Capacity mechanisms: latest developments and potential for further coordination

The 6th Vienna Forum on European Energy Law

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FTI-Compass Lexecon Energy at a Glance
Agenda

- A patchwork of capacity mechanisms across Europe – how did we get there?
- The Clean Energy Package on capacity mechanisms
- The next challenge: How to ensure cross border participation in capacity mechanisms?
- Conclusions
A patchwork of capacity mechanisms across Europe—how did we get there?
Capacity mechanisms have become the norm rather than the exception.
Drivers of CMs: The good, the bad, and the ugly...

Drivers of implementation of capacity mechanisms

- Guarantee politically determined security of supply criteria
- Address market failures affecting security of supply (missing money)
- Support timely investment
- Rescue stranded thermal plants
- Smooth power prices to reduce “politically unsustainable” volatility
- Dampen investment and retirement cycles

Drivers of reform depend on many country specific factors

- Existing generation mix and embedded flexibility
- Market arrangements
- Level of interconnection

Looking forward, member states have different needs

- Some countries need more dependable capacity, others need flexibility to support renewables, others are well supplied by all measures...

Economic drivers

Political drivers
Different power market designs and local specificities lead to different CMs designs.

A wide range of power market arrangements across Europe...

<table>
<thead>
<tr>
<th>Model 1: Ireland</th>
<th>Model 2: ES, PT, IT</th>
<th>Model 3: Nordic, CWE</th>
<th>Model 4: GB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Forward Market</strong></td>
<td><strong>Day Ahead</strong></td>
<td><strong>Intraday</strong></td>
<td><strong>Capacity</strong></td>
</tr>
<tr>
<td>No meaningful forward market</td>
<td>Central dispatch with complex bids/offers</td>
<td>D-1 gate closure</td>
<td>Fixed capacity payment</td>
</tr>
<tr>
<td>Financial forward market</td>
<td>Traded volumes/prices not firm</td>
<td>No intraday market</td>
<td>Capacity and availability payment</td>
</tr>
<tr>
<td>Quasi-mandatory day-ahead auction</td>
<td>Locational bidding</td>
<td>Intraday auction slots</td>
<td>Capacity and availability payment</td>
</tr>
<tr>
<td>DA auction with strong market support</td>
<td>Portfolio bidding</td>
<td>Continuous trading</td>
<td>Strategic reserve (Nordics, Be, De)</td>
</tr>
<tr>
<td>No intraday market</td>
<td>Portfolio bidding</td>
<td>Continuous trading</td>
<td>Decentralized forward capacity market (Fr)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H-1 gate closure</td>
<td>Centralized forward capacity market</td>
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...so no reason that CM would be similar
The Clean Energy Package on capacity mechanisms
The Clean Energy Package introduces a regional and European dimension to the assessment of capacity needs and seeks to better coordinate national CMs

- **Introduction of a coordinated European adequacy assessment, following a jointly agreed methodology**
  - ENTSOE would carry a medium to long-term Union level resource adequacy assessment
  - Regional Operational Centres (ROCs) would also carry out very short term regional adequacy assessments (from weak-ahead to day-ahead) used in the context of system operation
  - Member States should set transparent and verifiable adequacy targets based on the methodology and criteria based set by the Regulation, having the freedom to choose their desired level of security of supply.

- **Conditions for CRM introduction in a market-compatible manner**
  - The European resource adequacy assessment should identify a resource adequacy concern.
  - CRM should only be introduced for the residual concerns that cannot be addressed through removing regulatory distortions.

- **Emission standard: the ‘550 debate’**
  - New capacity should be eligible to CMs participation only if emissions are below 550 gCO2/kWh. This threshold may also apply for existing generation capacity 5 years after the entry into force of the proposed Regulation.
  - CMs already in place should be reviewed to comply with the proposed Regulation.

- **Cross-border participation and integration of CRMs**
  - CMs other than strategic reserves shall be open to direct cross-border participation
  - Member States shall not restrict capacity located in their territory from participating in other CMs
  - Sets out how ROCs, national TSOs, ENTSOE and national regulators via ACER will be involved in the development of technical parameters for cross-border participation as well as the operational rules for their participation.
The next challenge: How to ensure cross border participation in capacity mechanisms?
The different methods for cross-border participation in CMs

1. No Contribution
   - Neither interconnectors nor foreign providers contribute
   - This applies to most countries with capacity payment mechanisms (price based)

2. Statistical contribution
   - Contribution evaluated statistically and deducted from capacity target
   - Initial GB (net 0 contribution) and French approaches (~7GW out of 9GW of import capacity)

3. Interconnector participation
   - Interconnector participates directly in capacity mechanism
   - Solution implemented in GB from 2015 onwards

4. Foreign Capacity participation
   - Foreign capacity providers participate directly in capacity mechanism
   - This has been implemented in the PJM Capacity Market, work in progress in France

5. Cross-border Capacity Mechanism
   - Capacity mechanisms cover several zones OR national capacity mechanisms are “coupled”
   - No current international examples (except zones in PJM and Italy)

The definition of capacity products is a key – particularly whether the obligation is based on energy delivery or availability
The key issue is political and operational: Need for a framework to deal with situations of coincidental scarcity

- In this example, country A contracted capacity up to 51GW, but only 47-49GW of its demand is satisfied depending on the situation.
- Without specific rules to control on capacity contracted abroad at times of scarcity, cross border participation has no value added in terms of security of supply over a simple statistical approach.

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**Capacity procurement**

<table>
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<tr>
<th>A</th>
<th>CRM</th>
<th>B</th>
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<tbody>
<tr>
<td>49GW</td>
<td>2GW</td>
<td></td>
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<tr>
<td>2GW</td>
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**Energy market: scarcity situation simultaneously in A & B**

### 2a
- **A**
  - Price cap
  - Price: 3k€/MWh
  - Demand: 51GW - Supply: 49GW
- **B**
  - Price cap
  - Price: 3k€/MWh
  - Demand: 54GW - Supply: 48GW

### 2b
- **A**
  - No price cap
  - Price: 20k€/MWh
  - Demand: 51GW - Supply: 49GW
- **B**
  - No price cap
  - Price: 24k€/MWh
  - Demand: 54GW - Supply: 48GW
Conclusions
## Issues for further coordination of CMs around state aid and security of supply

<table>
<thead>
<tr>
<th>State aid criteria</th>
<th>Issues</th>
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<tr>
<td><strong>Need for intervention</strong></td>
<td>Different approaches for adequacy outlook across countries: Toward a standardised approach defined by ENTSOE / RCOs? How to take into account local specificities (e.g. TSO grid model)?</td>
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<td>Lack of data / harmonization of assumptions: toward common databases?</td>
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<td>Cross border capacity: Can a coordinated assessment be conducted at the regional level by RSCs?</td>
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<tr>
<td><strong>Appropriateness and proportionality</strong></td>
<td>Is some degree of harmonization of the underlying security of supply criteria needed? what happens if neighboring countries choose different reliability criteria?</td>
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<td>Whilst a standard approach for CMs is not suitable, can TSO’s practices regarding the certification &amp; verification procedures be harmonized?</td>
</tr>
<tr>
<td><strong>Absence of distortion / impact on competition</strong></td>
<td>Cross border participation: can some guidelines be defined / a standardised framework? Key challenges:</td>
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<td>- Develop a cooperation framework, including operational rules and clarification of responsibilities, to deal with situations of simultaneous system stress</td>
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<tr>
<td></td>
<td>- Which institutional framework to align national responsibility with regard to security of supply and regional / EU coordination approach?</td>
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Thank you for your attention

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