Reserve Resources in the Spot Market?

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Assumption and Question

Assumption
Some resources (generation, demand) are paid for being available for reserve purposes

Question
Should these resources be allowed to "act in the spot market", i.e.
- Generate power in the case of generators
- Stop consuming in the case of consumers

In these cases they would be no longer available as reserves, even they have been paid for this purpose!
Arguments - The prosecutor

- They have been paid to provide reserves, so they have to provide reserves
- If this were allowed, we risk to run short of reserves and jeopardize system security
- Resources that have been paid by "the community" (through grid fees, taxes etc) should not be allowed to decrease spot prices and weaken incentives for market based investments
Arguments – the defendant

- It is inefficient not to use resources whenever their marginal cost is below the spot price
- Extremely high spot prices threaten the market and should be avoided
- If there is no market cross, there is a market crisis!
Why are spot prices suppressed?

- Demand resources
- Other resources are “crowded out”
Models

If reserve resources should be allowed to act on the spot market, there are several models that to various extents take into account the prosecutor’s and the defendant’s arguments:

- Pricing at marginal cost (= full freedom)
- Lower price threshold > marginal cost
- Pricing at the price cap
- ”Always highest”
- Intended surplus in the Balance Market
Pricing at marginal cost

- No restrictions
- In a perfect market this would mean bids at marginal cost
- Takes full account of the defendant’s argument and disregards the prosecutor
- There should be some penalty to avoid "abuse"
  - But it appears that the effect of reasonable penalties is small when spot prices are very high
Lower price threshold

- Fixed threshold (e.g. 100 €/MWh) or related to a predetermined marginal cost (e.g. 2x)
- Takes some more consideration to the prosecutor’s arguments, depending on the threshold
- Prices are still lower than they would have been without these resources, but not so much
Pricing at the price cap

- Assuming there is a price cap (not in Nord Pool)
- Does not affect the spot price
- Price cross in the spot market is assured
- Less efficient in the short term
"Always highest"

- Resources that have been paid for being available are allowed to act in the spot market
- Their bids are always placed on top of the offer/bid stack
- Resources will not be used unless all other resources are taken in use
- No other resources are "crowded out"
- Similar to price cap, but prices are reduced
Intended surplus in balance market

- Reserve resources are not allowed to act in the spot market
- They are allowed to deviate from their plan during operation, provided they have given notice to the TSO
- They have to pay the balance price for the deviation
- Can be viewed as a "market based" penalty
- No influence on spot price
- Full freedom of operation
## Overview

<table>
<thead>
<tr>
<th>Method</th>
<th>Objective</th>
<th>Efficiency</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>reserve availability</td>
<td>reduce high spot prices</td>
</tr>
<tr>
<td>Marginal cost</td>
<td>–</td>
<td>+</td>
</tr>
<tr>
<td>Predetermined</td>
<td>–</td>
<td>+</td>
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<tr>
<td>Price cap</td>
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<td>–</td>
</tr>
<tr>
<td>Not allowed</td>
<td>+</td>
<td>–</td>
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<tr>
<td>Always highest</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Intended BM surplus</td>
<td>+</td>
<td>–</td>
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Conclusions

- There is no clear "best method"
- Depends on what is seen as the biggest problem
- Short term efficiency / avoid high prices
  - Marginal cost, possibly threshold
- Long term efficiency / investment incentives
  - Always highest, price cap
- Intended surplus
  - Has some interesting properties
  - Is gaming a problem