Price spikes in wholesale power markets
The perspective from REMIT

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The role of price spikes: A market design perspective

- When do they occur?
- Why are they important?
Price formation in spot markets: On 'perfectly competitive' short term (day ahead/spot) markets, and in absence of generation capacity constraints, economic theory suggests that prices would be set by the short run marginal cost ('SRMC') of the plant producing the last unit of electricity required to meet demand at that time of day.*

An integrated European electricity market helps reducing market concentration & electricity is exchanged from low to high price zones
- Increase overall economic welfare
- The efficiency (welfare) gains from market coupling are estimated at more than 1 billion EUR/year
Price formation under typical market conditions in European spot electricity markets
Price spikes during a scarcity situation:

- Demand side: High consumption (e.g. cold spells, heat waves)
- Supply side: Low RES injection and/or other generation outages
- Network constraints: reduced cross-zonal capacity

![Diagram of price spikes](chart.png)
Price spikes are a “normal” feature of electricity markets, reflecting the tightness of demand and supply, e.g.:

- Less frequent in case of high reserve margins (e.g. when there is overcapacity)
- More frequent at times of higher demand (e.g. severe weather conditions)
Importance of price spikes

Why are price spikes (scarcity pricing) necessary?

- Generators with operating costs below the market price can obtain an ‘infra-marginal rent’, which can be used towards covering fixed costs
- Both demand and supply-side market participants see the full benefits of responding when the system needs them
- Attract investments in flexible resources, including DSR*

What are the critical conditions to ensure that prices reflect scarcity when it occurs?

- Removal of administrative (and/or implicit) price caps
- Removal of any other market distortive measures
- Efficient scarcity pricing should reduce the need for potentially distortive capacity mechanisms, in order to ensure security of supply

Price spikes are necessary and (in the absence of market manipulation) reflect a normal price formation

* Demand Side Response
Some noteworthy price spikes

- **Day Ahead**
  - 2,999 EUR/MWh in Belgium (28 March 2011)
  - 999 GBP/MWh in UK (15 September 2016)

- **Balancing**
  - 3,774 EUR/MWh in Ireland (24 January 2019)
  - 37,856 EUR/MWh in Germany (29 June 2019)

Price spikes occur on spot markets, specifically in auction markets.
Price formation and REMIT

- Price spike
  - Market scarcity: *Fair and competitive interplay between supply and demand* *
  - Market manipulation

*Recital (1) of Regulation (EU) 1227/2011 on wholesale energy market integrity and transparency (REMIT).*
● REMIT does not prohibit high prices

● REMIT’s goal is to
  » *foster open and fair competition in wholesale energy markets for the benefit of all consumers of energy*
  » Take into account specific characteristics of wholesale energy markets
    • No perfect competition
    • Need to reflect market fundamentals
      - *Actual availability of production, storage, transmission capacity*

● Specificity of (Day Ahead) auction markets
  » All market participants: same clearing price
  » Reference market

* Recitals (2) and (13) of REMIT.
[In 2007] Many market participants complain about price distortions linked to the degree of concentration in generation. [...] According to market participants generators can influence prices in two main ways:

- either by **withdrawing capacity** (which may force recourse to more expensive sources of supply); or,
- by imposing high prices when they know that their production is indispensable to meet demand. *

Capacity withholding

The practice of keeping available generation capacity from being competitively offered on the wholesale electricity market, even though offering it competitively would lead to profitable transactions at the prevailing market prices.

- Physical withholding - Economic withholding

Can (but does not need to) be manipulative

Benefit through:
- other generation units profiting from higher prices
- artificially raised prices in another market
- other connected financial positions
Example A: no influence on the market

Second block in the merit order not being offered
Example A: no influence on the market

Second block in the merit order not being offered
Thank you for your attention!

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