

12/5/17

Submission in response to AEMC Directions Paper: Five Minute Settlement
AEMC Reference: ERC0201

From the Directions Paper page v:

The Commission'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. Interval meters would require reconfiguration or replacement to be capable of handling five minute resolution data. There would be no changes required for accumulation meters used in residential and small business applications.*
- *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.*

The Commission's initial position is that if the rule change were made, an appropriate transition period for the implementation would be in the order of three years.

Ipen fully supports the Commission's initial position:

- *A five minute settlement period should be adopted:*
 - As the Discussion Paper notes, the settlement interval should be the same as the dispatch interval to avoid distorting the spot market signal. As it also notes, this would be consistent with international trends.
 - A dispatch/settlement period of five minutes is sufficiently long that the piece-wise linear model of industry evolution assumed in an electricity industry spot market is an adequate representation of actual electricity industry behaviour.
 - A dispatch/settlement period longer than five minutes would reduce the ability of the spot market to adequately represent actual electricity industry behaviour. Additional ancillary services would then be required.
- *Optional demand-side participation in five minute settlement should only be accepted as a transition measure:*
 - Electricity pricing theory requires that supply and demand side options are treated equally and that both have the potential to be marginal in any spot market interval. Anything apart from this, suggest as retailer intermediaries, will detract from price discovery and market efficiency.
 - In practice, symmetry in supply & demand participation will become more important as more end-users become “prosumers”, each with some mix of flexible demand, embedded generation and reversible storage options. Over

time retailers should evolve from their present role to become facilitators rather than intermediaries.

- *Revenue metering is the preferred option for five minute settlement data collection:*
 - Interval metering is now widely deployed and will become steadily more common in future. It should be configured to measure five minute data for energy and availability and quality parameters, such as voltage, waveform purity and supply availability.
- *Transition costs are inevitable and will only increase over time as new participants enter the market. This issue should not further delay this necessary transition:*
 - The 5/30 minute market was an unavoidable compromise at NEM start. That is no longer the case and the deleterious effects of this arrangement will only increase over time.
 - The transition should start as soon as possible with a transition period of no longer than 3 years.

Other issues:

- Moving to 5-minute settlement will change the interaction between the spot market and market ancillary services, which should be reviewed for ongoing compatibility.
- Electricity pricing theory requires an efficient derivative market as well as an efficient spot market¹. The derivative market should encompass short-term operational issues as well as long term issues as recognised in the initial National Electricity Code proposal². Moving to 5-minute settlement will change the nature of derivative markets and allow more fine-grained detail to be represented in them. It will enhance the value of a short-term derivative market (CfDs & Options) to fast-start plant, flexible demand, reversible storage and their counterparties in managing short-term operation and spot price uncertainty. Such a short-term derivative market should be tightly integrated with AEMO's pre-dispatch process to internalise anticipated security constraints.



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¹ R J Kaye and H R Outhred, "A Theory of Electricity Tariff Design for Optimal Operation and Investment", *IEEE Trans. on Power Systems*, Vol. 4, No. 2, May 1989, pp 606 - 613.

http://www.ceem.unsw.edu.au/sites/default/files/documents/Kaye%26OuthredTariffDesign_89.pdf

² Charles River Associates, *Short-term Forward Market*, prepared for the South Australian Department of Treasury and Finance, June 2004. <http://www.aemc.gov.au/getattachment/96644883-9a4f-4bed-84e8-0e8e5d5716b9/Ethnic-Communities-Council-of-NSW-Appendix.aspx>