



Submission to: Australian Energy Market
Commission

From: Uniting Communities

Regarding:

DRAFT RULE DETERMINATION

**National Electricity Amendment (Five
Minute Settlement) Rule 2017**

(Ref. ERC0201).

Date: October 2017

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Note: Uniting Communities is South Australia's first accredited Carbon Neutral organisation/business.

Uniting Communities Incorporated trading as Uniting Communities ABN 33 174 490 373
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Background

Uniting Communities has appreciated the opportunity to be part of the reference group considering the issues associated with the Sun Metals rule change proposal for five minute settlement in Australian wholesale electricity markets. We were assisted with funding to participate by Energy Consumers Australia.

We note that we decided to consider the rule change proposal from the perspective of whether there were likely benefits or detriment to end consumers particularly modest and lower income households. At the commencement of consideration of the rule change proposal, we were neutral about the pros and cons, interested but with no opinion either way. Participating in the rule change process has consequently been a period of listening to a range of arguments.

Uniting Communities Position

Having considered the rule change proposal and heard arguments from a number of perspectives, we are convinced that:

1. the issue is material
2. five minute settlement in all likelihood will increase the efficiency of the national energy market
3. meaning that consumers will benefit, certainly in the medium to longer term if not more immediately
4. a sensible transition strategy needed to minimise (the sometimes overstated) costs of transition

Consequently Uniting Communities supports the AEMC's draft decision to accept the intent of the rule change by moving Australia's energy market to 5 minute settlement. We agree with the preferable rule change proposed that provides greater clarity in the transition to a five minute settlement market.

Is there a Problem?

To recap, to assist in answering the initial question as to whether there was a problem, or potential problem, with the current arrangement of five minute dispatch and 30 minute settlement, Uniting Communities sought advice from Acil Allen. A PowerPoint of their advice is attached to this submission as background.

Part of the analysis from Acil Allen included:

Some evidence of the 'problem' in Queensland in 2015, though mostly limited to one day (5 March 2015)

- Other days in Queensland did not display discernable pattern
- Outcomes in South Australia were variable, but no clear pattern
- Other regions showed little variability between dispatch and pricing interval pricing.

For the most part, large movements in price cannot be attributed to changes in generator dispatch, however:

- Clear benefit to certain generators from disparity between 5/ 30 minute prices
- Six identified days across January and March added \$8.75 to the annual time weighted spot price in Qld in 2015 – about 16%.

Another way of looking at it

- if we remove the spikes occurring in interval 12, then the annual time weighted spot price in Qld in 2015 would be about 4% lower
- However, moving to 5 minute settlement would not necessarily remove the spikes. For example, the behaviour of Wivenhoe on slide 20 (in attachment) under 5 minute settlement would reduce Wivenhoe's revenue, but the other ~4,000 MW of plant in the CS Energy portfolio could still benefit.

The following analysis is for Frequency Spikes > \$200mwh in Queensland, considering 12 5 minute dispatch intervals over a 1 hour periods, this compares with some analysis which has considered 6 5 minute periods over half hour periods.

Table 1. Frequency Spikes > \$200mwh in Queensland

Dispatch interval	1	2	3	4	5	6	7	8	9	10	11	12	Subtotal
March	11	9	10	5	9	9	10	11	9	16	10	21	130
January	6	6	5	6	13	5	14	12	4	9	10	11	101
November	3	2	4	1	3	4	1	0	3	3	1	3	28
September	0	3	0	3	0	3	1	2	3	0	2	4	21
July	0	0	2	0	1	2	1	1	0	0	3	7	17
August	0	0	1	0	0	0	1	1	0	2	3	5	13

Source: Acil Allen, report for Uniting Communities

In considering the number of dispatch intervals in which price increases by more than \$200/MWh from previous dispatch interval (over whole year – only part year shown in table), the table shows:

- Most frequent in DI 12, 10, 11
- Least frequent in DI 4, 9, 2
- Most frequent in March, January, November
- Most frequent of all in March, DI 12 (21 instances) no other single cell stands out as much

This evidence coupled with our own experience of the South Australian wholesale market leads us to believe that there is a problem with bidding, at least in some jurisdictions on some occasions. The end result being that wholesale markets can be higher than they should be and this is a cost that is borne by consumers.

The Rule Change Draft determination

The Australian Energy Market Commission (AEMC, or Commission) summarises the draft rule determination saying that it *“has made a draft rule, which is a more preferable rule, to*

align operational dispatch and financial settlement at five minutes. This will reduce the time interval for financial settlement in the national electricity market (NEM) from 30 minutes to five minutes. The draft rule provides a transition period of three years and seven months. The Commission believes this is the shortest timeframe possible to implement the required changes, while managing the considerable practical challenges, risks and costs the change presents. Further, the draft rule:

- *sets out the metering requirements needed to provide five minute resolution data for settlement*
- *changes the resolution for bidding and offering into central dispatch from a 30 minute to a five minute basis.”*

Context

We recognise that the full impacts of implementing this rule change, or not, cannot be fully known because of the rapid change and uncertainty that exists in energy markets both in Australia and around the world.

While there have been many papers and conferences dealing with the future of energy markets, we just mention one presentation from Dr Philip Lewis from VaasaETT¹, who gave a future looking presentation to the Citizens Energy Forum, in London earlier this year.

The Helsinki based company, VaasaETT describes themselves as “*a research and advisory consultancy guiding future-focused energy markets globally. We monitor and analyse energy markets, companies and consumers around the world to help our clients enter markets, develop offerings, models and policy, as well as identify future visions and take advantage of evolving opportunities and trends applying 20 years of unmatched global experience.*” The project was established by Dr Philip Lewis and Paul Grey.

Dr Lewis spoke at the Citizens Energy Forum on the topic of “key principles for the next energy markets,” he made the following comments as part of a broader set of observations:

- the new market is not here yet, it will appear in 4 to 6 years’ time
- new market models will garner greater flexibility
- all succeeding models will be global and will bypass the country if it’s market doesn’t fit the model
- regulation will determine the extent of pickup by succeeding models
- simpler well-regulated markets will thrive
- access to data will be crucial

He concluded his presentation by saying “massive, amazing things will happen in the future”

We consider Dr Lewis’ observations to be in line with perspectives of other observers considering future energy markets.

¹ <http://www.vaasaett.com/#main>

We mention future looking observations in part as a test for the five minute rule change draft decision, because an important market design change that is “out of kilter” with likely general direction of future energy markets would not be helpful.

In particular the idea that the “new energy market” is not here yet and will take another 4 to 6 years before a greater degree of predictability and normality is achieved is important. Particularly in such circumstances energy market rules and regulation needs to both provide consumer protection and optimise flexibility within the market.

Uniting Communities is satisfied that moving to a five minute settlement market in Australia will encourage greater flexibility without unnecessary regulatory ‘burden’ and critically is unlikely to adversely impact consumers to any material extent.

Benefits of five minute settlement

The Commission expects that accepting the Rule Change *“will result in materially more efficient operation and investment decisions relative to 30 minute settlement.”*

Having accepted that there is a problem that the rule change proposal intends to address and mentioned the context of uncertainty for contemporary energy markets, we summarise our consideration of the two main elements of the draft rule determination, namely moving to 5 and settlement from 30 minute settlement as proposed by Sun Metals and the transition arrangements proposed as part of the ‘preferable’ rule.

Five Minute Settlement

Draft Rule: *“to align operational dispatch and financial settlement at five minutes. This will reduce the time interval for financial settlement in the national electricity market (NEM) from 30 minutes to five minutes.”*

For the reasons set out in the draft rule determination, Uniting Communities supports the draft rule to move the national electricity market to 5 minute settlement. We consider that on balance this is highly likely to provide better outcomes for consumers than the status quo. We accept that the benefits will occur in the medium to longer term rather than over the next couple of years.

Five minutes settlement provides greater opportunity for innovation in energy markets and we believe is technology neutral.

Most importantly the draft will provide greater flexibility for market participants which is highly likely to put downward pressure on prices, particularly wholesale prices, for consumers and so is very much in line with the national energy objective

Transition arrangements and costs

Draft Rule: *“The draft rule has set a transition period of three years and seven months. This reflects the shortest time that the Commission believes is possible to enable market participants and AEMO to manage the significant implementation risks, such as the large IT system changes.”*

It also provides a timeframe within which new generation could be built if required, risks around the potential for shortages in supply of contracts are likely to be addressed, and solutions to outstanding system security and reliability issues should be developed. Therefore if the Commission makes a final rule that reflects the draft rule, we will recommend that market participants begin implementation as soon as possible.”

Regarding the time for transition, somewhere between 3 and 4 years makes sense given that this allows time for planning by impacted market participants and also enables additional costs to be minimised. We agree with the AEMC that 3 years and 7 months for transition is reasonable, maybe optimal, but we can’t be certain about this. Certainly this period for transition is unlikely to have adverse outcomes for consumers in general.

It is recognised that there will be some costs involved in the transition to 5 minute settlement, however we are convinced that some of the cost projections being stated in the public forums considering this rule change were excessive.

Given that the market has been given clear notice of the intention to move to 5 minute settlement, there will be the better part of four years notice for market participants to prepare.

We observe that many of the costs associated with the transition including IT and data costs would have been incurred over the next four years by market participants irrespective of the changed time period for market settlement. We also aware that some metering is compatible with five-minute settlement already and that other metering changes within the NEM are underway, meaning that against a business as usual scenario, over nearly 4 years, any additional expenditure for market participants, directly attributable to this rule change, will be modest.

We suggest that AEMO will bear much of the responsibility, and also cost, for the implementation of five-minute settlement, and we understand that they are not anticipating dramatic cost increases as a consequence. AEMO released a report to the AEMC in September 2017: five minutes settlement: high level design. A key finding from that report is:

“AEMO has reviewed its costings for the implementation and continues to consider that its original costing estimate of \$10-15 million for upfront costs remains appropriate.”²

Uniting Communities is consequently satisfied that there will only be modest real, additional costs for implementing five minute settlement, most of which will be one-off, set up costs. Any consumer detriment is likely to be minimal, and over time the net benefit to consumers from implementing the rule change should be more substantial.

² <http://www.aemc.gov.au/getattachment/b862be5a-4460-4b72-a90b-8f73117f301c/AEMO-report-Five-minute-settlement-High-level-desi.aspx>

Transition monitoring

Uniting Communities encourages the AEMC, in making its final rule decision, to consider a process for monitoring the transition to five-minute settlement with particular regard to identifying any detrimental impacts on consumers. Transparent processes and regular public reporting particular during periods of change, does much to allay consumer waryness.

We note that the AER is currently considering their “Approach to electricity wholesale market performance monitoring”³ and has issued a discusison paper

Consequently it is our suggestion that monitoring the transition to five-minute settlement ‘resides’ appropriately with the AER and would almost certainly be compatible with their newly extended wholesale market performance monitoring responsibilities.

³ <https://www.aer.gov.au/wholesale-markets/market-guidelines-reviews/wholesale-electricity-market-performance-monitoring-report-statement-of-approach>

PRESENTATION TO:
UNITING CARE

6 JANUARY 2017

5/ 30 MINUTE PRICING



ANALYSIS OF 2015 PRICE OUTCOMES

PRESENTERS:
JEREMY TUSTIN
RICHARD LENTON
ALEC WEBB

LOCATION
EXEC DIRECTOR, MELBOURNE
EXEC DIRECTOR, BRISBANE
CONSULTANT, BRISBANE

BACKGROUND

- ▲▲ Wholesale spot price in the NEM is published for a 30 minute *settlement interval*
- ▲▲ 30 minute spot price is average of six prices, each determined for a five minute *dispatch interval*
- ▲▲ SunMetals Pty Ltd submitted rule change in May 2016:
 - ▲▲ argued that the mismatch btw *dispatch* and *settlement* intervals leads to inefficiencies
 - ▲▲ proposed that *settlement intervals* should be five minutes for generators

RULE CHANGE PROCESS



In summary, AEMC will consider:

1. Is there a problem?
2. Would the proposed solution address the problem?
3. Is there a more preferable solution to the problem?
4. Do the costs of the solution outweigh the costs of the problem?



The analysis here relates to step 1 – is there a problem?

IS THERE A PROBLEM?



- ▶▶ The 'problem' arises if the incentives in 30 minute prices are substantially different than they would be if settlement intervals were five minutes
 - ▶▶ generators have an incentive to manipulate price and volume to increase revenue during an interval
 - ▶▶ 'fast responders', whether generators or DSP, have diminished incentive to respond to price 'spikes' due to averaging
 - ▶▶ loads have an incentive to behave differently than if they were exposed to (more accurate reflection of) the true cost of their decisions
- ▶▶ Test for 'problem' by comparing 5/30 minute prices, revenues and dispatch
 - ▶▶ If price and revenue increase but dispatch decreases – indicates 'gaming' the 5/30 disparity
 - ▶▶ NB – existence of a problem does not necessarily imply that the proposed rule change will address it or that costs of 'fix' outweigh benefits



COMPARING PRICES BY
SETTLEMENT AND
DISPATCH INTERVAL
FOR CALENDAR YEAR
2015

PRICES BY SETTLEMENT AND DISPATCH INTERVAL - QLD



At the dispatch interval level, prices in Qld show a distinct uptick in intervals 11 and 12 (i.e. ending 55 mins and end of the hour), 'stepping up' by:

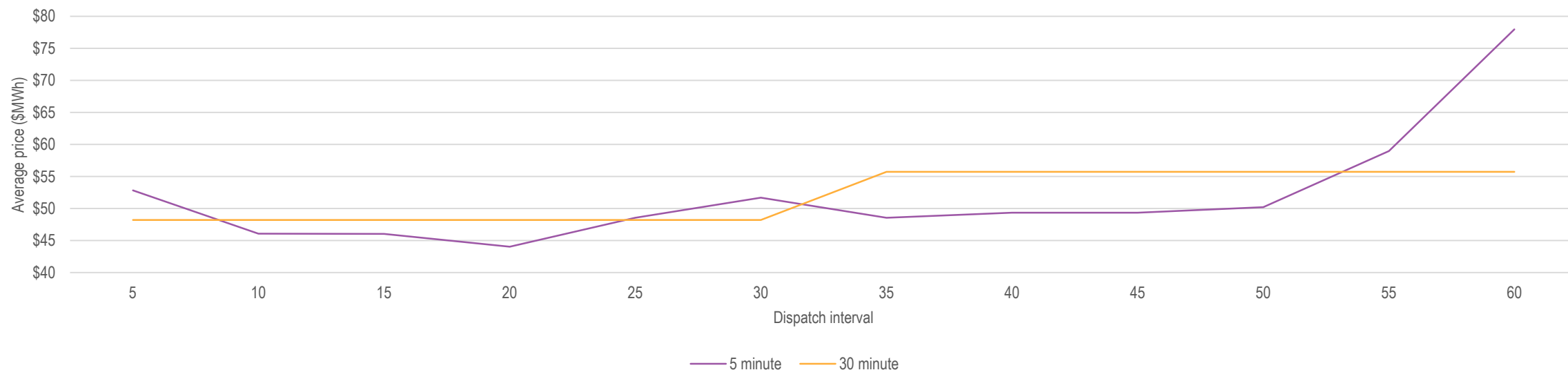
17% in interval 11 (from interval 10)

32% in interval 12 (from interval 11 – 55% from interval 10)

A smaller uptick is observed in intervals

5 - 10 per cent up on interval 4

6 – 6% up on interval 5 (17% up on interval 4)



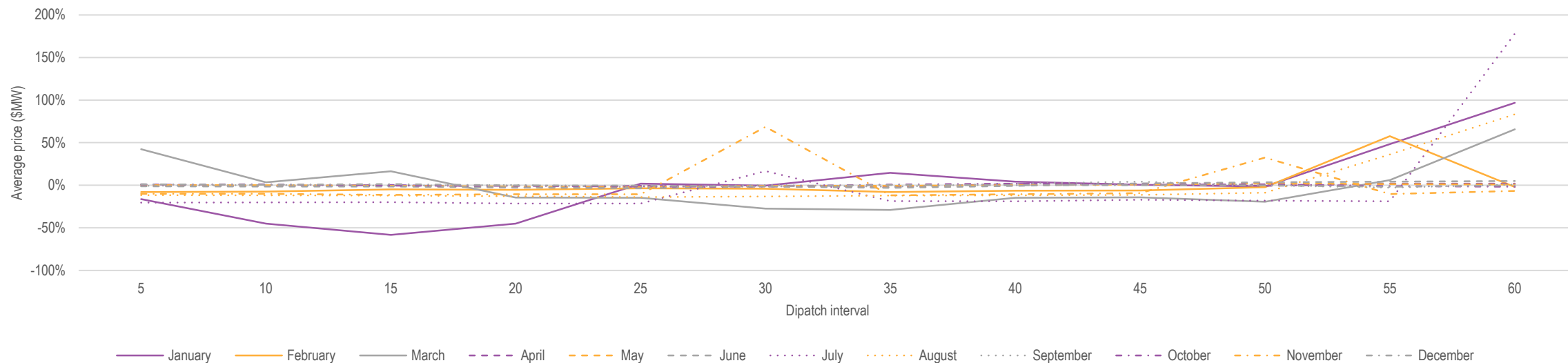
DISPATCH AND SETTLEMENT PRICES BY MONTH - QLD



The 'upticks' observed in Qld are limited to a few months:

very clear in January and March

less distinct in July, August and November (interval 6)



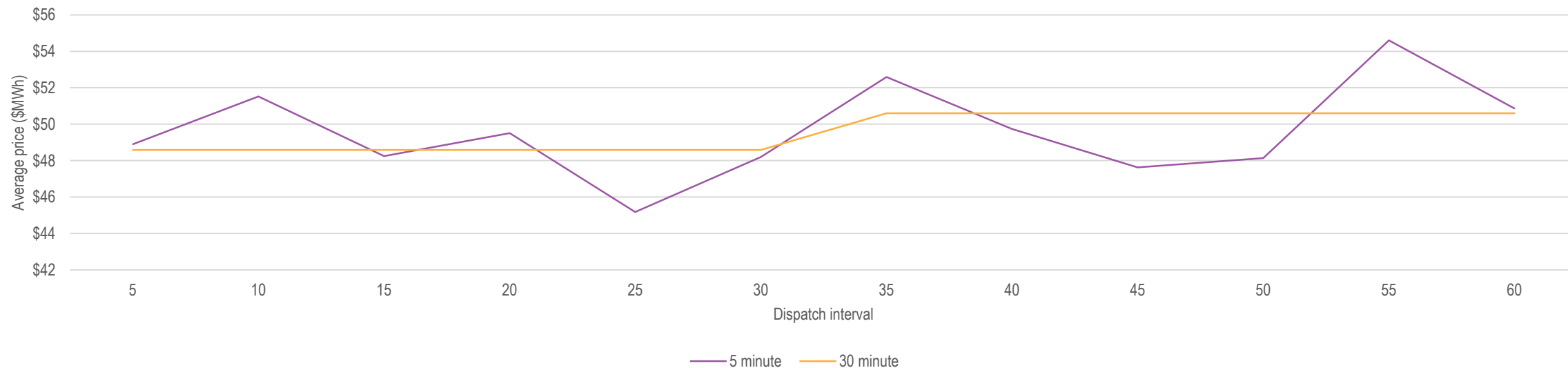
PRICES BY SETTLEMENT AND DISPATCH INTERVAL - SA

At the dispatch interval level, South Australian prices are quite variable

prices in the 'second half' of the hour are higher on average (seen at pricing interval level as well)

Various steps up and down between dispatch intervals

Steps are not as large (in \$/MWh) as in Qld



DISPATCH AND SETTLEMENT PRICES BY MONTH - SA

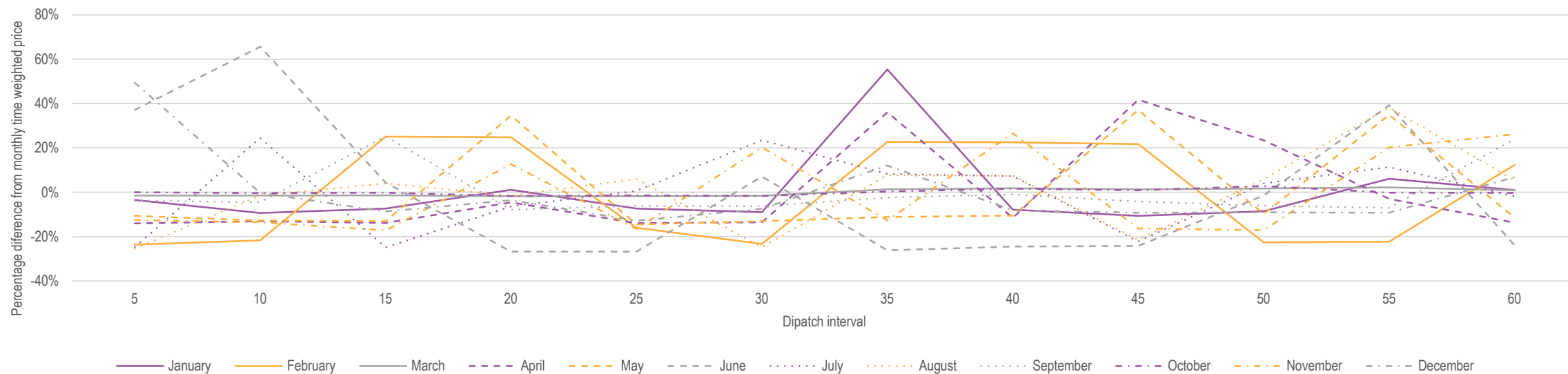


Dispatch interval pricing broken down by month in South Australia shows substantial variability

No clear pattern here

every period shows 'upticks' and 'downticks'

Most months have 'flat' blocks and 'steppy' blocks



PRICES BY SETTLEMENT AND DISPATCH INTERVAL - NSW



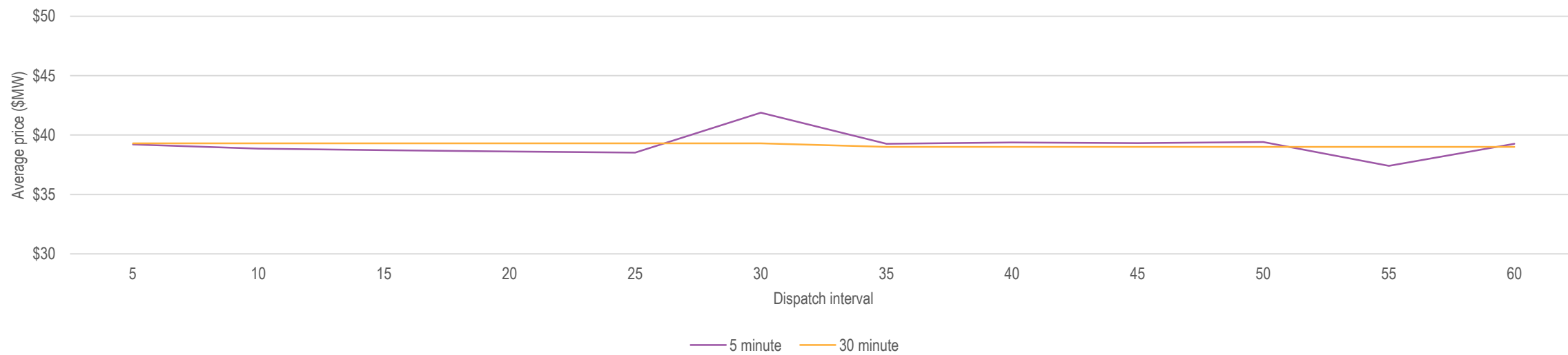
The strong 'uptick' that was observed in Queensland is not evident in New South Wales



NB change in axis scale c.f. Queensland



There is a smaller uptick in period 6 (25 to 30 minutes) and a slight 'downtick' in period 11 (50 to 55 minutes).



DISPATCH AND SETTLEMENT PRICES BY MONTH - NSW

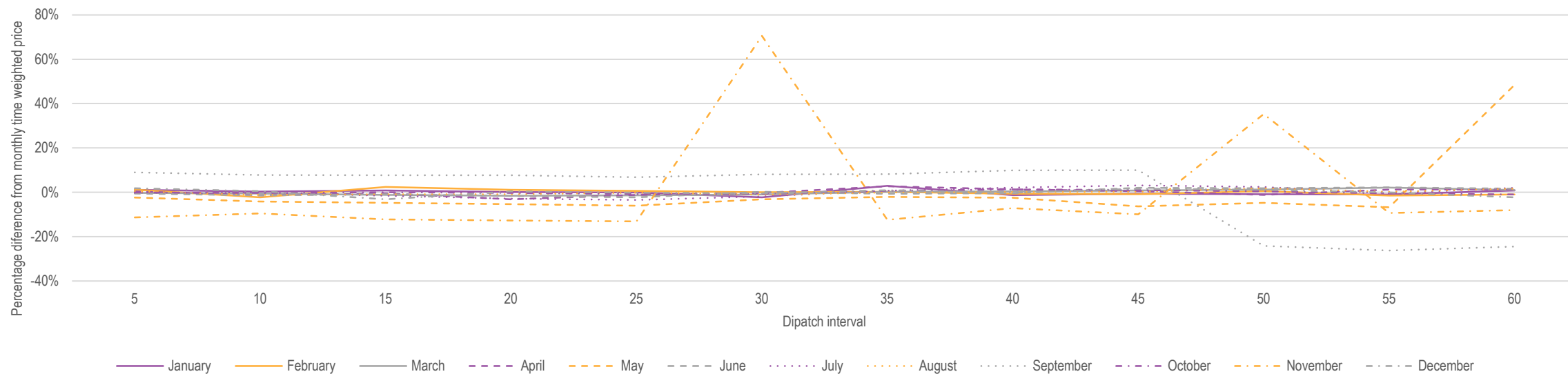


When prices are disaggregated by month there are upticks:

in period 12 in May

in period 6 in November.

The magnitude of these is much smaller than in Queensland.



PRICES BY SETTLEMENT AND DISPATCH INTERVAL - VIC



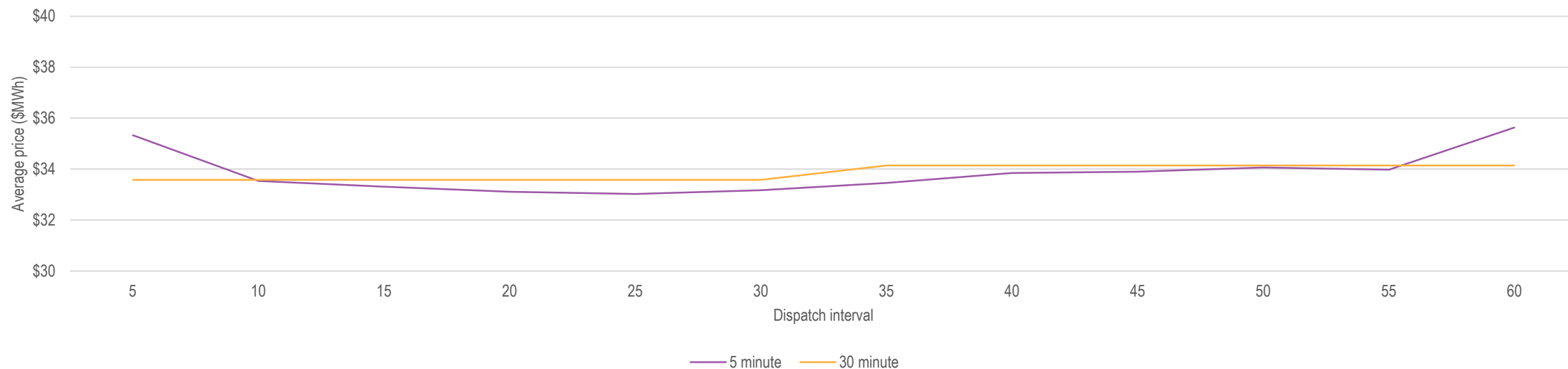
Victorian prices are very flat at the dispatch interval level



'uptick' in period 12 is very small compared to Queensland



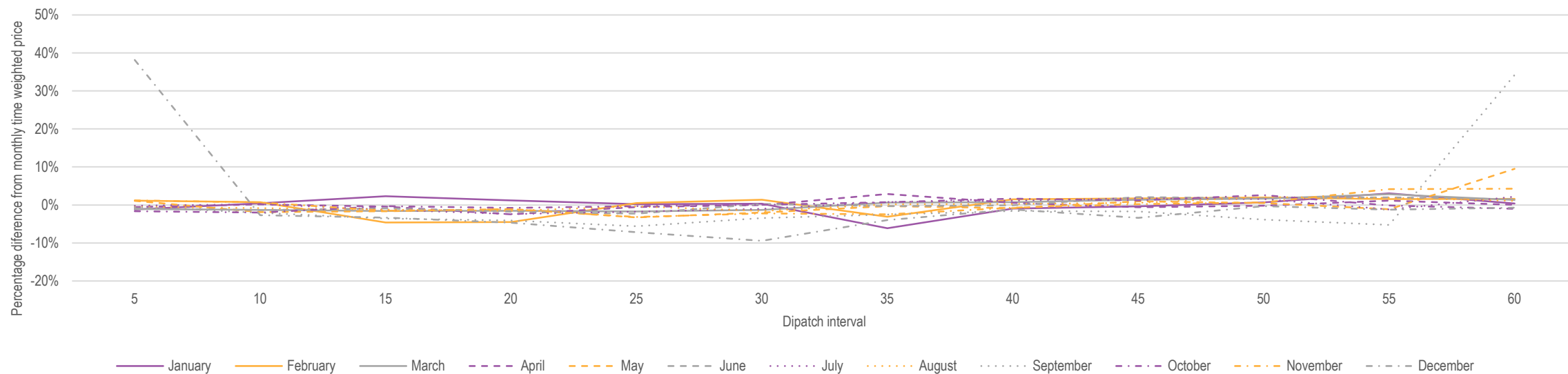
Appears to be offset by 'downtick' in period 2 but monthly data show that this occurs in different month.



DISPATCH AND SETTLEMENT PRICES BY MONTH - VIC

Monthly data show:

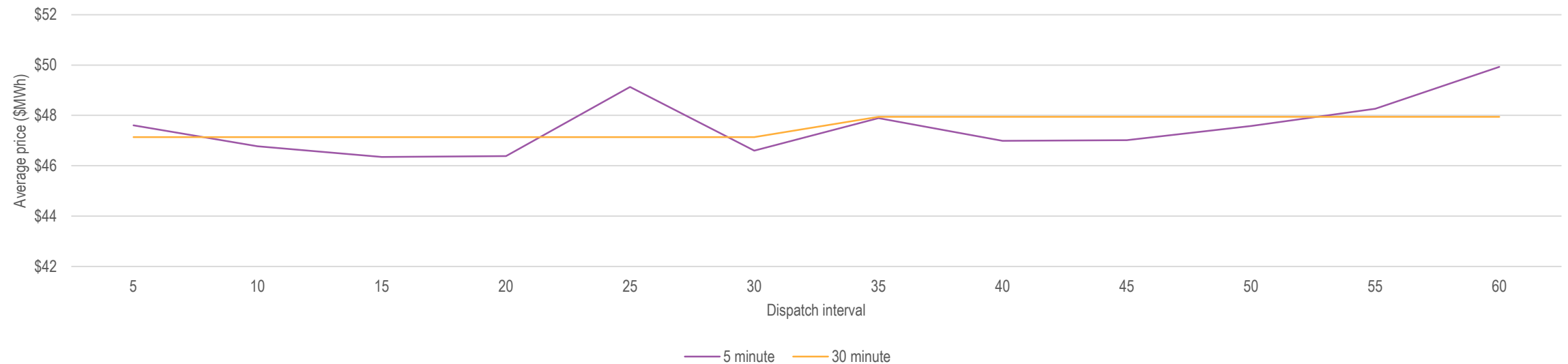
- that the period 12 'uptick' in Victoria was driven by outcomes in September.
- 'offsetting' 'downtick' actually occurred in December so cannot be considered an offset
- All other steps are within +/- 10%



PRICES BY SETTLEMENT AND DISPATCH INTERVAL - TAS



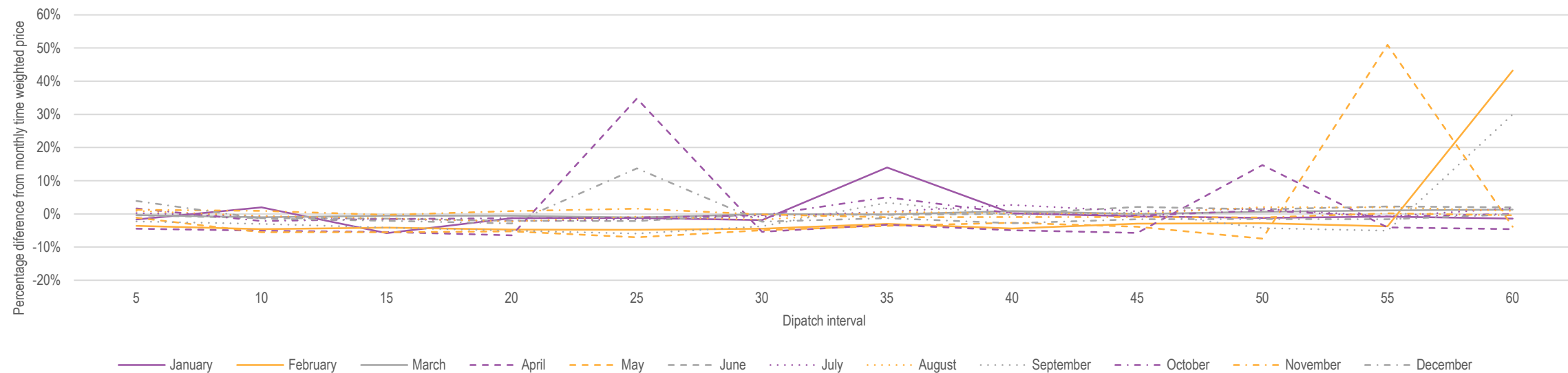
Prices in Tasmania were only slightly more variable than Victoria



DISPATCH AND SETTLEMENT PRICES BY MONTH - TAS



Upticks happened in Tasmania at various times in different months





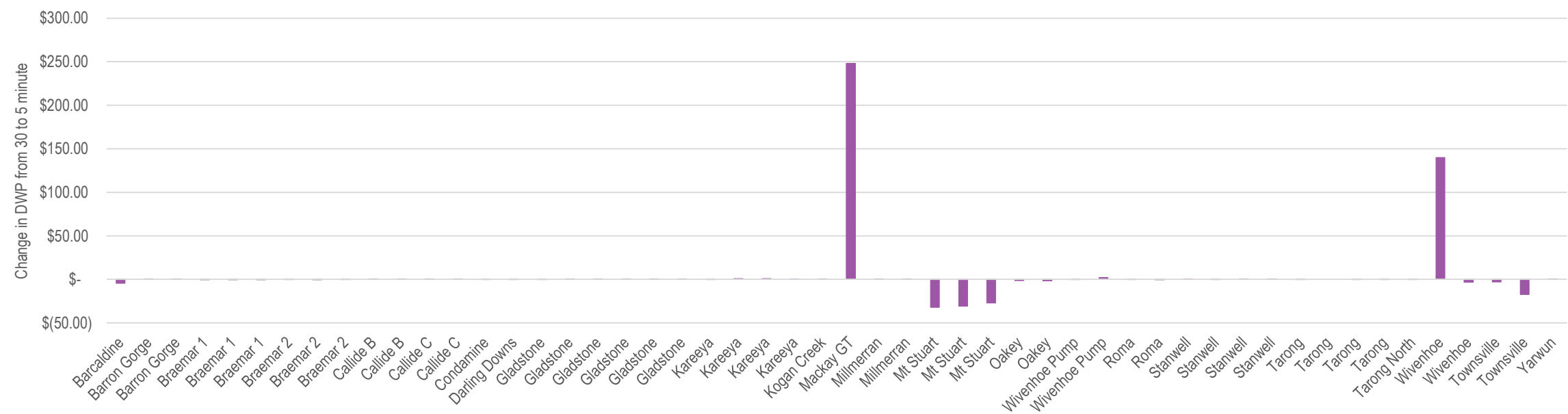
F O C U S O N Q L D

2

COMPARE DISPATCH AND SETTLEMENT INTERVAL PRICES



- Dispatch weighted price (DWP) based on dispatch interval prices would not have been substantially different than that based on settlement intervals for Qld generators in 2015 for most Qld generators
- The exceptions are some of the fast start plant Mackay GT and Wivenhoe
- However, this on its own does not guarantee prices would be lower if the market moved to 5 minute settlement



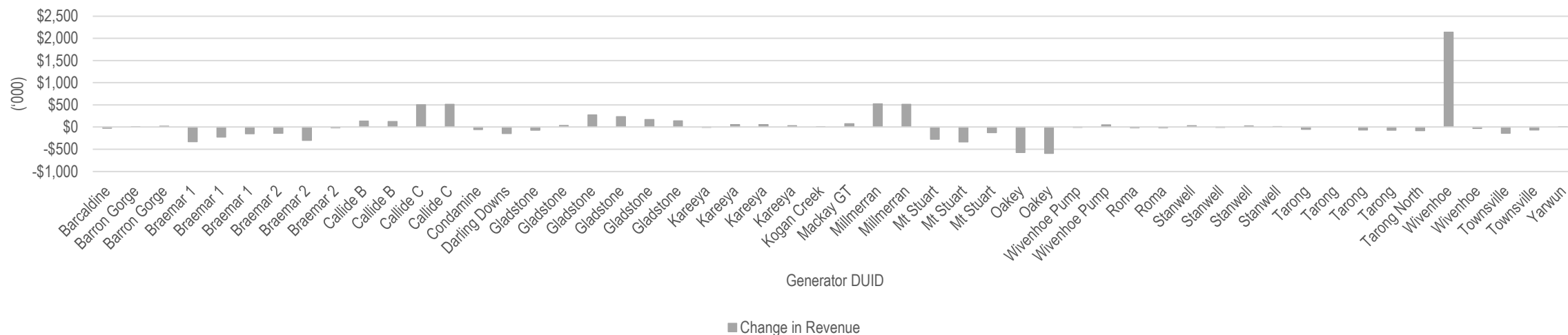
COMPARE DISPATCH AND SETTLEMENT INTERVAL PRICES

Notwithstanding price, 2015 *revenue*, was notably different than if based on dispatch interval pricing for

‘Winners’ (increased revenue) - Wivenhoe, Milmerran, CallideC, Gladstone

‘Losers’ (reduced revenue) – Braemar 1 & 2, Condamine, Darling Downs, Mt Start, Oakey, Tarong, Townsville

CS Energy and InterGen would see increased revenues from a change to 5 minute dispatch intervals. Stanwell-Tarong would have revenues approximately equal (assuming no changes in behavior)



FREQUENCY – SPIKES > \$200/MWH

Dispatch interval	1	2	3	4	5	6	7	8	9	10	11	12	Subtotal
March	11	9	10	5	9	9	10	11	9	16	10	21	130
January	6	6	5	6	13	5	14	12	4	9	10	11	101
November	3	2	4	1	3	4	1	0	3	3	1	3	28
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July	0	0	2	0	1	2	1	1	0	0	3	7	17
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Consider the number of dispatch intervals in which price increases by more than \$200/MWh from previous dispatch interval (over whole year – only part year shown in table)

Most frequent in DI 12, 10, 11

Least frequent in DI 4, 9, 2

Most frequent in March, January, November

Most frequent of all in March, DI 12 (21 instances) no other single cell stands out as much

26 JANUARY 2015, DISPATCH VS PRICE

26 January 2015

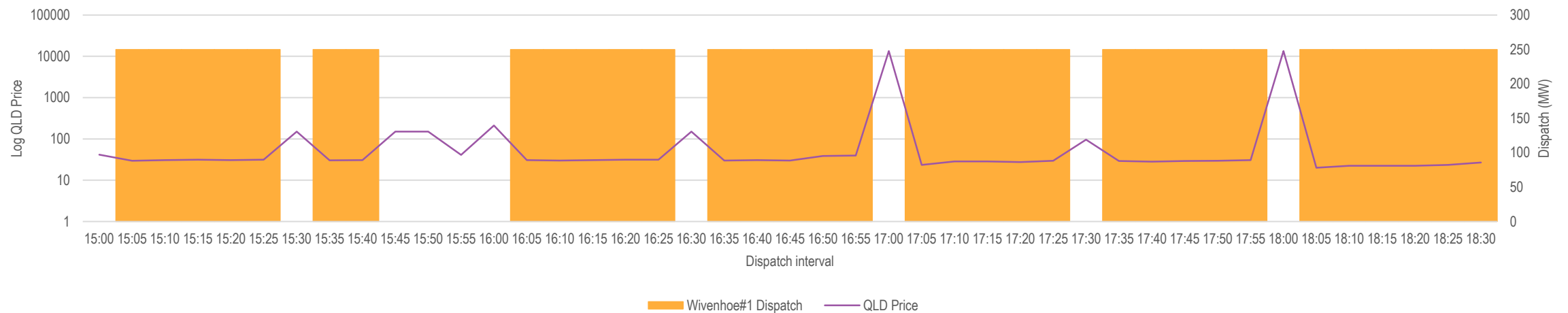
Distinct upticks in prices in intervals 6 and 12

Only one generator had distinct changes in dispatch leading into these period:

Wivenhoe#1 – fast start

See price increases leading up to large spikes in price at 17:00 and 18:00 (prices reached \$13,499 on each occasion).

Note – price scale is log



DISPATCH INTERVAL 12 ON 5 MARCH 2015

5 March 2015 - Hot day in Brisbane – 36.1 C max, 21.5 C min

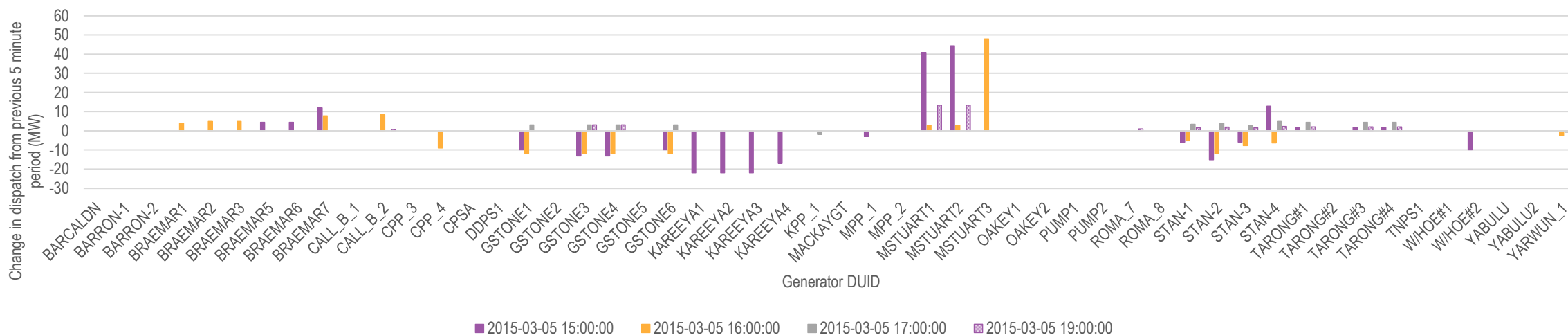
Prices spiked by +\$200/MWh 26 times, 4 times in DI12 (15:00, 16:00, 17:00 and 19:00)

Changes in generator dispatch included:

Decline (counter price) at Gladstone, Stanwell and Kareeya

Increases (with price) at Mt Stuart, Oakey 1 and Braemar 7.

Wivenhoe dispatch did not exhibit same pattern as on 26 January 2015



DISPATCH INTERVAL 12 ON 13 JULY 2015



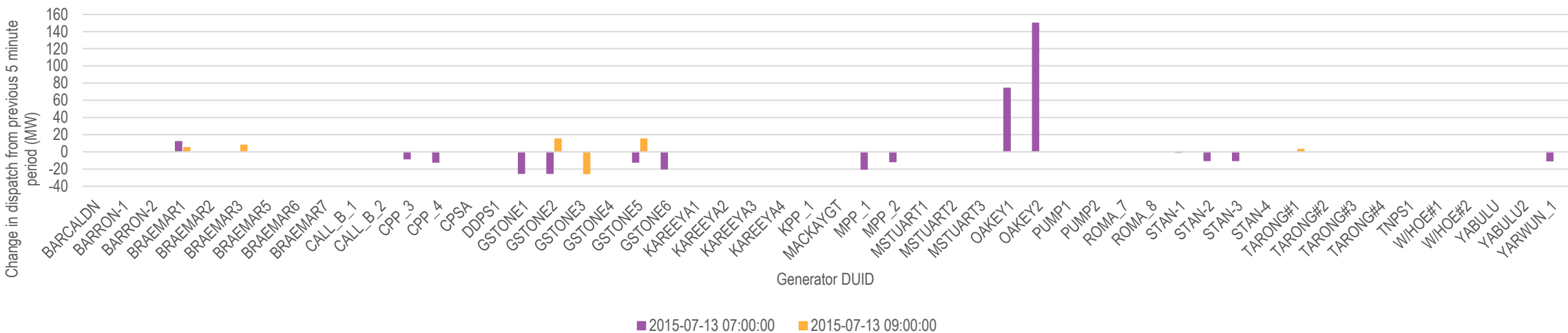
13 July 2015 - Unremarkable weather – 18.2 C max, 8.4 C min

Prices spiked by +\$200/MWh 3 times, 07:00 and 09:00

Changes in generator dispatch included:

Decline (counter price) at Gladstone, Millmerran and Stanwell

Increases (with price) at Oakey 1 & 2





CONCLUSIONS

3

CONCLUSIONS

- ▶▶ Some evidence of the 'problem' in Queensland in 2015, though mostly limited to one day (5 March 2015)
 - ▶▶ Other days in Queensland did not display discernable pattern
 - ▶▶ Outcomes in South Australia were variable, but no clear pattern
 - ▶▶ Other regions showed little variability between dispatch and pricing interval pricing.
- ▶▶ For the most part, large movements in price cannot be attributed to changes in generator dispatch
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- ▶▶ Six identified days across January and March added \$8.75 to the annual time weighted spot price in Qld in 2015 – about 16%.
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 - ▶▶ if we remove the spikes occurring in interval 12, then the annual time weighted spot price in Qld in 2015 would be about 4% lower
 - ▶▶ However, moving to 5 minute settlement would not necessarily remove the spikes. For example, the behaviour of Wivenhoe on slide 20 under 5 minute settlement would reduce Wivenhoe's revenue, but the other ~4,000 MW of plant in the CS Energy portfolio could still benefit.