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!

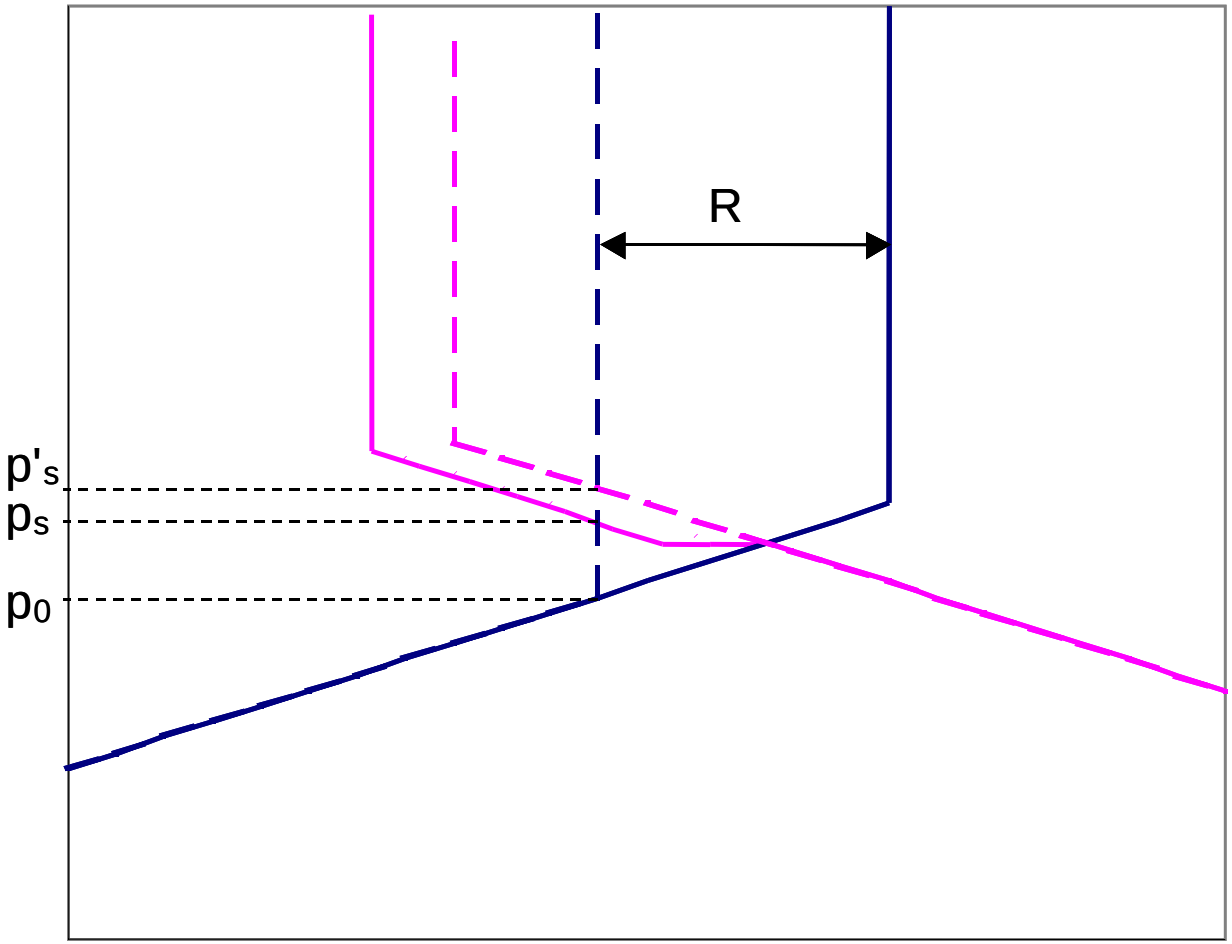
Arguments - The prosecutor

- 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 supressed?



- 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 acount 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

	Objective			Effieciency	
Method	reserve availabilit	reduce higl spot prices	ensure market clearing	short term	long term
Marginal cost	–	+	+	+	–
Predetermined	–	+	+	0	–
Price cap	0	–	+	–	+
Not allowed	+	–	–	–	+
Always highest	0	0	+	0	0
Intended BM surplus	+	–	–	0	+

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 surpus
  - Has some interesting properties
  - Is gaming a problem