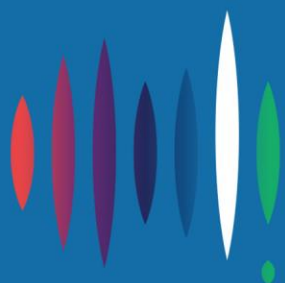


Five Minute Settlement

Submission to AEMC Directions Paper

May 2017



**ENERGY
CONSUMERS
AUSTRALIA**

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Introduction

Energy Consumers Australia is the national voice for residential and small business energy consumers. Established by the Council of Australian Governments (COAG) in January 2015, our objective is to promote the long-term interests of energy consumers with respect to price, quality, reliability, safety and security of supply.

Our analysis of the long term interests of consumers concludes that they are promoted by effective competition where it can occur and by best practice economic regulation of networks where it can't. The outcome sought is that current and future consumers pay no more than they need to.

A corollary of this conclusion is the need to focus on the dynamic aspects of economic efficiency not just the static aspects. Dynamic efficiency is more than just incremental investment to match changing demand, at its core is the process of innovation.

This rule change

The Australian Energy Markets Commission (AEMC) is considering a rule change submitted by Sun Metals Corporation Pty Ltd proposing that the time interval for financial settlement in the wholesale electricity market be reduced from the current 30 minutes to five minutes.

The AEMC has published a Directions Paper (the Paper) indicating the Commission's initial position that:

Given the change occurring in the NEM, the AEMC's initial position is that:

- The adoption of five minute settlement would have a material benefit that is likely to outweigh the cost.
- Optional demand-side participation in five minute settlement would lead to relatively less efficient outcomes if it were allowed on a permanent basis, but it may be acceptable as a transition measure.
- The use of revenue metering is the preferred option for five minute settlement data collection rather than a profiling approach using SCADA systems.
- There are costs and risks associated with any move to five minute settlement that arise from the disruption to the contracts market, accessing five minute data through existing meters, and the required replacement or upgrade of IT systems.
- To introduce five minute settlement it would be necessary to have a transition period to manage and mitigate the risks and costs identified with implementation.
- If the rule change were made, an appropriate transition period for the implementation would be in the order of three years.

Energy Consumers Australia appreciates the complexity of the issues involved in the proposed rule change and appreciates the AEMC's decision

to proceed through a Directions Paper rather than straight to a Draft Decision.

The AEMC has sought feedback on a number of issues to inform the AEMC's draft decision.

This submission

Energy Consumers Australia made a short submission in response to the consultation paper, and has participated in the working group and public forum.

In our initial submission we argued that a *prima facie* case had been made for aligning the dispatch and settlement intervals. We encouraged the AEMC to make a detailed assessment of the implications of the change.

We agree with the AEMC assessment that the move to five minute settlement would be a rule change that would be likely to contribute to the achievement of the national electricity objective. The issue before the AEMC is how to make the transition.

This submission is structured in four sections roughly following the structure of the Paper.

The next section addresses the questions of the assessment framework as well as the materiality question. Energy Consumers Australia emphasises the importance of dynamic efficiency in the assessment framework and identifies that 'cost benefit analysis' as generally understood does not capture dynamic efficiency well.

We then address the question of the actual impact on operation and investment. In general we simply note that the analysis has to proceed from the presumption of a changing generation mix, and market rules need to be suitable for the future technology mix not the past.

The optionality and metering design issues are then discussed together.

This leads to the final section which relate to costs and transition, followed by a short conclusion.

Assessment framework and materiality

As mentioned in the introduction, the AEMC's task in deciding to make a rule change is to be satisfied that the rule will or is likely to contribute to the achievement of the national electricity objective. (National Electricity Law s88). The Paper then notes that there are three dimensions of efficiency that are integral to the AEMC's consideration of the current proposal.

Havyatt (2017) labels these three dimensions the 'Hilmer trilogy' to identify their lineage in Australian regulatory parlance. The three dimensions are better approached as a distinction between static efficiency and dynamic efficiency. The distinction in the history of economic ideas is between ordinary market adjustments to respond to changing characteristics (e.g. new investment to meet increased demand from population growth) and innovation, changes that fundamentally change the supply function.

This distinction is particularly important in the context of this rule change. The six factors identified by the AEMC in the Paper tend to mostly focus on the static components. However, and surprisingly, the factor of 'technology neutrality' is one that highlights how rules can impede dynamic efficiency.

The current rules are framed around the way the existing technology operates; notably large coal fired plant augmented by peaking generators. The extent to which market participant analysis of the proposed rules not technology neutral is reflected in the extent that their analysis is constrained by discussing existing technology.

That said, for change to be dynamically efficient the outcomes from the new approach need to outweigh the necessary investment in making the transition. This is not classical 'cost benefit analysis' as commonly understood which usually relies upon an invariant demand and supply schedule.

However, in the current context aspects of the changing market characteristics are determined by external factors. Despite the absence of a consistent emissions reduction policy, there are constraints imposed by existing policy. That includes the trend to more variable renewable energy sources (wind, solar) and the associated development of additional storage technology.

The AEMC has made the case in the Paper that there is a material benefit from the move to five minute settlement. That case applies to both the current market and distortions in current bidding behaviour, and to the future market and the incentives to invest in fast start generators and storage.

Energy Consumers Australia notes that the consequence of efficiency in the long term interests of consumers is that current and future consumers should pay no more than necessary. Energy retailers are primarily risk managers on behalf of consumers, a key function is to protect consumers from wholesale market price volatility.

The more volatile the market the more costly is any insurance against volatility; consumers pay more than they need to.

Opinions differ on whether the move to five minute settlement will increase or decrease volatility. Energy Consumers Australia is not in a position to offer detailed analysis of wholesale market behaviour; we can however observe that much of the analysis offered to date is superficial.

We were struck at the public forum on the extent to which market participants were expecting that under 5 minute settlement they would be more reliant on the accuracy of AEMO forecasts. This seems to reflect the general position of market participants who discount the value to the market of demand response; this extends to an inability to understand or model demand as responsive to price.

In short, the only thing we can be certain of is that bidding behaviour under five minute settlement will be different to current bidding behaviour. However, this recognition seems to have escaped market participants.

We can be almost as certain, however, that bidding behaviour will evolve to recognise the need to make greater allowance for the behaviour of other market participants in response to 'real' five minute price signals.

How rapidly the market will adapt is more the question, but it can be expected that market participants will carefully analyse the changed requirements during the transition period.

Impact on operation and investment

The AEMC provides significant analysis of the amount of generation that can currently respond in a five minute interval. There is a significant difference between the responsiveness of plant 'from scratch' versus the responsiveness of plant that is already online.

Generator decisions about when to go online are based on more than the existing thirty minute settlement interval. The same will be true under five minute settlement. Ultimately a judgement is made about the likelihood that the generator will be able to dispatch, how much and at what price in a number of forward periods. That doesn't change.

What will change is the incentive for investment in additional fast start generation that can respond quickly without needing to already be online. The extent of that incentive is partially paradoxical. The investment made to respond to strong price signals has the consequence of muting those signals.

The task of regulation isn't to anticipate the market, but to facilitate the market. Five minute settlement facilitates the market for investment to suit the changing technology mix of the NEM.

The wholesale market is made up of two markets; the physical trade of electricity in the pool and the market in various contracts or derivatives. Energy Consumers Australia has been surprised at the lack of confidence participants in the contracts market have shown for their ability to develop contracts that would support a five minute settlement market.

In part this reflects the change in emphasis between contract and physical markets. The injection of more fast start generation results in a physical substitute for some contracts. To frame it another way, if the change to five minute settlement does result in better matching of demand and supply it results in less cases of 'price spikes' and hence of the need for existing caps.

There is nothing in the discussion of the impact on operation and investment to change Energy Consumers Australia's view that the change to five minute settlement is likely to contribute to the achievement of the NEO.

Design issues

The AEMC has considered two, related, design issues; optionality and metering.

Energy Consumers Australia is concerned that some opponents of optionality have done so with the ulterior motive of increasing cost and complexity by resulting in a requirement for five minute metering across the NEM. The issues of complexity, the settlement residue and contract markets are all manageable should there be benefits to maintaining 30 minute metering and settlement in parts of the market.

Opinions differ on how easy it would be to convert the NEM to five minute metering. The change of existing small consumer meters may be impossible given requirements on the period of time over which meters must store data. Energy Consumers Australia has only had brief discussions on this topic, but we encourage the AEMC to fully analyse the current data retention requirements and whether they are excessive.

On balance Energy Consumers Australia favours a transition period that does not require adopting optionality as a temporary measure.

In meetings of the Working Group discussing the use of SCADA data the cost of additional metering was identified as relatively low for each meter. In terms of materiality it is hard to believe that the only benefit of metering replacement/reprogramming to five minute data is the requirements of the rule change. Ultimately what is dispatched in five minute intervals is energy not SCADA data; it seems odd in some ways that participants are not already metering in five minute intervals, especially since AEMO can accept a data file using any interval.

It seems to Energy Consumers Australia that a move to five minute metering across the NEM has benefits irrespective of changes to the settlement period, and that the AEMC should implement rules for an orderly transition.

Costs and transition

Energy Consumers Australia notes that the consultant for the Australian Energy Council (AEC) presented to the public forum a schedule of likely implementation costs. This presentation broke costs into the following categories:

- Costs of renegotiating contracts
- Costs of changes to business systems
- Costs to AEMO and third parties

In general, exercises like this of estimating costs make two errors. The first is to assume that the only benefit from the change is the triggering event and ignores the possibility of other benefits. The second is to allocate the full cost rather than allocate the marginal cost from bringing forward an investment that had to be made in the future. The AEC analysis was not immune from this.

Energy Consumers Australia is not in a position to comment in detail on the cost of contract renegotiation. The bulk of these costs relate to 15 large contracts which include smelter supply contracts. Energy Consumers Australia is unclear to what extent these contracts would significantly hinge

on the settlement period in the NEM, nor whether despite their long term nature they are not frequently renegotiated in detail.

The ongoing increased system cost is presumably the cost of increased storage and computing power requirement for managing metering files that are six times larger than they were. As the bulk of the data that increases these volumes is metering data Energy Consumers Australia suspects that these costs are dwarfed by the consequences of the metering contestability rule change. This rule change will result in very new and replacement consumer meter changing from an accumulation meter to an interval meter. Per meter that is 4,320 times more data (that is assuming a quarterly read is replaced by 90 days of 48 half hourly meter readings).

On the flip side, for retail systems the first thing that occurs with metering data is its conversion to the ten or less categories that are used for billing (daily total or time of use total). System changes to manage five minute meter data in billing systems is therefore relatively small.

Ultimately the total cost of \$250M estimated by the AEC consultant will be incurred whenever the market moves to five minute settlement. It does not appear to be a credible proposition that the market could avoid making this transition forever, so the real cost is the cost of making this expenditure now rather than some point in the future.

Despite Energy Consumers Australia's consideration that the implementation costs are over-stated, most of these costs are one off costs while the efficiency improvements in the market are ongoing.

Energy Consumers Australia is unclear on the benefits of a two stage transition. If Type 4 and remotely read Type 5 meters are capable of being upgraded to five minute settlement there seems to be no reason to delay this until a point between three and five years in the future. Consumers are likely to benefit from the greater granularity of data from their meter, especially if means to access that data more quickly are also provided.

Conclusion

The AEMC in its Directions Paper and the other material presented to the Working Group and the Public Forum has demonstrated that the rule change for five minute settlement is likely to contribute to the achievement of the NEO.

The case has been made for a transition period of not less than three years. Energy Consumers Australia sees no benefit in a two stage transition process.

Based on our observations of the approach by the industry to the introduction of metering contestability, Energy Consumers Australia submits that the AEMC needs to include in the rule change both detail on what elements of the transition need to be achieved by certain target dates.

The transition to five minute settlement is a change to the NEM that is more akin to the initial NEM establishment than it is to other rule changes. Consequently the AEMC needs to establish a governance framework to

ensure that the developments required to support five minute settlement are occurring. That could include the provision of facilities through which market participants could experiment with bidding behaviour.

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