



20 June 2016

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

Submitted online: www.aemc.gov.au

Dear Mr Pierce

Five Minute Settlement – Consultation Paper

Origin Energy Limited (Origin) welcomes the opportunity to provide comments on the Australian Energy Market Commission's (AEMC) Consultation Paper on Five Minute Settlement.

Origin supports the current National Electricity Market (NEM) design, which provides an adequate balance between facilitating competition and minimising system costs. While it is recognised the current misalignment between five minute dispatch and 30 minute settlement timeframes (the 5/30 issue) may change market outcomes relative to a scenario where the two periods are aligned, we do not believe this represents a material inefficiency within the market. The extent to which alignment of dispatch and settlement timeframes would better promote efficient investment in, and operation and use of, electricity services in the NEM is also yet to be demonstrated in any meaningful way.

To this end, Origin strongly opposes the proposed rule change. Aside from being inequitable, the proposal would fundamentally alter existing trading/settlement arrangements, the impact of which would be disproportionate to the materiality of the issue. Further, where the proposal is aimed at mitigating any potential adverse impacts of strategic late rebidding in the NEM, impending changes to the rebidding arrangements are already expected to address these when they commence on 1 July 2016.

1. Materiality of the 5/30 issue

A key feature of energy only markets is that spot prices must provide incentives for both operational and investment decisions. For this to be achieved, it is important spot prices reflect the physical condition of the system and the continuous changes in the supply/demand balance. But the extent to which this can be achieved in practice is generally constrained to some degree by the physical, technical and economic cost of underlying market arrangements.

Consistent with this, a compromise was made between dispatch and settlement timeframes within the NEM. While the current market design places significant emphasis on the alignment of pricing and dispatch by optimising market operations across five minute periods, all electricity generation is ultimately settled on the basis of the 30 minute average dispatch price. The rationale here is that five minute dispatch reduces the level of ancillary services required to track fluctuations in the supply/demand balance, while 30 minute settlement ensures metering/settlement databases and process remain within practical limits.

This misalignment between settlement and dispatch has been the subject of discussion since the NEM's inception in 1998. Concerns have been raised that the averaging process, while useful to the

extent it filters out some of the inherent volatility in a five minute dispatch cycle, can also create distortions and inefficiencies in the market. In particular, Sun Metals contend this aspect of the market design accentuates strategic late rebidding and impedes market entry for fast response generation and demand side response. In Origin's view, the materiality of these concerns is significantly overstated.

Late rebidding in the NEM

Origin maintains any issues associated with late rebidding have not been proven to be systemic or detrimental to overall market efficiency. Analysis previously undertaken by the Australian Energy Market Operator (AEMO), which substituted actual data from the last two dispatch intervals of a 30 minute period with the average of the first four, suggested late rebidding can both raise and lower the price, but in no region was there a significant divergence.

Nonetheless, the AEMC made a rule in December 2015 that places more stringent rebidding obligations on market generators with a view to further limiting any perverse impacts. The AEMC suggests the rule change will likely deliver more efficient wholesale price outcomes in the short term and create improved signals for investment that better reflect underlying supply and demand conditions. Given the rule will commence on 1 July 2016, it would be prudent to allow sufficient time for the change to take effect before considering further market reform.

Operational and investment incentives

The 5/30 issue may change incentives/risks relative to a scenario where settlement and dispatch are aligned. But it is not immediately clear that alignment would materially improve the efficiency of the NEM from an operational and investment standpoint.

As noted by the AEMC, the role of wholesale prices in the NEM is to inform short term operational decisions while also signalling future investment needs on both the supply and demand side. This requires a price setting process that is sufficiently transparent and robust such that market participants have confidence these signals are generally reflective of underlying supply and demand conditions.

While a shorter settlement interval would arguably lead to wholesale prices that more accurately reflect such conditions, in practice, there are trade-offs associated with delivering more granular pricing information. From a market design perspective, balance must ultimately be achieved between elements such as those outlined in the AEMC's assessment framework, namely; the provision of prices that reflect underlying supply and demand conditions; price risk exposure; competition impacts; and regulatory and administrative burden.

In Origin's view, the current market framework adequately achieves this balance, with 30 minute settlement playing an important role in smoothing spot market volatility. Further, there are mechanisms available that allow both generators and demand side participants to manage spot market risks and make efficient operational and investment decisions. This is exemplified by Origin being a leading investor in peaking generation with more than 2,100 MW of capacity installed throughout the NEM. This contradicts one of the key assertions of the rule change proponent that the current arrangements serve to impede the market entry of fast response plant.

Alignment of settlement and dispatch periods could potentially have a significant disruptive effect on the market. The regulatory and administrative burden associated with managing the proposed change, both from a systems and contractual perspective, is considerable (as discussed in Section 2 below). Five minute settlement would also have a material impact on price risk exposure, given market participants would be directly exposed to greater spot price volatility yet have only limited capability to physically respond. This latter point is particularly important, given the rule change proposal is premised on the perceived efficiency gains of exposure to more granular pricing.

In practice, any efficiency gains that could potentially be derived from a reduction in the settlement timeframes would be heavily constrained by the operating limits of the existing generation fleet. To this end, it should be noted that a significant proportion of peaking generation plant within the NEM would be incapable of responding to 5 minute price signals, since start-up times generally exceed this timeframe and minimum run times can extend as long as two hours. This is not to suggest there are no facilities that could respond to such short-term price signals, rather that only a small subset of the existing generation fleet would likely benefit in any meaningful way from the proposed change, effectively limiting any whole of market benefits.

Similarly, on the demand side, Origin's experience is that customers generally do not have a strong desire or capacity to participate in the wholesale market. This is largely a reflection of the fact many customers are not well equipped to manage spot price exposure via direct market participation, with underlying business activities/processes often limiting the extent to which they respond. Any short term demand response (i.e. direct response to short term price signals rather than long term load reduction) is therefore limited and generally undertaken on an opportunistic basis. This may change over time as battery-storage technology develops and becomes more readily available for consumers. But Origin does not believe the current wholesale market arrangements impede the deployment and use of battery storage as a consumption management device.

Given the above discussion, Origin questions the extent to which existing market arrangements are actually impeding operational and investment decisions on either the supply or demand side of the market. Prior to implementing any fundamental reforms in this space therefore, it would be useful to firstly investigate whether there is actually a material inefficiency in the market.

2. Opt-in five minute settlement proposal

NEMMCO, now AEMO, undertook two investigations into the 5/30 issue between 1999 and 2003. Eight potential options to address the issue were examined, only two of which were considered practical and subject to cost/benefit analysis. In both cases, it was demonstrated that the costs far outweighed the benefits.

The Sun Metals proposal represents a slight variation on one of those options, the variation being that demand-side participants in the wholesale market, including retailers and large consumers, could choose to be settled on either a five or 30 minute basis. The reasoning here is that demand side participants would only opt for five minute settlement where there is likely to be a net benefit, therefore the benefits of the proposal would outweigh the costs.

But this is unlikely to be the case. It is currently unclear how the opt-in provision would be managed by Origin in practice given our participation in both the supply and demand-side of the market. Nonetheless, the opt-in provision is fundamentally problematic, principally because it creates two discrete settlement prices in the market. Further, many of the concerns identified by NEMMCO when this issue was previously considered are still relevant under the current proposal and will likely render it unworkable. These concerns are outlined in further detail below.

Existing systems cannot accommodate five minute settlement data

A mandatory transition to five minute settlement on the supply-side alone would necessitate fundamental changes to internal systems/processes, which are currently incapable of accommodating five minute settlement data. In this regard, it should be noted the proponent's estimate of upfront costs to generators of \$2.78 million, which is based on figures originally reported by NEMMCO, significantly undervalues the actual costs that would be incurred by Origin. This is outside of the ongoing costs associated with additional data processing and analysis, or any costs incurred on the retail side of the business to support the change (e.g. increased prudential requirements).

Contractual arrangements would be disrupted

Exposing generators and demand side participants to different reference prices (i.e. five minute settlement prices compared with 30 minute settlement prices) would have a significant impact on financial contracting in the NEM. Where existing contracts are in place, Origin agrees with the AEMC's assertion that the change in pricing would likely constitute a market disruption event and provide grounds for termination or renegotiation of those contracts. As such, transitional arrangements may be required to provide certainty to market participants and decrease the risk of wealth transfer between counterparties. This is not only relevant to financial hedge products such as cap contracts, but also power purchase agreements (PPAs) and Settlement Residue Auction (SRA) contracts, each of which reference 30 minute settlement prices in the NEM.

The disparity in settlement prices may also skew incentives to strike particular types of contracts relative to current arrangements, which has the potential to impact market liquidity and also change the risk profile for market participants. To this end, it may be determined that the current suite of financial products is not fit for purpose and does not adequately mitigate the risks stemming from exposure to different settlement periods on the supply and demand sides of the market.

Use of SCADA systems for revenue settlement is inappropriate

The proposed use of SCADA systems to allocate or profile 30 minute metered data into five minute settlement periods is highly problematic. As noted by the AEMC, SCADA measurement equipment is typically less accurate than revenue metering equipment, with accuracy falling within the 2-4 per cent range relative to 0.5-1 per cent respectively. The location of SCADA systems within a power system can also lead to differences in the basis for measurement between individual power stations.

It is recognised the use of SCADA data in this manner may not explicitly contravene the National Measurement Act since the accuracy of revenue meters remains unchanged. But given the profiling process essentially compromises the accuracy of the revenue data by virtue of the fact that the SCADA data is inherently less accurate, Origin believes this proposal is both impractical and inappropriate.

Settlement residues increase market complexity and risk

The opt-in provision would result in a discrepancy between the money paid by consumers and the money owed to generators. Under the proposal, this settlement residue would be recovered from demand side participants who continue to be settled on a 30 minute basis. There is no sound rationale for the recovery of settlement residues in this manner. Aside from the significant degree of inequity associated with requiring those consumers who do not benefit from the proposal to bear the costs of the change, these arrangements would significantly increase the complexity of the current market design.

Generation businesses would be required to manage the additional market risk stemming from ongoing revenue uncertainty, which is generally expected to manifest itself in a revenue shortfall. In this regard, it is also unclear how a revenue surplus would be treated should that event arise. This complexity will be further exacerbated under circumstances where a retail business is required to distinguish between five minute and 30 minute settled customers for billing/settlement purposes.

If you wish to discuss any aspect of this submission further, please contact Shaun Cole at shaun.cole@originenergy.com.au or on 02 8665 7366.

Yours Sincerely,

A handwritten signature in blue ink, consisting of a series of connected loops and a vertical line at the end, resembling the name 'Steve Reid'.

Steve Reid
Manager Wholesale Regulatory Policy