INFORMATION

Investigation into intervention mechanisms and system strength in the NEM

Commencement of consultation

The Australian Energy Market Commission invites stakeholder submissions on an investigation into the regulatory frameworks that govern the use of interventions in the National Electricity Market.

A growing number of directions are being issued by AEMO to synchronous generators in South Australia to maintain adequate system strength. When AEMO intervenes in the market in this way, it is required to compensate both market participants who were directed, and those affected by the direction. AEMO also implements 'intervention pricing', a practice designed to minimise market distortion by preserving the price signals the market would have sent but for the intervention. The increased use of directions and intervention pricing in South Australia has important implications for wholesale electricity prices, both in South Australia and across the NEM. It affects market signals to investors and the energy and compensation costs faced by consumers.

Directions are an important part of the intervention framework of the NEM. The intervention framework – the system's 'safety net' – includes not only directions, but the Reliability and Emergency Reserve Trader (RERT), and instructions. The intervention framework has always been available to AEMO as a last resort to keep the lights on.

In its final report of the *Reliability Frameworks Review* in July 2018, the Commission recommended that the appropriateness of the interventions framework, and the cost implications of the compensation framework associated with it, be reviewed in light of the increased use of interventions. The Commission considers it necessary to review the interventions framework in light of not only the recent use of the RERT but importantly because of the growing number of directions that are being issued by AEMO to maintain minimum levels of system strength in South Australia. The number of directions issued has risen significantly over the last two years, including since the Commission finished its *Reliability Frameworks Review*. While the intervention framework provides an important stop gap, it is not without costs and is not intended to be used to provide ongoing maintenance of power system security.

This paper actions the recommendation set out in the *Reliability Frameworks Review*. It also commences consultation on two rule change requests submitted by AEMO which seek to amend the interventions framework and related compensation framework. These rule change requests are being progressed as part of this wider investigation as they raise fundamental questions about the interventions framework.

Finally, the paper considers the current framework for managing system strength, and considers whether any refinements are warranted to that framework to support system security in the most efficient manner possible. In the case of South Australia, the frequent use of directions by AEMO would not be necessary if contracts with synchronous generators for the provision of system strength services, or other measures such as synchronous condensers, were in place as envisioned by the framework in the National Electricity Rules (NER) for managing system strength.

Interventions to maintain system strength

Low system strength has emerged as an issue in South Australia as the generation mix in that region shifts from one dominated by synchronous generators to one with a growing proportion of asynchronous renewable generation. Currently, low system strength in South Australia is addressed through AEMO issuing directions to synchronous generators to be online to meet minimum system strength requirements. As at late March 2019, around 210 directions have been issued to South Australian generators to maintain system strength, representing an unprecedented use of this intervention mechanism. For the first time in November 2018, AEMO also issued a direction to a generator in Victoria to maintain

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The Commission is investigating the interventions framework in light of the growing number of directions being issued to maintain system strength.

adequate system strength there. This highlights that low system strength can be expected to pose challenges in other NEM regions in the near to mid-term.

Issues such as declining system strength are not unique to South Australia or the NEM more broadly. They are emerging in energy systems around the world as rapid changes in technology, consumer preferences and government policy drive significant energy market transition. Transformation on this scale means that regulatory and market settings must evolve as the generation mix changes so that energy systems can remain secure and reliable. This investigation is part of that ongoing process and builds on the work already undertaken by the Commission to develop new regulatory frameworks to manage system security, including system strength and inertia, amongst others.

The framework for managing system strength has been in place in South Australia since late 2017 (and in other regions since 1 July 2018). Directions to maintain system strength were issued on seven occasions in 2017, prior to AEMO formally declaring a system strength shortfall in South Australia on 13 October 2017. As a result, ElectraNet (the transmission network service provider or TNSP in South Australia) was obliged to use reasonable endeavours to procure system strength services to address the shortfall by 30 March 2018 (being the date specified in the notice issued by AEMO to ElectraNet). Following a tendering process, ElectraNet concluded that generator contracting was a more costly option than continuing to rely on AEMO issuing directions. As a result, it did not proceed with the option of generator contracting, and is instead procuring synchronous condensers to address the shortfall in the medium term.

The Commission notes that ElectraNet's initial options analysis was undertaken when only relatively few directions had been issued (directions had been issued on only ten occasions as at the end of 2017). Since then, the number of directions issued, and associated costs, have increased markedly. In addition, the expected date for commissioning the synchronous condensers has been moved back to the end of 2020, a timeframe longer than initially estimated.

Until such time as the synchronous condensers are commissioned, AEMO is directing synchronous gas fired generators to ensure adequate system strength in South Australia. AEMO has the power to intervene in the market, as a last resort, to maintain a secure system. This is necessary when there are insufficient synchronous generators online, noting that system strength is not an inherent characteristic of asynchronous generators. During 2018, such directions were in place for 30 per cent of the time on average – a very significant increase relative to the past, and one that is at odds with the principle in the NER that intervention mechanisms should only be used as a last resort.

Issues to be considered through the investigation

There is very limited transparency about the cost impacts of intervention pricing and compensation payments. While some high level data on compensation costs is published, no information is readily available about the impact of intervention pricing on wholesale energy prices. A recent ElectraNet report puts the cost of compensation for system strength directions in South Australia at $34 million per annum. In addition, the report refers to the wider impact of intervention pricing on wholesale market outcomes as exceeding $270m as at September 2018.

AEMC analysis similarly indicates that intervention pricing has had a marked impact on wholesale prices in South Australia, as well as impacting prices across the NEM. In South Australia, spot prices in 2018 were on average 10 per cent higher than they would have been had intervention pricing not been applied in connection with system strength directions. The Commission recognises that this is an upper limit of the estimated impact as the market could be expected to "self-correct" to some degree if intervention pricing did not apply and spot prices were allowed to fall when system strength directions are issued. In addition, higher spot prices due to intervention pricing do not translate directly and immediately into higher energy bills, as most retailers have hedge contracts in place. However, an impact of this magnitude can be expected to inform expectations as to future spot prices, and so contract prices. In this way, higher spot prices due to system strength directions and intervention pricing put upward pressure on energy bills.

Intervention pricing has also impacted other regions of the NEM, although to a lesser degree than in South Australia. Nonetheless, these impacts warrant consideration given the potential for issues of low system strength to increase over time and the higher volume of energy traded in those regions. As such, the investigation is considering the circumstances in which intervention pricing should apply and, in particular, whether it should continue to apply in connection with system strength directions. This in turn entails consideration of the provisions governing when intervention pricing applies.

The Commission is seeking stakeholder feedback on the consultation paper. Submissions are due by 16 May 2019.

When AEMO intervenes in the market by issuing a direction, it applies intervention pricing if the "regional reference node (RRN) test" is met. In essence, this test asks if the issue that created the need for the direction was region-wide or localised. If the issue is localised, then there is no need to preserve price signals at the RRN and intervention pricing does not apply.

In the case of the system strength directions in South Australia, the RRN test is met (and therefore intervention pricing applies) because the South Australian generators which are directed to provide system strength services happen to be located at or very near to the RRN. However, this is not the case in most other regions, meaning that the test may not deliver predictable and consistent outcomes across the NEM. The AEMC has initiated a rule change request from AEMO which proposes changes to the wording of the RRN test, and seeks to extend its application to encompass the Reliability and Emergency Reserve Trader (RERT), in addition to directions.

The investigation also examines the compensation framework that is triggered when AEMO intervenes in the market. It explores issues such as whether compensation should be payable to affected participants, and whether the quantum of compensation payable to directed participants is having unintended effects on the bidding behaviour of South Australian generators. The AEMC has initiated a further rule change request from AEMO which seeks to amend the $5,000 threshold per trading interval which limits the amount of compensation payable to directed and affected participants.

The minimum system strength framework

The Commission also considers it useful to revisit how the minimum system strength and inertia frameworks have been applied to date in light of the potentially substantial costs facing consumers due to the application of the intervention pricing and compensation frameworks. In the case of South Australia, the frequent use of directions by AEMO would not be necessary if contracts with synchronous generators for the provision of system strength services, or other measures such as synchronous condensers, were in place as envisioned by the framework in the NER for managing system strength. This highlights the importance of ensuring that shortfalls are identified early enough that least cost measures can be implemented in time, thereby obviating the need to rely on more costly options, or AEMO directions, to maintain adequate system strength.

In addition to the directions being issued in South Australia, system strength related issues are emerging in other regions of the NEM. As such, the investigation also considers whether the timeframes and level of flexibility in these frameworks are sufficient to deliver optimal outcomes when addressing emerging system strength and inertia shortfalls as they arise in NEM regions other than South Australia. A more flexible framework may limit the need to rely on directions and so avoid the high costs that this can entail.

The consultation paper

The AEMC has published a consultation paper to facilitate consultation on the regulatory frameworks that govern the use of intervention mechanisms in the NEM.

This investigation explores a number of important issues that have significant implications for market participants and consumers alike. The Commission invites stakeholders to provide feedback on the issues raised in this paper, and the rule change requests submitted by AEMO. This will inform the development of draft determinations for the two rule change requests as well as further analysis of what, if any, refinements are required to the regulatory frameworks governing interventions, system strength and inertia. Submissions on the consultation paper are to be provided by 16 May 2019.

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