



# Capacity mechanisms in Europe

*If there is to be a capacity mechanism,  
then what is the appropriate design?*

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# *Which form of capacity market design is most appropriate for Europe?*

## Outline of Presentation

1

What are the main CRM design choices?

2

How well do these designs fix the 'problems' with an energy-only market?

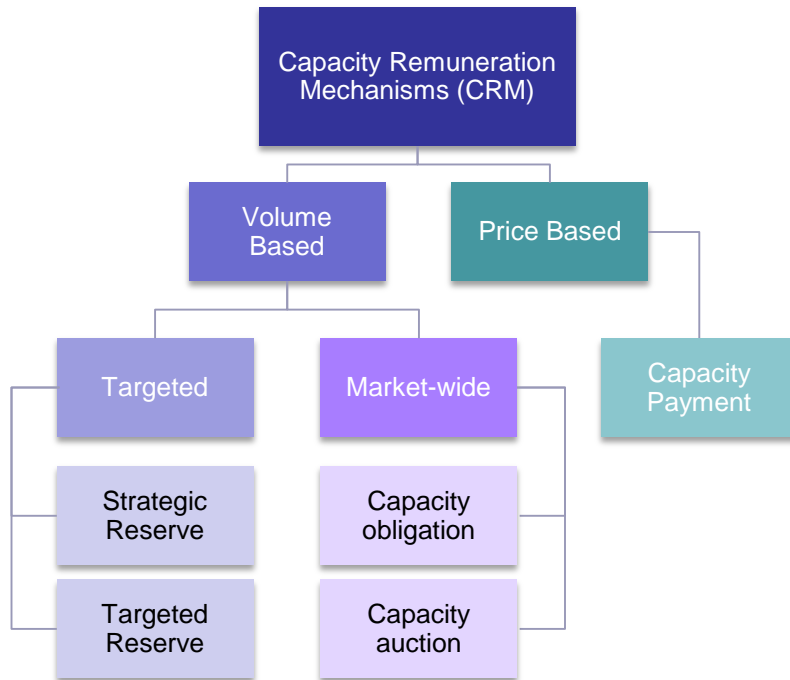
3

What are some of the lessons from experience with CRMs?

4

How should Europe select its preferred market design?

# What are the main CRM design choices?



## Price-based CRM

- A capacity payment 'adder' to an energy- price is a way of 'fixing' scarcity pricing in an energy-only market:  $(LoLP * VoLL - SMP)$
- Capacity payments do not directly result in a target level of capacity
- So, if it is concluded that scarcity-pricing in an energy-only market is not effective at delivering reliability, then a capacity payment 'adder' to an energy- price is also not likely to be considered an effective mechanism

## Targeted CRM

- Targeted reserves ("Strategic Reserves") are usually segregated from the energy-only market – otherwise they would constitute balancing services
- Principal role of targeted reserves is to provide a 'back-stop' to the energy-only market rather than an entry-support mechanism for all new generation capacity
- Where support for all new capacity becomes necessary, segregation from the energy market is no longer possible and the targeted reserve becomes a means of discriminating against existing capacity

## Centralised auction vs. Decentralised obligation

- This is the critical choice assuming it is determined that energy-only markets cannot efficiently ensure system reliability to an appropriate security standard

# How well do the main design options fix the ‘problems’ with an energy-only market?

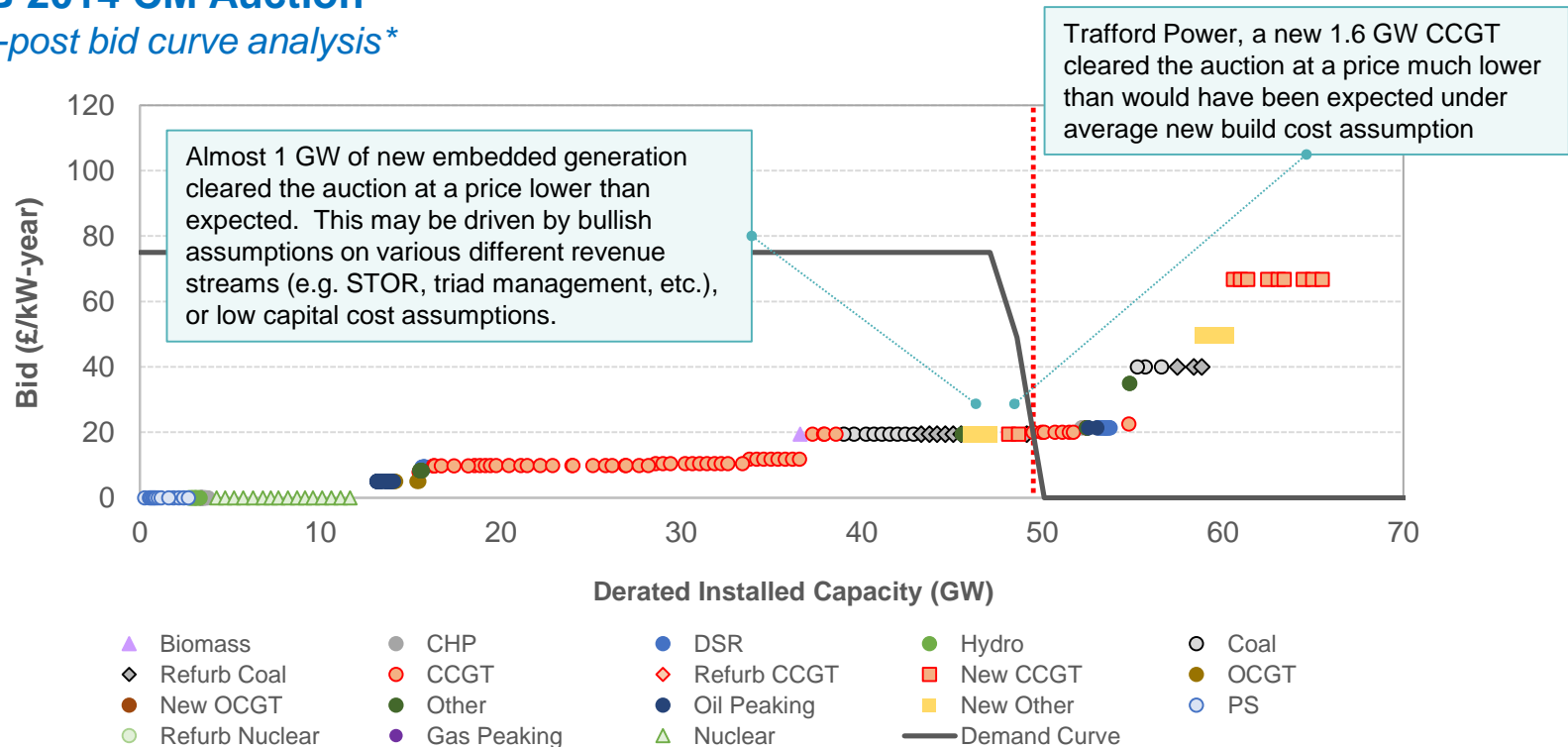
	Decentralised	Centralised
<b>Incentives for new entry – ‘the missing money’</b>	<ul style="list-style-type: none"> <li>▪ Market for ‘certificates’ required to provide efficient capacity price</li> <li>▪ Opportunity for more tailored solutions with bi-lateral contracting</li> <li>▪ Risks of excess/deficient capacity borne by Suppliers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Auction design required to deliver efficient capacity price</li> <li>▪ Central planners may be biased towards over-procurement</li> <li>▪ Costs are socialised and risks of excess/deficient capacity passed through to Consumers</li> </ul>
<b>Illiquid contract markets</b>	<ul style="list-style-type: none"> <li>▪ Vertical integration of suppliers (self-supply) may limit capacity market liquidity</li> <li>▪ Suppliers may be reluctant to contract sufficiently long-term</li> </ul>	<ul style="list-style-type: none"> <li>▪ Centralised auctions with standardised contract specification promotes transparency and capacity market liquidity</li> </ul>
<b>Demand-side participation</b>	<ul style="list-style-type: none"> <li>▪ Incentives for demand-side management on Suppliers</li> <li>▪ DSR can participate directly offering contracts/certificates</li> </ul>	<ul style="list-style-type: none"> <li>▪ Requires standardised approach to DSR</li> </ul>
<b>Problems with ‘gaming’</b>	<ul style="list-style-type: none"> <li>▪ Bi-lateral contract determination limits scope for ‘gaming’ capacity/certificates depending on market depth/liquidity</li> <li>▪ ‘Imbalance’ penalties required</li> </ul>	<ul style="list-style-type: none"> <li>▪ Auction rules can constrain ‘gaming’ capacity while promoting market depth/liquidity</li> <li>▪ Penalties for capacity non-performance required: reliability options may also mitigate potential energy market distortions</li> </ul>

# What are some of the lessons from experience with CRMs?

- Capacity markets, including centralised auctions, can attract innovative offers
- The cost of capital for generators is impacted – and this needs to be set off against the associated risk transfer to consumers

## GB 2014 CM Auction

Ex-post bid curve analysis\*



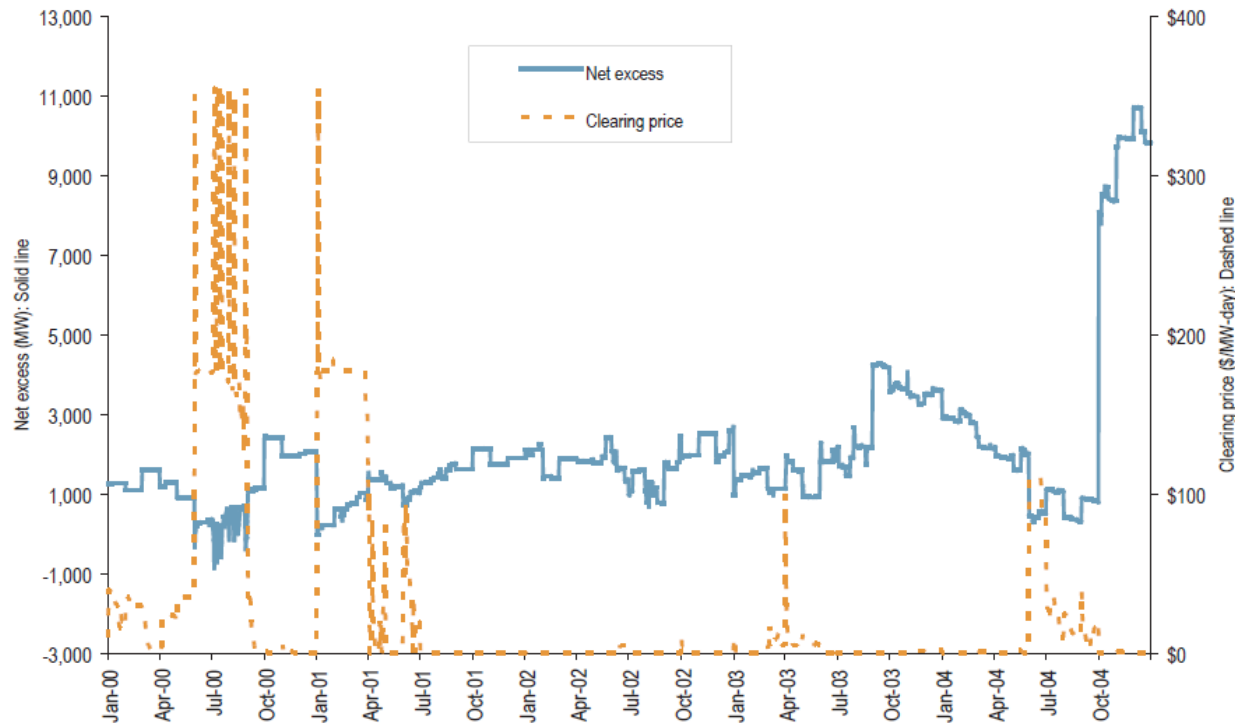
\* Note that there is no information available to re-construct the actual bid curve of the clearing round. The curve above has been constructed based on our ex-ante analysis of costs and revenues, modified where necessary with information on the generators that cleared and did not clear the auction.

Source: CRA analysis based on National Grid's published pre-qualification results.

# What are some of the lessons from experience with CRMs?

- PJM CRM has evolved from capacity credits purchased by Load Serving Entities to the centralised Reliability Pricing Model

Figure 4-9 - The PJM Capacity Market's net excess vs. capacity credit market-clearing prices: January 2000 to December 2004

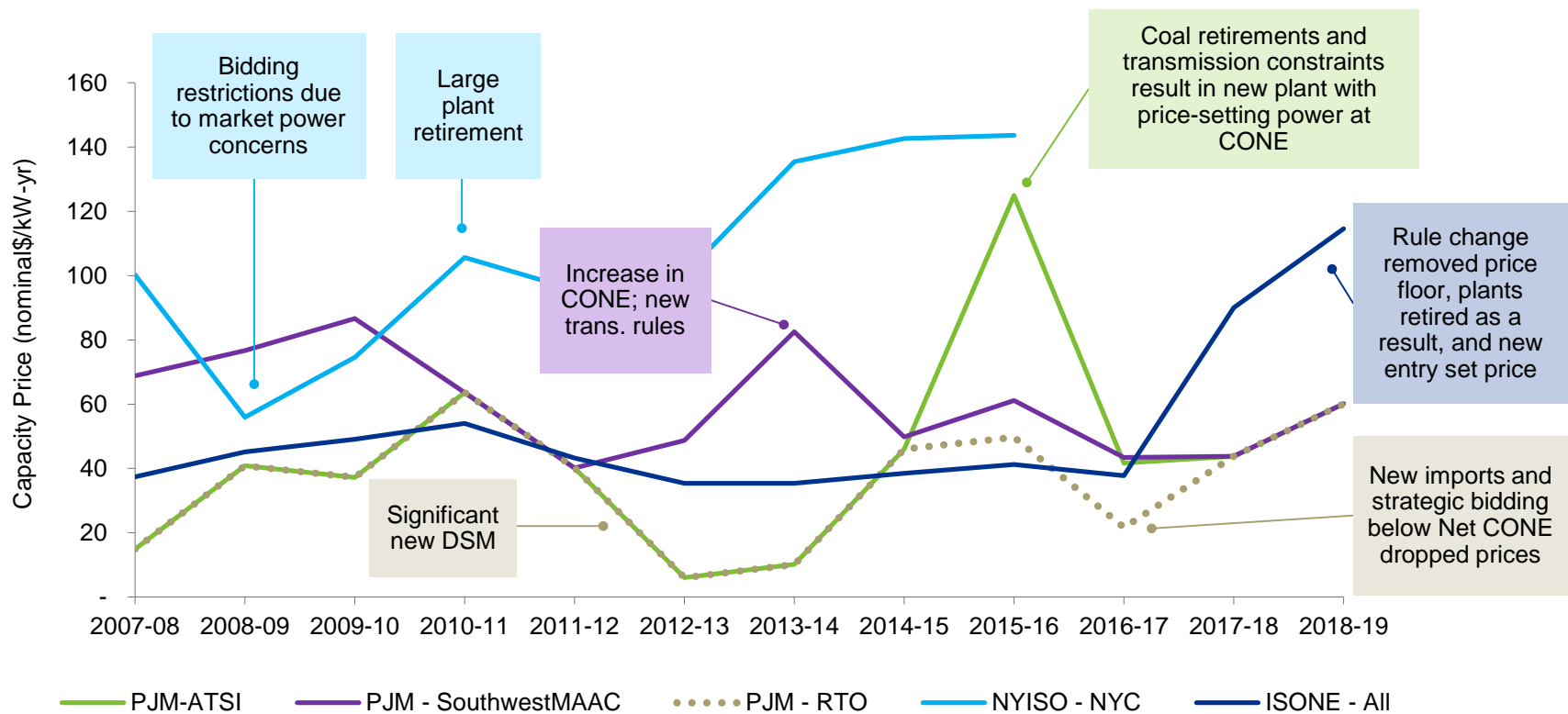


## Key Problems

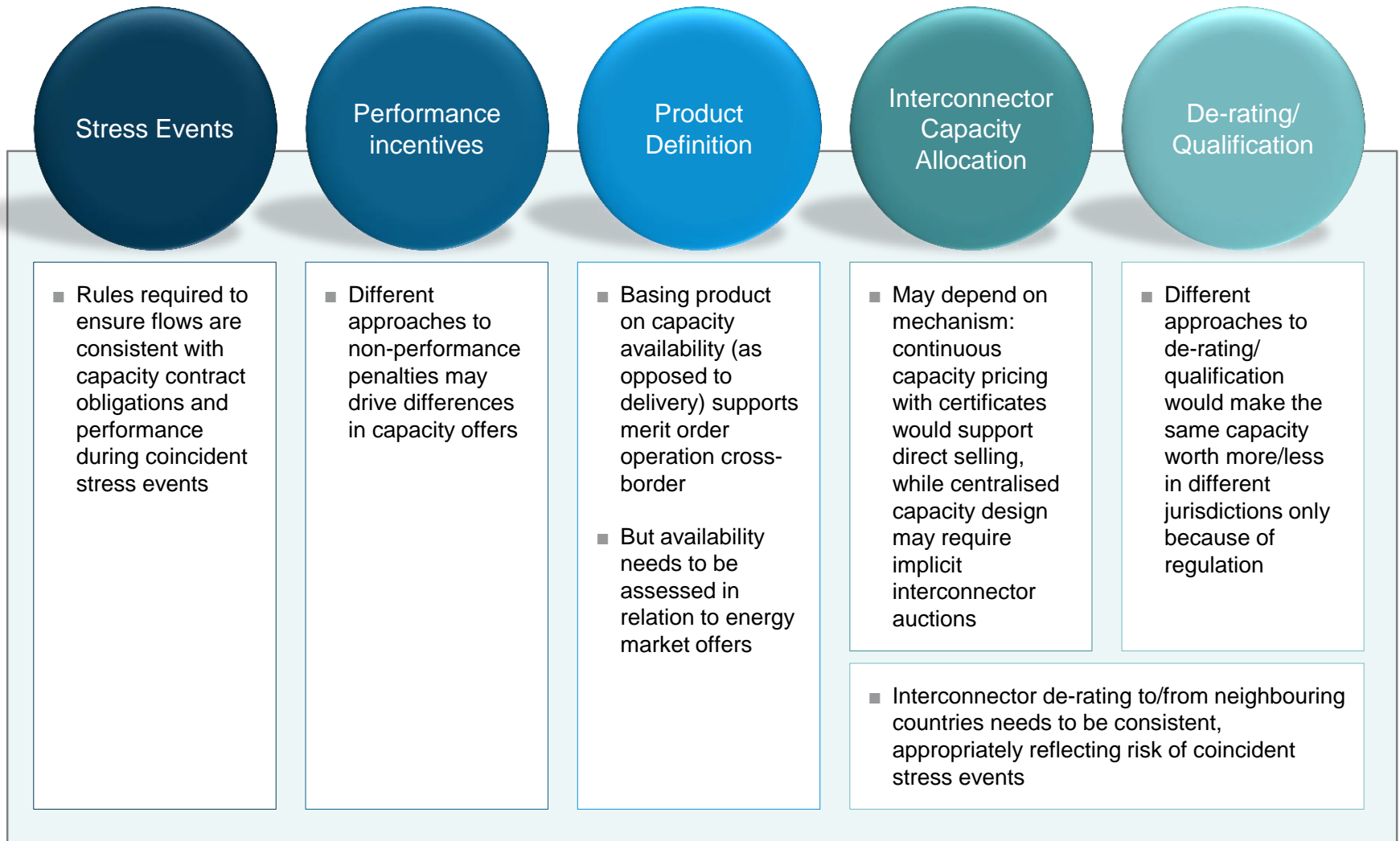
- Vertical demand curve led to volatile, 'bi-polar' capacity prices
- Failed to support contestability of new entry in generation due to limited contract maturities
- Collateral requirements inhibited contracting
- Lacked locational requirements

# What are some of the lessons from experience with CRMs?

- Centralised auctions are complex and tend to involve multiple, successive rule changes
- Longer-term capacity prices are also difficult to anticipate but have been successful in supporting new entry



## Are there minimum harmonisation requirements between capacity markets – some key considerations





# How should Europe select its preferred market design?

## Some key conditions for success

### Decentralised

- Competitive underlying market structure or effective regulation
  - Vertical Integration not inhibiting generators access to certificates/capacity contracts
- Market for 'certificates' develops to support competitive new entry
  - Prices reflecting supply/demand
  - Availability of 'long-term' contracts
- Appropriate penalties for non-performance

### Centralised

- Effective constraints on any central planning bias to over-procurement
  - Including 'excessive' long-term contracts
- Limiting the tendency to rule changes to avoid 'regulatory instability'
  - Providing for some innovation in contracting/generator requirements
- Appropriate penalties for non-performance

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