AEMC

DETERMINATION

Australian Energy Market Commission

RULE DETERMINATION

NATIONAL ELECTRICITY AMENDMENT (DELAYED IMPLEMENTATION OF FIVE MINUTE AND GLOBAL SETTLEMENT) RULE 2020

Australian Energy Market Operator

9 JULY 2020

INQUIRIES

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ABOUT THE AEMC

The AEMC reports to the Council of Australian Governments (COAG) through the COAG Energy Council. We have two functions. We make and amend the national electricity, gas and energy retail rules and conduct independent reviews for the COAG Energy Council.

SUMMARY

1 On 9 April 2020, the Australian Energy Market Operator (AEMO) submitted a rule change request to the Australian Energy Market Commission (AEMC or Commission). The request proposed deferring the commencement date for the Five minute settlement (5MS) rule and the Global settlement and market reconciliation (GS) rule by a period of 12 months in order to relieve financial and implementation pressures on industry from regulatory reform. As 5MS and GS are significant industry reforms, the rule change request was to test whether delaying these projects would assist industry participants in focusing on the ongoing supply of energy as an essential services and supporting customers dealing with the impacts of COVID-19.

2 In response to the rule change proposal, the Commission has made a more preferable rule to delay the commencement of the 5MS and GS rules by three months, so that they commence on 1 October 2021 and 1 May 2022 respectively. A three month delay balances the capacity constraints placed on the industry by COVID-19 against the additional costs and deferred benefits that are caused by a delay to the commencement of the respective rules.

Details of the rule change request

3 In November 2017, the Commission made the 5MS rule, which moves the settlement of the wholesale electricity market from 30 minute settlement (the average of six, five minute prices) to being settled every five minutes, which will align the operational dispatch and financial settlement periods. The 5MS rule allowed for an implementation period of 3 years and 7 months to commence on 1 July 2021. In December 2018, the Commission made the GS rule which changes the way the retail market is settled. This too was scheduled to commence on 1 July 2021, with financial settlement beginning on 6 February 2022.

4 The rule change request from AEMO proposed that these commencement dates for both rule changes are deferred for 12 months due to the impact of the COVID-19 pandemic. AEMO considered that COVID-19 had impacted the:

- ability of people to attend their places of employment
- ability of people to work
- availability of healthy people to perform routine or specialist tasks
- ability of energy industry participants to continue to meet financial commitments as a result of significant revenue uncertainty.

  As such, AEMO considered that deferring the commencement date for 5MS and GS prioritises the short-term safety, reliability and security of supply of electricity and the national electricity system, and the financial resilience of the energy industry.

The rule change process

5 The Commission determined that the rule change be considered under an expedited rule change process given:

- COVID-19 has caused a severe economic downturn impacting consumers' ability to pay their energy bills

- the potential reduction in revenue may cause financial stress for retailers and financial contagion in the energy sector, potentially impacting the effective operation of the wholesale exchange
- the rule change proposal may defer implementation costs for some participants under cash flow stress from COVID-19.

6 The Commission's assessment of the rule change centred on three questions:

1. What has the impact of COVID-19 been on industry capabilities to implement 5MS and GS ?

   If COVID-19 has caused a reallocation of resources to meet business requirements around energy supply and customer service, it may impact participants' ability to implement changes required for 5MS and GS, and may threaten the effective operation of the National Electricity Market (NEM). Additionally, would a delay to 5MS and GS meaningfully assist in alleviating industry capability constraints caused by COVID-19.

2. What are the expected costs of delay compared to the market benefits?

   If COVID-19 threatens the financial viability of participants, there could be flow on impacts for competitive markets and financial contagion, which may reduce competition and not be in the long term interest of consumers. The Commission wanted to test whether the benefits of a delay would be greater than the costs for industry and consumers. In addressing these issues, the Commission analysed the costs and cash flow impacts of a delay, what benefits of 5MS and GS would be delayed, and the implications for the contract market.

3. If a delay is in the long term interest of consumers, how should it be designed?

   The Commission considered different periods for delay and the relative costs and benefits of each delay option.

The impact of COVID-19 on the electricity sector

7 COVID-19 has had a short term impact on industry capabilities to implement 5MS and GS and meet business responsibilities to supply energy and support customers. During the initial phases of COVID-19, Australian governments enforced lock downs which meant that participants needed to transition their employees to work from home. Social distancing restricted the ability of staff and contractors from attending sites to perform works. In addition, pandemic restrictions forced the shut down of IT vendors located overseas, that were developing 5MS IT systems for participants.

8 These COVID-19 impacts have put a strain on participant capabilities, slowing or delaying their 5MS and GS implementation programs. Participants have diverted resources and management focus away from implementing 5MS and GS and towards meeting business-as-usual activities and new regulatory expectations, including the support of pricing relief packages for customers impacted financially by COVID-19. The disruption caused by COVID-19 could mean that participant resources are stretched between implementing 5MS and GS and their readiness preparations for the upcoming summer period, if the original 5MS and GS timeframe was retained.

9 The period over which participants were impacted by COVID-19 varied by participant, but was generally up to around two to three months. Additionally, the impact of COVID-19 was on the back of significant bushfires and the South Australia electrical islanding event in the summer of 2019/2020. Both of these events occupied the attention of key decision makers in the industry.

10 In combination the above-mentioned factors indicate there are grounds for delaying the commencement of 5M and GS by a relatively short period of time to allow impacted participants to make up for the time they lost in managing the impacts of COVID-19.

11 The rule change proposed a 12 month delay to the commencement of 5MS and GS and the Commission found that this period of time was too long. The impact of COVID-19 on industry capabilities was only in the order of two to three months, the COVID-19 infection rate has declined since the rule change proposal was written, and participants have so far had a number of years to implement each of the 5MS and GS reforms.

The costs of delay compared to the benefits of proceeding

12 COVID-19 has already had a significant impact on the Australian economy. Increased unemployment, lower wages and an expectation not to disconnect customers for non-payment has had a negative impact on participants' cash flows, and the impacts may grow over time, particularly after government support schemes are wound back. An increase in customer debt has the potential to threaten the financial viability of smaller retailers, who had small margins prior to COVID-19.

13 The proposed 12 month delay to 5MS and GS would create cash flow benefits from deferring implementation expenditure, however implementation costs would increase and overall industry cash flows are expected to be worse than by not delaying 5MS and GS. The Commission engaged Deloitte to analyse and estimate how 5MS and GS industry implementation costs would be impacted by a delay. Deloitte found that industry implementation costs would increase by approximately five per cent under a 12 month delay, resulting in additional costs in the order of $19-$41 million for the industry. A 12 month delay would likely have cash flow benefits from deferring expenditure of between $10-$24 million. The Commission notes that a 12 month delay would not impact participants equally, with those participants that are more progressed with their implementation programs being more adversely impacted by a delay than those that were less progressed. Similarly, given their higher cost of capital, smaller retailers would likely be better off under a 12 month delay, however this relative benefit is not expected to be significant enough to prevent financial stress. The Commission considered that delaying the major industry reforms of 5MS had GS and their associated benefits for the market and customers, would not be an efficient or targeted way to address specific cash flow issues that a sub-set of participants may have, and as such it would not materially assist in avoiding potential financial contagion in the industry caused by COVID-19.

14 A delay would impact the short-term efficiency benefits associated with implementing 5MS and GS. 5MS and GS will improve incentives to generate and consume electricity, improve bidding incentives in the wholesale market and reduce settlement disputes, which should result in benefits to consumers in the order of tens of millions of dollars. A longer delay

would result in these benefits being deferred for consumers. There are other longer term efficiency gains from 5MS and GS, such as improved investment incentives and reduced unaccounted for energy, however the degree to which these benefits are impacted is uncertain.

15 The contract market would not be significantly impacted by a delay. There have only been a few trades of the new five minute cap hedging product in the over-the-counter market. While these contracts are expected to incur an administrative cost to amend under a delay, this is not expected to be material. Other products are unlikely to be materially impacted by a delay.

16 Given the above, the Commission determined a long delay could have some cash flow benefits to participants, however would cost participants and the market more. A short delay:

- would recognise the short operational impact of COVID-19
- would not significantly increase or decrease 5MS and GS implementation costs
- would not materially reduce the broader market and consumer benefits from the rules.

The period of delay to the commencement of 5MS and GS

17 The Commission considers a three month delay to the commencement of 5MS and GS is in the long term interests of consumers because it balances the capability constraints of the industry against the increasing costs of delayed implementation. The Commission explored options of three, six, and 12 month delays, and considered that a three month delay would address industry capability concerns, without significantly increasing implementation costs or deferring the benefits of the 5MS and GS rules.

18 Some participants proposed a longer delay period of two or more years to bundle the reforms with the post-2025 market design work being considered by the ESB. However, the Commission views 5MS and GS as foundational reforms upon which any future market design should be built.

19 The Commission adopted a pragmatic approach to issues associated with implementing the delay. AEMO, AER and the Information Exchange Committee all went through a lengthy consultation and assessment process to update their procedures, and guidelines to implement 5MS and GS. The Commission recommends that these parties review all the amended procedures, however they are not required to undertake a formal rules consultation process for any consequent timing changes required as a result of this rule.

20 The Commission notes that this decision has been made under uncertainty relating to the financial and health impacts of COVID-19. While the COVID-19 pandemic infection rate has been low in Australia relative to most other countries to date, the potential exists for a second or third wave of infections and lock downs in Australia. This decision is therefore made in the knowledge that COVID-19 impacts may change in the future, but no assumptions as to a material worsening or improving of conditions have informed this determination.

Assessment against the National Electricity Objective (NEO)

21 The Commission is satisfied that the final rule will, or is likely to, contribute to the achievement of the NEO for the following reasons:

- **Disruption to industry capabilities** — COVID-19 has necessitated a short-term reallocation of participant resources from implementation of 5MS and GS to meeting core business and customer service requirements To account for this impact, the start date of 5MS and GS has been delayed by three months to provide sufficient time for participants to develop and test their systems prior to commencement of 5MS and GS.
- **Striking a balance on the length of delay** — in deciding on the length of delay to the start of 5MS and GS, the Commission sought to strike a balance between:
  - providing a sufficient time for the market to account for the disruption caused by COVID-19, and
  - minimising delaying the realisation of benefits from 5MS and GS, and minimising the increase in implementation costs from a longer delay.
- **Deferring industry costs** — while delaying 5MS had GS would defer implementation costs and support the shorter-term cash flows of smaller retailers, it would not be an efficient or targeted way to address issues of financial resilience and financial contagion.

Other measures to assist with COVID-19 financial stress

22 The Commission recognises that COVID-19 has the potential to test the financial resilience of electricity businesses, however delaying 5MS and GS is not the best way to address these issues. In the AEMC's 2020 Retail Competition Review, the Commission identified a range of measures that could improve the financial stability of the NEM including making improvements to the retailer of last resort (ROLR) scheme, increasing customer protections for embedded networks and providing the AER with additional powers to monitor the financial stability of the retail energy market.

New dates for 5MS and GS

23 The table below outlines the original and new commencement dates for 5MS and GS from this determination.

Table 1: **Original and amended commencement dates relating to the Five minute settlement rule and Global settlement rules**

ASPECT OF RULE	ORIGINAL	AMENDED
Commencement of 5MS	1 July 2021	1 October 2021
Commencement of GS 'soft start'	1 July 2021	1 October 2021
Commencement of financial settlement of GS	6 February 2022	1 May 2022
Compliance date for all new and replacement metering installations (other than excluded metering installations), to be configured to record and provide 5 minute data.	1 December 2022	1 December 2022
AEMO required to publish UFE report on unaccounted for energy trends	1 March 2022	1 June 2022
AEMO required to publish UFE reporting guidelines	1 December 2022	1 March 2023

Source: *National Electricity Amendment (Delayed implementation of five minute and global settlement) Rule 2020 No. 10*

CONTENTS

APPENDICES

TABLES

FIGURES

1 AEMO'S RULE CHANGE REQUEST

This chapters includes the:

- rule change request
- rationale for the rule change request
- solution proposed in the rule change request
- rule making process.

1.1 The rule change request

On 9 April 2020, the Australian Energy Market Operator (AEMO) submitted a rule change request to the Australian Energy Market Commission (AEMC or Commission) seeking to delay the commencement of the National Electricity Amendment (Five minute settlement) Rule 2017 (5MS rule) and the National Electricity Amendment (Global settlement and market reconciliation) Rule 2018 (GS rule) by 12 months.

AEMO proposed the rule change request be treated as an urgent rule in accordance with section 96 of the National Electricity Law (NEL) and, as a result, be assessed under an expedited rule change process.

1.2 Rationale for the rule change request

In rule change request, AEMO notes that as Australia faces the COVID-19 pandemic, the energy industry has been working to prepare and respond, recognising that energy services are critical to the ongoing resilience of the economy. AEMO claimed that the scope of the disruptions posed by COVID-19 to the energy industry are complex and broadly relate to the:[1]

- ability of people to attend their places of employment
- ability of people to work (either remotely or at their usual workplace)
- availability of healthy people to perform routine or specialist tasks
- ability of energy industry participants to continue to meet financial commitments as a result of significant revenue uncertainty.

While energy businesses are meeting these core obligations now, AEMO stated that there are likely to be ongoing challenges in the coming months. The nature of those challenges will depend on the severity and duration of COVID-19. The costs and resource challenges that participants will face may put pressure on companies' ability to provide a reliable supply of energy and related customer services. Additionally, AEMO is concerned that maintenance work needed to ensure the summer readiness of the national electricity market (NEM) generation fleet may be compromised over the coming months.[2]

1 AEMO, rule change request, p. 3.
2 AEMO, rule change request, p. 3.

The implementation of 5MS requires significant effort from network service providers, generators, retailers, meter providers, metering data providers and AEMO, who must all complete their readiness activities within a common time-frame. AEMO suggested that the deferred commencement of 5MS prioritises:

- the short-term safety, reliability and security of supply of electricity and the national electricity system
- the financial resilience of the energy industry due to the constraints and risks posed by COVID-19

over the potential for immediate economic benefits of 5MS.[3]

1.3 Solution proposed in the rule change request

AEMO's rule change request proposed:[4]

- delaying the commencement date of 5MS by 12 months, from 1 July 2021 to 1 July 2022, whilst maintaining the date for 5-minute interval data being provided from the majority of type 4 and type 4A meters at 1 December 2022.
- delaying the commencement date for GS by 12 months, from 6 February 2022 to 5 February 2023. The "soft start" for GS, whereby unaccounted for energy (UFE) data would be calculated and published by AEMO, should be delayed until 1 July 2022, to align with the delay in 5MS commencement.
- any changes to already determined procedures for the sole purpose of deferring the effective date of 5MS, or GS, should not require consultation.

AEMO stated that GS implementation should also be delayed to maintain the same policy logic of reducing the combined financial impact of implementing both 5MS and GS. In addition, due to significant synergies between the implementation of GS and 5MS, AEMO has been implementing both rules as a package.[5]

The rule change request did not include a proposed rule.

1.4 The rule making process

On 9 April 2020, the Commission published a notice advising of its commencement of the rule making process and consultation in respect of the rule change request.[6] A consultation paper identifying specific issues for consultation was also published. Submissions closed on 11 June 2020.

The Commission accepted that the rule change request should be considered as a request for an urgent rule under in s. 96 of the NEL. Accordingly, the Commission commenced an expedited rule change process, subject to any written requests not to do so. Written requests not to use an expedited rule change process were due by 28 May 2020.

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3 AEMO, rule change request, p. 3.
4 AEMO, rule change request, p. 2.
5 AEMO, rule change request, p. 4.
6 This notice was published under s. 95 of the National Electricity Law (NEL).

The Commission received one objection to the use of an expedited rule change process. The objection was assessed and the Commission decided in accordance with the NEL that the rule change should continue under the expedited rule change process.[7]

The Commission received 48 stakeholder submissions to the rule change request. Issues that are not discussed in the body of this document have been summarised and responded to in Appendix A.

7 Section 96 of the NEL.

2 FINAL RULE DETERMINATION

This chapter sets out the:

- Commission's final rule determination
- rule making test for changes to the NER
- more preferable rule test
- assessment framework for considering the rule change request
- Commission's consideration of the more preferable final rule against the NEO.

2.1 The Commission's final rule determination

The Commission's final rule determination is to make a final rule which is a more preferable rule. The more preferable final rule delays the date of the 5MS and GS rules by three months.

The Commission's reasons for making this final rule determination are set out in section 2.4.

Further information on the legal requirements for making this final rule determination is set out in Appendix B.

2.2 Rule making test

2.2.1 Achieving the NEO

Under the NEL the Commission may only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national electricity objective (NEO).[8] This is the decision making framework that the Commission must apply.

The NEO is:[9]

> to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system.

2.2.2 Making a more preferable rule

Under s. 91A of the NEL, the Commission may make a rule that is different (including materially different) to a proposed rule (a more preferable rule) if it is satisfied that, having regard to the issue or issues raised in the rule change request, the more preferable rule will, or is likely to, better contribute to the achievement of the NEO.

8 Section 88 of the NEL.
9 Section 7 of the NEL.

2.3 Assessment framework

In assessing the rule change request against the NEO the Commission has considered the following principles:

- **Industry capability —** whether a delay in the start of the 5MS and GS reforms is necessary to allow participants to reallocate resources in the short-term to meet core energy supply responsibilities because COVID-19 restricts the availability and movement of people to attend work.
- **Delayed benefits —** the extent to which a delay to the start date of the 5MS and GS rules would defer the realisation of benefits from 5MS and GS that would flow to consumers.
- **Deferring industry costs —** whether the rule change proposal would support industry viability by deferring costs for participants to implement the 5MS and GS reforms. This could reduce the potential for participant failure and financial contagion attributable to the impact of COVID-19. The support that may be provided by the financial relief may also support the continuation of a competitive market structure, which in turn will support better pricing outcomes for consumers in the long term.
- **Contract market implications —** the effect of a delay to the start of 5MS could have flow on impacts for existing and future hedging contracts for energy. This could impact industry risk management capabilities and potentially add costs that could be passed onto consumers.

2.4 Summary of reasons

The more preferable final rule made by the Commission is attached to and published with this final rule determination. The key features of, and rationale for, the more preferable final rule are as follows.

Five minute settlement

- The final rule delays the commencement date for Schedules 1 to 6 of the 5MS rule by three months until 1 October 2021.
- AEMO does not need to follow the rules consultation procedures when they review and amend the relevant procedures to take into account the 5MS rule for the new commencement date.
- The final rule does not make any change to the 1 December 2022 date by which metering installations (other than excluded metering installations) have to be configured to record and provide trading interval energy data.

Global settlement

- The final rule delays the commencement date for Schedules 1 to 4 of the GS Rule until 1 May 2022.
- In clause 11.112.5(a) the date by which AEMO must determine unaccounted for energy for each local area and publish those amounts has been delayed until 1 October 2021. This is the soft start for global settlement.

- AEMO does not need to follow the rules consultation procedures when they review and amend the relevant procedures to take into account the GS rule for the new commencement date.
- In clause 11.112.3, the date by which AEMO must publish a report on UFE trends has been delayed until 1 June 2022.
- In clause 11.112.6 the date by which AEMO must make and publish the UFE reporting guidelines has been delayed until 1 March 2023.

Consequential amendments

A three month delay to the commencement of the 5MS and GS rules also impacts the commencement of Schedules in the seven other rules listed below that have already been made (and for which the substantive Schedules have commenced). These rules contain Schedules that commence immediately after either the 5MS Rule or the GS rule, to ensure those frameworks continue to operate as intended after the five-minute framework is introduced. The commencement of the Schedules under each of these rules has been drafted such that they operate with a domino-like effect — i.e. the 5MS rule commences, which then immediately triggers the commencement of a Schedule in another rule, which then immediately triggers the commencement of a Schedule in another rule and so on. The commencement of the Schedules in the following rules has therefore also been delayed by 3 months.

The final rule will result in the relevant Schedules in the following Rules commencing in the following order on **1 October 2021**:

- *Schedules 1 to 6 of the National Electricity Amendment (Five minute settlement) Rule 2017 No. 15;*
- *Schedule 2 of the National Electricity Amendment (Five minute settlement and global settlement implementation amendments) Rule 2019 No. 7;*
- *Schedule 2 of the National Electricity Amendment (Transmission loss factors) Rule 2020 No. 2;*
- *Schedule 2 of the National Electricity Amendment (Intervention compensation and settlement processes) Rule 2019 No. 5;*
- *Schedule 2 of the National Electricity Amendment (Application of the regional reference node test to the Reliability and Emergency Reserve Trader) Rule 2019 No.11;*
- *Schedule 2 of the National Electricity Amendment (Application of compensation in relation to AEMO interventions) Rule 2019 No. 13; and*
- Schedule 2 of the *National Electricity Amendment (Participant compensation following market suspension) Rule 2018 No. 13.*

The final rule will result in the relevant Schedules in the following Rules commencing in the following order on **1 May 2022**:

- *Schedules 1 to 4 of the National Electricity Amendment (Global settlement and market reconciliation) Rule 2018 No. 14;*

- *Schedules 3 to 5 of the National Electricity Amendment (Five minute settlement and global settlement implementation amendments) Rule 2019 No. 7; and*
- *Schedule 2 of the National Electricity Amendment (Minor changes) Rule 2020 No. 3.*

The Commission's rationale for the final rule

- The Commission acknowledges that the COVID-19 pandemic has necessitated a short-term reallocation of participants' resources from implementation of 5MS and GS to meeting core business and customer service requirements in response to COVID-19. To account for this impact, the commencement date for 5MS and GS has been delayed by three months to provide sufficient time for participants and industry to develop and test their systems prior to commencement of the 5MS and GS rules.
- In deciding to delay the start date of 5MS and GS by three months the Commission sought to strike a balance between accounting for the impact of COVID-19 on participants' capabilities and, on the other hand, minimising delaying the realisation of benefits from 5MS and GS and minimising the increase in implementation costs associated with a delay. A delay period of three months means that the 5MS rule starts on 1 October 2021 and aligns with the quarterly basis on which a significant volume of hedge contracts are traded.

Assessment against the NEO

Having regard to the issues raised in the rule change request and during consultation, the Commission is satisfied that the more preferable final rule will, or is likely to, better contribute to the achievement of the NEO than the proposed rule for the following reasons:

- **Industry capability** — the COVID-19 pandemic has restricted the ability of people to attend their places of employment and impacted their ability to work.
  - COVID-19 has necessitated a short-term reallocation of participant resources from implementation of 5MS and GS to meeting core business and customer service requirements in response to COVID-19. To account for this impact, the commencement date of 5MS and GS has been delayed by three months to provide sufficient time for participants and industry to develop and test their systems prior to commencement of the 5MS and GS rules.
  - The Commission notes that this decision has been made under uncertainty relating to the financial and health impacts of COVID-19. While the COVID-19 pandemic infection rate has been low in Australia relative to most other countries to date, potential exists for a second or third wave of infections and lock downs in Australia. This decision is therefore made in the knowledge that COVID-19 impacts may change in the future, but no assumptions as to a material worsening or improving of conditions have informed this determination.
- **Delayed benefits** — a delay to the commencement date of 5MS and GS would directly impact the short term efficiency benefits from the 5MS and GS rules for consumers, and to a lesser extent the longer term investment signals from 5MS and GS. Therefore, in deciding whether to delay, the Commission sought to strike a balance between the delay of the realisation of benefits from 5MS and GS and providing sufficient additional time for

participants to implement 5MS and GS and meet ongoing business and customer requirements, given the short-term disruption to participant capabilities caused by the COVID-19 pandemic.

- **Deferring industry costs** — delaying 5MS and GS and would increase implementation costs for the industry. While delaying 5MS had GS would defer implementation costs and support the shorter-term cash flows of smaller retailers it would not be an efficient way to address issues of financial resilience and financial contagion.
- **Contract market implications** — the delay to the commencement of 5MS and GS by 3 months is not expected to have a material impact on existing or future hedging contracts for energy or industry risk management capabilities. The ASX is yet to release a five minute cap product. Administrative costs may be required to renegotiate the limited number of five minute cap products that have been traded on the OTC market, however these costs are not considered to be substantial.

3 IMPACT OF COVID-19 AND A DELAY TO 5MS AND GS ON PARTICIPANT CAPABILITIES

This chapter explores the impact of:

- COVID-19 on participant capabilities to implement 5MS and GS and meet ongoing business responsibilities around energy supply and customer service
- a delay to the commencement of 5MS and GS on participant capabilities to implement 5MS and GS and meet ongoing business responsibilities around energy supply and customer service.

On each issue, stakeholder views are summarised, then the Commission's analysis and conclusions are described.

In conclusion, the Commission considers that COVID-19 has had a short-term impact on participant capabilities to implement 5MS and GS and meet business requirements to supply energy and support customers. The Commission considers that a three month delay to the commencement of 5MS and GS is prudent to provide additional time for participants to develop and test their systems for these major reforms.

The Commission does not consider that a 12 month delay to the commencement of 5MS and GS is necessary to address concerns related to participant capabilities. The impact of COVID-19 on industry capabilities has only been around two or three months, the COVID-19 infection rate has materially declined since the rule change proposal was written and participants now will have had a transitional period of three years and 10 months to implement 5MS (which includes the three month delay).

The Commission notes that this decision has been made under uncertainty relating to the financial and health impacts of COVID-19. While the COVID-19 pandemic infection rate has been low in Australia relative to most other countries to date, potential exists for a second or third wave of infections and lock downs in Australia. This decision is therefore made in the knowledge that COVID-19 impacts may change in the future, but no assumptions as to a material worsening or improving of conditions have informed this determination.

The reasoning for the Commission's decision to delay by three months, as opposed to other time periods, is outlined in chapter 7 of this final determination.

3.1 Impact of COVID-19 on participant capabilities

This section sets out stakeholder views and the Commission's analysis and conclusion on the impact of COVID-19 on participant capabilities to implement 5MS and GS by the original commencement date of 1 July 2021 and to meet energy supply and customer service requirements.

3.1.1 Stakeholder views

Stakeholders had mixed views on the impact of COVID-19 on participant's and industry capacity to implement 5MS and GS on the original timeframe, while meeting business

(energy supply and customer support) responsibilities. IT providers did not consider that COVID-19 had impacted their own capabilities. Retailers, generators, network and metering service providers had mixed views, from minor to material impacts of COVID-19 on their own capabilities.

The key points raised by stakeholders are set out below.

Impact of COVID-19 on ability of staff to attend places of work and workforce productivity

Stakeholders suggested that government responses to COVID-19 had restricted the ability of employees to attend their place of work and had reduced workforce productivity in the short-term. Origin, ENGIE and Essential Energy noted that the COVID-19 restrictions meant that their staff had to be transitioned to work from home[10] Essential Energy noted that social distancing restrictions had prevented staff and contractors from coming on site to do works, which has slowed implementation.[11]

Stakeholders noted that COVID-19 had restricted the activities of international IT vendors. ENGIE noted that COVID-19 caused the overseas offices of its IT service provider to be closed down.[12] AusNet Services and Red and Lumo Energy noted that travel and self-isolation restrictions from COVID-19 have meant that IT projects could not be implemented in the same way as previously with international resources (due to security protocols), which had reduced productivity.[13]

Tilt Renewables considered that COVID-19 has not stopped the industry from working and had only had a marginal impact on its productivity. COVID-19 had meant new protocols at generation sites to manage the health risk and office staff mostly working from home.[14]

Impact of COVID-19 on availability of healthy people to attend work

The South Australian Government noted that Australia's response to COVID-19 has been effective in reducing the number of active cases and that restrictions are already being lifted in all jurisdictions to varying degrees[15]

Impact of COVID-19 on allocation of resources between 5MS and GS implementation and meeting other business requirements

Stakeholders considered that COVID-19 had required a reallocation of resources from 5MS and GS implementation to meeting other business requirements. Arrow Energy, Essential Energy, ENGIE, ERM and Simec noted that COVID-19 had interrupted normal business operations and placed new regulatory requirements and voluntary arrangements on their businesses,[16] which diverted resources (including management time) away from 5MS and GS implementation.[17] Origin noted that its resources had been disrupted in the short-term, and

10 Submissions to the consultation paper - Origin Energy pp. 1 and 7; ENGIE, p. 5; Essential Energy, p. 1.
11 Essential Energy submission to the consultation paper, p. 1.
12 ENGIE submission to the consultation paper, p. 5.
13 Submissions to the consultation paper: AusNet Services, p. 1; Red Energy and Lumo Energy, p. 1.
14 Tilt Renewables submission to the consultation paper, p. 1.
15 South Australian Government Department for Energy and Mining submission to the consultation paper, pp. 1-2.
16 ENGIE submission to the consultation paper, p. 5.

this would have a compounding impact on 5MS implementation, given the sequential nature of design, development and testing.[18] Arrow Energy noted that COVID-19 has caused it to focus resources on core activities, including managing deferred plant maintenance and summer readiness preparation.[19]

A number of stakeholders noted that resources had been reallocated to meet new customer service requirements in response to COVID-19. AusNet Services noted that it redirected resources to implement pricing relief packages for small businesses and residential customers impacted by COVID-19.[20] Alinta Energy and Tango Energy had to reallocate IT staff working on 5MS implementation for COVID-19 impacts,[21] for example to support delivery and reporting measures for COVID-19 distribution network relief packages across the NEM states.[22]

Other stakeholders considered that COVID-19 had minor or positive impacts on their implementation of 5MS and GS. Hansen, an IT systems provider, noted that it has had a remote work policy for many years, which has now been fully utilised across its organisation, resulting in improved productivity due to reduced staff commute times and uninterrupted time to deliver work.[23] AGL, Energy Queensland, Evoenergy, PLUS ES, Stanwell, TasNetworks noted only minor impacts from COVID-19 on their 5MS and GS implementation.[24] Fiona Mackay (individual) suggested that the impacts of COVID-19 on energy businesses was manageable.[25]

Impact of COVID-19 on industry testing to 5MS and GS

AGL and CS Energy noted that, while COVID-19 had not materially impacted their own implementation plans for 5MS, they were concerned about broader industry testing through business-to-business (B2B) data flows. AGL suggest that, for this to occur, there would need to be a sufficient number, and variety, of NEM test participants to meaningfully trial AGL's system upgrades in a test environment.[26]

3.1.2 Analysis

The Commission's analysis of whether COVID-19 has impacted participant capabilities to implement 5MS and GS and meet business (energy supply and customer service) responsibilities includes:

- an assessment of current industry readiness to implement 5MS and GS
- analysis of issues raised in the rule change request.

17 Submissions to the consultation paper: Arrow Energy, p. 9.; Essential Energy, p. 1; ERM, p. 1.; Simec, p. 1.; Snowy Hydro, p. 2.
18 Origin Energy submission to the consultation paper, p.1.
19 Arrow Energy submission to the consultation paper, p. 4.
20 AusNet Services submission to the consultation paper, p. 1.
21 Tango Energy submission to the consultation paper, p. 4.
22 Arrow Energy submission to the consultation paper, p. 2.
23 Hansen Technologies submission to the consultation paper, p. 3.
24 Submissions to the consultation paper: AGL, p. 1; Energy Queensland, p. 3; Evoenergy, p. 3; PLUS ES, p. 3; Stanwell, p. 5; TasNetworks, p. 5.
25 Fiona Mackay (individual) submission to the consultation paper, p. 3.
26 Submissions to consultation paper: AGL, p. 5; CS Energy, p. 3.

Current industry readiness to implement 5MS and GS

The *National Electricity Amendment (five minute settlement) Rule 2017* (5MS rule) was made on 28 November 2017. This rule included a transitional period of around three years and seven months for the relevant changes to be implemented, prior to the commencement of the 5MS rule on 1 July 2021.[27] The *National Electricity Amendment (Global settlement and market reconciliation) Rule 2018* (GS rule) was made on 6 December 2018 and provided a transitional period of around:

- two years and seven months until the 'soft start' of GS on 1 July 2021, and
- three years and two months until the full commencement of GS on 6 February 2022.[28]

AEMO is coordinating readiness reporting across the industry to monitor readiness for the various 5MS and GS transitional activities and commencements.[29] This involves AEMO asking market participants to voluntarily provide information on their own readiness for 5MS and GS. AEMO's most recent 5MS and GS Market Readiness Report - Round 2,[30] based on participant information provided up until 23 April 2020, found that:

- reporting coverage was strong, with 88% (Generators) to 100% (MDPs, DNSPs and TNSPs) of participants responding, depending on the type of participant.
- respondents are generally on track, and progressing with capability implementation and metering transition activities.
- subsets of participants are indicating emergent risks, issues and increased uncertainty in comparison to AEMO's previous 5MS and GS market readiness survey.

In the Market Readiness Report - Round 2,[31] AEMO also noted that some participants decided to make changes to their programs to reflect the possibility of a 12 month deferral to 5MS and GS, that was proposed at the time, and was the subject of this rule change request.

Analysis of issues raised in the rule change request

In the rule change request, AEMO claimed that the scope of the disruptions posed by COVID-19 to the energy industry are complex and broadly relate to the:

- ability of people to attend their places of employment
- ability of people to work (either remotely or at their usual workplace)
- availability of healthy people to perform routine or specialist tasks

AEMO claimed that these disruptions may impact the ability of participants to meet core supply responsibilities and implement 5MS and GS on the original timeline.

The Commission notes that, in relation to the issues raised in the rule change request:

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27 AEMC, *National Electricity Amendment (Global Settlement and Market Reconciliation) Rule 2017*, 28 November 2017.

28 AEMC, *National Electricity Amendment (Global Settlement and Market Reconciliation) Rule 2018*, 6 December 2018.

29 For more information, see: AEMO, Market readiness reporting. https://aemo.com.au/initiatives/major-programs/nem-five-minute-settlement-program-and-global-settlement/readiness-workstream/readiness-reporting

30 AEMO, *Five minute settlement and global settlement, Market Readiness Report - Round 2*, May 2020

31 AEMO, *Five minute settlement and global settlement, Market Readiness Report - Round 2*, May 2020

- **COVID-19 has impacted the ability of people to attend their places of employment.** Government COVID-19 restrictions have meant that participants needed to transition their employees to work from home, which has disrupted core business operations and 5MS implementation programs for various periods of time, generally from a few days to a few months. Social distancing restrictions also prevented staff and contractors from coming on site to do works for network businesses, slowing progress.
- **COVID-19 has impacted the ability of people to work.** COVID-19 has placed a strain on participant's resources to maintain business-as-usual activities. Pandemic restrictions have resulted in IT vendors located overseas being forced to shut down and international resources unable to be used in the same way as previously due to necessary security protocols. These disruptions have slowed or delayed progress of participants' 5MS programs.
- **COVID-19 has not impacted the availability of healthy people to perform routine or specialist tasks**. The COVID-19 pandemic infection rate in Australia has been low relative to the infection rate in most other countries and has decreased since the rule change request was submitted in early April 2020. Therefore, to date there has been no impact on the availability of healthy people working in the electricity sector. Importantly, the Commission acknowledges the uncertainty associated with the future impacts of COVID-19, in particular if second or third waves of the pandemic occur. However, this decision makes no assumptions about such future developments, and instead relies on evidence observable to date.
- **COVID-19 has necessitated a reallocation of participant resources from 5MS and GS implementation to meet business responsibilities (energy supply and customer service) in the short-term.** COVID-19 has interrupted normal business operations and placed a strain on resources to meet business-as-usual activities, particularly for participants where IT resources are scarce and responsible for delivering both 5MS programs and day-to-day tasks. Retailers and network businesses have reallocated 5MS program resources to meeting new regulatory expectations, including the delivery and support of pricing relief packages for customers impacted financially by COVID-19. The delay caused by COVID-19 may mean that participant resources are stretched between 5MS and GS implementation and readiness preparations in the upcoming summer period.

Additionally, the Commission notes that:

- COVID-19 has come after the summer of 2020/21, where the Australian bushfire season was one of the worst on record, and a significant power system event where South Australia was islanded for a continuous period of 18 days.[32] COVID-19 is likely to have added to the capacity constraints on industry, particularly in terms of the focus of senior management and key decision makers in energy businesses and AEMO.
- If a number of participants are delayed in their preparations for 5MS, this may limit the effectiveness of broader industry testing for 5MS in terms of business-to-business (B2B)

32 The South Australian and Victorian power systems were separated for 18 days from 31 January 2020 after a storm knocked out key transmission lines. For more information see: AEMO, *Quarterly Energy Dynamics Q1 2020*, p. 3.

data flows. To account for this potential issue, a short delay to the commencement of 5MS and GS has been provided, as explained below.

3.1.3 Conclusion

In conclusion, the Commission considers that COVID-19 has had a short-term impact on participant capabilities to implement 5MS and GS and meet business requirements to supply energy and support customers. The impact varies by participant, from no impact up to impacts of two to three months. To account for the impact of COVID-19, the Commission considers that a three month delay to the commencement of 5MS and GS is prudent to provide additional implementation time for these major reforms.

The Commission does not consider a 12 month delay to the implementation of 5MS and GS is necessary to address the issues related to participant capabilities. The Commission's reasons for this are set out below in section 3.2. Discussion of the different time periods for delay are set out in chapter 7 of this final determination.

3.2 Impact of delay to 5MS and GS on participant capabilities

This section sets out stakeholder views and the Commission's analysis and conclusions on the impact of a 12 month delay to the commencement of 5MS and GS on participant capabilities.

3.2.1 Stakeholder views

Stakeholders had mixed views on whether a 12 month delay to 5MS and GS was necessary to support industry capacity to implement 5MS and GS and meet ongoing business (energy supply and customer support) responsibilities. In relation to a 12 month delay, most IT providers did not consider it necessary; retailers and generators had mixed views; and most network and metering providers considered it was necessary.

The key points raised by stakeholders were around:

- additional time for participants to develop their systems for 5MS and GS
- additional testing periods for 5MS and GS systems
- additional capacity for participants to meet ongoing business responsibilities around energy supply and customer service
- some participants have paused or slowed their implementation of 5MS and GS.

Additional time for participants to develop their systems for 5MS and GS

Some stakeholders considered that a 12 month delay was necessary to implement the 5MS and GS reforms. AusNet and Mondo[33] suggested a 12 month delay to avoid problems caused by, what AusNet and Mondo considered to be, a lack of implementation time.[34] Origin and ERM considered that a 12 month delay would provide additional time to account for potential

33 Mondo submission to the consultation paper, p. 4.

34 AusNet Services submission to the consultation paper, p. 1.

contingencies.[35] and allow participants to manage the immediate impacts of COVID-19 and appropriately resource their implementation of 5MS and GS.[36]

Some stakeholders did not consider that a delay of 12 months was necessary for industry to implement 5MS and GS. Tesla noted that the 5MS rule has been on the reform agenda for more than three years.[37] Energy Queensland, PEM solar and PLUS ES did not consider that the severity and impact of COVID-19 has been of significant magnitude to warrant a 12 month delay.[38] Hansen noted that a delay would introduce challenges in performing parallel product upgrades for its significant code-base that has been developed for 5MS.[39]

Additional testing periods for 5MS and GS systems

Stakeholders had mixed views on whether additional testing periods would support effective industry testing and provide implementation flexibility for participants.

Alinta Energy, Brave Energy Systems, Snowy Hydro, and Tango Energy suggested that additional 5MS testing periods would allow them to implement 5MS optimally, in accordance with their own preferred timing and approach.[40]

TasNetworks noted that participants will need testing environments ready and support from AEMO during testing cycles. TasNetworks has minimal reliance on B2B flows for 5MS and GS testing.[41]

Other stakeholders noted potential issues with additional testing periods. Energy Queensland[42] and EnergyAustralia noted complexity and risk related to industry testing. If some participants continue on the original 5MS and GS timeline, and some do not, there is no guarantee that suitable testing parties will be available. EnergyAustralia noted that there may be issues with B2B testing if the introduction of new National Metering Identifier (NMI) classification codes are not aligned with the delayed go live program.[43]

Additional capacity for participants to meet ongoing business responsibilities

Arrow Energy considered that a 12 month delay to the commencement of 5MS and GS would allow it to implement 5MS and avoid impacting its existing business operations, in particular managing deferred plant maintenance and summer readiness preparations for 2021.[44]

Participants paused or slowed their implementation of 5MS and GS due to this rule change request

AusNet Services immediately paused implementation of its own 5MS program when this rule change proposal was announced. AusNet Services considers that a 12 month deferral is

35 Origin Energy submission to the consultation paper, p. 2.
36 ERM submission to the consultation paper, p .2.
37 Tesla submission to the consultation paper, p. 1.
38 Submissions to consultation paper: Energy Queensland, pp. 1 and 10; PEM Solar, p. 1; PLUS ES, p. 1.
39 Hansen Technologies submission to the consultation paper, p. 1.
40 Submissions to the consultation paper: Alinta Energy, p. 1; Brave Energy Systems, p. 1; Snowy Hydro, p.2; Tango Energy, p. 1.
41 TasNetworks submission to the consultation paper, p. 5.
42 Energy Queensland submission to the consultation paper, p. 10.
43 EnergyAustralia submission to the consultation paper, p. 2.
44 Arrow Energy submission to the consultation paper, pp. 5 and 9.

essential to avoid problems caused by a lack of implementation time.[45] Jemena scaled down its team to reduce spending in 2020 when this rule change proposal was announced. Jemena has focused on maintaining a core team to support AEMO 5MS and GS consultations and systems development due to COVID-19.[46]

3.2.2 Analysis

In section 3.1 above, the Commission noted that:

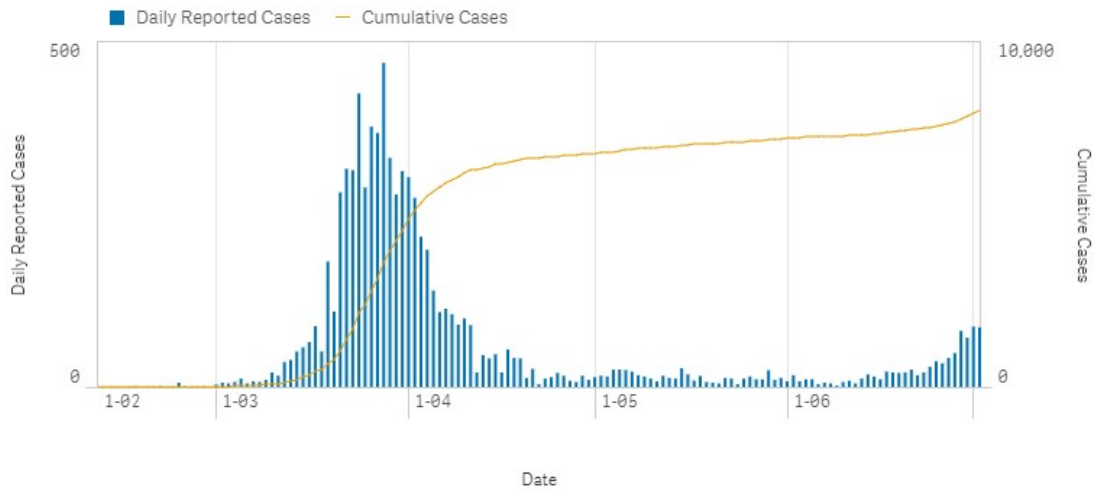
- AEMO's most recent 5MS and GS Readiness Report[47] states that respondents are generally on track, and progressing with capability implementation and metering transition activities.
- There has been a short-term impact of COVID-19 on participant's capabilities to meet ongoing business requirements and implement 5MS and GS on the original timeframe.
- As a result, the Commission considers that a three month delay is prudent to reflect the short-term impact of COVID-19 on participant and industry capability to implement 5MS and GS.

The Commission does not consider that 5MS and GS should be delayed by 12 months for the reasons outlined below.

- Participants have already had a number of years to plan the implementation of the changes they are required to make to implement the 5MS and GS reforms.
- These are important industry reforms that are expected to provide material benefits for the market and customers (discussed further in Chapter 6 of this final determination).
- The impact of COVID-19 on industry capability currently appears to be in the order of a few months, as opposed to 12 months.
- A longer delay of 12 months would result in inefficiencies associated with the use of resources for an extended period of time, potential vendor delivery issues and impacts on vendor support and maintenance agreements.
- The rule change proposal to delay by 12 months was lodged on 9 April 2020 when COVID-19 pandemic infection rates were near their peak in Australia. More recently in May and June 2020, during the period when the Commission has been assessing this rule change proposal, the COVID-19 infection rate has dropped materially compared to the peak period, as shown in Figure 3.1 below. The drop is likely due to government lock down restrictions on economic and social activities. While potential exists for a second or third wave of COVID-19 infections in Australia, the evidence to date indicates a shorter delay of three months is reasonable to account for COVID-19 impacts. The Commission has made no assumption as to the future impacts of COVID-19, particularly if second or third waves of infection occur.

45 AusNet Services submission to the consultation paper, p. 1.
46 Jemena Electricity Networks submission to the consultation paper, p. 3.
47 AEMO, *Five minute settlement and global settlement, Market Readiness Report - Round 2*, May 2020

Figure 3.1: Australian daily COVID-19 reported cases and cumulative cases, 1 February to 2 July 2020



Source: Australian Government, Department of Health, States and Territories Report, 22 July 2020.
https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-current-situation-and-case-numbers

The reasons for applying a three month delay to the commencement of 5MS and GS are outlined below.

- **Additional time for participants to develop their systems for 5MS and GS** — this is necessary to provide sufficient redundancy to account for contingency events such as the impact of COVID-19 and uncertainty associated with this rule change process. Given the revised longer transition periods (three years and 10 months for 5MS and two years and 10 months for GS), sufficient time has been provided for all participants to implement 5MS and GS, including those participants that made their own business decisions to pause or slow their implementation of these reforms based on the announcement of this rule change proposal.
- **Additional time for participants to test their systems for 5MS and GS** — this includes systems testing between participants and AEMO and testing of business-to-business data flows between participants.
- **Additional capacity for participants to meet ongoing business responsibilities around energy supply and customer service** — regulatory responses to COVID-19 have placed additional expectations on participants to support customers in financial difficulty, which has diverted resources and management focus in the short-term away from 5MS and GS. A short delay would reduce pressure on smaller participants, whose resources are more scarce than larger participants, from diverting resources to implement 5MS during the busy summer period.

The assessment of different delay periods of time is set out in Chapter 7. The Commission decided that a delay of three months to commencement of 5MS and GS is appropriate.

3.2.3 Conclusion

The Commission does not consider that a 12 month delay to the commencement of 5MS and GS is necessary to address issues of participant capabilities. The impact of COVID-19 on industry capabilities has only been for a period of around two or three months. In addition, the COVID-19 infection rate has materially declined since the rule change proposal was written and participants now will have a total transitional period of three years and 10 months to implement 5MS.

The Commission considers however, that a shorter delay of three months is prudent to provide additional time for participants to develop and test their systems and meet ongoing business requirements for supplying energy and supporting customers.

The Commission notes that this decision has been made under uncertainty relating to the financial and health impacts of COVID-19. While the COVID-19 pandemic infection rate has been low in Australia relative to most other countries to date, potential exists for a second or third wave of infections and lock downs in Australia. This decision is therefore made in the knowledge that COVID-19 impacts may change in the future, but no assumptions as to a material worsening or improving of conditions have informed this determination.

4 IMPACT OF COVID-19 AND A DELAY TO 5MS AND GS ON PARTICIPANT COSTS AND CASH FLOWS

This chapter outlines the:

- impact of COVID-19 on participant operational cash flows
- impact of a delay to 5MS and GS on
  - overall project costs
  - operational cash flows

The Commission acknowledges that while COVID-19 is having a negative impact on participant operational cash flows, it is not clear whether delaying the 5MS and GS reforms would materially reduce the potential for financial failure and financial contagion in the retail electricity market. Delaying 5MS and GS and would increase overall project costs for the industry. While delaying 5MS and GS would provide some operational cash flow benefits from deferring some project costs, these benefits are unlikely to be significant enough to prevent a participant entering financial stress. Issues around financial resilience or financial contagion would be better addressed through more targeted approaches, that avoid delaying major industry reforms that are expected to have material benefits for the market and customers.

4.1 AEMO's view

In its rule change request, AEMO proposed that a 12 month delay in 5MS would free up both human and financial resources to deliver core business functions in a COVID-19 constrained environment.[48] Specifically, AEMO proposed that a delay to 5MS and GS may:

- potentially reduce reliance on specialist external project resources, which would reduce 5MS project cost pressures for businesses that have indicated they are operating in markets where resource constraints exist and upwards pressures on resource costs have been observed
- create more opportunity for participants to negotiate with their 5MS vendors in a less time constrained environment
- defer significant industry implementation costs and provide a financial buffer to cater for the uncertainties posed by COVID-19.[49]

In its submission to the consultation paper, AEMO commented that a 12 month deferral of 5MS and GS would result in a $5-$7 million increase in its own overall project costs. AEMO attributed the increase in costs to the following elements:

- extending and supporting the 5MS Staging Environment, so that participants have an environment where they can test their own changes against the central market systems in 5MS mode

48 AEMO, rule change request, p. 2.
49 AEMO, rule change request, p. 5.

- extending support for monitoring and coordinating the Metering Transition Plan, to provide flexibility to support participants who are proceeding on the current timetable as well as those electing to pause their metering programs
- extending support for the AEMO Support Hub call centre to respond to participant queries
- setting up a team to support the Market Trials for 5MS in the first half of 2022 and for GS in the fourth quarter of 2022
- an extra 12 months of finance charges. Note that this assumes a delay in the commencement of cost recovery from 1 July 2021 to 1 July 2022. This decision is subject to the NEM Declared Project 5MS cost recovery consultation and decision-making process.[50]

4.2 Stakeholder views

4.2.1 Impact of COVID-19 on participant cash flows

A number of stakeholders submitted COVID-19 has directly impacted some cash flows. The cited a range of issues, including:[51]

- a rapid increase in customers entering hardship arrangements
- the need to respond and align with industry expectations to support customers, for example Energy Networks Australia (ENA) relief package[52]
- an accumulation of bad debt due to the sharp economic downturn.

Stakeholders submitted that in addition to those factors it has been difficult to accurately quantify the impact of COVID-19 on cash flows due to factors such as the unknown duration and severity of the pandemic and the resulting ongoing government restrictions.[53]

AusNet Services noted, being a regulated utility, it is heavily reliant on continuing sources of funding to support its expenditure programs and was therefore closely monitoring the availability and pricing of debt and equity markets.[54]

TasNetworks submitted that there had been no evidence of an impact on cash flow as a result of COVID-19.[55]

Vector submitted that the impact of COVID-19 and the resulting economic downturn would likely reduce the volume of advanced metering installations by as much as 40 per cent, resulting in a 10-20 per cent increase in per unit operating cost.[56]

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50 AEMO submission to the consultation paper, pp. 5-6.

51 See submissions to the consultation paper: Energy Queensland, pp. 8; Jemena Electricity Network, p. 3; AusNet Services, p. 6; Mondo, p. 3; SA Government department of Energy and Mining, cover page; Essential Energy, p. 3; Snowy Hydro, p. 2.

52 The ENA relief package provides support for customers. For example, for small businesses that are mothballed, electricity and gas network charges will not apply from the start of April to the end of June 2020, if their consumption is less than a quarter what it was in 2019. For more information, see: https://www.energynetworks.com.au/news/media-releases/2020-media-releases/energy-network-relief-package-announced/

53 See submissions to the consultation paper: Energy Queensland, p. 9; Jemena Electricity Network, p. 3; AusNet Services, p. 6; Mondo, p. 3; SA Government department of Energy and Mining, cover page; ENGIE, p. 5; ERM Power, p. 2.

54 AusNet Services submission to the consultation paper, p. 6.

55 TasNetworks submission to the consultation paper, p. 5.

56 Vector submission to the consultation paper, p. 4.

4.2.2 Impact of a delay of 5MS and GS on costs and cash flows

A number of stakeholders submitted that any period of delay to the original commencement date for 5MS and GS would increase implementation costs due to:[57]

- unplanned project costs for project teams and external vendors as a result of ramping up and down[58]
- fundamental changes to project scope, duration and solution design.[59]

Some of these stakeholders questioned whether a 12 month delay would have any benefits for consumers, stating it would likely increase aggregate industry implementation costs which would be passed onto consumers, and further delay the achievement of broader market benefits.[60]

Tesla and Enel X noted that the financial viability of market participants should not be solved through delaying market improvements such as 5MS and GS, but should be addressed through more efficient and targeted mechanisms such as the AER's rule change proposal enabling retailer to defer some network payments, and broader government support plans.[61]

Enel X submitted further that:[62]

> If there is a plausible risk of cascading business failures, then the underlying cause of this is related to the economic downturn as a result of COVID-19 and market dynamics, not the implementation of 5MS.

Conversely, Alinta Energy submitted that a delay would lower implementation costs as it would allow for industry to better plan, engage and deploy project spend in a less constrained market environment.[63]

A number of other stakeholders submitted on similar points, noting a delay would allow for a deferral and reallocation of project costs into core business functions, mitigate implementation 'go live' risk and help 5MS related project costs remain within budget.[64]

EvoEnergy submitted that a delay would not necessarily minimise costs, but would mitigate risks related to market transactions for the 'go live' of 5MS.[65]

Some stakeholders also submitted that a 12 month delay would have zero or negligible impact on related 5MS and GS project implementation costs.[66]

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57 See submissions to the consultation paper: AGL, p. 1; EnergyAustralia, p. 1; Energy Queensland, p. 1 and 9; Stanwell, p. 4; PLUS ES, p. 5; Jemena Electricity Network, p. 3; Hansen Technologies, p. 1; Enel X, p. 1;

58 See submissions to the consultation paper: EnergyAustralia, p. 1; PLUS ES, p. 5; Jemena Electricity Network, p. 3;

59 Energy Queensland submission to the consultation paper, p. 1 and 9; Hansen Technologies, p. 1;

60 See submissions to the consultation paper: EnergyAustralia, p. 1;, p. 2; Stanwell p. 4; Tesla, p. 2; Clean Energy Council, p. 3; EUAA, p. 1

61 See submissions to the consultation paper: Tesla, p. 2; Enel X, p. 5; The Australia Institute, p. 3.

62 Enel X submission to the consultation paper. p. 5.

63 Alinta Energy submission to the consultation paper, p. 1.

64 See submissions to the consultation paper: Arrow Energy, p. 5; Simec Energy, p. 1; Red Energy and Lumo Energy, p. 1; Essential Energy, p. 3;

65 Evoenergy submission to the consultation paper, p. 5.

66 See submissions to the consultation paper: Vector, p. 4; ENGIE, p. 5; CS Energy, p. 3; TasNetworks, p. 5.

CS Energy submitted that additional testing periods would provide participants with the flexibility to continue on their original timetable or a later timetable, which would likely minimise the costs of deferral for each participant.[67]

4.3 Impact of COVID-19 on participant cash flows

This section explores the impact of COVID-19 on participant cash flows. As noted in section 4.1, AEMO suggests COVID-19 will impact participant cash flows. If these cash flows are impacted significantly enough, it could lead to participant failure and potential financial contagion, which would not be in the long term interest of consumers.

4.3.1 Impact of COVID-19 on consumers and the broader economy

In response to COVID-19, state and federal government issued strict social distancing restrictions, which significantly impacted parts of the economy and consumer confidence and spending. As a result, between March 2020 and May 2020:

- the Australian unemployment rate increased from 5.2 per cent to 7.1 per cent[68]
- the number of payroll jobs decreased by 7.5 per cent[69]
- total wages paid in Australia decreased by 8.3 per cent[70]

In response to the economic impact resulting from social distancing, state and federal governments introduced a range of customer and industry support payments, including the JobKeeper[71] and JobSeeker[72] payment schemes.

The Commission notes that the full economic impact of the COVID-19 will depend on a range of factors, including (but not limited to):

- global and Australian COVID-19 pandemic infection rates, including the potential for second and third infection waves, and government responses to potential second and third infection waves
- the resilience of the international and Australian economies
- the extent and duration of government financial support and central bank financial stimulus, internationally and in Australia
- the period of time until a vaccine for COVID-19 is developed, if at all.

While the slowing of the economy in itself may not threaten the financial stability of the electricity sector, it does impact consumers' consumption patterns and their ability to pay for the electricity they consume.

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67 CS Energy submission to the consultation paper, p. 3.

68 Australian Bureau of Statistics (ABS), 6202.0 - Labour force, Australia, Mar 2020, 14 April 2020; ABS, *6202.0 - Labour Force, Australia, May 2020*, 18 June 2020.

69 ABS, *6160.0.55.001 - Weekly Payroll Jobs and Wages in Australia, Week ending 30 May 2020*, 16 June 2020.

70 Ibid.

71 The JobKeeper scheme is a temporary subsidy for businesses significantly affected by COVID-19. Eligible employers, sole traders, and other entities can apply to receive $15,00 per eligible employee per fortnight. For more information see: https://www.ato.gov.au/general/jobkeeper-payment/.

72 The JobSeeker payment scheme replaces the Newstart Allowance as the main working age payment for those who have the capacity to work now or in the near future. For more information see: https://www.servicesaustralia.gov.au/individuals/services/centrelink/jobseeker-payment.

Customer protections through AER Statement of Expectations

On 9 April 2020, the AER published a Statement of Expectations which called on retailers to provide additional support to customers who may be impacted by COVID-19.[73] This included ten new expectations on energy retailers, which are set out in below.[74]

These new expectations are important and useful measures for supporting customers under financial strain. However, some expectations, such as those advising against disconnections, while protecting many vulnerable consumers are likely to reduce retailer revenues and potentially increase financial strain. A number of retailers commented that these new expectations were likely to adversely affect their cash flows.

BOX 1: AER STATEMENT OF EXPECTATION ON ENERGY BUSINESSES DUE TO COVID-19

1. Offer all residential and small business customers, including small businesses eligible for the JobKeeper Payment, who indicate they may be in financial stress a payment plan or hardship arrangement, regardless of whether the customer meets the 'usual' criteria for that assistance.
2. Do not disconnect any residential or small business customers who may be in financial stress (including small businesses eligible for the JobKeeper Payment), without their agreement, before 31 July 2020 and potentially beyond.
3. Do not disconnect any large business customer, including businesses eligible for the JobKeeper Payment, without their agreement, before 31 July 2020, and potentially beyond, if that customer is on-selling energy to residential or small business customers (for example, in residential parks or retirement villages).
4. Defer referrals of customers to debt collection agencies for recovery actions, or credit default listing until at least 31 July 2020.
5. Be prepared to modify existing payment plans if a customer's changed circumstances make this necessary.
6. Waive disconnection, reconnection and/or contract break fees for small businesses that have ceased operation, along with daily supply charges to retailers, during any period of disconnection until at least 31 July 2020.
7. Prioritise the safety of customers who require life support equipment and continue to meet responsibilities to new life support customers.
8. Prioritise clear, up-to-date communications with customers about the issues addressed in this Statement, including by keeping website, social media and call centre waiting and hold messages up to date, so customers can readily access updates when they need them and relieve some pressure on affected call centres.

73 AER, Statement of Expectations of Energy Businesses: Protecting consumers and the market during COVID-19, 9 April 2020.

74 The AER has indicated to the AEMC that it will likely extend the statement of expectations, with a final decision likely to published in late July.

9. Prioritise clear communications with customers about the availability of retailer and other supports, including the availability of payment plans, energy efficiency advice and fault repair.
10. Minimise the frequency and duration of planned outages for critical works, and provide as much notice as possible to assist households and businesses to manage during any outage.

Source: AER, *Statement of Expectations of energy businesses: Protecting consumers and the market during COVID-19*, 9 April 2020.

4.3.2 Impact of COVID-19 on electricity retailers

As established in section 4.3.1, COVID-19 restrictions and impacts are likely to increase consumer energy debt and in turn reduce retailer revenue. The most recent weekly and monthly reports published by the AER, based on information available on 15 June 2020, show a deterioration in some, but not all, metrics for retail electricity debt in recent months, compared to the second quarter of last year (2019).[75]

- **Residential electricity customers**[76]
  - Between Q2 2018/19 and Q2 2019/20, the average proportion of electricity customers repaying debt increased by 0.9 per cent to 3.3 per cent, while the average amount of debt increased by 24 per cent to $899.
  - Between 30 March 2020 and 15 June 2020, the average proportion of electricity customers repaying debt increased by 0.2 per cent to 3.3 per cent and the average amount of debt per customer increased by 21 per cent to $899.
- **Small business customers**[77]
  - Between Q2 2018/19 and Q2 2019/20, the average proportion of electricity customers repaying debt increased by 1.7 per cent to 4 per cent, while the average amount of debt increased by 5.7 per cent to $2,171.
  - Between 30 March 2020 and 15 June 2020, the average amount of debt per customer increased by 1.2 per cent to $2,171 and the average proportion of customers repaying debt increased by 0.7 per cent to 4 per cent.
- **Electricity hardship programs**[78]
  - Between Q2 2018/19 and Q2 2019/20, the AER noted that the average proportion of electricity customers on hardship programs increased by 0.2 per cent to 1.2 per cent, while the average hardship debt decreased by 2.9 per cent to $1,269.
  - Between 30 March 2020 and 15 June 2020, the average amount of debt per electricity hardship customer increased by 7.5 per cent to $1,269 and the average

75 As part of the AER Statement of expectations relating to COVID-19, retailers were asked to voluntarily provide customer debt information on a weekly basis.

76 AER, *Retail market data dashboard - 15 June 2020 - COVID-19*, p. 1.

77 AER, *Retail market data dashboard - 15 June 2020 - COVID-19*, p. 1.

78 AER, *Retail market data dashboard - 15 June 2020 - COVID-19*, p. 2.

proportion of customers on a hardship program increased by 0.1 per cent to 1.2 per cent.

- **Payment plans**
  - The AER noted that the number of customers on payment plans was slightly lower in Q2 2020, compared to Q2 2019. This may reflect that many retailers were offering customers the option to defer outstanding arrears payments, typically until 31 July. These payment deferrals and extensions are not included in the AER's data, as they are not captured under the AER's definition of a payment plan.[79]

In relation to the above AER data, the Commission notes:

- The data has a significant time lag, and may not be an accurate reflection of current or future debt levels. Most small customers pay for their electricity consumption quarterly in arrears, which creates a natural lag between broader economic conditions, and the cash position of retailers. Additionally, there is a further time-lag from a customer missing a payment, to it entering a hardship program, and the debt being categorised as bad debt.
- it is based on information provided by most, but not all, electricity retailers.
- as noted above, deferrals and extensions offered by retailers to customers, typically until 31 July 2020, are not captured under the AER's definition of a payment plan.

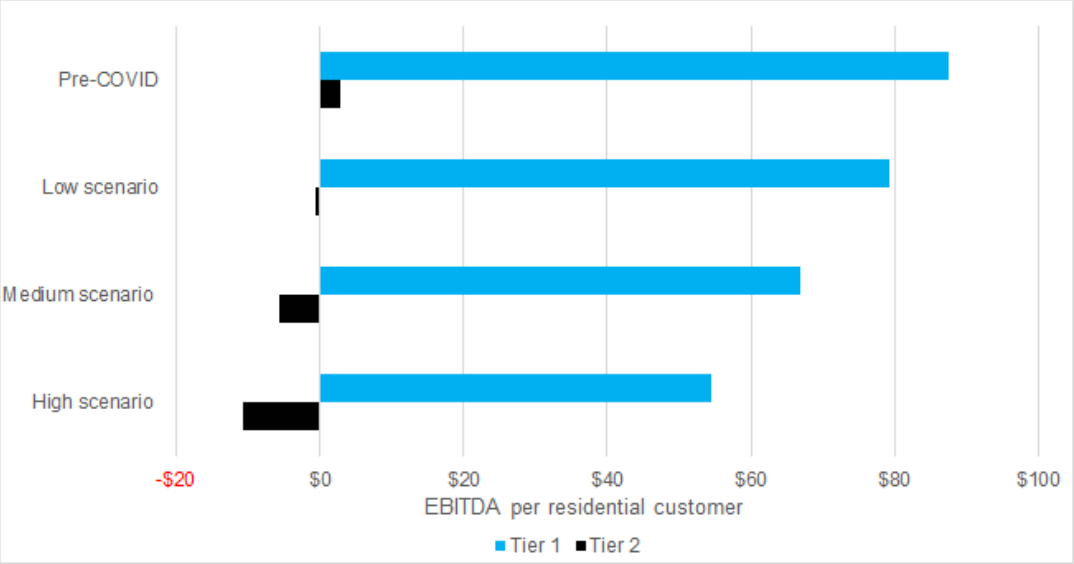
The impact of increased customer debt may have a significant impact on the financial viability of many retailers, in particular smaller retailers. In December 2019, the ACCC reported that at a NEM average level, retailers have a retail margin or Earnings before interest, tax, depreciation and amortisation (EBITDA) of around four per cent or $60 per residential customer.[80] However, this retail margin is estimated to be considerably less for smaller retailers. The AEMC's 2020 Retail Energy Competition Review presented an illustrative scenario analysis exploring the impact of increased debt on retailer margins. The illustrative example explored three scenarios, including:

- low scenario — representing a 200 per cent increase in hardship and debt collection costs
- medium scenario — representing a 350 per cent increase in hardship and debt collection costs
- high scenario — representing a 500 per cent increase in hardship and debt collection costs.[81]

The results from the analysis are presented in Figure 4.1 below.

79 AER, *Retail market data dashboard - 15 June 2020 - COVID-19*, p. 1.
80 ACCC, *Inquiry into the National Electricity Market* - November 2019, p. 6.
81 AEMC, 2020 Retail energy competition review, Final report, 30 June 2020, p. 145.

Figure 4.1: Illustrative impact of COVID-19 on EBITDA



Source: AEMC analysis of ACCC data

Note: The results presented are illustrative, and are reliant on numerous assumptions, including: all bill stack components, aside from retail costs, are the same between Tier 1 and 2 retailers; 'other retail costs' are the same across Tier 1 and 2 retailers; hardship and debt collection costs increase at the same rate, whilst other retail costs do not change.

While the scenario analysis results are illustrative, and contain several assumptions, it does illustrate that small retailers are likely to be disproportionately impacted by increasing debt. Additionally, this analysis does not account for recent changes to consumption profiles due to COVID-19. For example, because of the lock down restrictions small business consumption has fallen while residential consumption has increased. Retailers generally have a greater margin on small business consumers, and as such their total margin and revenue is likely to have fallen.[82]

The Retail Energy Competition Review also identified four factors that are likely to impact a retailer's financial resilience in the face of COVID-19, including its profitability before the pandemic, its corporate and financial structure, its hedging strategy and its customer service and IT locations.[83] The Commission stated it is likely to be a combination of all these factors that would impact a retailer's ability to stay solvent through the full economic impact of COVID-19, as such the impact of COVID-19 has the potential to vary considerably between retailers.

If retailers are not financially viable and leave the market, this would result in less competition in retail markets which may not be in the long term interests of consumers.

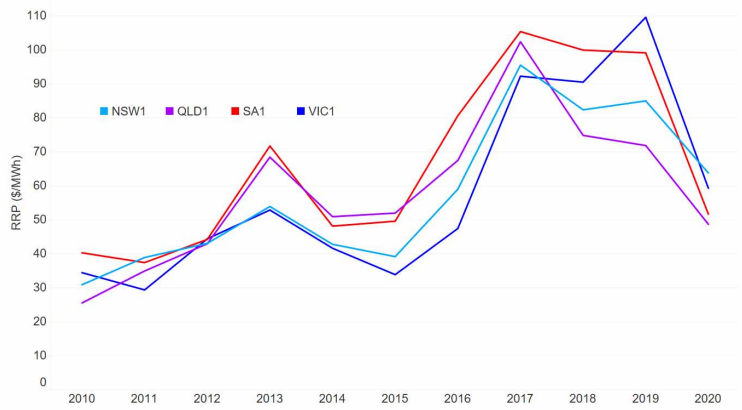
82 The ACCC reported that NEM average retail margins for residential consumers is 1.3 c/kWh, while the average retail margin for small businesses is 2.3 c/kWh. For more information see: https://www.accc.gov.au/publications/inquiry-into-the-national-electricity-market-november-2019-report.

83 AEMC, 2020 Retail energy competition review, Final report, 30 June 2020, pp. 141-148.

4.3.3 Impact of COVID-19 on generators

Average wholesale electricity prices have fallen in 2020 to around 2015 levels, as illustrated in Figure 4.2. While this fall in wholesale spot prices is partially caused by slightly lower levels of operational demand, this is only one factor that has influenced prices and therefore revenue. In addition to COVID-19 restrictions factoring into lower consumption, there has also been a notable increase in solar PV installations in the NEM. AEMO estimate that around a third of the year-on-year reduction in operational demand observed in the first quarter of 2020 can be attributed to increased solar PV output.[84]

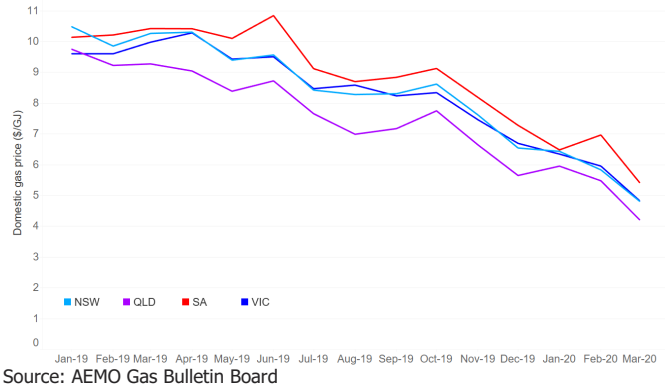
Figure 4.2: Annual time-weighted prices by region, 2010 to 2020*



Source: AEMC analysis of AEMO and ASX data
Note: Annual price for 2020 estimated based on contract price for calendar year 2020 as at 31 March 2020.

However, the most significant cause of lower wholesale prices is likely to be lower gas prices, which are influenced by global gas supply and demand.

Figure 4.3: Domestic gas prices



Source: AEMO Gas Bulletin Board

84 AEMO, Quarterly Energy Dynamics, Q1 2020, p. 8.

While acknowledging that several participants that own gas generators may have long term gas contracts, those gas generators that do not have long term contracts may have benefited from lower fuel costs.

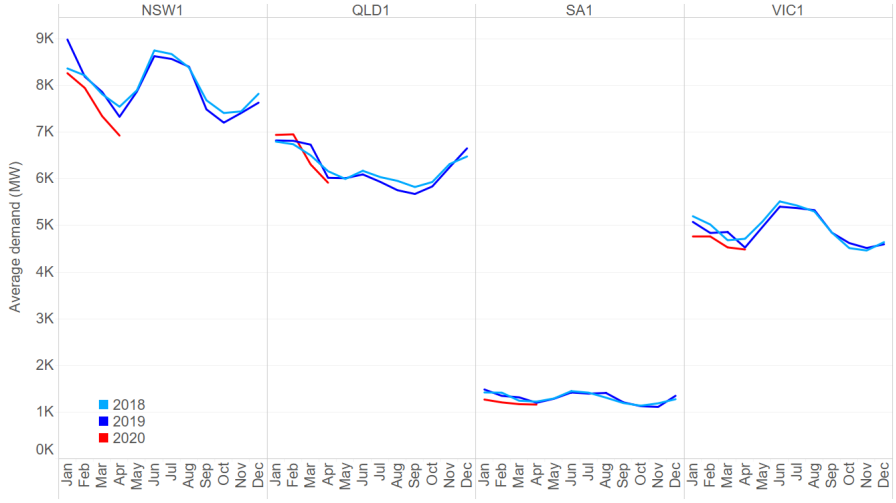
Additionally, retailers that have contracted out its generation would have hedged against the fall in wholesale prices, and would not be impacted by the fall in spot prices in the short to medium term.

Given the above, the Commission is of the view that while generators have experienced lower revenue since the beginning of 2020, there are many factors that have influenced this lower revenue, some of which are not linked to COVID-19. Further, wholesale electricity prices, while lower than the past few years, are in the realm of historical fluctuations which the NEM is designed to handle.

4.3.4 Impact of COVID-19 on networks

Network service providers may have also been impacted by lower demand and volumetric electricity charges due to COVID-19. However, as noted in section 4.3.3, while the demand has fallen in most NEM regions, some of the fall in demand, at least in NSW, can be attributed to a growth in rooftop PV.

Figure 4.4: Monthly average demand by NEM region, 1 January 2018 to 30 April 2020



Source: AEMC analysis of AEMO data

Some stakeholders noted that the Energy Networks Australia (ENA) network relief package has also added to the COVID-19 costs faced by networks. The voluntary ENA relief package includes the rebate and deferral of payment of network charges incurred between 1 April to 30 June 2020 for a subset of customers and retailers. The repayment of costs are deferred until 30 September 2020.[85] The Commission recognises that the relief package may impact

85 For more information see: https://www.energynetworks.com.au/miscellaneous/covid-19-electricity-and-gas-network-relief-package/.

the cash flow of network service providers, however the voluntary package cannot be expected to threaten the viability of networks businesses.

4.3.5 Conclusion

The Commission has found that while COVID-19 has impacted the cash flow of all market participants to varying extents, the impact is likely to be the most significant for retailers. Small retailers have slim margins. This, coupled with increased customer debt and an expectation not to disconnect non-paying customers, could result in retailers failing, causing competition impacts for consumers. Additionally, customer debt levels are likely to increase as government financial support programs, such as JobKeeper, JobSeeker and others begin to taper off.

4.4 Impact of a delay on 5MS and GS project costs

The Commission has recognised that COVID-19 has had an impact on the cash flow of some participants. This section looks specifically at the 5MS and GS implementation programs and explores what the impact of a delay would be on the overall project costs.

4.4.1 5MS and GS project costs prior to COVID-19

The pathway to prepare for 5MS and GS varies considerably between participants across the industry. For example, a non-scheduled generator may not need to amend many if any of its systems, while a retailer may completely change its settlement and customer management systems.

There is also considerable variation between similar participant types. For instance, larger, more established participants tend to have a greater degree of customisation in their IT systems, than smaller, newer participants that tend to have 'off-the-shelf' IT products. IT products that are more standardised are likely to have a lower cost to change than more customised systems. As such, many smaller retailers may experience 5MS and GS readiness as a capital expenditure fee charged by their IT vendor, who apportions their upgrade cost on a customer number basis across all the retailers it services.

Another complicating factor is in assessing which parts of the project costs are directly attributable to 5MS and GS preparedness, and what system changes and upgrades are part of a general refresh which may be undertaken because there are synergies with the 5MS and GS upgrades. For example, one generator may update its bidding and settlement systems, while another generator may upgrade its physical generating units to improve its ramp rates and ability to better operate under 5MS.

The Commission engaged Deloitte to assist in this assessment of 5MS and GS project costs.[86] Deloitte estimated a range of project costs for 5MS and GS by different participant types. The estimates provided in Table 4.1 are based on total project costs prior to COVID-19. The

86 For more information, see Deloitte, *Delayed implementation of five minute and global settlement rules*, report for the AEMC, 6 July 2020.

estimates are based on publicly available information and Deloitte's experience of IT implementation costs.

Table 4.1: **Deloitte estimate of 5MS and GS project costs prior to COVID-19**

	SMALL (<1% MARKET SHARE)	MEDIUM (1-10% MARKET SHARE)	LARGE (>10% MARKET SHARE)
Generator	-	$5 - $20 m	$20 - $25 m
Networks	-	$5 - $20 m	$20 - $30 m
Retailers	$100k - $1m	$15 - $25 m	$25 - $40 m

Source: Deloitte, *Delayed implementation of five minute and global settlement*, report for the AEMC, 6 July 2020, p.9. Note: Deloitte participant classifications are based on their 'main activity', e.g. AGL is a retailer. A full classification list is presented in Appendix B of their report.

In its analysis, Deloitte used the figures above to baseline the relative cost changes from a delay to 5MS and GS.

4.4.2 Factors impacting costs of delay

Deloitte identified seven drivers that would impact the overall project cost under a delay, including:

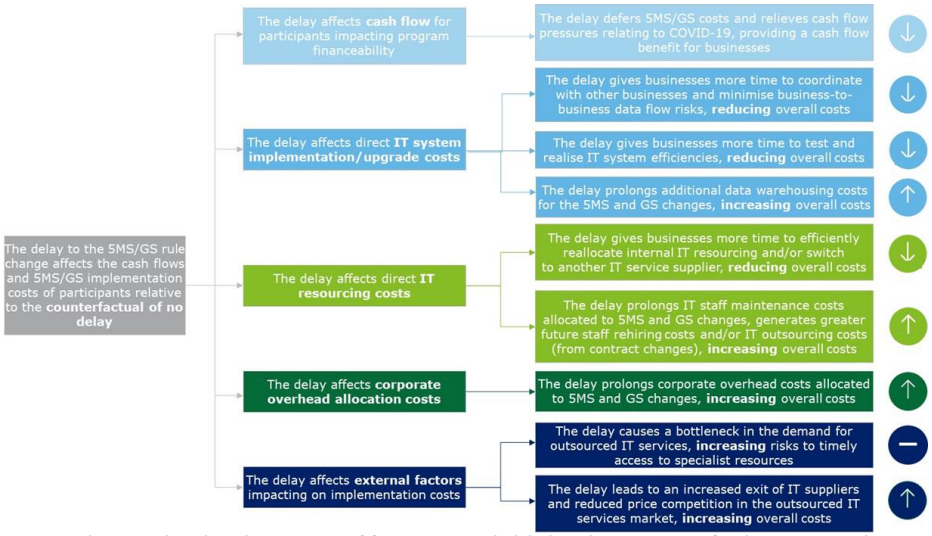
- resource costs — costs incurred and saved from laying-off or reallocating resources to other projects (ramp up and down) and potentially re-hiring the resource in the future, loss of intellectual property, requirement to re-train resources
- IT Infrastructure & Maintenance costs — the technology costs associated with maintaining IT components to enable both thirty minute settlement, 5MS and GS
- IT systems change costs — costs from systems and software design and delivery changes that may need to be made due to a delay.
- market testing — additional costs associated with market testing and trial duration, and business-to-business (B2B) data flow testing over a longer period of time
- regulatory risks and costs — costs from updating and meeting regulatory and compliance agreements
- reduced investments — reduced demand for investments in new energy technologies and DER projects
- contract and commercial — costs from changing or cancelling vendor contracts.[87]

The Commission received limited data on these specific drivers of project costs from participants. However, several participants identified resource costs and savings, and IT implementation and market testing costs in their submissions and through discussions.

Deloitte developed a set of hypotheses of how various elements of project costs and cash flow would be impacted by a 12 month delay. This is presented in Figure 4.5.

87 Deloitte, Delayed implementation of five minute and settlement rules, 6 July 2020, p. 17.

Figure 4.5: Impact of a delay to 5MS and GS on participant cash flows



Source: Deloitte, *Delayed implementation of five minute and global settlement*, report for the AEMC, 6 July 2020, p.10.

Deloitte considers a 12 month delay to 5MS and GS would:

- decrease some project costs by providing businesses with more time to:
  - coordinate with other businesses and minimise business-to-business data flow risks
  - test and realise IT system efficiencies
  - reallocate internal IT resources and/or switch to another IT provider.
- increase some project costs by
  - extending the period of time for data warehousing
  - extending the period of time for IT maintenance staff allocated to 5MS and GS and increasing future staff rehiring costs associated with ramping down and ramping up 5MS project teams
  - extending corporate overhead costs allocated to 5MS and GS changes
  - potentially leading to the exit of IT suppliers and reduced price competition in the outsourced IT services market.

Deloitte also identified some cash flow benefits of a delay. These are discussed in section 4.5.

4.4.3 Estimated impact of a delay on project costs

While only a subset of submissions provided cost estimates of a 12 month delay, the estimates the Commission received ranged from a five to 10 per cent increase in overall project costs. As noted in section 4.4.1, there are many other upgrades and system changes that are taking advantage of the 5MS and GS that add to the project cost. As such, the Commission, on Deloitte's advice, has assumed a 12 month delay will result in a five per cent increase in costs.

Table 4.2 illustrates how project costs would change under a five per cent increase in the pre-COVID-19 project cost estimates presented in Table 4.1.

Table 4.2: Deloitte estimate of 5MS and GS project costs increases from a 12 month delay compared to no delay

	SMALL (<1% MARKET SHARE)	MEDIUM (1-10% MARKET SHARE)	LARGE (>10% MARKET SHARE)
Generator	-	$250k - $1 m	$1.25 - $2 m
Networks	-	$250k - $1 m	$1 - $1.5 m
Retailers	$5k - $50k	$750k - $1.25 m	$1.25 - $2 m

Source: Deloitte, *Delayed implementation of five minute and global settlement*, report for the AEMC, 6 July 2020, p.24. Note: Deloitte participant classifications are based on their 'main activity', e.g. AGL is a retailer. A full classification list is presented in Appendix B of their report.

Given the above, Deloitte estimated a 12 month delay would increase overall costs to generators, retailers and networks from $19 to $41 million.[88] Including AEMO's cost increase estimate, the total industry cost of a 12 month delay ranges from the $24 to 48 million. Note, this excludes any additional costs incurred by other participants such as meter data providers (MDPs).

In addition to a 12 month delay, the Commission also considered the impact of a three month delay. While the Commission did not receive any cost estimates of a three month delay, from the evidence provided, it is likely that a three month delay would result in considerably lower cost increases, because it would :

- avoid resource costs from standing down and rehiring staff and any corporate knowledge losses through that process
- minimise the additional time required to run dual systems and the risk of having some participants advanced in their IT system development and others that are not.
- avoid running additional market testing and trial periods, as these would likely just be shifted a month or two to adjust to the slightly longer implementation timeframe.

4.4.4 Conclusion

The Commission found that while individual 5MS and GS project costs vary considerably between participants, it is likely that on average a 12 month delay will increase participants' overall project costs by around five per cent. This could result in an overall industry cost increase of between $24 to $48 million (excluding MDPs).[89] However, a three month delay is likely to reduce these implementation cost increases considerably.

88 Deloitte, D*elayed implementation of five minute and global settlement*, report for the AEMC, 6 July 2020, p. iv.

89 Deloitte, D*elayed implementation of five minute and global settlement*, report for the AEMC, 6 July 2020, p. iv.

4.5 Impact of a delay on participant operational cash flow

As discussed in section 4.3, COVID-19 has reduced participants' revenues, particularly retailers' revenue. This section explores what the impact of delaying 5MS and GS would have on participants' cash flow and expenditure, and whether deferring of 5MS and GS costs would be sufficient to relieve participants from the financial stress of COVID-19.

4.5.1 Deferring 5MS and GS costs

The ability of participants to defer costs if there is a delay to 5MS and GS would depend on how progressed a participant is in its preparedness for 5MS and GS. AEMO's most recent 5MS and GS readiness report dated 20 May 2020 found retailers and generators are the most progressed participant type with:

- 47 per cent of retailers between 25-49 per cent progressed overall
- 42 per cent of generators between 25 and 49 per cent progressed overall.[90]

In addition to project costs that have already been incurred, it is likely that not all elements of the project can be deferred. Based on AEMO's readiness reporting, submissions and their own experience, Deloitte estimated the proportion of project costs that could be deferred by 12 months, presented in Table 4.3 below.

Table 4.3: **Proportion of costs deferred under a 12 month delay to 5MS and GS**

PARTICIPANT CATEGORY	SIZE	PROPORTION OF TOTAL COSTS DEFERRED BY 12 MONTHS
Retailers	Medium and large	1/3
	Small	2/3
Generators	Large	1/3
	Medium	2/3
Networks	Medium and large	1/2

Source: Deloitte, *Delayed implementation of five minute and global settlement*, report for the AEMC, 6 July 2020, p.26

A 12 month deferral of 5MS and GS project costs would result in this portion of costs moving from FY2020-21 to FY21-22. However, as noted in section 4.3.2 there will be a lag before the full economic impact of COVID-19 impacts retailers, and there is a chance that this economic impact could continue to impact retailers around FY21-22.

4.5.2 Estimated impact of deferring 5MS and GS costs

In order to estimate the cash flow impact of deferring 5MS and GS implementation expenditure, assumptions on the relevant cost of capital or discount rates are required. In its analysis, Deloitte assumed the following discount rates:

90 Deloitte, *Delayed implementation of five minute and global settlement*, report for the AEMC, 6 July 2020, p. 25.

- network businesses — 3.84 per cent, based on the current nominal weighted average cost of capital determined by the AER in August 2019
- large retail or generation businesses — seven per cent based on analyst reports
- medium retail or generation businesses — eight per cent based on analyst reports
- small retailers — 10 per cent, assumed.[91]

Based on these assumptions, Deloitte estimated the cash flow benefits of deferring 5MS and GS by 12 months, presented in Table 4.4.

Table 4.4: Deloitte estimate of deferred cash flow from a 12 month deferral of 5MS and GS

	SMALL (<1% MARKET SHARE)	MEDIUM (1-10% MARKET SHARE)	LARGE (>10% MARKET SHARE)
Generator	-	$270k - $1.06 m	$580k - $930k
Networks	-	$100k - $380k	$380k - $580k
Retailers	$6k - $70k	$400k - $670k	$580k - $930k

Source: Deloitte, *Delayed implementation of five minute and global settlement*, report for the AEMC, 6 July 2020, p. 27. Note: Deloitte participant classifications are based on their 'main activity', e.g. AGL is a retailer. A full classification list is presented in Appendix B of their report.

Based on the analysis presented in Table 4.4, at an industry level, the value of deferred expenditure for retailers, generators and networks ranges between $10 and $24 million.[92] At a whole of industry level, the increase in 5MS and GS overall project costs (discussed in section 4.4.3) are higher than the operational cash flow benefits of a 12 month delay. However, the analysis also finds due to the higher cost of capital, the cash flow benefit for small retailers slightly outweighs the increase in overall project costs by $1,000 to $20,000 per participant.

The Commission also considered the operational cash flow impact of deferring 5MS and GS by three months. The Commission is of the view that a three month delay to 5MS and GS would generate limited cash flow benefits to participants as most would not dramatically alter their implementation schedule, and therefore are unlikely to defer many costs.

4.5.3 Conclusion

The Commission recognises that delaying the commencement of 5MS and GS by 12 months would result in some cash flow benefit to participants managing the impact of COVID-19. However, the overall project cost of delaying 5MS and GS by 12 months outweighs the relative cash flow benefits of the delay.

The Commission note that while small retailers, who are at the highest risk of financial distress from COVID-19, would benefit from a 12 month delay, it may not be prudent to delay the overall industry-wide reform to provide a relatively marginal benefit to a specific group of

91 Deloitte, *Delayed implementation of five minute and global settlement*, report for the AEMC, 6 July 2020, p. 27.
92 Deloitte, *Delayed implementation of five minute and global settlement*, report for the AEMC, 6 July 2020, p. 28.

participants. The Commission is of the view that the risk of financial distress of small retailers should be addressed through more targeted support.

5 OTHER IMPACTS OF A DELAY — CONTRACT MARKET

This chapter explores the potential impact of a delay on the contract market. It includes:

- AEMO's view
- stakeholder views
- analysis and conclusion.

This chapter sets out the analysis and reasoning for the Commission's conclusion that the final rule to delay the start date of 5MS and GS by three months will not have a significant impact on the operation of the contract market or industry risk management capabilities.

5.1 AEMO's view

In it's rule change proposal and consultation paper submission AEMO did not comment on the impact of a delay to the commencement of 5MS on the contract market.

5.2 Stakeholder views

Several participants noted the impact on the contract market of a delayed implementation of 5MS and GS would be minimal.[93] Stakeholders noted that the ASX has not listed any five minute cap products for the financial year 2021-22 (FY22) period, and these products would be most significantly impacted by 5MS.[94] Additionally, Australian Financial Markets Association (AFMA) and Origin Energy noted there had been limited trading of contracts on the OTC market.[95] AGL went further to note that while a delay may result in some additional administrative costs to amend contracts that have already been traded, the cost of this is marginal.[96]

Some participants did note that a delay could impact the value of settlement residue contracts and off-take agreements, stating that decisions to invest in these contracts were made under the assumption of 5MS commencing on 1 July 2021.[97] Additionally, Enel X noted that irrespective of how many contracts have been traded, making a determination that potentially reduces their worth sets a concerning precedent and creates regulatory uncertainty in financial markets.[98] This sentiment was shared by AGL, which noted that increased regulatory uncertainty is impacting financial markets, which flows into liquidity risk and regulatory risk premiums.[99]

93 See submissions to the consultation paper: AGL, p. 4; AFMA, p. 3; ENGIE, p. 6; Origin Energy, p. 8.
94 See submissions to the consultation paper: AGL, p. 4; Origin Energy, p. 6.
95 See submissions to the consultation paper: AFMA, p. 3; Origin Energy, p. 3.
96 AGL submission to the consultation paper, p. 4.
97 See submissions to the consultation paper: AFMA, p. 3; AGL, p.4; Clean Energy Council, p. 3.
98 Enel X submission to the consultation paper, p. 7.
99 AGL submission to the consultation paper, p. 4.

Some stakeholders suggested that a delay to the commencement of 5MS might assist in the liquidity of cap products, by allowing additional time for the new five minute cap products to develop liquidity.[100]

5.3 Analysis

This section explores the impact of a delay on the contract market, which covers the categories of impacts on:

- products that have already been traded
- new products that are yet to be traded.

These categories are explored below.

5.3.1 Impact on products that have already been traded

While there are a vast array of financial products used to hedge electricity spot market risk, the three products stakeholders have identified as being impacted by a 5MS delay are the five minute cap product, settlement residue contracts and off-take agreements. These products are explored below.

Five minute cap products

As noted in the consultation paper and confirmed by several submissions, while formal documentation for over-the-counter (OTC) five minute cap products became available in October 2019, there has been limited trading of these products for FY22. These products may need to be renegotiated which would result in some administrative costs, however several stakeholders noted that this is unlikely to be material.[101]

Settlement Residue contracts

Some stakeholders raised the impact of a delay on the value of inter-regional settlement residue (IRSR) contracts.[102] IRSR contracts are financial products that are used to hedge price differentials between neighbouring NEM regions. Inter-regional price differences are generally more significant when interconnectors are operating at full capacity. IRSR contracts can be positive or negative depending on the flow through the interconnector, and the hedging instrument is available to both physical participants and traders. Contracts for IRSR are auctioned periodically starting at three years before commencement, which creates some speculative elements to the product.

As the exact impact of five minute settlement on bidding behaviour, and hence dispatch and transmission constraints is unknown, it is difficult to attribute the exact impact of a delay on IRSR contracts. This uncertainty may have translated into a slight premium in IRSR contracts in the first quarter or two of 5MS, however if this exists, it is likely to be relatively small. Additionally, it is likely that other factors such as temperature and an unexpected unit outage

100 See submissions to the consultation paper: AFMA, p. 3; CS Energy, p. 4; Origin Energy, p. 8; Snowy Hydro, p. 2.
101 See submissions to the consultation paper: AGL, p. 4; AFMA, p. 3; ENGIE, p. 6; Origin Energy, p. 8.
102 See submissions to the consultation paper: AFMA, p. 3; AGL, p. 4.

would have a far greater impact on the relative value of an IRSR contract than a delay to 5MS.

Off-take agreements

The Clean Energy Council noted in its submission that the value of off-take agreements could be impacted by a delay to 5MS.[103] Off-take agreements are typically long term electricity contracts between semi-scheduled intermittent renewables generators and retailers or businesses. The extent to which these agreements would be impacted by the delayed commencement of the 5MS rule is unknown. The 5MS rule change is expected to lower wholesale prices on average. If this is reflected in existing off-take agreements, then a delay to 5MS and GS may mean these contracts are under-valued to a degree. However, as with IRSR contracts, there are many factors that would impact the value of an off-take agreement, and given the length of the agreement the relative impact of delaying 5MS is likely to be minimal. Further, under a three-month delay, this impact is again expected to be less than under a 12 month delay.

5.3.2 Impact on new products that are yet to be traded

Some participants noted a delay may create some benefits for the new five minute settlement products by allowing additional time for liquidity to develop in the products.[104] As noted above, the ASX is yet to release a five minute cap product, and there has been limited trade of the five minute cap product on the OTC market. Delaying the commencement of 5MS and GS may allow additional time for participants to trade these products and build liquidity in them.

However, it is unlikely that the ability of participants to develop these products and trade in them has been impacted by COVID-19. The 5MS rule was made in November 2017 and included a transitional period of 3 years and 7 months. While COVID-19 has impacted industry capabilities, this has been a short-term impact of only a few months.

5.4 Conclusion

The Commission has determined that the impact of a delay to the commencement of 5MS on the contract market would not be material. The ASX is yet to release a five minute cap product, and there has been limited trade of the five minute cap product on the OTC market. Administrative costs may be required to renegotiate the limited number of five minute cap products that have been traded on the OTC market, however the costs and quantity of renegotiation are unlikely to be material. In addition, while the relative value of IRSR contracts and off-take agreements may be impacted by a delay, there are a number of factors other than the three month delay to 5MS in this rule change that are likely to be more material in determining their relative value.

Finally, while there may be some benefit in allowing additional time for liquidity to build in new products, the development of these products themselves was largely unaffected by 5MS,

103 Clean Energy Council submission to the consultation paper, p. 3.

104 See submissions to the consultation paper: AFMA, p. 3; Origin Energy, p. 8; Snowy Hydro, p. 2.

and a three month delay would make up for any uncertainty in trading these products caused by COVID-19 and this rule change process. Therefore, the Commission concluded that the impact of a three month delay on the contract market and industry risk management capabilities is not expected to be material, and a three month delay would account for any uncertainty caused by COVID-19.

6 OTHER IMPACTS OF A DELAY—DELAYED BENEFITS

This chapter explores the impact of a delay to the commencement of 5MS and GS on the achievement of market benefits associated with these rules. It includes:

- AEMO's view
- stakeholder views
- analysis on the impact of a delay on 5MS and GS benefits
- conclusion

This chapter sets out the analysis and reasoning for the Commission's conclusion that a delay to the commencement date for 5MS and GS would directly impact the short term efficiency benefits from the 5MS and GS rules for consumers, and to a lesser extent the longer term investment signals from 5MS and GS. Therefore, the Commission has determined that, if a delay to the commencement of 5MS and GS is necessary to account for the impact of COVID-19 on participant capabilities to implement 5MS and GS and meet core business requirements, the delay should be as short as possible to minimise the delay to the benefits to be realised from the 5MS and GS rules.

6.1 AEMO's view

In its rule change request, AEMO stated that one of the potential costs of a delay to 5MS and GS would be the deferral of the potential economic benefits of 5MS and GS. However, AEMO noted that these benefits may have been reduced by the effect of COVID-19 on the economy.[105] AEMO did not comment on this issue further in its submission to the consultation paper.

6.2 Stakeholder views

Stakeholder views on the impact of a 12 month delay on the 5MS and GS benefits are explored below.

6.2.1 Impact of a delay on 5MS benefits

Stakeholder feedback on delaying 5MS can be split into the short term (static) efficiency or operational benefits and the long term (dynamic) efficiency or investment benefits of the rule.

Short term efficiency benefits

Several stakeholders noted that a delay to the commencement of 5MS would have a significant impact on the bidding and pricing improvements identified in the 5MS rule.[106] The pricing benefits of 5MS are due to come into effect at a time when the economy is expecting a recession.[107] Additionally, Enel X noted that the 5MS final determination stated that if 5MS

105 AEMO, rule change request, p. 7.

106 See submissions to the consultation paper: Enel X, p. 7; Rachel Barley, p. 2; EvoEnergy, p. 6; Tesla, p. 2; The Australia Institute, p. 2; Adam Lippiatt, p. 1.

decreases prices on average by $0.50/MWh it would equate to $100m in savings annually, and while this was based on 2016-17 demand, even if demand in 2021-22 fell to levels not seen since 2000-01 it would result in at least $86.2 million in savings to consumers.[108]

However, Origin Energy noted that 5MS was not required to eradicate disorderly bidding that was present when the rule change was initially made, citing only 205 occasions of the spot price exceeding $300/MWh in 2017-18 compared to 688 in 2016-17. Origin Energy suggested that as it does not believe disorderly bidding is an issue in the NEM, deferring the commencement of 5MS would not lead to any underlying market efficiency improvements.[109]

In addition to the pricing benefits of 5MS, Enel X noted that if delayed, the full benefits of the wholesale demand response mechanism would not be seen until 5MS is implemented.[110] Similarly, the Energy Efficiency Council stated that any delay to 5MS would materially disadvantage the development of storage and demand response, noting that 5MS creates a price signal for demand response to be adequately rewarded.[111]

Long term efficiency benefits

Stakeholder views on the impact of a 12-month delay on the longer term benefits of 5MS were mixed.

Several stakeholders stated that there is likely to be minimal impact on the longer term benefits of the 5MS change.[112] Essential Energy noted that while more detailed 5MS consumption data would assist them in network planning and investment, a 12-month delay would not have a major effect on this.[113] ENGIE noted that none of their investments were predicated on 5MS implementation, and in the context of COVID-19 impacts, there may delays in industry developing technologies and services dependent on 5MS.[114] Origin Energy stated that the level of recent/planned investment in fast start capable plant was relatively limited. Origin Energy went on to note that there are many factors which impact on investment decisions including spot prices, levels of interconnection, timing of technology advances, future demand and interactions with other projects, and therefore 5MS would not materially impact on capital investment decisions.[115]

In contrast, several stakeholders were concerned that delaying 5MS would impact the broader transition of the energy sector, delaying price signals for investment in fast response technologies.[116] The City of Newcastle stated that the move to 5MS would support smart

107 Rachel Barley submission to the consultation paper, p. 2.

108 Enel X submission to the consultation paper, p. 7.

109 Origin Energy submission to the consultation paper, p. 11.

110 Enel X submission to the consultation paper, p. 2.

111 Energy Efficiency Council submission to the consultation paper, p. 1.

112 See submissions to the consultation paper: Essential Energy, p. 5; South Australia Power Networks, p. 7; ENGIE, p. 7; Origin Energy, p. 2; Tango Energy, p. 6.

113 Essential Energy submission to the consultation paper, p. 5.

114 ENGIE submission to the consultation paper, p. 7.

115 Origin Energy submission to the consultation paper, p. 2.

116 See submissions to the consulation paper: Adam Lippiatt, p. 1; Clean Energy Council, p. 3; EnergyAustralia, p. 6; City of Newcastle, p. 1; South Australian Department of Energy and mining, p. 1; The Australian Institute, p. 3; Enel X, p. 7; Fiona Mackay, pp. 1-2.

energy users in their city who have both supply and generation sites that would be negatively impacted by a delay.[117] Both Enel X and The Australian Institute noted that in the context of Liddell's impending retirement, it is important to have the right price signals to encourage efficient investment, suggesting that a delay to 5MS by a year will have a detrimental impact on investment in battery storage and demand response. [118] This delay in investment in battery storage would occur at a time when governments and AEMO are looking to batteries to help resolve market issues relating to reliability and security.[119]

EnergyAustralia noted that the delay would also result in a delay in the implementation of innovative retail products associated with the use of five minute demand profiles.[120] Similarly, Plus ES noted they had several flow on projects to be implemented after 5MS that would have benefits to consumers such as improved communications to ensure reliable meter readings, improved functionality and other updates such as customer switching which may be impacted by delaying 5MS.[121] The Australian Institute also made the argument that delaying 5MS could have knock-on effects to other reform processes including important AEMC rules, and Energy Security Board reviews leading up to the post 2025 market redesign project.[122]

6.2.2 Impact of a delay on GS benefits

Stakeholders provided limited commentary on the impact of delaying the benefits of GS by 12 months. EnergyAustralia stated that delaying global settlements would delay the onset benefits of the change such as identifying and remedying unaccounted for losses, noting that the current settlement by difference arrangements allocate costs to incorrect retailers and customers.[123] Whereas ENGIE suggested that the increased incentives on participants are unlikely to be sufficient to drive investment in initiatives to minimise UFE, therefore ENGIE does not consider a delay to GS to have a significant impact on the industry.[124]

6.3 Analysis on impact of a delay on 5MS and GS

This section analyses the impact of delaying the benefits identified under the 5MS and GS rules.

6.3.1 Impact of a delay on 5MS

The 5MS rule final determination identified three broad benefits from the 5MS rule, namely improved:

- price signals for more efficient generation and use of electricity
- bidding incentives

117 City of Newcastle submission to the consultation paper, p. 1.
118 See submissions to the consultation paper: Enel X pp.7-8; The Climate Institute, p. 2.
119 Enel X submission to the consultation paper, p. 9.
120 EnergyAustralia submission to the consultation paper, p. 6.
121 Plus ES submission to the consultation paper, p. 5.
122 The Australian Institute submission to the consultation paper, p. 3.
123 EnergyAustralia submission to the consultation paper, p. 6.
124 ENGIE submission to the consultation paper, p. 7.

- price signals for more efficient investment in capacity and demand response technologies to balance supply and demand.[125]

The following section splits out these benefits into two broad categories - short term incentives (including improved price signals for generation and use of electricity and bidding incentives), and long term benefits (including price signals for better investment).[126]

Short term efficiency benefits of 5MS

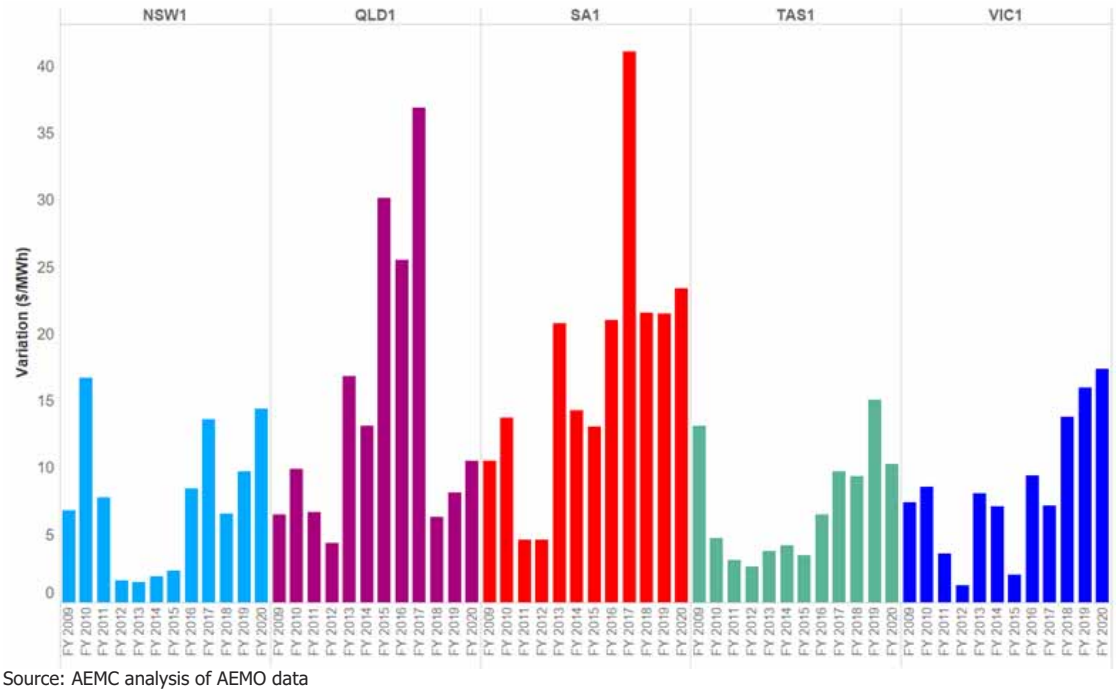
As discussed in Appendix C, under the current 30 minute settlement framework, participants bid in the prices and quantities at what they are willing to generate into the market, which determines the wholesale spot price. While the wholesale spot price changes every five minutes with changes in demand and changes in participant bids, the market financially settles at the time-weighted average of the six five minute prices. As explored in great depth in the five minute settlement final determination, this results in the financial incentives for generation and use of electricity not aligning with the actual needs of the market.

The differences in 30 minute prices and five minute prices remain significant across several regions such as South Australia and Victoria. Figure 6.1 below illustrates the variation in annual volume-weighted 30 minute and five minute prices from FY2009 to FY2020.

125 AEMC, Five minute settlement, Final determination, 21 November 2017, p. ii.

126 For in depth explanation of the benefits of 5MS, see: AEMC, Five minute settlement, Final determination, 21 November 2017, pp. 22-49.

Figure 6.1: Absolute variation in average annual volume-weighted 30 minute and 5 minute prices



Source: AEMC analysis of AEMO data
Note: Data for FY2020 is as of 7 June 2020.

This variation is notable, for example in FY2020 South Australia a $23.50/MWh variation represents a 37 per cent difference from the volume-weighted average price. This variation in 30 minute and five minute prices will necessarily diminish after the introduction of 5MS. As noted by Enel X in its submission, the 5MS final determination suggested even if this change resulted in a reduction of wholesale prices by $0.50/MWh this would be significant. Enel X estimated even if demand was at its lowest point in the last 20 years, this would equate to $86.2m per annum in efficiency gains for consumers.[127] As such a 12-month delay to the commencement of 5MS would have a considerable short term efficiency cost to the market and consumers.

Another element of the short term efficiency benefits of 5MS would be a change in participant bidding behaviour. Under 30 minute settlement, participants can bid into the market strategically by altering their first or last bid of a settlement period to influence the average price of the 30 minute period. For example on the occasion of a:

- first period price spike: once a price spike has occurred, generators have an incentive to shift capacity to low prices to maximise their sales volume for the half hour, which will be compensated at the high average price.

127 Enel X submission to the consultation paper, p. 7.

- late period price spike: a generator that has achieved high sales volume by being dispatched early in a 30 minute trading interval could then shift its capacity to high price bands in an attempt to spike the price in dispatch interval five or six, and thereby achieve a higher average price for the half hour.

While late rebidding behaviour has significantly reduced following the *National Electricity Amendment (Bidding in good faith) Rule 2016,* it is still present in the market.[128] In its submission, Origin Energy noted that the since 2016-2017, the number of price spikes above $300/MWh has reduced from 688 to 205 in 2017-18, and as such the strategic bidding behaviour identified in the bidding in good faith rule has subsided.[129] The Commission notes that while the number of 30 minute prices above $300/MWh has decreased since 2016-17 to 312 for FY2019-20, there is still systematic differences in bidding between different dispatch intervals. Figure 6.2 below illustrates the variation between five minute and 30 minute prices by dispatch interval in South Australia, noting that there is still a systematic differences between the first and last period dispatch prices of a 30 minute interval compared to the other periods.

Figure 6.2: South Australia variations between 5 minute and 30 minute prices by dispatch interval

Source: AEMC analysis of AEMO data

128 Introduced in July 2016, the Bidding in Good Faith rule change was designed to curb the incentive to create late spikes through rebidding behaviour. The rule change introduced new information recording requirements for rebids that are made within the late rebidding period. The late rebidding period is defined to begin 15 minutes before the commencement of the trading interval to which the rebid applies, and ends at the end of that trading interval. AEMC, Bidding in Good Faith, final determination, 10 December 2015.

129 Origin Energy submission to the consultation paper, p. 11.

While it is difficult to ascertain exactly how bidding behaviour will develop under 5MS, these systematic differences between first and last period bids will no longer be possible.

Another short term benefit that would be impacted by a delay relates to the wholesale demand response mechanism (WDRM) under five minute settlement. On 11 June 2020, the Commission made the *National Electricity Amendment (Wholesale demand response mechanism) Rule 2020* which introduced a mechanism to enable greater demand response to participate in the wholesale market from 24 October 2021. In its submission, Enel X noted that delaying 5MS would reduce the full benefits of the WDRM.[130] It is possible that delaying 5MS by 12 months could impact the viability of some demand response participating in the WDRM, and the market benefits associated with that participation.

Long term efficiency benefits of 5MS

The longer term, dynamic efficiency benefits of 5MS involve providing investment signals to the market that any new capital investments in generation or potentially demand response may benefit from being able to respond to five minute price signals, in effect sharpening the investment incentives for fast response generation and demand response. Additionally, there is an incentive for existing generation capacity to make investments in improving ramp rates to allow plant to respond to changing five minute prices. This would enable existing plant to better defend a five minute cap product that had been developed for the market.

In its submission, Origin Energy stated that 5MS is just one of many factors that influence long term capital investments in generation capacity.[131] It also noted that 210MW of battery storage and 239 MW of fast start thermal capacity had been commissioned since the final determination on 5MS had been published.[132] The Commission agrees that there are a range of factors that go into any investment decision in long run investments, and 5MS is just one of these factors. Notwithstanding this, at the beginning of 5MS there will likely be demand for 5 minute cap products, and therefore incentives to provide fast response generation which can back these products. This fast response capacity may also provide additional supplementary benefits for the reliability and security of the market. A 12 month delay may delay investment in such fast response capacity.

For example, the Hornsdale power reserve battery, like several other batteries that have entered the market over the past few years, mainly sources its revenue from system security services such as FCAS and from RERT capacity payments.[133] This is due to the higher revenue potential from these markets compared to the wholesale electricity market. The Commission has completed some modelling on how the wholesale market profitability of a 1MW/2MWh battery changes under 5MS. Figure 6.3 below illustrates the annual arbitrage profitability of a battery under 5MS by region. 5MS may create the incentive for additional battery storage generation to enter the market which may also be able to sell system security services, enhancing the operation of the NEM. The Commission note that if a battery had written

130 Enel X submission to the consultation paper, p. 2.

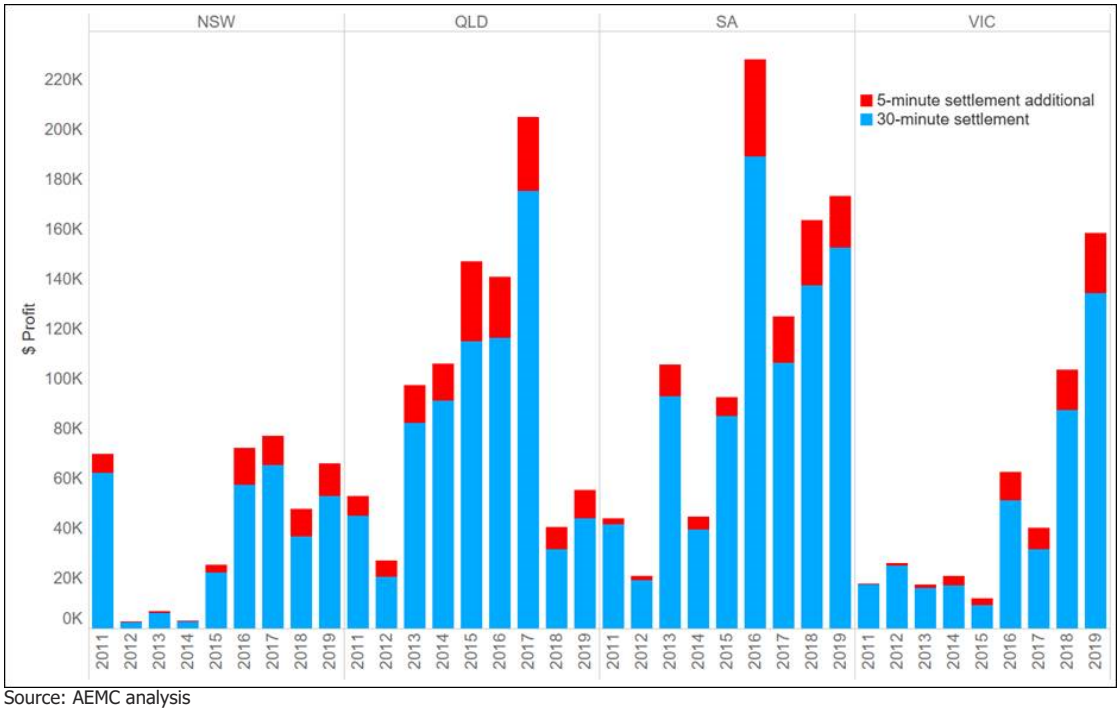
131 Origin Energy submission to the consultation paper, pp. 9-11.

132 Origin Energy submission to the consultation paper, p. 9.

133 For more information see: https://www.aurecongroup.com/-/media/files/downloads-library/thought-leadership/aurecon-hornsdale-power-reserve-impact-study-2020.pdf

contracts for wholesale energy beginning in FY2021-22, the value of those contracts would likely be impacted by a 12 month delay.

Figure 6.3: Profitability of a 1 MW/2MWh battery under 30 minute and 5 minute settlement



Source: AEMC analysis

Note: Battery modelling used a perfect foresight model and assumed $100/MWh cycling cost and 91 per cent battery efficiency. Years are calendar years.

6.3.2 Impact of a delay on GS

The *National Electricity Amendment (Global settlements and market reconciliation) Rule 2018* (GS Rule) changes the way the retail market is settled. A detailed assessment of the benefits of this rule is provided in the final determination that accompanied that rule.[134] At a high level, the benefits of global settlement include:

- increased transparency of UFE which improves the ability of market participants to identify errors, and reduce the number of disputes between market participants.
- improved allocation of UFE which provides more cost reflective retail prices, improve the ability for participants to manage risk, and improved incentives to reduce UFE.

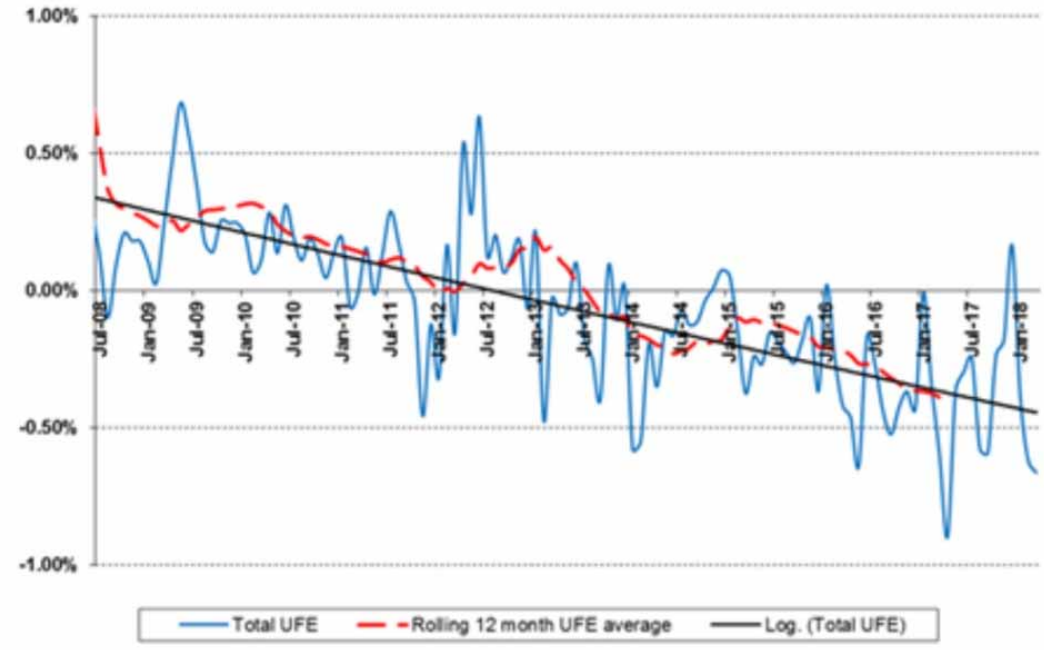
While it is difficult to isolate the potential impact of a delay in these efficiency benefits, one element of the changes to the Rule that will result in a direct efficiency gain is the reduced costs from disputes. Under the current settlement by difference framework the local area retailer is charged for all the electricity consumed in the local area, minus the individual

134 See: AEMC, Global settlements and market reconciliation, Final determination, 6 December 2018, pp. 25-47.

metered consumption of any other retailers.[135] This framework means that if there are any errors or abnormalities in settlement, they need to go through a lengthy off-market dispute resolution process, sometimes involving legal proceedings. In submissions to the GS rule change, Origin Energy, AGL Energy, and EnergyAustralia estimated their aggregated cost of these settlement disputes being in the order of $5 million per year.[136] Additionally, there would be costs incurred by the other parties involved in the dispute. In deliberating on the value of global settlement, the Commission conservatively estimated the reduced costs from global settlement to be in the order of $1 million per year, so a 12 month delay would increase settlement dispute costs to consumers of between $1 million and $5 million.

The other benefit from global settlement is the potential reduction of UFE after it is identified and incentives placed on participants to reduce it. In New Zealand the introduction of global settlement led to a reduction of total energy costs of between 0.1 and 0.3 per cent as illustrated in Figure 6.4 below. Despite the small percentages, the value is not insignificant.[137]

Figure 6.4: New Zealand UFE levels after the introduction of global settlement



Source: New Zealand Electricity Authority

135 All consumption levels are also adjusted for distribution losses.

136 AEMC, Global settlements and market reconciliation, Final determination, 6 December 2018, p. 26.

137 For example, if NEM wholesale settlements are approximately $10b in a year, assuming that wholesale charges are 30 per cent of retail prices and network charges are 50 per cent, the total value associated with wholesale energy and network charges could be around $27b a year. As an illustrative example 0.1 per cent reduction would be equivalent to $27m a year. However, the net benefit to the market from a move to global settlement would be less than this given any additional operating costs from global settlement.

The Commission estimated in the final determination for the GS Rule that the combined savings from global settlement from reductions in UFE and reduced settlement disputes would be expected to be between $3-5 million per year.[138] While it is unclear the extent to which the UFE reductions would occur in the first year of global settlement, there is more certainty about the cost reductions from avoided disputes.

6.4 Conclusion

The Commission considers that a 12 month delay to the commencement of 5MS and GS would have an impact on the benefits of the 5MS and GS rules for consumers. The short term efficiency benefits of 5MS on bidding and incentives to generate and consume electricity will have an immediate impact for outcomes to consumers. Similarly, the GS benefits from avoiding settlement disputes would have immediate benefit for participants and consumers. The aggregate market benefit of these reforms is likely to be in the order of tens of millions of dollars.

The Commission accepts that there is some uncertainty as to the extent to which the longer term benefits from sharper investment signals from 5MS and reduced UFE from GS would be impacted by a 12 month delay.

Given the above, the Commission determined that, if a delay to the commencement of 5MS and GS is necessary to account for the impact of COVID-19 on participant capabilities to implement 5MS and GS and meet core business requirements, the delay should be as short as possible to minimise delaying the benefits from 5MS GS rules. In chapter 3 the Commission determined that COVID-19 had impacted participants capabilities in the short-term and that a short delay to the start date of 5MS and GS was necessary. In chapter 7 the Commission explains why it decided to apply a delay period of three months to the start date of 5MS and GS.

138 AEMC, Global settlement and market reconciliation, final determination, p. 40.

7 PERIOD OF DELAY AND OTHER AMENDMENTS TO THE 5MS AND GS RULES

This chapter discusses the period of delay for commencement, and other amendments to, the 5MS and GS. This includes the design of the following aspects of the rule:

- the period of delay for commencement of the 5MS and GS rules
- the commencement date for new and replacement meters
- the commencement date for publication of AEMO UFE reports and guidelines
- the requirements for AEMO, AER and IEC procedures and guidelines

In summary, the Commission has determined that:

- the commencement date for the 5MS and GS rules will be delayed by three months
- there will be no delay for the provisions of all new and replacement meters to record and provide 5-minute data
- the date by which AEMO is to publish UFE reports and guidelines will be delayed by three months
- there will be no prescriptive requirement for AEMO, the AER and IEC to review their relevant procedures and guidelines as a result of the final rule, however for any changes AEMO makes it will not be required to follow the rules consultation procedures in doing so.

Specific dates are set out in the Commission's analysis and conclusion below.

7.1 Period of delay for commencement of 5MS and GS rules

This section outlines stakeholders views and the Commission's analysis and conclusion on the period of delay for the commencement of 5MS and GS. The Commission decided to apply a linear three month delay to the start of both the 5MS and GS rules.

7.1.1 AEMO's view

AEMO's rule change request proposed a 12 month linear delay of 5MS and GS with the rationale that it would reduce implementation risk and costs for 5MS and GS, as participants respond to the potential disruptions caused by COVID-19.

AEMO specifically proposed:

- To delay the commencement date for 5MS by 12 months to 1 July 2022, whilst maintaining the date for 5-minute interval data being provided from the majority of type 4 and type 4A meters at 1 December 2022.
- To delay the commencement date for GS by 12 months to 5 February 2023. The "soft start" for GS, whereby UFE data would be calculated and published by AEMO, should be delayed until 1 July 2022, to align with the delay in 5MS commencement.

- Any changes to already determined procedures for the sole purpose of deferring the effective date of 5MS, or GS should not require consultation.[139]

AEMO clearly described its position in relation to a delay:[140]

> ...that it is committed to supporting the implementation of 5MS and GS irrespective of the outcomes of the proposed rule change and AEMO will continue its IT systems development program on the current schedule. Should the Commission determine that a delay is appropriate, AEMO will accommodate the needs of participants through a two-speed implementation program. This will allow participants to choose to continue their own development under either the original implementation schedule or a delayed time frame, to the maximum extent practicable.

AEMO's submission stated that if 5MS were to be delayed, commencing at the start of the NEM billing week is preferable but not essential. AEMO had previously developed a system solution for settlement for a mid-week start date, so that in the first week it could accommodate both 30-minute and then 5-minute trading intervals. This approach can be adapted for any commencement date with no further development work required.[141]

AEMO was clear in its submission that it will support market participants through maintaining its commitment to the original development timeframe, but also facilitate industry participants that choose to defer their program, should a determination to delay be made. Therefore, AEMO in consultation with existing 5MS working groups developed a "deferral scenario" for transition, participant testing and metering transition. It was intended to support participants in understanding the effects of a delay on their own implementation programs.[142]

7.1.2 Stakeholder views

This section outlines stakeholders views for a delay or no delay, and if there were a delay what the appropriate period would be.

Stakeholder submissions ranged from no delay to 36 months.

A number of stakeholders, ranging from small to large generators, retailers, network service providers and IT providers, submitted support for a delay of 12 months or longer for the implementation of 5MS and GS.[143] As described in chapters 3 and 4, the reasons for preferring a delay varied by participant. AFMA and the Major Energy Users Association also submitted support for a 12 month delay but as they are industry bodies, only provided analogous examples of the impacts on the member base broadly. EnergyAustralia also noted

139 AEMO, rule change request, p. 2.

140 AEMO submission to the consultation paper, p. 1.

141 AEMO submission to the consultation paper, p. 2.

142 AEMO submission to the consultation paper, p. 3.

143 See submissions to the consultation paper: ERM Power, p.1; Snowy Hydro, p. 1; Alinta Energy, p. 1; Origin Energy, p. 1; Red Energy and Lumo Energy, p. 1; Arrow Energy, p. 1; CS Energy, p. 1; ERM Power, p. 1; ENGIE, Cover letter and attachment 1 p. 1 ; SIMEC Energy Australia, p. 1; Tango Energy, p. 1; Ausgrid, p. 1 -2; AusNet Services, cover letter and Attachment 1 p. 1; Citipower Powercor United Energy, p. 1; Essential Energy, p. 1; Mondo, p. 1; SA Power Networks, p. 2; Vector, p. 1; Brave Energy Systems, p. 1.

that a 24-36 month delay may have some benefits in aligning the reforms with broader post-2025 market redesign currently being considered by the Energy Security Board.[144]

Some stakeholders submitted that a delay of less than six months would not be sufficient to address the impacts of COVID-19.[145]

AGL, TasNetworks and PLUS ES did not expressly provide a position but submitted that they did not require a delay and acknowledged the rationale for the proposed rule change.[146] AGL submitted that it did not require a delay, but if a delay was implemented, from a project implementation perspective it should be longer than 6 months.[147]

There was also a number of stakeholders who considered that a delay was not necessary.[148] Although some of these stakeholders did not support a delay, a number of these stakeholders submitted that if a delay was to occur it should be as short as possible, and suggested periods of delay ranged from three to six months.[149]

Enel X and ENGIE also noted that a three month delay would align with the implementation decision for Wholesale Demand Response and other reforms.[150]

There were two clear views from stakeholders about a delay if implemented; specifically that:

- the commencement of a delay should align with the start of a settlement week or financial quarter.[151]
- a delay should not be scheduled to fall during the peak summer demand period.[152]

7.1.3 Analysis

As outlined in chapters 3 and 4, stakeholders had divergent views on the impact of COVID-19 on participant capabilities and cash flows, and whether or not a delay to the commencement of 5MS and GS was necessary. As a result, there were a variety of different perspectives as to what the appropriate period of delay should be or whether a delay is appropriate at all.

In the early stages of the COVID-19 pandemic in Australia, there was a significant short-term impact on participant capabilities. However, most stakeholders were able to transition their staff to working from home within a relatively short period of time.

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144 EnergyAustralia cover letter, p. 4.

145 See submissions to the consultation paper: CS Energy, p. 1; ENGIE, attachment 1 p. 1; Tango Energy, p. 1; TasNetworks, p. 1.

146 See submissions to consultation paper: AGL, Attachment 1 p. 1; TasNetworks, p. 1; PLUS ES, p. 1.

147 AGL submission to the consultation paper, Attachment 1 p. 1.

148 See submission tot the consultation paper: Stanwell, pp. 1 -3; EnergyAustralia, cover letter; Enel X, p. 1; Tesla, p. 1; Tilt Renewables, p. 1; Hansen Technologies, p. 1; Ready Energy, p. 1; South Australia Department of Energy and Mining, p. 1; City of Newcastle, email; Adam Lippiat; Fiona Mackay; Rachel Barley; PEM Solar; The Australia Institute; Energy Queensland, cover letter and pp. 3-4; EvoEnergy, p. 1; Clean Energy Council, p. 1; Energy Consumers Australia, p. 4.

149 See submission tot the consultation paper: Stanwell, p. 1-3; EnergyAustralia, cover letter; Energy Queensland, cover letter and pp. 3- 4; Enel X, p. 1; Tilt Renewables, p. 1; EvoEnergy, p. 1; Minister Rattenbuy submission to the consultation paper, cover page.

150 See submission to the consultation paper: ENGIE, attachment 1 p. 1; Enel X, p. 2.

151 See submissions to the consultation paper: CS Energy, p. 1; ENGIE, attachment 1 p. 2; Essential Energy, p. 2; Energy Queensland, p. 5; EvoEnergy, p. 1.

152 See submissions to the consultation paper: Arrow Energy, p. 4, 9; EnergyAustralia, Attachment 1 p. 3; CS Energy, p. 1; AusNet Services, Attachment 1 p. 1; Mondo, p. 1; TasNetworks, p. 1; PLUS ES, p. 1; Stanwell, attachment 1 p. 2.

Generally, stakeholders who advocated a delay of 12 months or longer noted that it would assist in managing cash flow impacts of COVID-19 and would reduce the risk of participants being unprepared for 5MS and GS commencement. In contrast, stakeholders who suggested that a delay was not necessary, noted that a delay would result in delayed benefits to consumers and result in higher consumer costs in the long-term. In Chapter 4 the Commission determined that a 12 month delay would increase the overall cost of reforms with varying benefits for participant cash flows.

A number of stakeholders submitted that when this rule change was submitted they immediately redirected resources and paused related 5MS and GS work programs until the Commission had published its decision on whether or not to delay.[153] The Commission notes that businesses that stop work on the commencement of a rule change process do so at their own business risk.

Through the Commission's previous analysis of the 5MS and GS rules, and stakeholder submissions to this rule change request it is clear that any period of delay must consider:

- the impact of commencing during summer peak demand periods
- commencing at the start of a settlement week and aligning with quarters for the contract market.

The Commission acknowledges that the COVID-19 pandemic created a short-term impact, which required a reallocation of participants' resources from implementation programs for 5MS and GS to meet core business and customer service requirements. To account for this impact, the Commission considers that a three month delay to the commencement date for 5MS and GS will provide sufficient time for participants and industry to develop and test their systems. Additionally, a 12 month delay would have increased participant overall project costs, while delivering minimal cash flow benefits. With a three month delay, the Commission has sought to strike a balance between accounting for the impact of COVID-19 on participants' capabilities and minimising the delay of the realisation of benefits from 5MS and GS which will mitigate the increase in implementation costs associated with a delay.

7.1.4 Conclusion

The Commission considers that a linear three month delay is necessary to reflect the short-term impact of COVID-19 on NEM the capabilities of market participants. Therefore, the delayed start dates will be as follows:[154]

- 5MS will now commence on 1 October 2021
- GS 'soft start' will commence on 1 October 2021
- Financial settlement of GS will commence on 1 May 2022.

153 See submissions to the consultation paper : Red Energy and Lumo Energy, p. 1; AusNet Services, p. 1. Note became evident through a number of bilateral stakeholder meetings.

154 Please refer to the RULES (include the specific document title and page)

7.2 Commencement date for meters to be configured to provide 5 minute data

This section summarises stakeholder views and outlines the Commissions analysis and conclusion as to why no delay will be implemented for the requirement that all new and replacement meters (other than 4A) installed after 1 December 2018, and type 4A meters installed after 1 December 2019, must record and provide 5-minute data by 1 December 2022.

7.2.1 AEMO's view

AEMO in its rule change request did not propose any change of date for this requirement.[155]

AEMO in its submission to the consultation paper submitted that although it did not propose any change to the 1 December 2022 date for by when all metering installations (other than excluded metering installations) must be configured to provide 5 minute data did not oppose a delay. AEMO submitted that its review into the impact of a 12 month deferral on the 5MS and GS implementation program found that AEMO would still be able to proceed without changing its approach or a timeline for core IT development and deployment activities as a consequence of any deferral.[156]

AEMO also submitted that it would continue to develop its IT systems according to the existing timeline, with a staged platform deployment approach, regardless of the Commission's final determination. AEMO did caveat this, submitting that it will need to manage some limited impacts to its IT systems. For instance, the reallocations solution has already gone live and would need to be updated to reflect any new 5MS commencement date.[157]

7.2.2 Stakeholder views

Feedback was limited, with stakeholders generally considering a delay to this compliance date in an environment where a 12 month delay has been implemented to 5MS and GS.

A number of stakeholder who submitted that the compliance date of 1 December 2022 be extended did so on the basis that it would be commensurate with a 12 month delay to implementation date for 5MS and GS. The rationale for this was to reduce cost and implementation risk and to avoid potential billing errors for customers.[158]

Some of these stakeholders provided details of compressed transition rates and articulated the strain and risk their business would incur if a delay to this compliance date was not extended in line with a delay to the implementation date for 5MS and GS.[159]

155 AEMO rule change request, p. 2.

156 AEMO submission to the consultation paper, p. 3.

157 AEMO submission to the consultation paper, p. 3.

158 See submissions to consultation paper: AusNet Services, p. 2; CitiPower PowerCor United Energy, p. 2; Vector, p. 2; PLUS ES, p. 2; Origin Energy, p. 5.

159 See submissions to the consultation paper: AusNet Services, p. 2; CitiPower PowerCor United Energy, p. 2; Jemena Electricity Network, p. 2; PLUS ES, p. 2; Origin Energy, p. 5.

Those stakeholders that submitted there should be no delay to the compliance date, did so on the basis that these metering requirements will provide real benefits to consumers and there is still enough time for implementation in accordance with the metering transition plan.[160]

Energy Queensland submitted that for its metering business, Yurika, a delay longer than five months would result in an uplift in data and storage costs.[161]

7.2.3 Analysis

Those who submitted for a delay to the 1 December 2022 compliance date did so with the rationale of a 12 month delay occurring for 5MS and GS. Those participants that were concerned that keeping the 1 December 2022 under a 12 month delay argued that the period to which meter data providers had to reconfigure meters was reduced from 17 months to five months.

Given that the Commission is only applying a short delay of three months to the implementation of 5MS and GS, it is appropriate that there is no delay to this metering requirement date. The Commission considers that no commensurate delay period is necessary given the short nature of a three month delay to 5MS and GS, as this still allows 14 months for meter data providers to reconfigure meters. The Commission also considers that consumer benefits of this metering transition should not be delayed and metering service providers will still be able adhere to the current implementation timeline in accordance with the metering transition plan as currently outlined.

7.2.4 Conclusion

The Commission makes no change to the 1 December 2022 compliance date for the requirement that all metering installations (other than excluded metering installations), must be configured to record and provide 5 minute data.

7.3 Commencement date for publication of AEMO's UFE trend report and reporting guidelines

This section specifically outlines stakeholder views with regard to a delay of AEMO's requirement to publish the first UFE report and the UFE Report guidelines and provides the Commission's analysis and conclusion on implementing a linear three month delay for these particular requirements.

7.3.1 AEMO's view

AEMO considers that the date by which it must make and publish the UFE reporting guidelines should be delayed by a period commensurate with the delay to the commencement of GS.[162]

160 See the submissions to the consultation paper: AGL, p. 2; Energy Queensland, p. 5; Essential Energy, p. 2.
161 Energy Queensland submission to the consultation paper, p. 5.
162 AEMO submission to the consultation paper, p. 3.

The original time frames were staged such that AEMO would produce its first UFE Trends report by 1 March 2022, prior to the development of the UFE reporting guidelines by 1 December 2022 (Section 11.112.6 of the GS Rule). The policy intent of sequencing the development of the UFE reporting guidelines after the publication of the first UFE Energy Trends report was to allow the development of a Guideline based on:[163]

- an understanding of the data available, and its potential uses and limitations;
- practical experience in compiling a UFE Energy Trends Report; and
- feedback from participants on what is required or otherwise valued to assist those stakeholders.

7.3.2 Stakeholder views

Stakeholder submissions were limited on this issue. Stakeholders submitted that UFE data report delay periods should be commensurate with any delay to 5MS and GS.[164]

Energy Australia and CS Energy did note a preference for reports to be calculated ahead of the rule change implementation but understood the impacts of the new calculations on businesses.[165]

The same point was prosecuted by stakeholders with regard to the publication date of UFE Reporting guidelines, that a linear shift commensurate with any delay is the appropriate approach.[166]

7.3.3 Analysis

Stakeholder feedback was unanimous that any delay, to any of AEMO's UFE publications should be a linear delay commensurate with any delay with 5MS and GS. The Commission considers that to preserve the original policy intent a linear shift of three months to each of AEMO's UFE publication dates should be implemented.

7.3.4 Conclusion

The new dates for AEMO's UFE publications as set out in the final rule are as follows:

- AEMO will now be required to publish the UFE data report on 1 October 2021
- AEMO will now be required to publish the UFE report for energy trends on 1 June 2022
- AEMO will now be required to publish UFE reporting guidelines on 1 March 2023.

163 AEMO submission to the consultation paper, p. 3.

164 See submissions to the consultation paper: AGL, p. 2; AusNet Services, p. 3; Origin Energy, p. 5; Jemena Electricity Networks, p. 2; ENGIE, p. 4; CS Energy, p. 2;

165 EnergyAustralia submission to the consultation paper, p. 3; CS Energy submission to the consultation paper, p. 2.

166 See submission to the consultation paper: AGL, p. 2; AusNet Services, p. 3; Origin Energy, p. 5; Stanwell, p. 3; TasNetworks, p. 2; Jemena Electricity Networks, p. 2; Mondo, p. 2; ENGIE, p. 4; CS Energy, p. 2.

7.4 Requirements for AEMO, AER and IEC procedures and guidelines

This section outlines stakeholder views and the Commission's analysis and conclusion on not embedding a prescriptive mechanism in the rules which would require AEMO to consult with industry on effective date changes to their procedures and guidelines.

7.4.1 AEMO's view

In its rule change request AEMO proposed that any changes that are required to already-determined procedures for the sole purpose of deferring the effective date of 5MS or GS should not require consultation.[167]

AEMO noted that they have already amended approximately 70 procedures, policies and guidelines affected by the 5MS rule across metering, settlement, dispatch and operations. This has been a significant undertaking over 18 months, and has been informed by comprehensive consultation with participants.[168]

AEMO did note that if extensive amendments as a consequence of deferral were required, the appropriate consultation requirements would still apply.

7.4.2 Stakeholder views

Stakeholders generally suggested that if the changes are solely related to an effective date change as the result of a delay to 5MS and GS there would be no material impact and all other things should remain constant. Stakeholders did submit that on balance no comprehensive consultation process was required but that there should be transparency with industry as to any changes to the effective dates.[169]

7.4.3 Analysis and conclusion

AEMO has already consulted in-depth with industry on these procedures and guidelines and made changes to approximately 70 procedures, policies and guides affected by the 5MS rule across metering, settlement, dispatch and operations.[170] In addition, it also accommodated the changes made by the IEC to its procedures governing B2B data flows and interactions. The AER did not require any changes to its procedures as a result of the 5MS rule.

The Commission considers that it is not necessary to provide a prescriptive mechanism within the rules that requires AEMO to conduct a full review of the relevant procedures and guidelines as a result of the final rule and consult on those changes.

However, the Commission does expect AEMO will conduct a timely review of all its relevant procedures and guidelines, after the rule is made to determine if any changes are required as a result of delay. However, AEMO are not required to follow its consultation procedures as

167 AEMO submission to the consultation paper, p. 2.

168 https://aemo.com.au/en/initiatives/major-programs/nem-five-minute-settlement-program-and-global-settlement/procedures-workstream

169 See submissions to the consultation paper: Alinta Enegy, p. 2; AusNet Services, p. 8; Origin Energy, p. 12; Energy Queensland, p. 12; CS Energy, p. 6; EnergyAustralia, p. 7; ENGIE, p. 8; Jemena Electricity Networks, p. 6; Mondo, p. 7; SA Power Networks, p. 8; TasNetworks, p. 6.

170 For more information, see: https://www.aemc.gov.au/rule-changes/wholesale-demand-response-mechanism.

outlined in the rules in conducting that review effective date changes to the relevant procedures.

ABBREVIATIONS

5MS	Five minute settlement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
B2B	Business-to-business
Commission	See AEMC
COVID-19	Corona virus disease
DNSP	Distribution network service provider
ESB	Energy Security Board
FCAS	Frequency control ancillary services
GS	Global settlement
IEC	Information Exchange Committee
IRSR	Inter-regional settlement residue
MCE	Ministerial Council on Energy
MDP	Metering data provider
NEL	National Electricity Law
NEO	National electricity objective
NSP	Network service providers (collective term for transmission and distribution providers)
OTC	Over the counter
RERT	Reliability and emergency reserve trader
ROLR	Retailer of last resort
TNSP	Transmission network service provider
UFE	Unaccounted for energy
WDRM	Wholesale demand response mechanism

A SUMMARY OF OTHER ISSUES RAISED IN SUBMISSIONS

This appendix sets out the issues raised in consultation on this rule change request and the AEMC's response to each issue. If an issue raised in a submission has been discussed in the main body of this document, it has not been included in this table.

Table A.1: Summary of other issues raised in submissions

STAKEHOLDER	ISSUE	AEMC RESPONSE
EnergyAustralia, p. 6; Ready Energy (email supporting submission)	EA note that delaying the commencement of 5MS would impact system changes for Wholesale Demand Response Mechanism (WDRM), as participants would need to set up baselining, pricing and settlement systems on both a 30 and 5 minute basis. Ready Energy suggested that for WDRM to work properly, the 5MS rule need to be in place so there is alignment of dispatch and settlement.	The Commission notes that the three month delay to the start date of 5MS and GS means that 5MS will commence on 1 October 2021, prior to the commencement of the WDRM on 24 October 2021.
ENGIE, p. 1. of feedback template; Stanwell, p. 1.	In addition to 5MS and GS, there are other proposed reforms that are likely to require major system changes for dispatch and settlement (i.e. COGATI, two-sided markets, etc.). ENGIE and Stanwell suggest there would be value in extending the timeframe to allow these proposed reforms to be resolved and a harmonised implementation timetable to be developed.	Aligning with other proposed reforms was outside the scope of this rule change request which was to consider whether a delay was necessary as a result of the impact of COVID-19 on the energy industry. To address the issues raised in the rule change request, the Commission delayed the start date of 5MS and GS by three months.
Jemena, p. 1.	Recommends the Reducing Customer Switching implementation date be aligned with a 5MS go-live date on 1 December 2021. Jemena understands that AEMO has currently scheduled the Reducing Customer Switching start in Q3 2021.	Aligning the commencement of 5MS with the implementation of other reforms being progressed by AEMO is outside the scope of this rule change request, which was to consider

STAKEHOLDER	ISSUE	AEMC RESPONSE
		whether a delay to the commencement of 5MS and GS is necessary as a result of the impact of COVID-19 on the energy industry.
Jemena, p. 1.	Recommend that any implementation arising out of the MSATS Standing Data Review be aligned with 5MS go-live on 1 December 2021.	Aligning the commencement of 5MS with the implementation of other reforms being progressed by AEMO is outside the scope of this rule change request, which was to consider whether a delay to the commencement of 5MS and GS is necessary as a result of the impact of COVID-19 on the energy industry.
The Australia Institute, p. 3.	TAI were concerned that a delay to the start of 5MS could have knock-on effects to other reform processes, including AEMC rules and ESB reviews leading up to the post 2025 market redesign project.	The Commission had applied a short delay of three months to the commencement of 5MS in this rule change request and does not expect this delay to have any knock-on effects to other rule changes or ESB reviews.
The Australia Institute, p. 3.	TAI question whether the prospect of financial contagion across the energy sector is an appropriate matter for rule-making powers of the Commission or rather an issue falling under the jurisdiction of general economic regulators and the Federal Government.	Issues around financial contagion in the energy sector are under the rule making powers of the Commission due to the potential impact of financial contagion and retailer failure on the operation of the NEM. The Commission had access to public and confidential cost information in making this final determination.
Fiona Mackay (individual)	Early transition to a low-emissions power sector is critical to Australia reducing its emissions in-line with its Paris climate goals.	This issue is outside the scope of this rule change request. The Commission considers that the transition to a low-emissions power sector is important to support Australia in reducing its

STAKEHOLDER	ISSUE	AEMC RESPONSE
		emissions.
EnergyAustralia, p. 2.	EA consider that a 12 month delay is likely to increase the complexity and risk of implementing 5MS and GS, as unrelated internal projects that are being, or have been, scope or built for implementation after July 2021 will need to be reconsidered or delayed, which may increase costs associated with these other projects.	The Commission understands that participants may seek to optimise changes made to their systems for 5MS and GS, along with other changes to reduce costs. Only changes related to 5MS and GS are in scope to be considered in this rule change request.

B LEGAL REQUIREMENTS UNDER THE NEL

This appendix sets out the relevant legal requirements under the NEL for the AEMC to make this final rule determination.

B.1 Final rule determination

In accordance with s. 102 and 103 of the NEL the Commission has made this final rule determination in relation to the rule proposed by AEMO.

The Commission's reasons for making this final rule determination are set out in section 2.4, and in Chapters 3 to 7 of this final rule determination.

The more preferable rule is attached to and published with this final rule determination. Its key features are described in section 2.4 and Chapter 7.

B.2 Power to make the rule

The Commission is satisfied that the more preferable final rule falls within the subject matter about which the Commission may make rules. The more preferable final rule falls within s. 34 of the NEL as it relates to:

- The operation of the national electricity market
- the activities of persons (including Registered participants) participating in the national electricity market or involved in the operation of the national electricity system.

B.3 Commission's considerations

In assessing the rule change request the Commission considered:

- it's powers under the NEL to make the rule
- the rule change request
- submissions received during first round consultation
- the Commission's analysis as to the ways in which the proposed rule will or is likely to, contribute to the NEO.

There is no relevant Ministerial Council on Energy (MCE) statement of policy principles for this rule change request.[171]

The Commission may only make a rule that has effect with respect to an adoptive jurisdiction if satisfied that the proposed rule is compatible with the proper performance of AEMO's declared network functions.[172] The more preferable final rule is compatible with AEMO's declared network functions because it leaves those functions unchanged.

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171 Under s. 33 of the NEL the AEMC must have regard to any relevant MCE statement of policy principles in making a rule. The MCE is referenced in the AEMC's governing legislation and is a legally enduring body comprising the Federal, State and Territory Ministers responsible for energy. On 1 July 2011, the MCE was amalgamated with the Ministerial Council on Mineral and Petroleum Resources. The amalgamated council was then called the COAG Energy Council. This council is now referred to the ministerial forum of Energy Ministers.

172 Section 91(8) of the NEL.

B.4 Civil penalties

The Commission cannot create new civil penalty provisions. However, it may recommend to the ministerial forum of Energy Ministers that new or existing provisions of the NER be classified as civil penalty provisions.

The final rule does not amend any clauses that are currently classified as civil penalty provisions under the NEL or National Electricity (South Australia) Regulations. The Commission does not propose to recommend to the ministerial forum of Energy Ministers that any of the proposed amendments made by the final rule be classified as civil penalty provisions.

B.5 Conduct provisions

The Commission cannot create new conduct provisions. However, it may recommend to the ministerial forum of Energy Ministers that new or existing provisions of the NER be classified as conduct provisions.

The final rule does not amend any rules that are currently classified as conduct provisions under the NEL or National Electricity (South Australia) Regulations. The Commission does not propose to recommend to the ministerial forum of Energy Ministers that any of the proposed amendments made by the final rule be classified as conduct provisions.

C BACKGROUND

This appendix outlines a:

- brief explanation of five minute settlement
- brief explanation of global settlement
- summary of the five minute and global settlement rule change process and implementation to date

C.1 Five minute settlement

In December 2015, the AEMC received a proposal from Sun Metals (a large zinc refinery in Queensland) to align the financial settlement of the electricity market with the operational dispatch of the market at five minutes. This represents a change from the current 30-minute settlement which is calculated by the average of the six, five-minute dispatch intervals.

The current 30-minute settlement interval reflects the limitations in metering, data collection and IT systems that existed at the beginning of the NEM in 1998. Twenty years on we have access to far more sophisticated equipment, systems and energy services which have the capability to support financial settlement of the market every 5 minutes. While this change seems relatively small and straightforward, numerous processes—including financial transactions, data collection and IT systems—have all been designed around the traditional 30-minute settlement period.

The change to the market rules will impact existing operational behaviour, IT systems and investment incentives for the industry, which means implementation has considerable costs. However, these costs are balanced with significant, long-term benefits for the transitioning energy sector. It is a change that could invigorate the NEM, and prepare it for a more dynamic and agile future.

Similar changes to the settlement period were considered in international markets such as New Zealand and some US markets and it took considerable time to work through the issues associated with such a change.

C.1.1 Benefits of five minute settlement rule change

The Commission considered that aligning dispatch and settlement at five-minutes would have the following significant enduring benefits, relative to the current arrangements, including improved:[173]

- price signals for more efficient generation and use of electricity
- price signals for more efficient investment in capacity and demand response technologies to balance supply and demand
- bidding incentives.

173 AEMC, Five minute settlement, Final determination, 28 November 2017, p.ii.

C.1.2 Implementation of five minute settlement rule change

The five-minute settlement rule allowed for an implementation period of three years and seven months, meaning the rule was due to commence on 1 July 2021 (now 1 October 2021 as a result of the rule change which is the subject of this final determination). Implementation of five-minute settlement requires AEMO and NEM participants to make changes prior to the commencement date. These changes include:

- upgrading metering to provide five-minute granularity data (where required)
- updating IT systems to store and process five-minute granularity data
- reviewing and where necessary updating existing contract terms and conditions.

C.2 Global Settlement

On 6 December 2018, the Commission made a rule to introduce a 'global settlement'framework for settlement of the demand side of the wholesale electricity market. The global settlement rule moves away from the current 'settlement by difference' approach. The rule was made in respect of a rule change request received from AEMO on 16 March 2018.[174] While independent of five minute settlement, both global and five minute settlement have synergies in implementation, particularly with regards to meter data system and file changes.

C.2.1 Background on settlements, 'settlements by difference' and 'global settlements'

The NEM is a gross electricity pool market operated by AEMO. All electricity supplied to the market and consumed by end users is transacted at the spot price for each trading interval in each region. The market settlement process requires that generators are paid for the energy they provide to the NEM and market customers pay for the energy they use. Market customers are primarily electricity retailers who purchase wholesale electricity to on-sell to their retail customers, but also include some large industrial customers.[175]

Under the previous market settlement framework, known as 'settlement by difference', electricity supplied to a distribution area was billed to the incumbent retailer known as the local retailer, except for the loss-adjusted metered electricity that is consumed by the customers of independent retailers within that area. That meant that the local retailer for an area wore the risk of all residual electricity losses in that area - known as UFE. UFE previously included unaccounted for technical losses, commercial losses and errors in estimating the half-hourly consumption of basic metering installations which does not keep track of how electricity usage varies throughout the day.[176]

174 The final rule was a more preferable rule. It is generally consistent with AEMO's rule change request but varies in some specific design elements of global settlements. AEMC, Global Settlement and Market Reconciliation, Rule determination, 6 December2018,p. i.

175 AEMC, Global Settlement and Market Reconciliation, Rule determination, 6 December 2018, p.i.

176 AEMC, Global Settlement and Market Reconciliation, Rule determination, 6 December 2018, p.i.

Under the global settlement framework, every retailer is billed for the loss-adjusted metered electricity that is consumed by their customers within the area. UFE is allocated to market customers in a local area, prorated based on their 'accounted-for' energy.[177]

C.2.2 Benefits of global settlement

The key benefits of moving to a global settlements framework include:

- improved transparency, leading to fewer settlement disputes between retailers and lower levels of UFE over time
- competition on equal terms between the local retailer and other retailers
- improved risk allocation, so that risks are allocated to those parties that are best placed to manage them.

C.3 Five minute and global settlement rule change processes and implementation to date

As noted above, the AEMC received the original 5MS rule change request from Sun Metals in December 2015, and went through an extensive assessment of the merits of the rule change. This included:

- three formal rounds of consultation
- two technical working group meetings
- over 110 stakeholder meetings
- a public forum with close to 100 stakeholders
- considering 114 written submissions.

In November 2017, the Commission determined to make the rule, allowing for a three and a half year transition period to balance the implementation costs of transition with the longer term benefits of the change.

On 6 December 2018, the Commission made the global settlements rule, after a standard rule change process. Under this rule, AEMO was due to start publishing UFE from 1 July 2021 to align with the start of 5MS, and to start financial settlement of GS on 6 February2022. As discussed in this final determination, both these dates have been delayed by 3 months as a result of the Commission's final rule on the delayed implementation of five minute and global settlement.

C.3.1 AEMO's implementation of 5MS and GS

AEMO formally started its consultation process on the implementation for 5MS in July 2018. AEMO established three dedicated five minute settlement working groups to engage with industry and market bodies on procedure updates, system updates and industry readiness. The three working groups are:

177 AEMC, Global Settlement and Market Reconciliation, Rule determination, 6 December 2018, p.i.

1. **Procedures** — working with industry to review and where required implement changes to around 70 procedures, policies and guides
2. **Systems** — responsible for the design, development, testing and implementation of IT and metering systems to support the changes
3. **Readiness** — responsible for ensuring all participants are prepared for the transition and commencement of the rule.

In addition to the three dedicated working groups, AEMO has established several focus groups and forums that meet regularly (mostly monthly) throughout the year.

Through AEMO's work program it identified some technical issues with the 5MS and GS rules, and submitted a rule change request in March 2019. This rule change sought to make some amendments to help the market efficiently and effectively implement five minute settlement and global settlement. On 8 August 2019, the Commission made a final rule to amend the 5MS[178] and GS[179] rules. The final rules improve wholesale market operations under five minute settlement, clarify global settlement arrangements and improves information provision requirements.

C.3.2 Impact of COVID-19 on the Australian economy and energy market

In early 2020, the COVID-19 pandemic began to impact the Australian society and economy. To minimise the spread of COVID-19, Australian Governments imposed strict lock downs, social distancing requirements and limits on international travel, resulting in significant economic impacts on the Australian economy. In response to the potential economic pressures the pandemic could have on the energy market, the market bodies conducted an initial assessment of reforms, to identify if any changes could be made to relieve pressure on the energy sector. The outcome of that work was a letter on 9 April 2020 to the Hon Angus Taylor MP, Minister for Energy and Emissions Reductions, regarding prioritising industry implementation time frames, including a proposed delay to the implementation of 5MS.[180] Further to that letter, AEMO submitted the rule change proposal to delay the commencement of the 5MS and GS rules, which is the subject of this final determination.

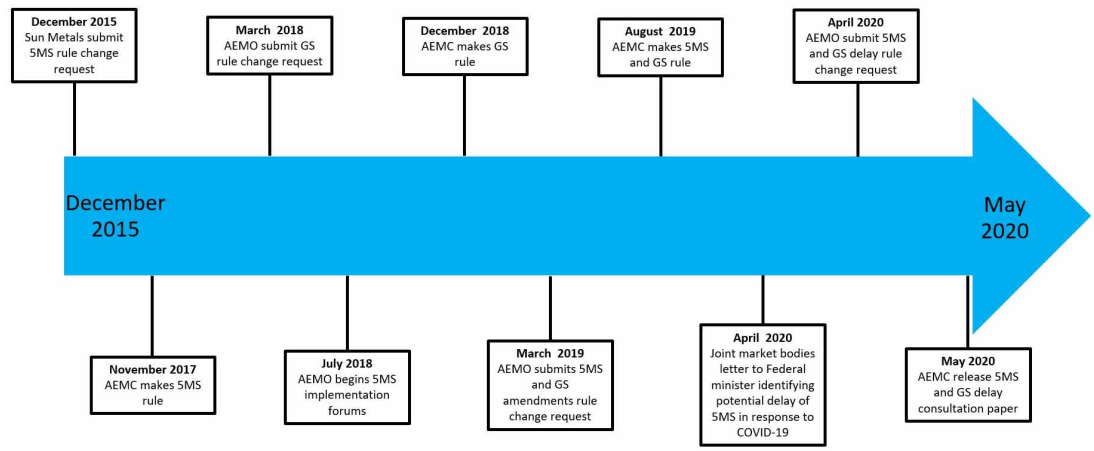
Figure C.1 below illustrates the process from the 5MS rule change proposal to the release of this consultation paper.

178 National Electricity Amendment (Five minute settlement) Rule 2017 No. 15.

179 National Electricity Amendment (Global settlement and market reconciliation) Rule 2018 No. 14.

180 A copy of the letter is available here: https://www.aemc.gov.au/sites/default/files/2020-04/Letter%20from%20AEMC%20AER%20AEMO%20-%20Prioritising%20implementation%20timeframes_a%20more%20detailed%20view%20-%209%20April%202020.pdf

Figure C.1: Timeline of regulatory changes from 5MS and GS



Source: AEMC

D OVERVIEW OF ELECTRICITY HEDGING MARKETS

This appendix provides a high level overview of electricity hedging markets.

The NEM operates as a gross pool market, where generators bid in different quantities of generation at different prices. As demand and supply vary continuously throughout the day, so does the electricity price. The fluctuations between the market floor price (-$1,000/MWh) and the market price cap ($14,700/MWh) create cash flow risks for wholesale and retail participants. Electricity hedging contracts are commonly used to manage the impact of this volatility on participants. Electricity hedge contracts allow counter parties to agree to a fixed price for a financial transaction in the future based on the price of an underlying asset or commodity, such as the NEM spot price. There are broadly two markets for electricity hedge contracts:

- The **Australian Securities Exchange (ASX)**—Contracts traded on the ASX are standardised, anonymous, and all prices and quantities are publicly available. According to the Australian Financial Markets Association (AFMA) derivatives survey, in 2018-19 the ASX contributed around 82 per cent of electricity market turnover (MWh).
- **Over-the-counter (OTC)**—OTC contracts are generally bi-lateral, more bespoke and negotiated between the parties. Most OTC contracts are based on the standard terms established in the International Swaps and Derivatives Association (ISDA) electricity addendum. In 2018-19, the OTC market contributed around 18 per cent of total electricity market turnover (MWh).

The most common type of electricity hedge contracts are swaps (or 'futures') and caps.

- **Swap**—A swap contract trades a given volume of energy during a fixed period for a fixed price (the strike price). The variable wholesale market spot price is, in effect, swapped for the fixed strike price. The contract is settled through payment between the counter parties based on the difference between the spot price and the strike price. The natural seller of a swap is a base load generator whereas the natural buyer is a retailer. For both parties, the swap is a hedge against spot price volatility. Retailers typically use swaps to hedge the average component of their customer load profile.
- **Cap**—A cap contract trades a fixed volume of energy for a fixed price when the spot price exceeds a specified price, which is typically $300/MWh. It provides the buyer of the contract with insurance against high prices. The seller of a cap is required to pay to the buyer the difference between the spot price and $300/MWh every time the spot price exceeds $300/MWh. The natural sellers of caps are peaking generators whereas the natural buyers of caps are retailers and large energy users. Caps are most suitable to hedge load that is variable or less certain.