INFORMATION

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Five minute settlement

Directions paper released for consultation

Sun Metals Corporation Pty Ltd submitted a rule change request to reduce the time interval for settlement in the wholesale electricity market from 30 minutes to five minutes. As requested by stakeholders, the AEMC has released a directions paper setting out its initial views on moving to five minute settlement, subject to stakeholder feedback on detailed costs and benefits.

Background

The national electricity market (NEM) is undergoing a significant transition. The adoption of more intermittent generation such as wind and solar, combined with the end-of-life retirement of large-scale synchronous generation, means there is an increasingly important role played by fast-response technologies to support intermittent generation. Given the change underway, it is increasingly important that the market design provides the right price signals to incentivise the efficient use of generators, the efficient consumption or use of energy services and efficient investment in generation and demand-side technologies.

In the wholesale electricity market, dispatch and settlement prices are determined over different timeframes. Dispatch is the process by which the Australian Energy Market Operator determines which generators should operate to meet the expected demand for electricity. Dispatch prices are determined every five minutes. Settlement is the transfer of money for electricity supplied to the market and consumed by end users. Settlement prices are calculated as the average dispatch price over a 30 minute period.

The rule change proponent, Sun Metals, is of the view that the difference in the dispatch and settlement intervals leads to inefficiencies in the operation and generation mix of the market. It proposes a possible solution where market participants, including generators, would be settled using five minute prices. Sun Metals proposed that five minute settlement would be optional for consumers, including retailers and large industrial consumers.

Consultation to date

This rule change has far-reaching consequences to the operation of the physical electricity market and the supporting contract markets. It has attracted a high level of interest from a diverse mix of stakeholders. To inform its decision on the rule change, the AEMC:

- released an initial consultation paper in May 2016
- established a working group comprising of generators, retailers, industrial and residential consumers, new technology companies, financial institutions, a community group and market institutions, which met twice in September and December 2016
- engaged a number of technical consultants to inform its view of the change
- held over 50 bilateral discussions with stakeholders.

Stakeholders recognised this would be a significant change for the sector and identified understanding the AEMC's initial implementation preferences was crucial, as it would materially affect the realised costs and benefits. The directions paper has been prepared in response to this feedback.

Directions paper

The directions paper outlines the AEMC's preliminary assessment on the cost and benefits of a move to five minute settlement, and views on the design and implementation if a move to five minute settlement was made. It seeks feedback from stakeholders on the immediate and future costs and benefits of five minute settlement to inform the AEMC's draft decision on the rule change.

The Commission is seeking stakeholder feedback on the directions paper. Submissions are due by Thursday, 18 May 2017.

Benefits of five minute settlement

A physical requirement of power systems is that demand and supply must be balanced in real time. Ideally, as the balance of demand and supply varies continuously the price signal would also vary in real time. A market where the price provides signals and incentives for supply to be responsive to demand over the shortest practicable timeframe will drive more efficient wholesale market outcomes.

A move to five minute settlement would allow the financial market for electricity to be cleared on the same basis as the physical electricity market. It provides an improved price signal that would be technology neutral. The more granular price signal would lead to more efficient investment in generation assets and demand response capabilities over time. It would also encourage more efficient bidding and operational decisions. More efficient investment and operation in turn would reduce the wholesale component of retail electricity prices for consumers.

Under the existing 30 minute settlement arrangements, the responses of generation and load to a price signal in the market can be up to 25 minutes after the physical electricity system needs a response. A move to five minute settlement would help to enhance system security and reliability by valuing supply or withdrawal from generators or large users when the power system needs it.

Costs of a move to five minute settlement

A move to five minute settlement would affect existing IT systems, metering infrastructure, and the financial contracts that have been designed with reference to 30 minute settlement. IT system changes will require a one-off cost to generators, retailers and AEMO to enable their systems to operate under a five minute settlement price. Similarly metering infrastructure will need to be reconfigured to provide five minute data for five minute settlement, incurring another one-off cost for the market.

The contract market disruption from a move to five minute settlement is of particular concern to the AEMC. The contract market reduces price uncertainty for generators and consumers of electricity. A move to five minute settlement would potentially result in a reduction in the supply of cap contracts. Under 30 minute settlement gas peaking generators can offer and defend these caps. With five minute settlement, there is uncertainty as to whether these generators will be able to defend and offer such contracts. A substantial, immediate reduction in the supply of cap contacts is likely to increase wholesale costs and retail prices. It is noted that the economics of new types of fast response and flexible technologies is constantly improving, but they do not currently supply electricity on a significant scale. It is unclear whether such new technologies could be a new supply source for cap contracts.

Implementing five minute settlement

The AEMC's initial view is that:

- five minute settlement would apply to all market participants (generators and consumers)
- revenue metering would be used for five minute settlement
- a transition period in the order of three years is required for implementing five minute settlement.

Optional participation by consumers would reduce the one-off metering and data costs, but it would also weaken the price signal for consumers, increase the administration costs to retailers and affect liquidity in the contract market.

Using revenue metering to generate five minute settlement data is preferred to using supervisory control and data acquisition (SCADA) systems in combination with 30 minute revenue meters (as proposed by Sun Metals). This is because of the inaccuracies and inconsistencies in the measurement of SCADA data and limited end users having access to SCADA systems.

A transition period in the order of three years is suggested to minimise costs and risks associated with transitioning contractual arrangements and upgrading metering and IT systems.

Next steps

The Commission is seeking stakeholder feedback on the contents of this directions paper, particularly in regard to the costs and benefits of its proposed implementation and the length of the transition period for the move to five minute settlement. Submissions are due on **18 May 2017**.

The AEMC will be hosting a **public forum** to discuss the directions paper, which will feature a panel of diverse stakeholders. The forum will be held in Sydney on **Thursday, 4 May 2017** from 10am to 4pm. It will also be webcast live and a recording will be made available later. Stakeholders who are interested in participating should register via the AEMC website.

The draft determination for the rule change will be published in July 2017, and the final determination will be published in September 2017.

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