

May 2017

Five Minute Settlement

AEMC Public Forum

Materiality of problem
or
Magnitude of benefits

Potential benefits of 5 minute settlement

Improving market design

5 minute settlement would improve the market by moving it closer to the “ideal” where the “price signal would also vary in real time”

Whether 5 minute settlement would correct less than “ideal” historical choices made in NEM design in the past is irrelevant

These historical choices are “sunk”

The question is whether the benefits of introducing 5 minute settlement when quantified exceed the costs of implementing this change – taking into account the material estimation and implementation risks

Potential benefits of 5 minute settlement

Improving ability of customers to make consumption decisions

5 minute settlement would improve the market by reducing the risk of “retrospective price increases” which reduce customers ability to make efficient consumption decisions – this was a large part of the reason for Sun Metals proposing this rule change

This is a real potential benefit

However the introduction of the revised bidding in good faith rule, which came into effect on 1 July 2016, seems to have largely corrected this

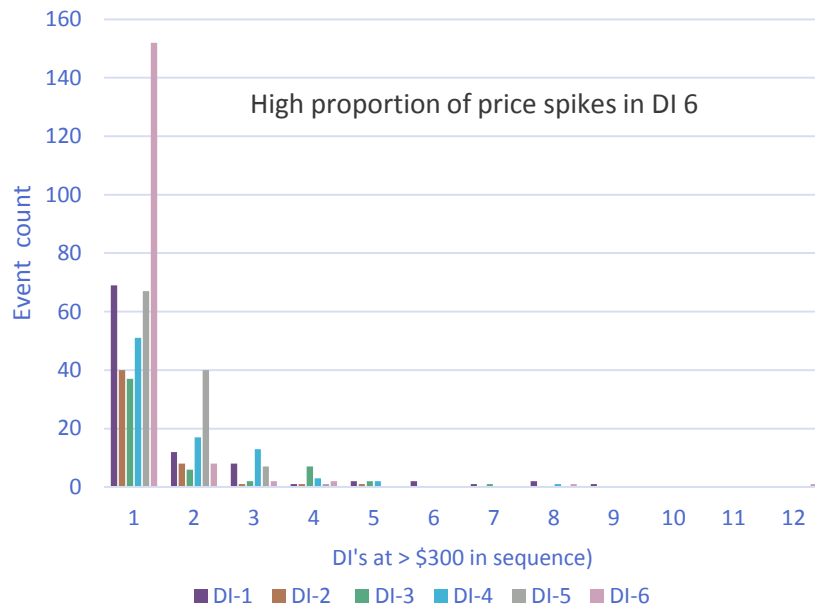
With time this will become clearer

Potential benefits of 5 minute settlement

Impact of re-bidding rule change

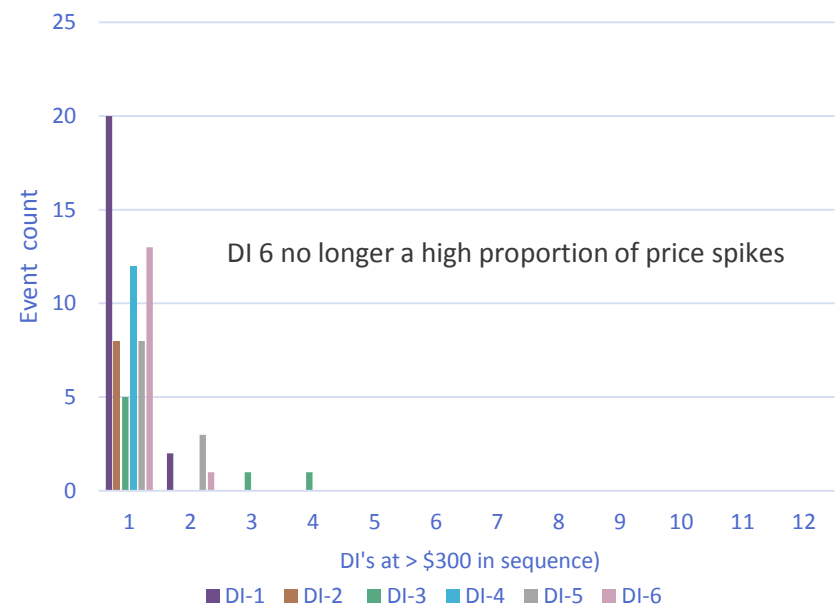
Queensland prior to rule change

Price spikes > \$300 – FY13/14 to FY15/16



Queensland after rule change

Price spikes > \$300 – July 16 to February 17



Potential benefits of 5 minute settlement

Creating incentives that will reduce the costs of production

5 minute settlement could improve efficiency by:

- Incentivising incumbents to produce during DI's with high prices
- Incentivising incumbents to not produce during DI's with low prices
- Incentivising new entrants that can respond more quickly and produce during DI's with high prices

Forming a view on whether 5 minute settlement would achieve this is challenging - particularly attempting to quantify the magnitude

It would be possible to model this but difficult, time consuming and expensive – however given costs this should be attempted

Alternative approach used was to examine historical behaviour during price spikes and seek to form a view on how 5 minute settlement may shift incentives

Key was examining behaviour related to DI 5 & DI 6 price spikes – strong indicator of expected 5 min settlement outcomes

Potential benefits of 5 minute settlement

Observed behavior of generators associated with price spikes

- Some generators anticipate price spike - increase output before the spike occurs
- Some generators respond to to spikes in early in trading interval - increase output towards end of trading interval
- Some generators respond to spikes occurring late in trading interval (DI's 5 & 6) – increase output in next trading interval

Some conclusions:

- Some of this behaviour may be inefficient BUT
- Some of the behaviour is clearly generators responding appropriately to price spikes from a risk management perspective – which is efficient behaviour
- This is clearly the case for price spikes in DI's 5 & 6
THEREFORE
- No clear basis to conclude that any of the behaviour is inefficient
- Is there really a problem to solve?

Potential benefits of 5 minute settlement

Removing barriers to entry for very fast start generation

Two questions:

- Do the current rules limit the entry of very fast start generation – such as batteries?
- Would this be inefficient – i.e. are batteries lower cost than existing technology?

Some observations:

- Batteries are already coming at speed:
“Dean Spaccavento said Reposit is adding more than a megawatt of battery capacity a month ... 200 batteries ... to its virtual power station or distributed energy network. He said big power companies could try to compete with Reposit's virtual power station ... "but it's competing against ours and it will lose".” AFR 6 March 2017
- Batteries can make good \$ with 30 minutes settlement – but obviously would prefer 5 min
- Reposit’s submission to Senate - no issues with settlement period
- Existing OCGT’s with sunk capital are lower cost than new batteries

Potential benefits of 5 minute settlement

Conclusions

- Without a comprehensive modelling exercise it is very difficult to estimate the magnitude of the potential benefits of 5 minute settlement
- However based on our analysis we conclude that any potential benefit is likely to be small – potentially non existent or negative
- Before proceeding any further AEMC should commission a comprehensive modelling exercise to quantify the potential benefits of 5 minute settlement – particularly given the significant costs and risks associated with implementation

Potential benefits of 5 minute settlement

A word of caution

“The curious task of economics is to demonstrate to men how little they really know about what they imagine they can design.”

Friedrich von Hayek
Nobel Laureate