

11 June 2020

John Pierce Chairman Australian Energy Market Commission PO Box A2449 Sydney South NSW 1235

Submitted online: www.aemc.gov.au

Dear Mr Pierce

Delayed implementation of five minute and global settlement - Consultation Paper

Origin Energy Limited (Origin) welcomes the opportunity to provide comments on the Australian Energy Market Commission's (AEMC) Consultation Paper on the delayed implementation of five minute and global settlements.

As the nation responds to the impact of COVID-19, a primary focus of the energy sector is to maintain energy security and reliability while ensuring adequate support and protections for consumers. To ease pressures on businesses during this time, Origin welcomes the market bodies' current focus on reform implementation timeframes, including for rules that have been made but are not yet operational. Consistent with this, Origin considers that extending the transitional period for five minute and global settlements by at least 12 months would be in the best interest of the market and consumers.

Origin has previously held concerns around the adequacy of the transitional period for five minute settlement given the relatively compressed implementation schedule. The unprecedented social and economic challenges arising from the COVID-19 pandemic have reinforced these concerns and lead us to conclude that a longer transition period is now required. Consistent with the intent of the Australian Energy Market Operator's (AEMO) rule change proposal, this is principally to account for any potential capital and resourcing constraints faced by market participants as they seek to prioritise operational activities and strengthen support for customers. Importantly, we consider the overall benefits of allowing for deferred capital spend and building additional redundancy into the program timeline would outweigh any potential increase in costs, which we do not expect to be material in any case. The proposed extension is also unlikely to preclude any of the expected longer-term benefits of aligning settlement and dispatch from being realised.

Origin has provided further comments on the rationale for delaying five minute and global settlements below. More detailed comments on the specific questions raised by the AEMC are also outlined in Attachment A.

Benefits of extending the implementation period

Deferral of higher than expected costs: The significant capital spend associated with five minute settlement is coming at a time when (appropriately) there is a focus on reducing financial pressures for energy consumers and strengthening support for those experiencing payment difficulty, the enduring impact of which is currently unclear.

Extending the implementation timeframe for five minute and global settlements by at least 12 months would allow market participants to defer upcoming capital expenditure. This would assist with providing a financial buffer against the impact of COVID-19 and allowing for better apportionment of costs over a longer time period. Importantly, we do not anticipate the extended

program timeline would give rise to any material increase in Origin's overall program costs. AEMO's proposal to maintain its existing program schedule should also assist with minimising any potential disruption to those participants that do not wish to defer activities.

- Mitigate the disruptive impact of resourcing constraints: Business continuity has been directly impacted by the COVID-19 pandemic, most likely for all market participants and vendors. It is unclear how long any resourcing constraints will persist. However, even a short-term disruption to resourcing can have a compounding impact on implementation progress, given the sequential nature of system design, development and testing and the complexity of the changes being considered. Where market participants are required to make up time toward the end of the program, this may limit their ability to meaningfully engage in market trials and ensure system readiness ahead of the go-live date.
- Provide additional redundancy in the timeline to account for inevitable contingencies: The current timeline has limited redundancy to allow market participants / AEMO to recover from any material delays in progress. This is largely an outworking of the level of overlap / limited time between key program phases. A longer implementation timeframe would provide additional redundancy to account for contingency events such as the impact of COVID-19. It would also allow AEMO and market participants to reduce the level of overlap in their respective work programs so that activities could be completed sequentially, and market readiness assured ahead of go-live.
- Reduced cap contract costs: The price of cap contracts is expected to increase initially with the introduction of five minute settlement, which likely reflects the fact that generators will incur additional costs when covering sold contract positions. Modelling undertaken for Snowy Hydro estimated that cap premiums would increase by at least \$130 million per annum following the commencement of five minute settlement. An extended start-date is therefore likely to reduce future cap contract costs for market participants over the period. We also expect the potential impact on existing contracts would be limited, given only a small number of over-the-counter (OTC) cap contracts have reportedly been traded and any renegotiation costs may be outweighed by the fact that counterparties would be remaining on the lower 30 minute price.

Expected long term market efficiency benefits are unlikely to be impeded

- The potential impact on existing/planned investments is likely to be limited: The level of recent/planned investment in fast start capable plant that could potentially be impacted by a deferred go-live date is relatively limited. Justifying investment in capital intensive dispatchable generation assets also requires a long-term view of many factors. These include the expected distribution of spot market prices over time and the outlook for future technology advances and cost reductions, noting technology costs will be the primary factor that influences investment in battery storage technology. Deferring the implementation date as proposed is therefore unlikely to be a factor that would materially impact the economics of recent/planned investments.
- Expected long-term market efficiency benefits are unlikely to be impeded: The efficiency benefits of five minute settlement are largely dependent on the increased penetration of fast start generation capacity, with benefits expected to accrue over the medium to long term. As discussed above, deferring the go-live date as proposed is unlikely to inhibit the development of fast start capacity. It is also unlikely to impede the realisation of expected market efficiency benefits over time.

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¹ Snowy Hydro, 'Five Minute Settlement Directions Paper – Marsden Jacob Associates Critique', Supplementary submission to AEMC Directions Paper, 25 May 2017, pg. 2.

Optimal delay period and necessary transitional changes

The delay period should be at least 12 months in duration: A 12-15-month delay period would provide industry with the opportunity to deprioritise program activities and defer capital costs from FY2021 to FY2022. The advantage of 15 months is that it would likely provide for close to a full 12 months of capital deferral, considering some time will be lost through coordinating deferral activities (e.g. deprioritising/re-scheduling activities, managing contractual requirements) and restarting work programs.

A delay period shorter than 12 months is unlikely to provide any material benefits for industry or consumers, given the time practically required to coordinate deferral and restart activities will limit the opportunity for capital deferral. It is more likely that overall costs would simply increase, as all resources would be required for a longer time period for no material benefit.

- The compliance date for type 4/4A meters should be extended commensurate with any delay to the five minute settlement go-live date: Deferring the compliance date for type 4/4A meters would facilitate a more orderly transition and allow the benefits of deferral to be fully realised, given it would:
 - provide meter data providers (MDPs) with additional time to transition their metering fleet (consistent with the transitional time allocated under the existing schedule), noting many site visits may be required; and
 - minimise the risk of market participants who opt to defer activities being required to accommodate five minute data before the revised go-live date, including in cases where a customer (with five minute metering functionality) may churn to a local retailer that does not have the capability to receive such information.

If you wish to discuss any aspect of this submission further, please contact Shaun Cole at shaun.cole@originenergy.com.au or on 03 8665 7366.

Yours Sincerely,

Steve Reid

Group Manager, Regulatory Policy

Section 4.1 – Time period for delay

Questions	Feedback
Question 1 – Time period for delay	
a) If a delay to the start date of 5MS is necessary, is a 12-month delay appropriate? Alternatively, please explain why another time period is preferable and, if applicable, the implications on cash flow and capacity? Would the rules need to commence at the start of a quarter to align with the contract market, or could 5ms commence mid-quarter? What would be the impact of a mid-quarter commencement?	1. The delay period should be at least 12 months in duration Origin is supportive of delaying the start date of five minute settlement and considers the delay period should be at least 12 months in duration, noting 15 months would likely be the optimal timeframe. A 12-15-month delay period would provide industry with the opportunity to deprioritise program activities and defer capital costs from FY2021 to FY2022. The advantage of 15 months is that it would likely provide for close to a full 12 months of capital deferral, considering some time will be lost through coordinating deferral activities (e.g. deprioritising/rescheduling activities, managing contractual requirements) and restarting work programs. Both time periods would allow market participants to reduce the level of overlap in their respective work programs and provide for more sequential development and implementation of system changes, which will assist with ensuring market readiness ahead of go-live. A delay period shorter than 12 months is unlikely to provide any material benefits for industry
	or consumers. A shorter delay period (e.g. six to nine months) would build additional redundancy into the program timeline. However, it is unlikely to allow for any material deferral of activities and capital costs, given the time practically required to coordinate deferral and restart activities. It is more likely that overall costs would simply increase, as all resources would be required for a longer time period for no material benefit. A six month delay period would also result in five minute settlement starting during the peak summer demand and Christmas / New Year's period, which is likely to be disruptive and impractical.
	2. The go-live date should align with the start of a financial quarter
	A mid-quarter commencement would not align with financial and contract market quarters. As a result, we would expect a mid-quarter commencement to give rise to some additional costs/complexity when adapting our wholesale trading systems.
b) What is the appropriate date for the commencement of the 'soft' and 'hard' starts for global settlement? Should this be a linear move by the number of	Origin is supportive of maintaining the existing alignment between five minute settlement and global settlement start dates. The 'soft' and 'hard' start dates should therefore be shifted linearly commensurate with any change to the five minute settlement start date (e.g. assuming a 12 month delay to the commencement of five minute settlement, the 'soft' and 'hard' start

	months of delay, or should the dates change to another timeframe?	dates for global settlement should be revised to 1 July 2022 and 5 February 2023 respectively).
c)	If there is a 12-month delay to the start date of 5MS and GS, is it still appropriate that all new and replacement meters (other than 4A) installed after 1 December 2018, and type 4A meters installed after 1 December 2019, be required to record and provide 5-minute data by 1 December 2022? If not, why and what time period would be appropriate?	Origin is supportive of extending the 1 December 2022 compliance date for transitioning type 4/4A meters commensurate with any delay to the five minute settlement go-live date (e.g. assuming a 12 month delay, the transition date should be revised to 1 December 2023). This would facilitate a more orderly transition and allow the benefits of deferral to be fully realised, given it would: provide MDPs with additional time to transition their metering fleet (consistent with the transitional time allocated under the existing schedule), noting many site visits may be required; and minimise the risk of market participants who opt to defer activities being required to accommodate five minute data before the revised go-live date, including in cases where a customer (with five minute metering functionality) may churn to a local retailer that does not have the capability to receive such information.
d)	If global settlement is delayed, by what date should AEMO prepare and publish the first report on unaccounted for energy required under cl 3.15B(a)?	The first unaccounted for energy (UFE) report is due to be published by AEMO on 1 March 2022 to provide AEMO with two months to analyse data from the first six months of the 'soft' start of global settlement. Consistent with this rationale, Origin is supportive of shifting the publication date commensurate with any change to the global settlement 'soft' and 'hard' start dates (e.g. assuming a linear shift by 12 months, the publication date should be revised to 1 March 2023).
e)	Cl 11.112.6 states that AEMO must make and publish the unaccounted for energy reporting guidelines required under new cl 3.15.5B(d) by 1 December 2022. What is the appropriate date for the publication of these reporting guidelines if there is a delay to global settlement?	Consistent with the response to Question 1d, the publication date for AEMO's UFE guidelines should be shifted linearly commensurate with any delay to the global settlement start dates (e.g. assuming a 12 month delay, the publication date should be revised to 1 December 2023). This would allow AEMO to incorporate learnings from its first report into the guidelines, as is intended under the current timeline.

Section 4.2 – Participant costs and capacity

Questions	Feedback
Question 2 – Participant costs	
 a) What is the expected impact of COVID-19 on participant cash flows? How material is this impact? How long are these cash flow impacts expected to last? 	Confidential information has been omitted for the purposes of section 24 of the Australian Energy Market Commission Establishment Act 2004 (SA) and sections 31 and 48 of the National Electricity Law.
b) For participants that are required to implement changes to IT systems and procedures for 5MS and GS, how would the proposed 12 month delay impact your implementation costs? Please quantify and provide evidence where possible. Any confidential cost information will be treated as confidential and redacted from submissions published on the AEMC's website.	Confidential information has been omitted for the purposes of section 24 of the Australian Energy Market Commission Establishment Act 2004 (SA) and sections 31 and 48 of the National Electricity Law.
c) To what extent can additional market testing periods run by AEMO minimise costs associated with the delayed commencement of 5MS and GS? To what extent do participants rely on B2B data flows for 5MS and GS testing?	As outlined during the AEMC's stakeholder briefing on 21 May 2020, AEMO has proposed to shift five minute settlement and global settlement testing periods from 2021 to 2022. Origin considers additional testing periods could be scheduled for 2021 to accommodate those participants who opt to maintain their existing work schedule. This would mitigate the need for that group of participants to extend their programs (and incur any material costs) in order to participate in market testing in 2022. Origin does rely on B2B data flows for testing purposes. Noting an extending transitional period may mean groups of participants would be working to different timeframes, we would seek to proactively work with our industry partners to manage any variance in schedules and ensure an orderly transition.
Question 3 – Participant capacity	

 a) To what extent has COVID-19 affected participants' ability to implement the necessary changes for 5MS and GS by 1 July 2021? Business continuity has been directly impacted by the COVID-19 pandemic, most likely for all market participants and vendors. *Confidential information has been omitted for the purposes of section 24 of the Australian Energy Market Commission Establishment Act 2004 (SA) and sections 31 and 48 of the National Electricity Law.*

It is unclear how long any resourcing constraints will persist. However, even a short-term disruption to resourcing can have a compounding impact on implementation progress, given the sequential nature of system design, development and testing and the complexity of the changes being considered.

The current timeline also has limited redundancy to allow market participants / AEMO to recover from any material delays in progress, noting delays have been observed in elements of AEMO's program.² This is largely an outworking of the level of overlap / limited time between key program phases, as noted below.

- Initial design and development phase: While a staging environment will be made available for initial testing over a period of around 12 months, the time practically available for testing will be limited by a range of factors. Participants will still be undertaking significant design and development work over the course of 2020 to ensure consistency with final procedures and technical specifications released in late 2019 / early 2020. This will constrain their ability to engage in testing through the staging environment phase. The ability to undertake testing in the staging environment is also contingent on the release of software packages that enable specific functionality, a number of which are not scheduled for release until mid-way through the staging environment phase.
- End-to-end testing phase: The time available between and after market trials is relatively limited. This will likely reduce the ability of AEMO / market participants to iteratively resolve issues identified through the market trial phase, which is a key objective of undertaking staged trials.

The above factors heighten the risk that participants may not be able to meaningfully engage in market trials, with implementation issues only becoming apparent relatively late in the program. The ability for AEMO / market participants to address such issues ahead of the golive date will be reduced where time is constrained.

² The scheduled deployment of AEMO's meter data management (MDM) platform was recently delayed from 1 February 2021 to 1 April 2021. While AEMO noted this change would not impact overall program milestones, it did necessitate replanning of industry testing activities and does reduce the level of redundancy in the program to deal with any further delays related to that platform.

Section 4.3 – Electricity contract market implications

Questions	Feedback		
Question 4 – Electricity contract market	Question 4 – Electricity contract market		
a) To what extent have you purchased 5-minute cap products for FY 2021-22? What would the impact of a delay be to the value of those 5-minute cap products as risk management products for your business?	1. A delayed start date would defer the expected increase in cap contract costs The price of cap contracts is expected to increase initially with the introduction of five minute settlement, which likely reflects the fact that generators will incur additional costs when covering sold contract positions. Modelling undertaken for Snowy Hydro estimated that cap premiums would increase by at least \$130 million per annum following the commencement of five minute settlement. ³ Confidential information has been omitted for the purposes of section 24 of the Australian Energy Market Commission Establishment Act 2004 (SA) and sections 31 and 48 of the National Electricity Law. An extended start-date is therefore likely to reduce future hedging costs for retailers and minimise and potential cost impacts for consumers. 2. The scope of traded five minute cap products that could potentially be impacted by a change in the go-live date is relatively small The ASX is yet to list five minute cap products and consistent with the AEMC's view, we believe only a small number of OTC contracts have been traded. Given the level of uncertainty around the adequacy of the implementation timeline and experience with other recent major reform programs, we expect prudent counterparties entering into OTC contracts would have made an allowance for a delayed start date such that a change would not be treated as a market-		
	disruption event that warranted contract re-opening. Any potential costs associated with existing OTC contracts are therefore likely to be immaterial and potentially outweighed by the fact that the counterparties would be remaining on the lower 30 minute price.		
b) Would a delay to commencement of 5MS impact swap, captions or any other financial hedging products	Origin does not consider swap contracts would be impacted by a delay to the five minute settlement start date, given contract settlement outcomes do not materially change under five minute or 30 minute settlement. Captions would be impacted in a similar manner to cap contracts, as discussed in response to Question 4a above.		

³ Snowy Hydro, 'Five Minute Settlement Directions Paper – Marsden Jacob Associates Critique', Supplementary submission to AEMC Directions Paper, 25 May 2017, pg. 2.

trading for FY2021-22 and beyond? If so, how?

Section 4.4 – Delayed benefits

Questions	Feedback
Question 5 – Delayed benefits	
a) To what extent were investments that have been made, or are planned to be made, in technologies that are capable of responding to a five-minute price signal, dependent on the 5MS rule commencing on 1 July 2021, as opposed to other factors? What effect would a 12-month delay have on the expected return on investment for these assets? Please quantify and provide evidence, noting that submissions can be treated as confidential if requested, or confidential information can be redacted from submissions published on the AEMC's website.	1. The overall impact on existing/committed investments is likely to be limited in practice The level of recent/planned investment in fast start capable plant that could potentially be impacted by a deferred go-live date is relatively limited. Only around 210 MW of battery storage ⁴ and 239 MW of fast start thermal capacity ⁵ has been commissioned since the AEMC's Final Determination on five minute settlement. The pipeline of committed generation projects that could potentially add to the fast start capability of the NEM by the current go-live date is also largely limited to 83 MW of battery storage and the enablement of fast start capability on three units at Origin's Quarantine power station (units two, three and four). ⁶ For these investments, any dependence on five minute settlement being implemented by 1 July 2021 is likely to limited in practice. Justifying investment in capital intensive dispatchable generation assets requires a long-term view of many factors. These include: the expected distribution of spot market prices over time; the future level of interconnection and impact of other major projects; the timing and scale of any technology advances and cost reductions; and the future level of operating demand to be served by the centralised system. A delay to the implementation date by 12 months is therefore unlikely to be a factor that would materially impact the economics of recent/planned investments, including Origin's recent/planned Quarantine power station upgrades.

 ⁴ This includes: Hornsdale Power Reserve (100 MW); ESCRI Dalrymple (30 MW); Ballart Energy Storage System (30 MW); Gannawarra Energy Storage System (25 MW); and Lake Bonney BESS1 (25 MW).
 ⁵ This includes: Barker Inlet (210 MW) and Quarantine QPS1 (29 MW).
 ⁶ AEMO, 'Generation Information Page', https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning-data/generation-information, accessed 26 May 2020.

Confidential information has been omitted for the purposes of section 24 of the Australian Energy Market Commission Establishment Act 2004 (SA) and sections 31 and 48 of the National Electricity Law.

2. Technology cost reductions will be the primary factor that drives additional investment in battery storage capacity

While it is noted 6,115 MW of battery storage capacity has been proposed⁷, it is not clear the economics of battery storage capacity has materially improved since 2017 such that these projects are likely to progress by the revised five minute settlement commencement date proposed. Consistent with the above discussion around investment considerations, the prospective expansion of interconnection capacity across the NEM may also impact overall levels of investment, given interconnectors effectively compete with local fast start generation capacity.

Operation of the Hornsdale Power Reserve has also demonstrated that revenue streams for battery storage in the NEM appear more reliant on the Frequency Control Ancillary Services (FCAS) market than the energy market. For calendar years 2018 and 2019, it was reported the Hornsdale Power Reserve generated \$29 million⁸ and \$33.2 million⁹ in gross revenue respectively. Origin estimates that:

- for 2018, approximately 62 per cent of total gross revenue was derived from participation in the FCAS market and 16 per cent from capacity payments; and
- for 2019, approximately 70 per cent of total gross revenue was derived from participation in the FCAS market and 12 per cent from capacity payments.

Given the above factors, deferring the implementation of five minute settlement is unlikely to impede the development of battery storage capacity in the NEM.

b) To what extent would a 12-month delay to the start of 5MS and/or GS delay the realisation of other benefits for individual participants and/or the industry as a whole? Please quantify and provide evidence, noting that

1. Expected long-term market efficiency benefits are unlikely to be impeded

The expected efficiency benefits of five minute settlement are largely dependent on the increased penetration of fast start generation capacity that can respond to five minute price signals and facilitate more efficient pricing outcomes. Given the limited investment in fast-start capacity to date (as outlined in response to Question 5a above), an extension to the five minute settlement go-live date is unlikely to result in a delay in the realisation of any expected

⁷ AEMO, 'Generation Information Page', https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Generation-information, accessed 26 May 2020.

⁸ Parkinson, G, 'Tesla big battery pulled in \$29 million in revenue in 2018', Renew Economy, 21 February 2019, accessed 26 May 2020.

⁹ Parkinson, G, 'Tesla big battery recoups cost of construction in little over two years', Renew Economy, 15 May 2020, accessed 26 May 2020.

submissions can be treated as confidential if requested, or confidential information can be redacted from submissions published on the AEMC's website.

market efficiency benefits. It is also unlikely to impede the development of battery storage capacity in the NEM, noting technology costs will be the primary factor that influences investment.

Further, it is not clear the implementation of five minute settlement coupled with the proposed Wholesale Demand Response (WDR) mechanism would facilitate material investment in WDR over the proposed delay period. The Reliability and Emergency Reserve Trader (RERT) can provide WDR providers with more certain and potentially higher revenue than could be derived through participation in the primary wholesale market, ¹⁰ an outworking of which is that WDR providers generally prioritise participation in the RERT framework. Given the ESB's Interim Reliability Measure will allow for the procurement of higher volumes of emergency reserves and multi-year contracting from summer 2020/21, it is likely this mechanism will cannibalise the level of WDR that could potentially have emerged.

2. Five minute settlement is not required to eradicate disorderly bidding

Recent reviews undertaken by the AER and the AEMC have found there is no systemic pattern of market manipulation and the prevalence/impact of rebidding has reduced. According to the AER, spot price volatility has not been a key driver of recent price increases, with the spot price only exceeding \$300/MWh on 205 occasions in 2017-18 compared with 688 in 2016-17. While rebidding previously contributed to price spikes and volatility, this behaviour was reduced by the AEMC's Bidding in Good Faith rule change and effectively stopped in mid-2017 when the Queensland Government instructed Stanwell to put downward pressure on spot prices. 12

These views were reiterated by the AEMC in its Gaming in Rebidding Assessment, which noted the cost impact of rebidding has fallen since 2015 (not increased as separately reported by the Grattan Institute) and represented around one per cent of the wholesale cost of energy in the NEM in 2017. Turther, where volatility has increased between 2015 and 2017, this has been driven by factors unrelated to rebidding, including changes in demand and generator availability. 14

Given the above, we do not believe disorderly bidding is an issue in the NEM. Deferring the commencement of five minute settlement will therefore not lead to the persistence of any underlying market inefficiency. The pending commencement of new spot market prohibitions

¹⁰ Australian Energy Regulator, 'Wholesale electricity market performance report', December 2018, pg. 61.

¹¹ AER, 'Wholesale Electricity Market Performance Report', December 2018, pg 11.

¹² Ibid, pg 32.

¹³ AEMC, 'Gaming in rebidding assessment (Grattan Response)', 28 September 2018, pg ii.

¹⁴ Ibid.

and remedies under the Commonwealth Government's Prohibited Energy Market Misconduct
Bill should also assist with addressing any residual concerns should they exist.

Section 4.5 – Implications of delay on rule drafting, procedures and determination

Questions	Feedback		
Question 6 – Drafting and procedure implications of delay			
a) Is there any feedback on the high- level description of a potential rule presented in Appendix A? Are there any other interactions with affected rules and schedules that have not been identified?	Origin has no additional feedback on the description presented in Appendix A, noting we consider the 1 December 2022 compliance date for transitioning type 4/4A meters should be revised (as suggested in response to Question 1c above). The need to update the commencement date for the schedules identified should also not be viewed as an impediment to deferring five minute and global settlements.		
b) Should AEMO, the AER and the IEC be required to review and if necessary, amend their relevant procedures to take into account a delay to five minute and global settlement?	Procedural updates may to be required, but any changes are likely to be limited to revising their effective dates. To this end, Origin does not consider a full review process to update already-agreed procedures would likely be necessary.		
c) In its rule change request, AEMO proposes that there should be no consultation on any changes to its procedures if those changes are solely related to a delay to five minute and global settlement. Are there any reasons that this could be an issue?	In circumstances where an already-determined procedure requires updating solely for the purpose of changing the effective date of five minute and global settlements, it would be reasonable for AEMO to update those procedures without a full consultation process. However, any change/update process should be transparently communicated to market participants.		