Forming Expectations for Price Formation: An international perspective

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Unicorns and Zero-Marginal Cost Markets

Future Electricity Markets Summit
Sydney, Australia
A 70% RES market where surplus is retired, prices are right & consumers are empowered...

Good pricing can teach the duck to fly

• Pre-Strategy, without Solar/Wind: 73% LF
• Pre-Strategy, with Solar/Wind: 63% LF
• Post-Strategy, with Solar/Wind: 83% LF
• Maximum Hourly Ramp: 340 MW vs. 550 MW
Australia NEM

It’s possible to have too little intervention
Cap margins stable under the “pure” EOM

…but there’s trouble in paradise

Financial Review, 5 August 2017:

Australian households pay highest power prices in world

News.com.au, 1 April 2019:

Federal election 2019: The energy policies of Labor and the Coalition

Both major parties have revealed their plans for bringing electricity prices down and keeping the lights on. This is what they are promising.

ABC News, 14 July 2019:

Electricity prices on the rise despite reregulation of the market

By business reporter Stephen Letts
Updated 14 Jul 2019, 4:51pm

The Federal Government’s tentative steps towards reregulating the retail energy market have seen power prices rise and competitive pressure between rival suppliers ease.

Less than a month into the new regime, the view of investment bank analysts is consumers will not notice much of a difference and recent price resets show the big generator/retailers (gentailers) still hold the whip hand in the marketplace.
Spot prices with bid-based scarcity pricing

Spot Price ($/MWh)

Source: P. Simshauser, Griffith University, Australia.
Wholesale pricing with gas price overlay

Source: P. Simshauser, Griffith University.

The UK’s GB Market

The best of intentions, thwarted by intervention
Reserve scarcity pricing (Nov 2015)

Re-pricing STOR actions (2): Setting the Reserve Scarcity Price

Why?
- The Reserve Scarcity Price is designed to reflect system scarcity
- It is used to re-price STOR actions when it exceeds their original price

How?
- The SO calculates the De-Rated Margin (DRM) at Gate Closure
- For each DRM there is an associated Loss of Load Probability (LoLP); between 0 and 1
- LoLP is multiplied by Value of Lost Load (VoLL) to determine the RSP

Reserve Scarcity Price
Rises as the system gets tighter

From Nov 2018: £6000

Source: Elexon Market Operations, “Introduction to cash-out and P305: a webinar” (11 July 2016)
Cash-out reforms in action

Source: Emma Tribe, “P305 Post-Implementation Review” (Elexon, Feb 2017)
Cash-out reforms in action

Source: Elexon and APX data, presented by J. Davison, Cornwall Insight (22 May 2017)
The usual RA “double standard”…

...and the familiar result

Source: National Grid data adapted by P. Baker (RAP)
3 Conclusion
Successes and remaining challenges
Over-capacity

Public acceptance

Market price signals

Market power mitigation

Administrative reserve shortage pricing
NEM: Missing capabilities, not capacity

System Frequency 2005

System Frequency 2019

Source: P. Simshauser, Griffith University, Queensland, Australia
UK: 9 August loss-of-load event

Source: National Grid ESO, September 2019
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org
AUS domestic natural gas prices
NEM: No problem with Resource Adequacy

Source: P. Simshauser, Griffith University, Queensland, Australia