Capacity remuneration mechanisms

Workshop in preparation of Commission review of EU Guidelines on State Aid for Environmental Protection

Presentation based on CREG-study 1182 on ‘capacity remuneration mechanisms’ (Oct 2012) (available in English on CREG-website)

12 April 2013
1. Problem

Two electricity market models:

**Energy only markets:** profits from kWh sold

**Capacity mechanisms:** profits from kWh and kW
1. Problems

Energy only market - Limits

- RES support schemes not related to price signals + dispatching priority (decreased residual supply)
- Low clean spark spreads (Cheap coal - US shale gas, low CO$_2$ price)
- Lower demand (economic crisis)

=> lower electricity prices

=> increase of intermittent production capacity
1. Problems
Energy only market - Limits

Need for more flexible back up units (CCGT, OCGT) but during a decreasing number of hours

⇒ less kWh sold with a lower margin, more volatility
⇒ fixed costs not fully covered « missing money »
⇒ decommissioning of existing plants
⇒ No investment

⇒ Risk of ADEQUACY problem
1. Problems
Adequacy vs. security of supply

ADEQUACY = ability of the system to cover total demand at any time

SECURITY = ability of the system to cope with a sudden disturbance (balancing, stability)
2. Solution: capacity remuneration mechanisms?

Add remuneration of availability (€/MW)

to ensure a more stable/predictable flow of income to cover fixed costs
2. Solution: capacity remuneration mechs?

EU mainly energy only but...

Existing and planned capacity mechanisms in Europe

- **SE&FI**: Capacity reserves for spot market deficits only
- **GB**: Developing full-scale capacity auctions, legislation to be ready in 2013
- **IE&NI**: Capacity payments since 2005
- **FR**: Capacity purchase obligations planned to be implemented by 2016, but new government could change the NOME law
- **PT**: Same as in Spain for new units
- **ES**: Capacity payments for new units and to existing coal, gas, oil and hydro capacity
- **DE**: Study 3/2012 for the government proposes full-scale mechanism, but political opinion still open
- **PL**: Nodal pricing and capacity market may be implemented in 2014
- **GR**: Capacity obligation mechanism since 2005
- **RU**: Capacity market with price restrictions. Long-term capacity supply agreements for obligatory investments
- **IT**: Minor payments. New capacity market mechanism to be implemented by 2017

*) No capacity payments to power plants in the day-ahead and intraday markets, but balancing market reserve capacity is contracted in advance.
2. Solution: capacity remuneration mechanisms?

Typology

- **Adequation by volumes**
  - Targeted tender mechanism
    - Strategic reserve
  - Market-wide mechanism
    - Capacity obligation
    - Capacity auction
- **Adequation by prices**
  - Financial reliable option
  - Capacity payment
2. Solution: capacity remuneration mechanisms? Summary (brief & incomplete)

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Where?</th>
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</thead>
<tbody>
<tr>
<td>a</td>
<td>Capacity payment</td>
<td>Spain, Portugal</td>
<td>Fixed amount paid</td>
<td>Simple</td>
<td>not market based</td>
</tr>
<tr>
<td>b</td>
<td>Strategic reserve</td>
<td>Sweden, Finland</td>
<td>Pay to keep reserve online</td>
<td>simple &amp; quick</td>
<td>no new capacity</td>
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<tr>
<td>c1</td>
<td>Capacity obligation</td>
<td>France (project)</td>
<td>Certificats of capacity</td>
<td>incentive for demand mgmt</td>
<td>entrance barrier</td>
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<tr>
<td>c2</td>
<td>Capacity auction</td>
<td>PjM</td>
<td>TSO buys capacity</td>
<td>different types of capacity</td>
<td>Difficult, expensive</td>
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Targeted/ market-wide – quantity/price based – central/decentral procurement
(see CREG-study 1182 for full description)
2. Solution: capacity remuneration mechanisms?

Synthesis

Several variations in function of the specific context of the country

BUT:

no ideal solution ensuring 100% adequation without energy market distortions

Guaranteed effect:

• Additional cost for consumers
• Increased political risk for capacity holders
3. Other possible solutions

**Short term**

– Better use of interconnection capacities *(BE/NL)*

– Promote demand response *(EdF Luminus/REstore)*

– Increase production flexibility *(conversion CCGT to OCGT)*

– Internalize « missing money » *(better price signal)*

– Improve investment climate
  - Monitoring of SoS *(better knowledge of needs)*
  - Clear energy policy
  - Simplified, faster permit procedures

– Closing procedure

– Solve market design problems *(balancing market)*
3. Other possible solutions

Longer term

– Measures to mitigate the impact of RES intermittence and reduce non-used capacity
  (Diversification, Storage, Interconnection)

– Progressive integration of RES in the market through appropriate support scheme
  (must run=> day ahead nomination)
4. If CRM – min conditions

CRM is only possible

if \textbf{uniform at european level}

in order to avoid market distortion
Thank you for your attention