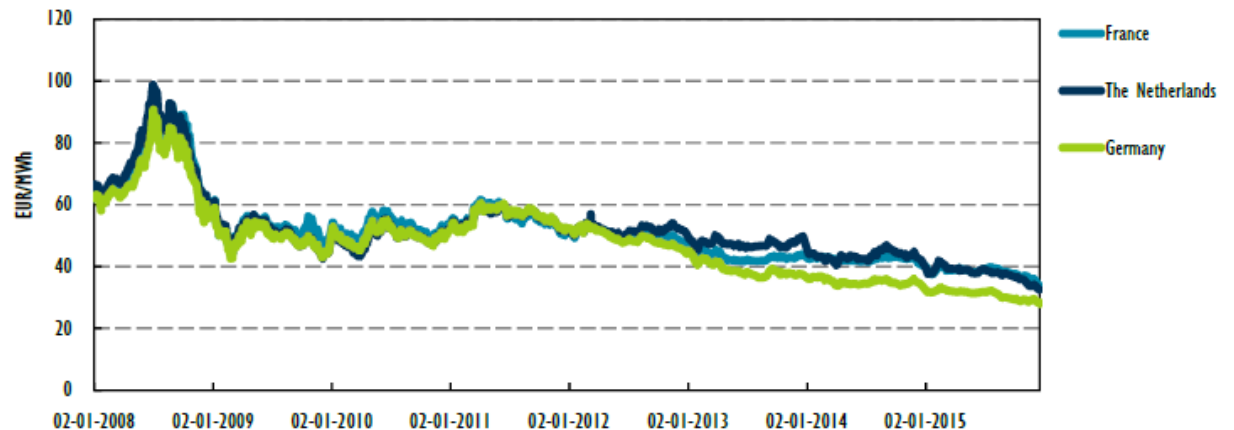


Source: IEA, 2015

- Increasing shares of intermittent renewables
- Decreasing demand (Due to crisis and energy efficiency)

- Decreasing wholesale prices

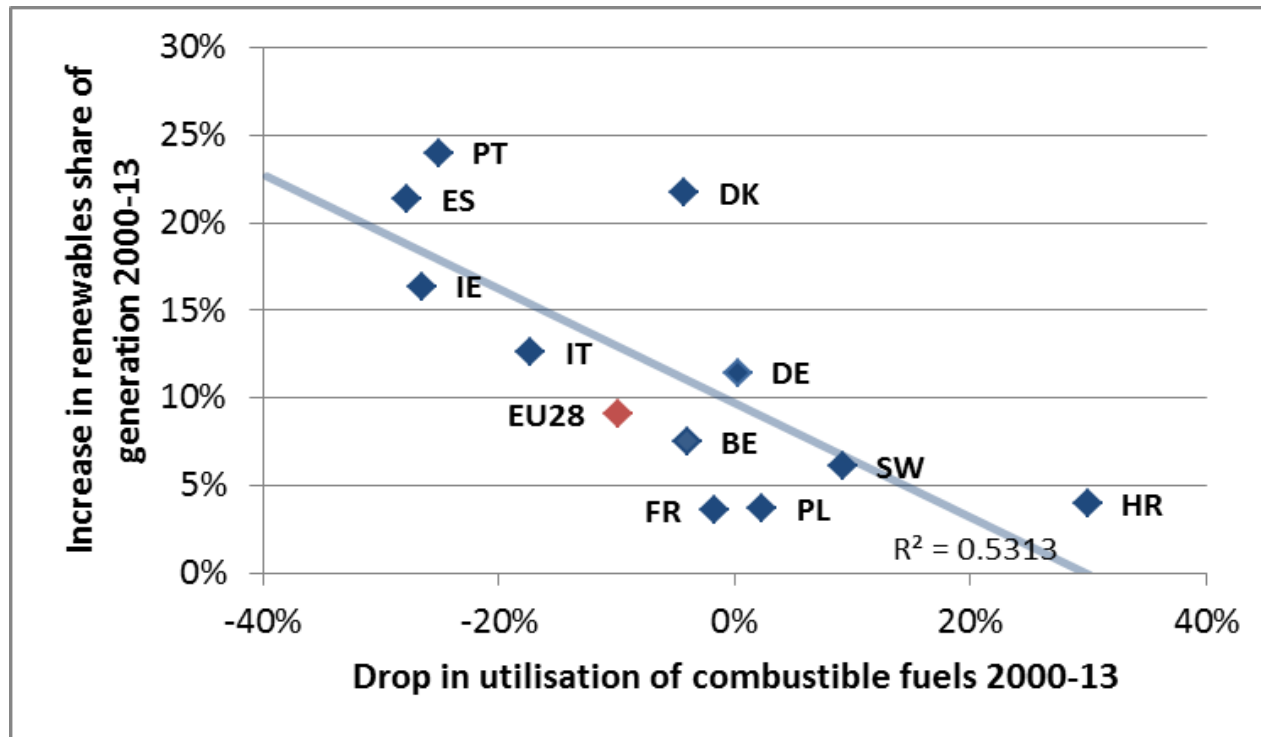
Year-ahead forward prices for Germany, France and Netherlands, 2008 - 2015



Source: Bloomberg.

Why are Member States introducing capacity mechanisms?

...lead to lower running hours for conventional power plants, which lead to concerns of generation adequacy.



Why are Member States introducing capacity mechanisms?

What do Member States do about 'generation adequacy' concerns?

- **Improve the functioning of the electricity market ('Market Design')**
 - Reward flexibility (allow high prices in scarcity situations, improve short term markets)
 - Stimulate demand-response, interconnectors, storage
 - Market integration for RES (no priority dispatch, balancing responsibilities)
- **Introduce a Capacity Mechanism**
 - To ensure existing firm generation stays available to the system
 - To encourage investments in new generation
 - In sum, to address the 'missing money' problem

Why did we start a Sector Inquiry?

Capacity Mechanisms raise competition concerns

Distortions between market participants – If badly designed CMs can:

- act as a subsidy for inefficient fossil fuel generators
- strengthen market power of incumbents
- act as barrier to entry
- undermine demand side participation and measures to support energy efficiency

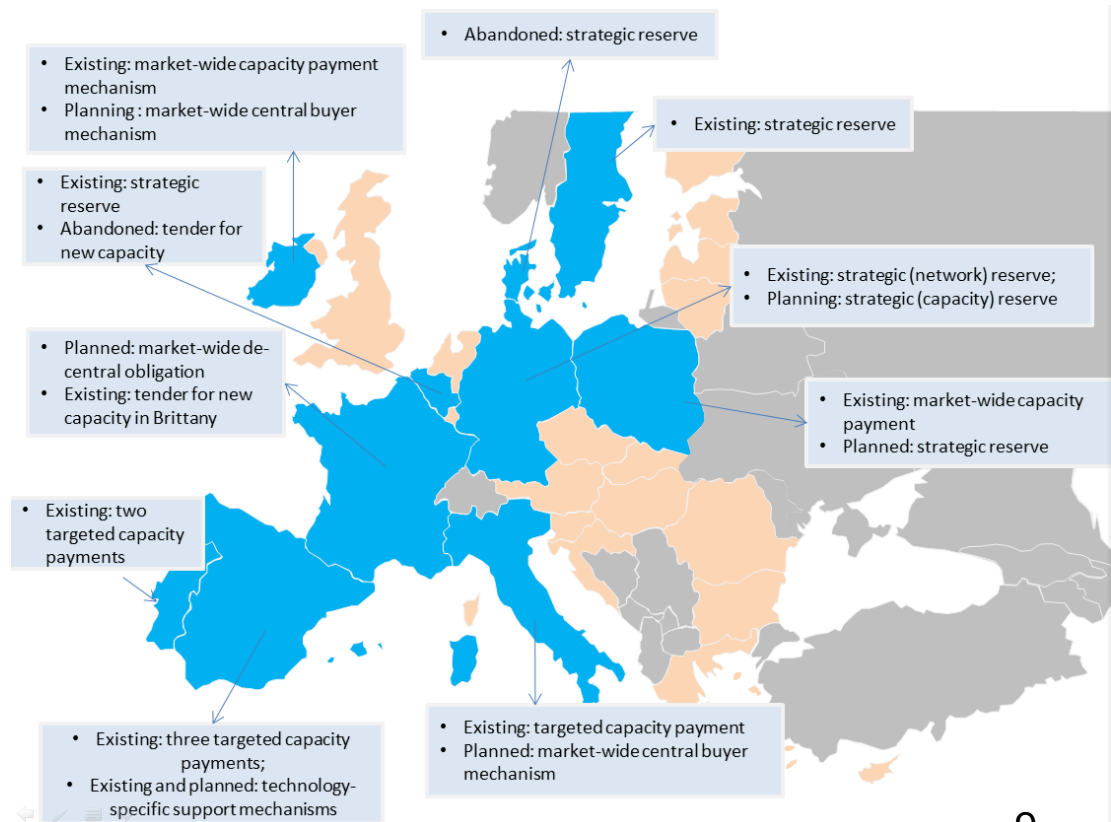
Distortions between Member States – CMs can:

- distort of investment signals
- undermine efficient electricity trade

What did we do?

Questionnaires to market participants and public bodies in eleven Member States...

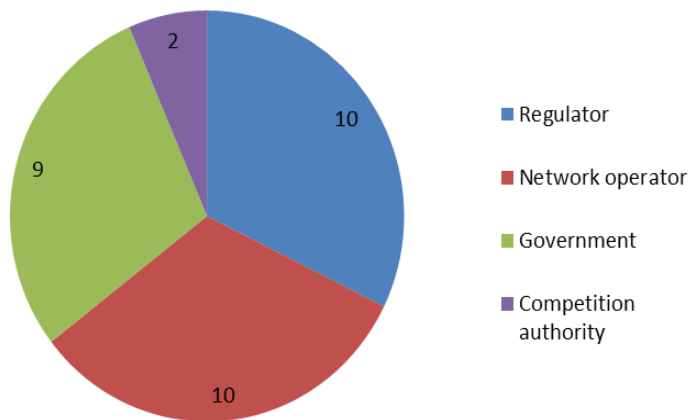
...with a capacity mechanism in place or in the planning.



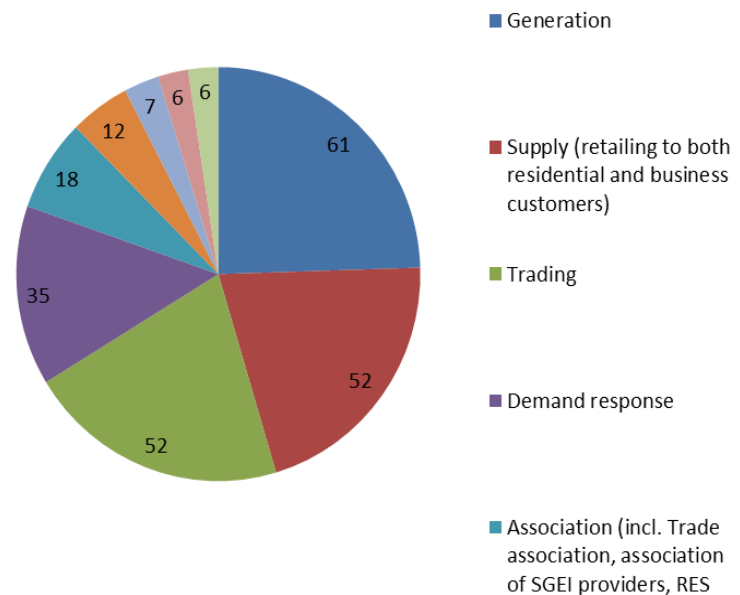
What did we do?

Replies for wide variety of public bodies and market participants

31 replies from public bodies

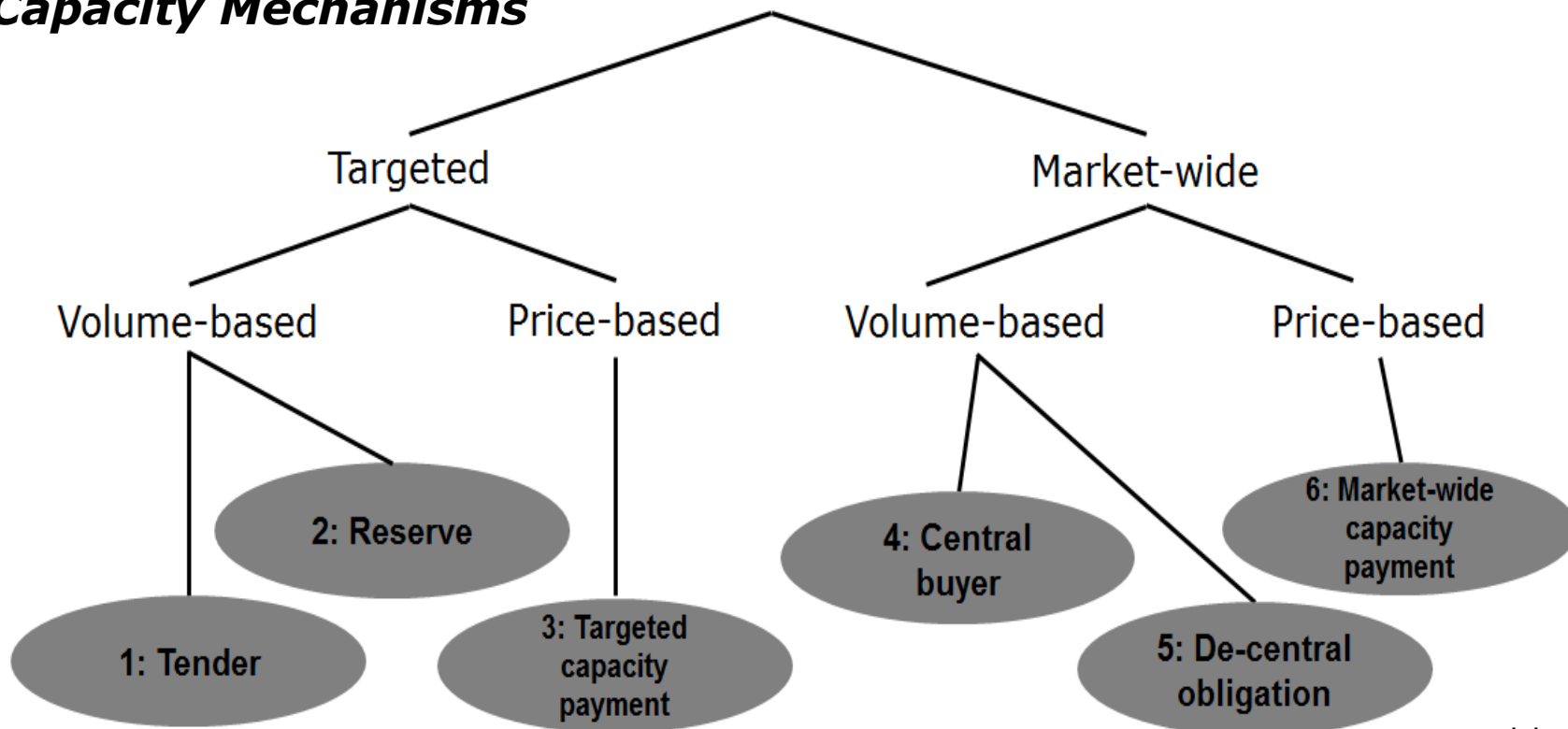


96 replies from market participants



What did we find?

***There are many different types
of Capacity Mechanisms***



What did we find?

In the 11 Member States, we found 28 capacity mechanisms

Tender for new capacity	Strategic reserve	Targeted capacity payment
Belgium **	Belgium	Italy
France	Denmark **	Poland
Ireland **	Germany ***	Portugal ***
	Poland	Spain ***
	Sweden	
	Germany (Interruptibility Scheme)	
	Ireland (Interruptibility Scheme)	
	Italy (Interruptibility Scheme) ***	
	Poland (Interruptibility Scheme)	
	Portugal (Interruptibility Scheme)	
	Spain (Interruptibility Scheme)	
Central buyer	De-central obligation	Market-wide cap. payment
Ireland *	France *	Ireland
Italy *		

* Planned Mechanism (or being implemented)

** Past Mechanism (or never implemented)

*** Multiple capacity mechanisms of the same type

What did we find?

The Internal Energy Market suffers from market and regulatory failures

It needs to be improved to trigger investment

- Remove price caps and more liquid short-term markets (reduce 'missing money')
- Improve demand response (reduces peak demand)
- Extend balancing responsibility

→ Need for market design proposals

What did we find?

The Internal Energy Market suffers from market and regulatory failures

But some market failures are difficult to remedy

- E.g. implementing scarcity prices will reduce missing money, but market power needs to be controlled
- Uncertainty whether investors will rely on scarce and high price peaks to invest in peak plants

What did we find?

Capacity Mechanisms are not always necessary or well-justified

Adequacy assessment

- Is there really a security of supply issue? Calculation of 'adequacy' is not transparent and not harmonised
- Reliability is not commonly defined, **objective** standards are rare
- Most standards are not based on economic analysis (taking into account the value the consumer places on secure supplies e.g. VOLL)

What did we find?

Capacity Mechanisms are not always well-designed

- Most CMs are not open to all types of generation, but rather targeted at a specific group
- Allocation of contracts happen administratively instead of competitively in half of the CMs
- Penalties for non-delivery are not always sufficient to ensure reliability
- **Cross-border participation** is almost never enabled

Conclusions per type of Capacity Mechanism

- Where CMs are needed, different models may be appropriate depending on the underlying problem
 - Strategic Reserves: as a transitional measure e.g. while the market is reformed
 - Tender: in case the need for a targeted measure is duly justified
 - Market-wide & volume-based: may be suitable to address general missing money problem
 - Payment schemes: generally problematic



Next Steps

- Ongoing public consultation – deadline 6 July
- **Targeted questionnaire for Public Bodies** (Member States, NRAs, Cas and TSOs)
- Q4/2016: Adoption Final Report (feeding into Market Design Initiative)

The Sector Inquiry

1. What did we do and find so far?
- 2. What is in the planning for the next six months?**
3. Feedback and discussion

Phase II of the Sector Inquiry

- Areas for further investigation:
 - Ancillary Services
 - Demand Side Response
 - Market Power
 - Locational signals
 - Quantification of costs
- Targeted Questionnaire for Public Bodies

Timing

- Sending out Questionnaire: mid-June
- Replies: mid-July
- Final SI Report: Q4 2016

The Sector Inquiry

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- 3. Feedback and discussion**

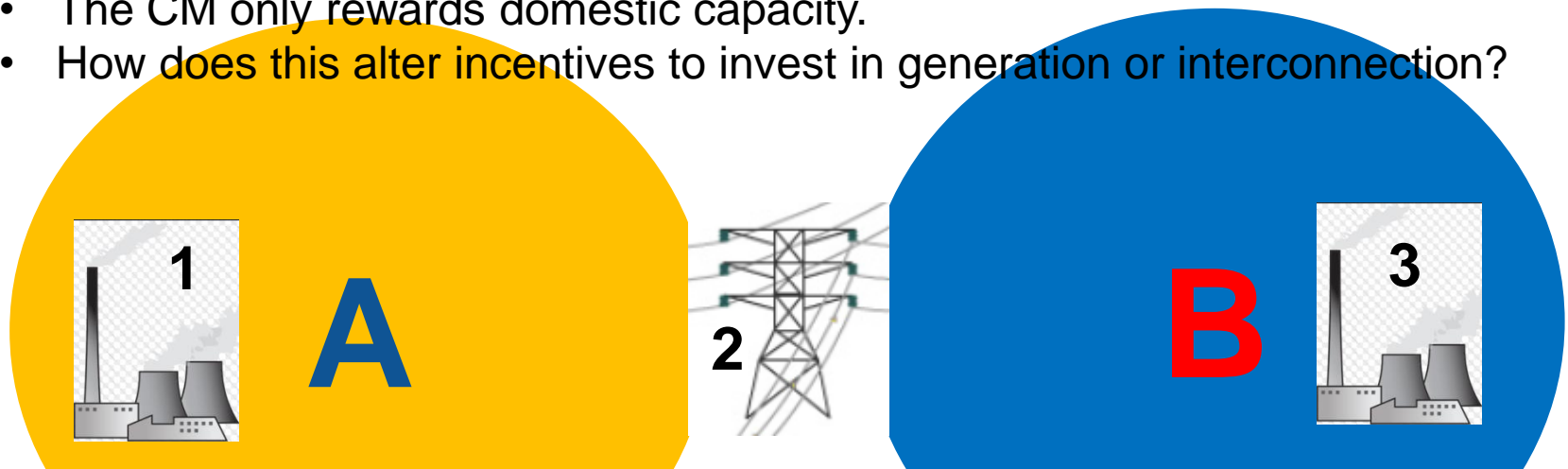
Questions for discussion

- a) Can 'missing money' be sufficiently addressed by electricity market reforms or is a 'residual' market failure likely to persist?
- b) What is the impact of a capacity mechanism on electricity prices?
- c) How suitable are the different types of capacity mechanisms to address identified market failures? (Chapter 6 of the Interim Report)

Part II: explicit cross border participation in CMs

The problem

- Zone A has a market wide CM, Zone B has no CM.
- The CM only rewards domestic capacity.
- How does this alter incentives to invest in generation or interconnection?



Investment option	Revenues from A		Revenues from B	
	electricity	capacity	electricity	capacity
1 – generation in A	✓	✓	✓	NA
2 – interconnection	✓	✗	✓	NA
3 – generation in B	✓	✗	✓	NA

Is explicit participation worth it for consumers?

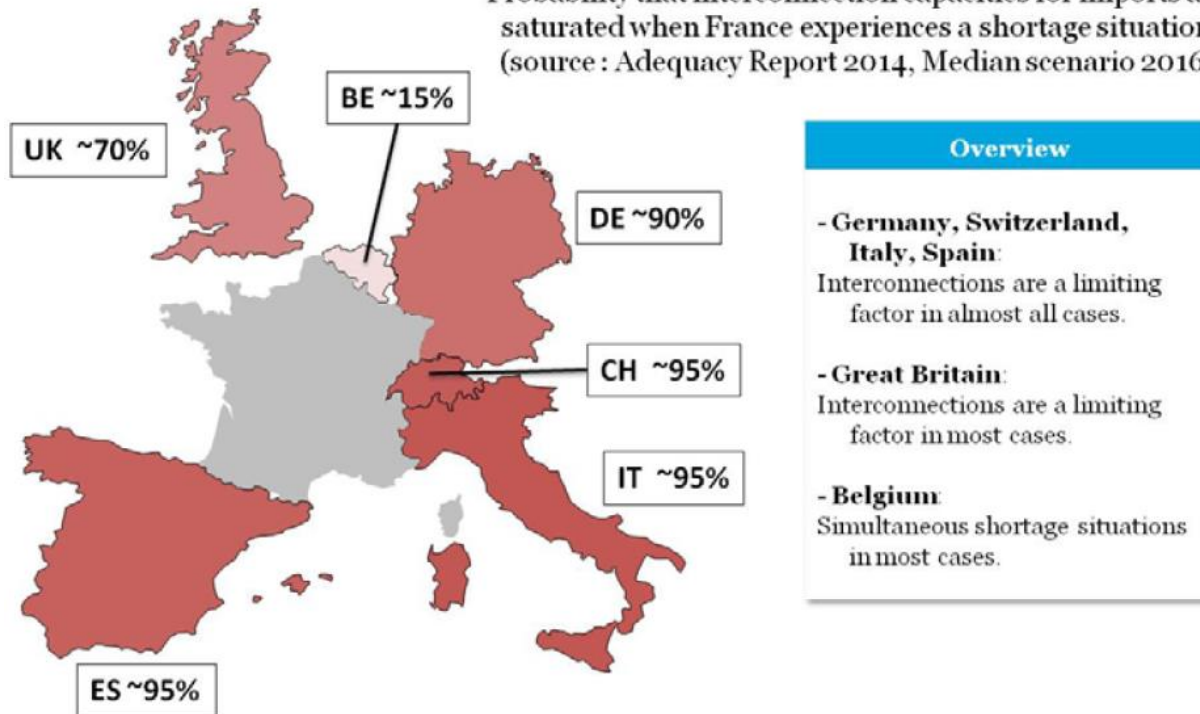
- Correcting investment signals and enabling a choice between local generation and alternatives will lower system costs:
 - Capacity in a CM zone will bid lower into the domestic CM as a result of access to revenues from electricity and capacity in neighbouring zones.
 - More investment in capacity in a non-CM zone, and in transmission to neighbouring CM zones, if capacity in a non-CM zone has access to neighbouring capacity and energy prices.
- Ensure consumers only pay for something that delivers value to them by strictly limiting the amount of foreign capacity contracted:
 - De-rating: interconnector reliability and concurrent scarcity.
 - Maximum one year capacity contracts to:
 - i) enable annual revision of de-rating
 - ii) preserve competition
 - iii) enable evolution of remuneration split between interconnection and foreign capacity



European
Commission

Reward the scarce resource

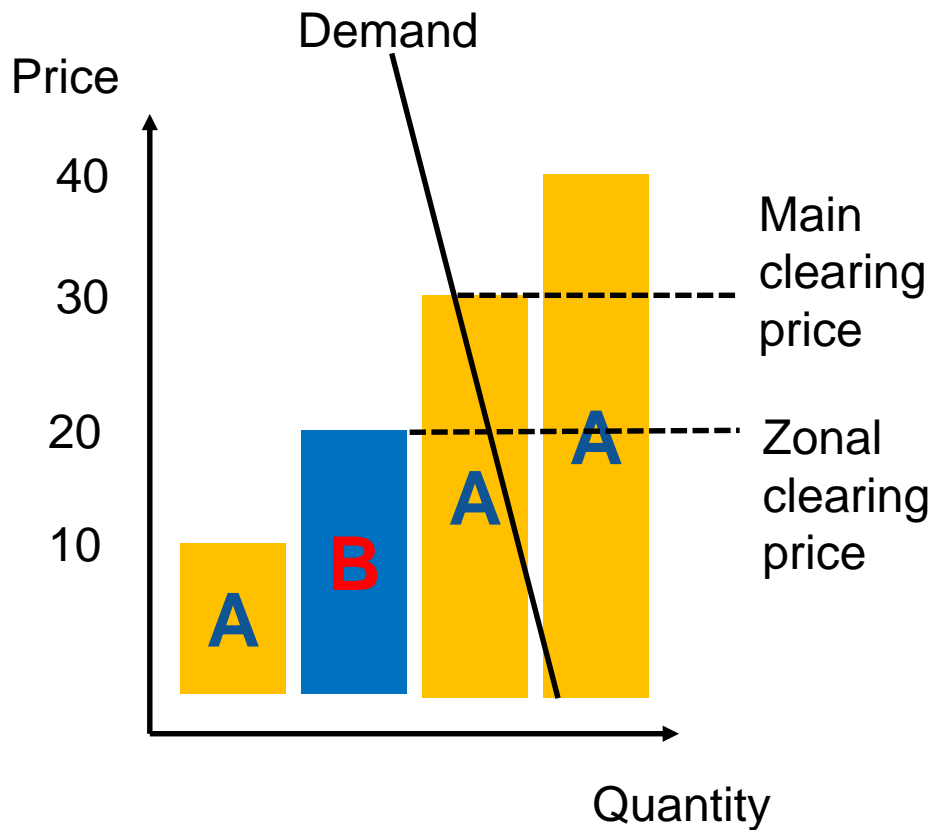
Probability that interconnection capacities for imports are saturated when France experiences a shortage situation
(source : Adequacy Report 2014, Median scenario 2016)



Source: RTE Consultation on cross-border participation

- Should reward interconnection and foreign capacity in proportion depending on their contribution to security of supply
- In practice could arrange zonal auctions

Zonal auction



- Successful capacity providers in A receive 30
- Successful capacity providers in B receive 20
- Interconnection between A and B receives 10 (=30-20)

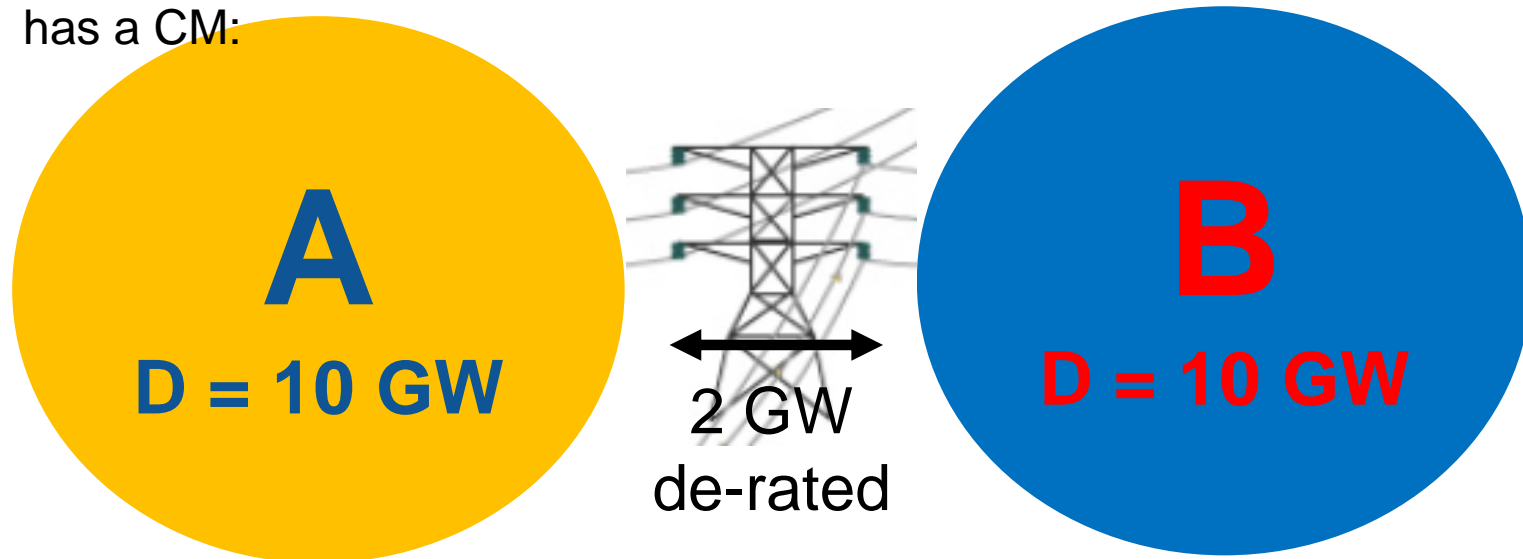
Cross-border obligations

- Whatever the capacity obligations – domestic or foreign – electricity will flow from bidding zones with low electricity prices to bidding zones with high electricity prices*.
- The capacity product for cross-border participation does not need to be the same as the domestic capacity product.
 - For example, if a peaking plant is contracted in zone B, then there is
 - i) no advantage to A in requiring that plant to ensure it is generating electricity when there is scarcity in zone A; and
 - ii) a risk of distortion in B if such an obligation applied
 - Given the need to respect market coupling, an availability obligation seems most appropriate for interconnected capacity.
- The interconnector does not influence flows, so should only have an obligation to be technically available.

* though there may be a case for determining cross border flows based on cross border capacity agreements when sub-VOLL coupling price caps have been reached.

Participation in multiple CMs

- Limiting participation to a single CM will lead to overcapacity if CMs have overlapping obligation periods. Imagine a system with 2 zones, each of which has a CM:



- Zone A holds an auction and buys the cheapest assortment of capacity including up to 2 GW in A: say 2 GW in B and 8 GW in A.
- Zone B holds an auction a week later and has to buy an additional 10 GW of capacity. Maybe they buy 2 GW in A and 8 GW in B.
- The total contracted capacity in the system is 20 GW. But the system only required 16 GW capacity.



Managing risks

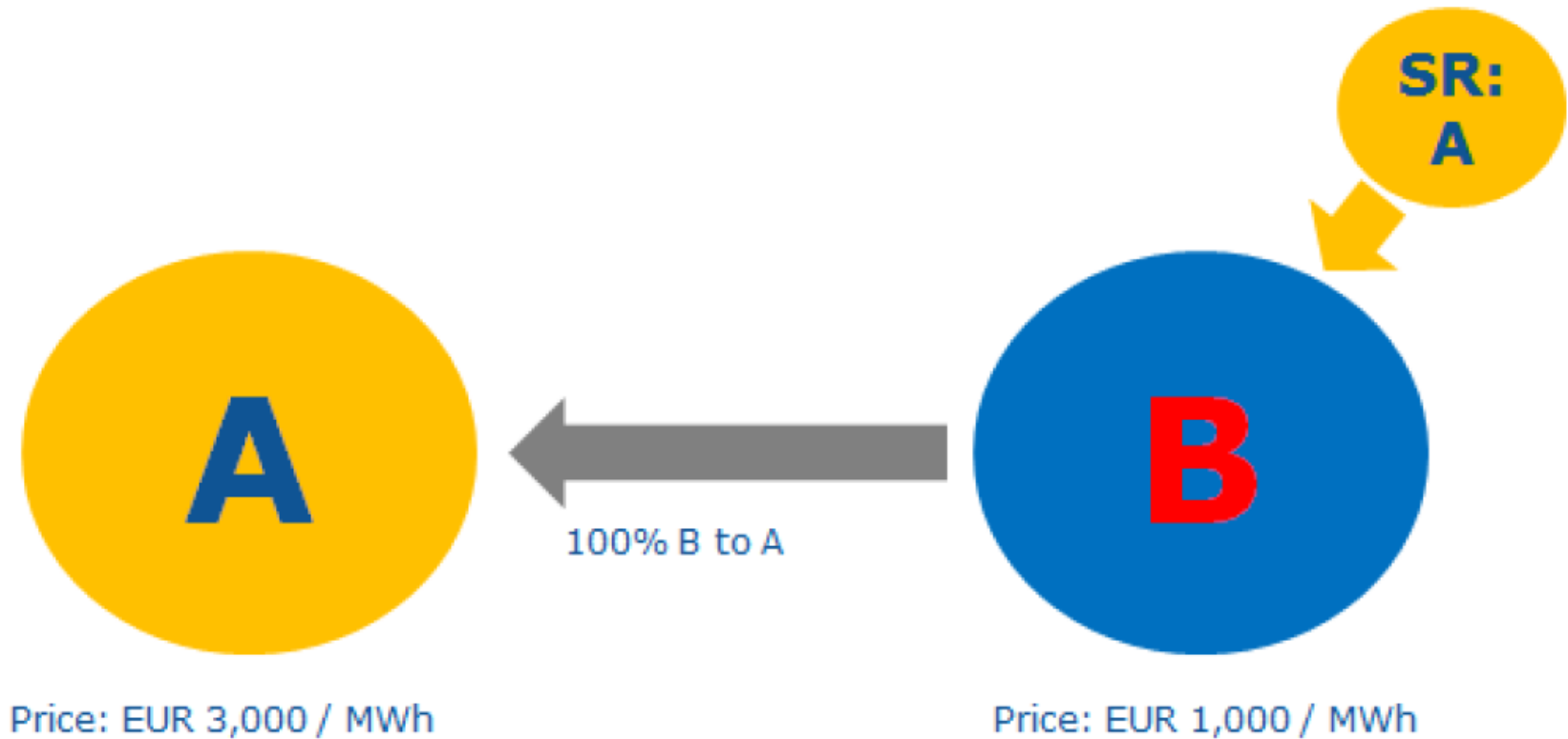
- Each CM zone's security of supply is guaranteed by the de-rating process
- Giving capacity providers the opportunity to participate in more than one mechanism enables them to make a judgement about the risks of concurrent scarcity.
 - Penalties are required to ensure they have the right incentives to make this judgement.
 - Multiple penalties would apply to capacity providers holding multiple obligations at a time of concurrent scarcity.
 - Trading enables the market to adapt and should help ensure the reliable capacity providers the system needs receive CM revenues.

What about reserve CMs?

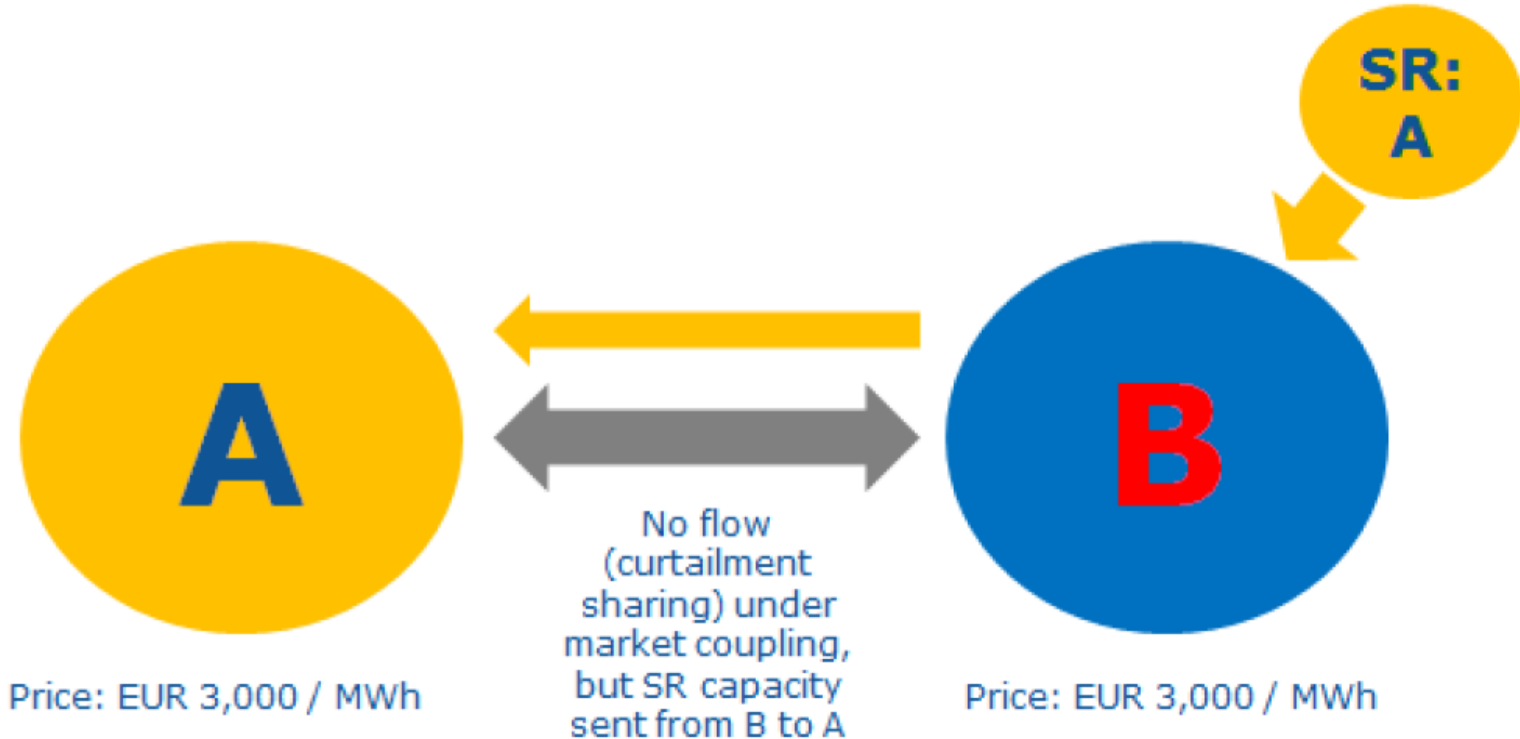
Is there a problem to solve?

- Depends on the design of the strategic reserve. Is it really outside the market?
 - Is it only dispatched when all possibility for the market to deliver has been tested?
 - Has a (suitable) price cap been reached?
 - Has all potential for intraday imports been tested?
 - Does the mere existence of the reserve inevitably create a distortion that needs to be addressed?

Reserves: does foreign participation work?



Reserves: does foreign participation work?



- Cross border participation possible, but would only appear to be useful and non-distortive in a situation where neighbouring zones share the same price cap and it acts as a device to provide additional security in the case of coincident scarcity. In practice = not useful?

Tentative conclusions

- Explicit participation is necessary in market wide CMs to avoid distorting long term investment signals.
- To address this distortion the scarce resource should be rewarded – not automatically only the interconnector or foreign generator.
- Local short term markets must not be distorted (= availability obligation).
- Participation in multiple CMs necessary to avoid wasteful overcapacity for the whole system.
- Cross border participation not required in reserves, depending on design.
- Extra risk: different designs emerging on each border could lead to increasing fragmentation and complexity.

Questions

- Do you agree with our tentative conclusions? In particular:
 - The problem definition (distortion to investment signals)
 - The need to remunerate both foreign capacity and interconnection to correct this distortion
 - The need to restrict cross border obligations to 'availability' to avoid creating new distortions
 - The need to allow capacity providers to participate in multiple CMs to avoid overcapacity
 - The lack of a need to enable participation in reserves, depending on the design
 - The potential advantages of a common approach to cross border participation to avoid fragmentation and reduce complexity
- Are any further European rules required to help enable such an approach?
 - eg. should there be a common methodology for de-rating cross border capacity? should there be a common definition for a cross border capacity product (obligation + penalties)?