Major Energy Users Inc.

Australian Energy Markets Commission

National Electricity Amendment (Five minute settlement) Rule
2016

Reference ERC0201

RESPONSE TO CONSULTATION PAPER

Submission by

The Major Energy Users Inc

June 2016

Assistance in preparing this submission by the Major Energy Users Inc (MEU) was provided by Headberry Partners Pty Ltd.

The content and conclusions reached in this submission are entirely the work of the MEU and its consultants.

TABLE OF CONTENTS

PAGE

1. Introduction

The Major Energy Users Inc (MEU) welcomes the opportunity to provide its views on the AEMC consultation paper addressing a proposed rule change from Sun Metals which seeks to provide an option for demand to have settlement on a 5 minute basis rather than on the current 30 minute basis.

At a high level, the MEU sees that having a mismatch between dispatch and settlement does introduce some inefficiency in the market. Equally, the MEU sees that the mismatch reflects realities of the market.

The MEU also notes that this rule change proposal has some features similar to those discussed in rule changes proposed by:

- SA government (rebidding)
- Snowy Hydro (demand side bidding) and
- Engie (requiring small generators to bid into the market)

Each of these rule change proposals is about seeking a more efficient dispatch process, although the SA government rule change proposal was also about limiting generator market power.

The Sun Metals rule change proposal is also about improving the efficiency of the dispatch and settlement processes in the NEM.

1.1 About the MEU

The Major Energy Users Inc (MEU) represents the interests of large energy consumers operating in the NEM and in other jurisdictions. The MEU comprises some 30 major energy using companies in NSW, Victoria, SA, WA, NT, Tasmania and Queensland.

Of particular note, the MEU members include companies that have operated in the spot market with load shedding as a risk mitigating strategy when electricity prices are high; other members have implemented their own generation as part of their operations to limit the risks and costs of the electricity market. These member decisions provide MEU with intimate knowledge of the reasons behind decisions to enter the spot market and/or implement self generation – this knowledge also includes a sound understanding of the costs to implement these decisions.

MEU members are very concerned about the cost, reliability, quality and long term security of their energy supplies and therefore the MEU comments in this submission are made in full knowledge of the need for managing the tensions between these separate aspects of energy supplies.

1.2 The realities about load

As noted in its earlier submissions to the Snowy and Engie proposals, the MEU highlighted a number of critical aspects with regard to how load interfaces with the electricity market:

- End users operate in many markets, with electricity supply being a part (often just a small part) of their total input cost structure. This limits the focus of users have towards the electricity spot market.
- Electricity is just one of the inputs users have to manage in order to be competitive
- While the electricity market and the price of electricity directly impacts those users operating in the spot market, it has little direct impact on the majority of users who operate through retail contracts
- Users' loads vary significantly on a quarter hour, daily, weekly, monthly and annual basis and these variations are driven by other aspects than just the price of electricity
- Users' demands for electricity are unpredictable and exhibit frequent change although the MEU notes that some (but very few) end users have the ability to adjust their demand significantly at short notice. Even those that do have this ability might not elect to do so for reasons outside the electricity supply market
- Some users shed load because of high spot prices, but others do so because their aggregator, retailer or network calls for load shedding in response to a price arrangement for the services they provide, but the most common reason for users reducing their demand is for operational reasons and independent of the electricity market
- Users that have established an ability to operate safely in the spot market, have incurred considerable set up costs and incur significant ongoing costs to continue the practice
- The frequency of market variations which would benefit from more accurate demand scheduling is modest when examining the totality of market movements. This implies that the benefit of the proposal will only have an impact on the market infrequently whereas the costs users will incur from establishing an interface with the electricity market will be continuous

It would appear from the Sun Metals proposal, that converting to a 5 minute settlement would enable an end user to bid into the market ex ante (just as generators currently do) and presumably after reviewing the price stack for the coming dispatch period, AEMO would call the end user to either load shed ex ante if the final dispatch price is higher than the end user bid price, or to not require the end user to load shed if the end user bid price for load shedding was above the dispatch price.

The MEU notes that in order to achieve load shedding ex ante would require the end user to be aware of just how much it could load shed each 5 minutes in order to meet the demand reduction required by AEMO.

Sun Metals notes that their discussions with retailers have indicated that the retailers are unlikely to move to 5 minute settlement if they have the option not to do so.

> "Our discussions with retailers suggest that most retailers are unlikely to opt into the 5 minute settlements process at this stage." (Sun Metals proposal seventh page)

This decision by retailers will limit the benefit to the market of the proposal, recognising that almost all of the electricity sold in the market is via retail contracts.

In reality very few end users have the ability to load shed as quickly as would be required by the rule change and even fewer that could meet the exact reduction in demand sought by AEMO every 5 minutes. Despite their exposure to the spot market, most end users that do have exposure to the spot market operate through retailers rather than become Market Participants as they see that the costs and risks of being a Market Participant are outweighed by the small fee charged by retailers to provide a spot market pass through mechanism.

Further, for an end user to offset the costs to establish the staffing to interface with AEMO both in terms of bidding their demand into the market and to implement actions to reduce demand when required with the benefits from having 5 minute settlement will require the end user to have a significant consumption of electricity in order to achieve a net benefit after incurring the establishment and ongoing costs involved

Overall, those end users that could and would opt in would be limited to those prepared to become Market Participants and:

- Be able to convince AEMO they can
  - load shed safely at a few seconds notice
  - predict with accuracy the demand reduction
- Have a demand significant enough to warrant the costs implicit in being involved in 5 minute dispatch

1.3 Materiality of the proposal

Bearing in mind the points made in section 1.2, the MEU considers that the numbers of end users that would participate in 5 minute dispatch would be very

limited[1]. However, this does not mean that the amount of load that would be involved is not significant.

The MEU considers that before it makes a decision on the proposed rule change, the AEMC should seek advice from AEMO as to the location and amount of demand that might be delivered by end users seeking to participate in 5 minute dispatch and have the manufacturing processes that would permit them to do so.

The MEU considers that there needs to be a significant load in each region that would get involved in 5 minute dispatch and settlement to demonstrate the materiality of the proposal.

Having said that, the MEU also recognises that if an end user wanted to become involved with 5 minute dispatch and settlement, there is no reason why it should not be able to do so providing the necessary preconditions are applied to it that allow it to accurately participate.

However, it is also important to note that, for the vast majority of other end users, it will not be practical or possible for them to participate in such a process. Therefore it is important to recognise that they should not be disadvantaged by their inability to participate.

1.4 Preconditions

At its most fundamental, the MEU considers that the process for end users being involved in the 5 minute dispatch/settlement process must not be compulsory and only be permitted on an opt in basis, and that opt out should also be permitted if the end user finds the process too limiting. The reasons for this ability to opt in and out are identified in the MEU responses to the consultation papers on the Snowy and Engie proposed rule changes.

Just as it is accepted (subject to the decisions the AEMC makes on the Snowy and Engie proposed rule changes) that large end users should be of sufficient size to provide the necessary impact on the market to warrant changing the dispatch rules (the MEU considers that the end user seeking to participate in 5 minute dispatch and settlement should have a demand >30 MW of sheddable load as this is probably sufficiently large enough to warrant bidding and provide sufficient efficiency improvement in the market to warrant the changes necessary.

[1] For example, the MEU considers that large end users with significant thermal inertia (such as aluminium smelters) or unique processes (such as electrolytic smelters) might be able to have a sufficiently fast response time to participate in 5 minute dispatch and be of sufficient size to deliver the potential benefits of having 5 minute settlement to offset the increased risks and costs of participating.

The MEU considers that to participate in 5 minute dispatch/settlement, the end user must have a meter sufficiently accurate for billing purposes to ensure that other end users are not disadvantaged or exposed to risks due to inaccurate metering, such as the SCADA option proposed by Sun Metals.

To minimise the amount of change in the AEMO dispatch process the MEU considers that the dispatch process should consider negative demand bids to reflect the impact of the reduction in supply that results from a demand side bid. However, this would not address the issues and costs inherent in converting to 5 minute settlement.

1.5 Costs and benefits of the change

Neither the Sun Metals proposal nor the AEMC Discussion Paper provide an indication of the benefits of the proposed change there than a theoretical improvement in efficiency. However, it is clear that there could be some efficiency benefits from the change and based on the benefits suggested by Snowy and Engie Benefits from their rule change proposals (also based on increased efficiency of the process), the benefits from an end user 5 minute dispatch process might include:

- Greater confidence in pre-dispatch prices
- Better reserve forecasting
- Improved management of the dispatch process
- More accurate pricing of financial contracts
- Increased transparency in the NEM

due to the inclusion of some large loads in the dispatch process.

The MEU can see that, at a theoretical level, such enhancements might provide some benefit to the electricity market, but as the MEU noted in its responses to the Snowy and Engie proposals, there is considerable doubt as to the extent of the benefits to the market that the proposed enhancement might bring.

Because the MEU considers few end users might opt into 5 minute dispatch, the efficiency benefits to the market would be even less than any that might arise from the Snowy and Engie proposals[2].

The MEU can see there will be a benefit to the end users that do decide to opt into 5 minute dispatch/settlement process but against these, the AEMC would have to assess the costs to AEMO to enable the process recognising that it will

[2] And the MEU considers the benefits from those proposals would be minimal

be all consumers that pay the AEMO costs rather than the few end users that will benefit from the change.

The Discussion Paper notes (page 12)

> "As five minute settlement would be optional for the demand side of the market, AEMO would need to operate concurrent five and 30 minute settlement for different participants. This arrangement would create an imbalance between the money earned by supply side participants settled on a five minute basis and the money paid by demand side participants, who could be settled on either a five or 30 minute basis.
>
> Sun Metals proposes a new mechanism to correct the imbalance. The imbalance amount, which could be positive or negative, would be recovered entirely from those demand side participants who continue to be settled on a 30 minute basis."

The reason an end user would opt in to 5 minute settlement is because there would be a benefit to the end user. The import of such a decision is that the benefit accrued by the end users implementing the process, there would be a transfer of cost to other end users and both Sun Metals and the Discussion Paper provide calculations of such transfers of wealth.

Equally, it should be noted that the current arrangement implicitly imposes higher costs on some end users than is efficient. The MEU supports market arrangements that allocate costs equitably, but also recognises that there are many other inefficiencies and cross subsidies in the electricity market that are accepted for pragmatic reasons[3]. The MEU considers that these other inefficiencies and cross subsidies have a greater impact on the market than the inefficiency from the mismatch of 5 minute dispatch and 30 minute settlement in total.

So the cost to most end users would be the transfer of wealth plus the costs to AEMO and other Market Participants to implement the change.

The MEU considers that the benefits will be small and that the rule change should be assessed purely on the costs to implement the change and the impacts on those end users that are unable to access the benefits the change might bring.

[3] In its response to the Engie proposal, the MEU pointed out the impact of micro PV solar generation has had on the market, recognising that the uptake of PV solar has been incentivised by the RET scheme which is external to the market but imposes costs on the market and end users, and impacts the efficient operation of thermal generators.

1.6 Is the market workable as is?

The MEU notes that the AEMC has, in previous rule change proposals, discussed the concept of "workable competition". The import of this concept is that, according to the AEMC[4],

> "…a market that is considered to be workably competitive need not have reached a state of perfect competition."

This observation implies that in attempting to create a perfectly competitive market, there are costs and other impacts which more than offset the benefits of the supposed increased competition. The MEU points out that the AEMC has already determined that the NEM exhibits “workable competition”[5].

The MEU points out that the AEMC has already accepted that some anti-competitive activities by generators (such as the economic withdrawal of capacity and bidding/rebidding of ramp rates to reduce competition) are acceptable even though they result in the less than efficient performance of the NEM. The Sun Metals proposal aims to improve the efficiency of the market yet will impose significant costs on others to achieve this improvement.

It is clear that, as the market works at an acceptable level now, there has to be a significant market benefit to warrant the costs involved with this refinement to improve market efficiency.

In its responses to the Discussion Papers addressing the Snowy and Engie proposals, the MEU highlighted that there was no evidence that the market efficiency would be improved sufficiently to offset the costs involved. Sun Metals does not provide evidence[6] that the improved market efficiency would deliver sufficient benefits to offset the costs.

The MEU notes that it is implicit in the Sun Metals proposal that this work would have to be done by AEMC. The MEU agrees with the premise that the AEMC would have to fully assess the value of the benefits to the market to warrant the costs the market would have to bear by the implementation of the proposal.

---

[4] See for example, AEMC consultation paper, National Electricity Amendment (Potential Generator Market Power in the NEM) 14 April 2011, note 33 page 23

[5] See for example, in the AEMC determination on the MEU rule change proposal seeking to prevent “economic withdrawal” of generation capacity

[6] For example, the numbers of end users that would opt in to the process, the volumes of electricity that would transfer to 5 minute settlement and the value of the market benefit that would ensue

1.5 Cost impacts of the proposal

Sun Metals provides some costing to implement its proposal. These seem to the MEU to be possibly understated based on costs incurred for other changes to the rules and proposed changes. The MEU considers the AEMC needs to investigate these in much more detail.

In its response to the Snowy and Engie proposals, the MEU provided its views on the likely costs that and end user would incur in order to implement those proposals. The MEU sees that these would be similar to the costs an end user would incur under the Sun Metals proposal. While these would only be incurred if there was an opt in approach, they provide an indication of the benefit that a transition to 5 mini-ute dispatch/settlement would have to be achieved before an end user would seek to opt in.

The observation that retailers would be unlikely to opt in provides a view that the costs to retailers would be significant in addition the potential increase in risk they might face.

1.6 Conclusion

As the MEU pointed out in its responses to the Snowy and Engie proposals, it is important to remember that the market structure is designed to provide a basis for dispatching generators in merit order of their pricing approaches – it is not designed (nor should it) be a mechanism for consumers to have to bid their decision not to buy so that there might be a small benefit (if any) to the electricity market.

The MEU sees the Sun Metals proposal as providing a benefit to some end users, it also sees that implicit in the proposal is an increase in efficiency of the market. However, the MEU also sees that to implement the Sun Metals proposal, there will be significant costs incurred by many Market Participants and AEMO, and potentially an increase in risks faced by retailers who would pass the cost of managing this increased risk to other consumers along with the other costs the proposal will cause.

While the MEU accepts that an end user should have the ability to use the market to minimise its electricity costs, this should not be at the expense of all other consumers.

2. Responses to AEMC questions

The MEU provides the following responses to the specific questions raised in the Consultation Paper. The MEU has endeavoured to keep its answers as concise as possible and refers to the commentary in the preceding sections to amplify its reasoning. Not all questions have been answered as the MEU does not have sufficient information on which to make useful comment.

Issue	Description	MEU observations
1	**1. To what extent does the mismatch between the dispatch and settlement intervals create risks for market participants? What is the materiality of these risks and under what circumstances are they most acute?**	The mismatch does result in risk and an implicit cross subsidy between supply and demand and between different end users, and the extent of the impact of the mismatch would vary continuously with movements in demand of the many end users and the dispatch of generators. Overall, the impact of the mismatch is likely to be significantly less than the many other inefficiencies already present in the "workable" market.
	2. What types of supply and demand side participants are capable of responding within a five minute period? Under what circumstances can these responses occur?	See comments above and in the MEU responses to the Snowy and Engie rule change proposals While all end users can be load shed with little notice, the impacts of such loss of supply can be massive. The fact that a relative few end users have spot market exposure supports the view that the risks and ability to respond quickly to market signals highlights the limited number of end users which might have the ability to operate their demand in a 5 minute period. Further, the costs involved for the end user to operate in this way

		would be significant, further limiting those able to operate on 5 minute dispatch/settlement.
	3. Would the wholesale market operate more or less efficiently if supply side participants were settled on a five minute basis?	In theory the market would operate more efficiently but the costs to achieve such efficiency improvement will be considerable. That retailers are not supportive of such a move (see Sun Metals proposal) supports the view that the costs and increased risk would be significant.
	4. Compared to the current arrangements, would settlement on a five minute basis be more conducive to demand side participation? How would demand side participants respond and what impact would this have on market efficiency?	Demand side participants able or prepared to take spot market exposure are limited in number due to the risks and costs of implementing the management needed. A move to 5 minute dispatch/settlement would require further increases in costs and management implying that there would be even fewer end users operating on 5 minute dispatch/settlement. 5 minute settlement would require significant upgrades in metering and internal management, adding to the internal costs. Further, as noted above most end users have significantly variable demand and so establishing the management capability to be able to bid firm amounts of demand reduction would be difficult for most end users. Overall, the MEU considers that the relative small take up of spot market exposure by end users highlights that the proposal would have limited interest to the large majority of end users so such a move would have a modest impact on demand side participation. The MEU considers the small number of end users with sufficient

		demand to impact the market through taking up 5 minute dispatch/settlement would have even less impact on market efficiency than the Snowy and Engie rule change proposals; the MEU has commented previously that those proposals will have minimal impact on market efficiency but at a considerable cost.
2	**5. Is using SCADA measurements a viable alternative to replacing existing metering equipment in order to implement five minute settlement?**	No. The metering accuracy is insufficient for billing purposes and to use SCADA for this purpose will increase the risk for those operating under 5 minute settlement and for all other end users required to make up the losses.
	6. What changes would be required so that SCADA measurements could be used for profiling energy in the settlement process?	Profiling is not accurate enough for billing purposes for very large loads, especially bearing in mind the extent of the variation in large loads have over time.
3	**7. What changes would be required to metering infrastructure so that five minute metering data could be used in the proposed five minute settlement regime?**	
	8. What changes to participants' systems would be required to accommodate a five minute data format?	End users opting into the 5 minute dispatch/settlement would have to have meters compliant with billing accuracy.
	9. Could five minute settlement be implemented without changing the existing data format?	
	10. Are there any other data sources, such as dispatch targets, that would be preferable to SCADA profiling or five	

	minute metering?	
4	**11. Should the full value of the settlement residue be recovered from demand side participants remaining on 30 minute settlement?**	See comments in section 1. The MEU considers that those opting into 5 minute dispatch/settlement will be for those where the costs would be lower, implying that all other end users will have to pay for the residue.
	12. Would it be feasible to merge the new residues with existing *intra*-regional settlement residues? Are there any alternative mechanisms that would be preferable?	
	13. Should five minute settlement instead be compulsory for all demand side participants? If so, what threshold would be appropriate for compulsory demand side participation?	No. The internal costs for end users having to implement 5 minute dispatch/settlement will be massive in proportion to their consumption, with the ratio increasing with lower consumption. Only those end users with very large consumption would be able to offset the costs with the benefits they gain. If the concept is to be implemented it should only be on an opt in basis as many very large end users would not have the ability to accurately forecast their load shedding on a 5 minute basis. See also comments in section 1 and in the MEU responses to the Snowy and Engie proposals
5	**14. How would the proposed move to five minute settlement affect existing contractual arrangements?**	The MEU sees there would need to be an extended transition period. The MEU is aware of some end users having supply contracts as long as 10 years and these would have to be accommodated in any transition.
	15. Would the proposed optionality for demand side	The MEU considers that there will be significant

	participants affect the ability of participants to contract with each other? Would a generator settled on a five minute basis be able to contract with a consumer settled on a 30 minute basis?	complexity to implement an opt in process considering the large majority of end users will still be operating on 30 minute settlement.
	16. What impact would a move to five minute settlement have on contract market liquidity?	
6	**17. Having regard to the issues raised in the rule change request and in the event that there is a problem found to be present, do you consider there to be any alternative solutions that are preferable to the proposed solution?**	