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Delayed implementation of the five minute and global settlement rules

Australian Energy Market Commission

8 July 2020

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Your ref: ERC0298

Dear Andrew

Re: Delayed implementation of the five minute and global settlement rules

The following report contains the findings from Deloitte's examination of the cost to delay the five-minute settlement and global settlement rule changes due to the COVID-19 pandemic and economic downturn.

Our analysis is informed by our experience working with industry participants in various IT strategy and implementation projects. We have applied this expertise and knowledge in assessing the submissions provided to the Australian Energy Market Commission in June 2020, which reflect the views provided by industry participants.

Yours sincerely

K. Funston

Dr Kris Funston
Partner

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Glossary

Acronym	Full name
5MS	Five minute settlement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
DNSP	Distribution network service provider
ENA	Energy Networks Australia
GS	Global settlement and market reconciliation
IT	Information technology
MC	Metering coordinator
MDP	Meter data provider
MDM	Meter data management
NEM	National Electricity Market
SAPN	South Australian Power Networks
TNSP	Transmission network service provider
WACC	Weighted average cost of capital

Executive summary

The five minute settlement (5MS) rule change by the Australian Energy Market Commission (AEMC) is scheduled to take effect on 1 July 2021. 5MS is a significant market reform that recognises the need for improved wholesale market price signals with the transformation underway in the National Electricity Market (NEM). The rule requires significant changes across the entire electricity supply chain. This includes changes to IT systems impacting wholesale market trading, meter data management and business to business applications, through to end customer metering which must collect six times as much data to meet the new requirements.

At the same time there is also a change underway to move away from a settlement by difference framework to a global settlement framework. The Global settlement and market reconciliation (GS) rule change set a soft start for global settlement aligned with the full commencement of five minute settlement on 1 July 2021. The full commencement for global settlement is scheduled for 6 February 2022.

However, 2020 has presented major challenges to Australia's economy and community due to the global COVID-19 pandemic. Entire workforces have shifted to work-from-home arrangements in a matter of weeks, thousands of jobs have been lost and Australia's economy is facing a rapid deterioration.

On 9 April 2020, the Australian Energy Market Operator (AEMO) submitted a proposal to the Australian Energy Market Commission (AEMC) for an urgent rule to be made to delay the commencement of the 5MS and GS rule changes by 12 months. AEMO's proposal was made in response to its concerns about the potential impact of COVID-19 on the energy industry. AEMO suggested that a delay to 5MS and GS would free up both human and financial resources which would be under strain during this period, ensuring the ongoing supply of energy and appropriate customer support.

On 14 May 2020, the AEMC published a consultation paper seeking feedback on the proposal. It received 48 responses from across the energy market. Deloitte was engaged by the AEMC to provide advice on participants' IT costs and capability relating to the proposed delay to the start date of 5MS and GS. In particular, we have been asked to assess:

- the effect that COVID-19 has had on the capability of market participants to meet the current timeframes for the rule changes
- the likely change in 5MS and GS implementation costs for market participants and the electricity industry as a whole for a 12-month delay, relative to the counterfactual of no delay. Our analysis does not include consideration of the delayed realisation of market benefits and contract market implications.
- the effect of changing the timeframe for delaying the rule changes.

Throughout this report when referring to costs and benefits, we are only referring to the implementation costs and deferred implementation costs of the delay to the 5MS and GS rule changes for market participants in the NEM.

Our summary of findings in relation to the impact of COVID-19 are that it:

- Has not had a material impact on the IT systems and resources costs of the 5MS and GS transition.
- Has had an impact on IT capacity, but this is unlikely to be enduring and limited to April and May 2020.
- May be having an impact on financial capability, and this is likely to be disproportionately felt by those who may be less able to bear the cost, such as small retailers.

In terms of the costs and benefits of a delay in relation to the implementation of IT solutions:

- We estimate that the aggregated cost of a 12-month delay for all market participants (generation, network, and retail businesses) is between $19 million and $41 million. The estimated cost does not include costs to AEMO, meter providers, meter data providers, specialist contracted IT services, cogeneration or any large-scale battery assets.
  - We note that for all small retailers, the total industry aggregated IT cost increase estimate range is between $140,000 and $1,250,000.
- Based on a series of assumptions outlined in this report, we estimate that the benefit of a 12 month delay in aggregate across generation, network, and retail businesses – which excludes benefits to AEMO, meter providers, meter data providers, cogeneration and metering coordinators – through the deferred IT capital costs, is in the order of between $10 million and $24 million.
  - We note that for all small retailers, the aggregated industry cashflow benefit of a delay estimated range is $187,000 to $1,867,000.
- smaller retailers are likely to benefit more from a delay. This is because:
  - The cashflow benefit from deferral is large relative to the size of the business.
  - There is likely to be a relatively low cost of delay, because their programs are relatively less mature (planned to be implemented in the second half of this year).
- A shorter delay (of less than 12 months) is likely to lead to higher IT implementation costs compared to a 12-month delay. That is, 12 months is likely to allow for greater specialist resource flexibility than a three-to-six-month delay as we assume that market participants would likely maintain existing resource capacity rather than scale down in the short term.

In undertaking our assessment of the implementation costs and benefits of delay we were instructed by the AEMC not to take into account any costs or impacts on businesses that had paused implementation in response to the proposed rule change by AEMO. We understand some businesses have chosen to do this despite the existing timeframes still applying in the absence of this rule change being made.

COVID-19 impact on the 5MS and GS timeframe

We do not find that COVID-19 has materially impacted the ability of industry to deliver the 5MS and GS changes within the existing timeframe.

Submissions (both public and confidential) have presented limited evidence of the disruption to resources beyond an immediate impact and it is not clear if the impact that has been identified will be enduring. For example, the transition to work-from-home, whilst a significant IT disruption for all businesses in the first few months has become business as usual today. The economic downturn, supply chain disruptions and uncertainty resulting from COVID-19 are significant. However, the progress to meet the 5MS and GS timeframe prior to the emergence of the COVID-19 pandemic was substantial and in its Round 2 Market Readiness report based on April 2020 data, AEMO identified that market participants were generally on track to transition within the timeframe.

The views presented by industry in submissions showed that while COVID did not affect all participants directly, it materially impacted participant capabilities in general for two to three months while adjusting to work-from-home practices. However, the impact on the timeframe to deliver the 5MS and GS changes is not likely to be material based on our view of the market and the limited evidence provided in responses.

Limitations on financial and corporate capacity as a result of COVID-19 place a potential risk on businesses meeting the 5MS and GS requirements. We know that the energy sector has been affected by COVID-19, but the length and the extent is still uncertain and will depend on:

- how successfully we move away from lockdown
- whether there are any further lockdowns, and
- the recovery of the economy.

If issues of financial capacity emerge, it is likely to disproportionately impact smaller retailers and service providers through cashflow constraints resulting from the economic downturn over the coming year.

Cost and benefit of a delayed transition to 5MS and GS

Based on the analysis of submissions, the increase in participant costs of a 12-month delay (versus no delay) was reported to be in the order of 5-10% of participants' total 5MS and GS program costs. For the largest retailer and generator participants, a 5% increase in program costs could be between $1.25 million to $2 million, and for the smaller to medium participants, this could be as low as $5,000 and as high as $1.25 million, depending on the size of the business and program.

We note that we are aware that businesses are using the 5MS and GS program as an opportunity to implement broader IT refresh elements. This is likely to be an efficient strategic approach to the reform implementation, but those additional refresh costs are not included here and have been removed from our estimates.

Based on our cost baseline, and the list of market participants and their assumed size, we have calculated that the overall cost for retailers, generators and networks of a 12-month delay would equate to between $19 million and $41 million. The estimate does not include costs estimated to be incurred by AEMO, meter providers, meter data providers and metering coordinators.

Offsetting the cost of delay is a cost deferral benefit to cashflow. A delay to the commencement of 5MS and GS could result in deferral of expenditure that provides a financial benefit for retailers, generators and networks of between $10 million and $24 million, in total.

For the majority of market participants, we believe that a 12-month delay in implementation would result in around a 5% cost increase to participant 5MS and GS program costs. Greater resource costs and increased time for market testing are likely to be the main contributors to additional costs incurred. However, the percentage cost increase will be influenced by the current maturity of the participants' 5MS and GS programs, and participants will be at different stages in their implementation.

The level of any additional cost incurred from a 12-month delay is likely to depend on the:

- technology change required (small or large)
- approach taken to deliver the change (technology, people, finance and commercial), and
- the maturity of the change being delivered (how far progressed the program is).

Given participants' approach and circumstances will vary significantly, we believe that those participants who will incur the greatest cost of delay, which are material, are likely to be those who are the most prepared and mature in program delivery and have resourcing, contractual and commercial agreements tied to the current July 2021 deadline. Those participants that are less prepared or have shorter implementation durations to be 5MS and GS compliant (for example, smaller participants or those only requiring minor changes to technology or have outsourced IT services) are likely to have lower delay costs and are more likely to receive the financing benefit of the delay.

The impact on smaller participants of a 12-month delay is largely unknown due to the limited responses from small participants through the submission process. However, we anticipate that for some who are already delivering 5MS and GS programs against the current July 2021 deadline, the cost could be quite large and disproportionate in comparison to larger industry participants. Based on their submission PLUS ES are an example of a smaller participant (metering provider) that appears to have been disproportionately affected. PLUS ES have indicated it will incur $2 million as a result of a delay, which at the upper end of the range of delay costs we have estimated for large, vertically integrated generators and retailers.

Some participants stated in their submissions that they intend to continue to deliver their 5MS and GS programs to the current July 2021 deadline, irrespective of a delay. We anticipate that these

participants are likely to incur the greatest cost from a 12-month delay. However, the ability for these participants to also test their IT changes earlier than their peers, to ensure their solutions can receive and cater for the increased frequency and utilise the increased volumes of data, may be of benefit to them.

Some submissions stated that a delay of 12 months or longer will provide a benefit of a longer period of time for testing. We have assessed the likely costs of an 18-month delay and consider that there will only be a marginal change in overall costs to participants in comparison to the proposed 12-month delay. However, if the timeframe of the delay was three or six months rather than 12 or 18 months, it could create higher implementation costs to participants due to the need to retain specialist resources. This is because under a three or six-month delay, participants would be more likely to retain the current specialist resources to deliver the program, whereas a 12 or 18-month delay would allow participants to stand down those resources until required. A 12 or 18-month delay effectively provides a smaller program cost over a longer period than a three to six-month delay.

While the costs of a three-month delay are likely to be smaller than that of a six-month delay, as specialist resources are kept on for a shorter period, the exception will be for those businesses that have already paused their current programs in expectation of a rule change with a longer delay. Businesses that have paused their current programs are likely to have already scaled down their teams and cancelled contracts to deliver the program. We have not estimated the costs or benefits of delay for such participants, but they are likely to face greater risks in achieving the timeframe for delivery for a period of delay between three to six months, relative to a 12-month delay.

1 Background

1.1 Proposed rule change

In November 2017, the Australian Energy Market Commission (AEMC) made a rule change in the National Electricity Market (NEM) to move from a 30 minute settlement to a five minute settlement market, starting on 1 July 2021. The five minute settlement (5MS) rule change requires significant changes across the entire electricity supply chain. This includes changes to IT systems impacting wholesale market trading, meter data management and business to business applications, through to end customer metering which must collect six times as much data to meet the new requirements.

In December 2018, the AEMC made another rule change to move away from a settlement by difference framework to a global settlement framework. The Global settlement and market reconciliation (GS) rule change set a soft start for global settlement aligned with the full commencement of five minute settlement on 1 July 2021. The full commencement for global settlement is scheduled for 6 February 2022.

On 9 April 2020, the Australian Energy Market Operator (AEMO) submitted a proposal to the AEMC for an urgent rule to be made to delay the commencement of the 5MS and GS rule changes by 12 months. AEMO's proposal was made in response to its concerns about the potential impact of COVID-19 on the energy industry. AEMO suggested that a delay to 5MS and GS would free up both human and financial resources which would be under strain during this period, ensuring the ongoing supply of energy and appropriate customer support.

On 14 May 2020, the AEMC published a consultation paper seeking feedback on the proposal. Key issues the Commission sought feedback on include:

- How has COVID-19 impacted participant cash flows and capacity, and what would be the impact of a delay on participant cashflow and capacity?
- How would a delay impact the contract market and participant risk management?
- What would be the impact of delaying the benefits of 5MS and GS by 12 months?
- If there were to be a delay, is 12 months the most optimal delay length, or is there another delay length that is more appropriate?
- Are there any implications for other parts of the National Electricity Rules, AEMO or AER Information Exchange Committee procedures and guidelines?

1.2 Purpose and scope

Deloitte was engaged by the AEMC to to provide advice on participants' costs and capability relating to the proposed delay to the start date of 5MS and GS rule changes.

The AEMC is assessing whether the rule change request promotes the National Electricity Objective (NEO) against an assessment framework, including four criteria:

1. Deferring industry/participant costs – whether the rule change proposal would support industry viability by deferring costs for participants to implement 5MS and GS reforms.
2. Industry/participant capability – whether a delay in the start of the 5MS and GS reforms is needed to allow participants to reallocate resources in the short term, to meet the core energy supply responsibilities.
3. Contract market implications – whether a delay in the start of 5MS could have flow on impacts to existing and future hedging contracts for energy.
4. Delayed benefits – the extent to which a delay to the start of 5MS and GS rules would defer the realisation of associated benefits.

The scope of this report is to provide advice to the AEMC to inform its analysis of the first two assessment criteria:

1. Deferring industry/participant costs.

2. Industry participant capability.

To inform the analysis of these two assessment criteria, Deloitte was asked to carry out the following tasks:

- Review stakeholder submissions (both public and confidential)
- Assess the reasonableness of participants' claimed impacts of COVID-19 on their capabilities to implement 5MS and GS on the current timeline
- Determine the effect of COVID-19 on the capability of participant types and the electricity industry as a whole to implement 5MS and GS on the current timeline
- Assess the reasonableness of participants' claimed impacts of a 12-month delay on their costs to implement 5MS and GS
- Determine the expected change in 5MS and GS implementation costs for participant types and the electricity industry as a whole for a 12-month delay, relative to the counterfactual of no delay
- Consider the effect on cost that might result from changing the timeframe for delay.

Importantly, this analysis does not include the provision of any advice in relation to:

- Contract market implications of a delay
- Delayed benefits associated with the delay of the 5MS and GS rule changes.

The report is structured as follows:

- Section 2 provides an overview of our approach to the analysis, including key assumptions we have made.
- Section 3 outlines the impact of COVID-19 on the ability of participants to meet the 5MS and GS timeframes, taking into account the views expressed by participants.
- Section 4 outlines and estimates the change in IT costs from delay – both the benefits and the costs – taking into account the views of participants.

2 Approach to analysis and our key assumptions

This section provides:

- An overview of our approach to this analysis.
- An outline of how we assessed the IT costs for participants in the base case of no delay, versus a 12 month delay.

2.1 Overview of our approach to analysis

Our approach to this analysis consisted of three steps:

1. **Define:** We developed a Cost Baseline of estimated industry costs by participant type for meeting the 5MS and GS regulations; a Series of Hypotheses on the impact of the proposed delay on industry particpants' costs; and a Cost Benchmark Framework to analyse submissions against.
2. **Review & Assess:** We reviewed 48 participants' submissions and assessed the information provided against the hypotheses and cost benchmark framework developed in step 1 (see Appendix A for a full list of reviewed submissions).
3. **Summarise & Report:** We synthesised stakeholder information into key themes and observations from the assessment, highlighting specific cases where appropriate. Our findings and cost estimates are set out in this report.

In order to assess the impacts of a delay to 5MS and GS on industry participants, it is important to establish the base case, or counterfactual case, against which the proposed rule change is compared. We developed an understanding of the existing costs of 5MS and GS prior to the COVID-19 pandemic.

For this report, the base case is the scenario in which:

- the current timeframe for 5MS and GS implementation does not change
- industry participants, while undoubtedly affected by COVID-19 in a variety of ways, are assumed to still meet:
    - the 1 July 2021 implementation deadline for 5MS
    - the soft start for GS on 1 July 2021, and the full implementation of GS by 6 February 2022.

Importantly, this requires an assessment and understanding of the impact of COVID-19 on industry participants and specifically their 5MS and GS implementation programs. The impacts have been considered on the basis of two factors:

1. Impacts on IT capability – this includes the impacts of lockdowns on overall IT workforce access (participation) and efficiency/productivity, as well as the need for staff to be reallocated from the 5MS and GS projects to focus on immediate issues resulting from COVID-19, such as customer support responsibilities. It also includes the impact on participants' ability to carry out business-to-business functions needed for the 5MS implementation, including liaison and coordination between networks, retailers and generators, which may have been reduced due to COVID-19.
2. Impacts on financial viability and capability – this encompasses the financial impacts of COVID-19 on industry participants, which may have impacted their ability to fund 5MS and GS. Considerations include the revenue and cost impacts of COVID-19 on the industry, which varies according to participant type.

To assess the impact of COVID-19 on IT costs and establish a base case first requires an initial assessment of the likely range of IT costs for classes of participants prior to the pandemic.

Table 2.1 outlines our estimated range of costs associated with meeting 5MS and GS prior to the pandemic for generators, networks and retailers. We have developed these estimates based on both publicly available recent information on program costs (including those reported by networks in regulatory proposals to the AER), and our experience in IT implementation projects, some of which relate to current 5MS and GS programs. We do not have estimates for all participants of all sizes, nor for other market participants, which includes meter providers, meter data providers and metering coordinators or specialist IT service providers.

Table 2.1 Range of costs to meet the 5MS and GS timeframe prior to the COVID-19 pandemic ($million)

Participant Type	**Participant Size based on NEM market share**					
	Small (<1% Market Share)		Medium (1-10% Market Share)		Large (>10% Market Share)	
	Low	High	Low	High	Low	High
Generator	-	-	$5	$20	$20	$25
Network (T&D)	-	-	$5	$20	$20	$30
Retailer*	$0.1	$ 1	$ 15	$25	$25	$40

Source: Deloitte estimate

*Note: The retailer category in the table includes vertically integrated retailers – i.e. those retailers who also have generation assets. They are not captured in the generator section to avoid double-counting of aggregate industry costs. Participant size is based on connection points, number of customers or number of generation sites.

These baseline costs are important for analysing the potential costs and benefits of any delay to 5MS and GS. The above table is based on Deloitte's professional experience and the baseline is an estimate of costs prior to the need to adjust for the COVID-19 pandemic. In developing our analysis, we have also taken into account the limited program cost information that was provided in submissions and applied our judgement as to which reported costs were likely to include further non-5MS strategic refresh costs. As such, there are some larger participants that reported costs in submissions which were above the range in our cost baseline.

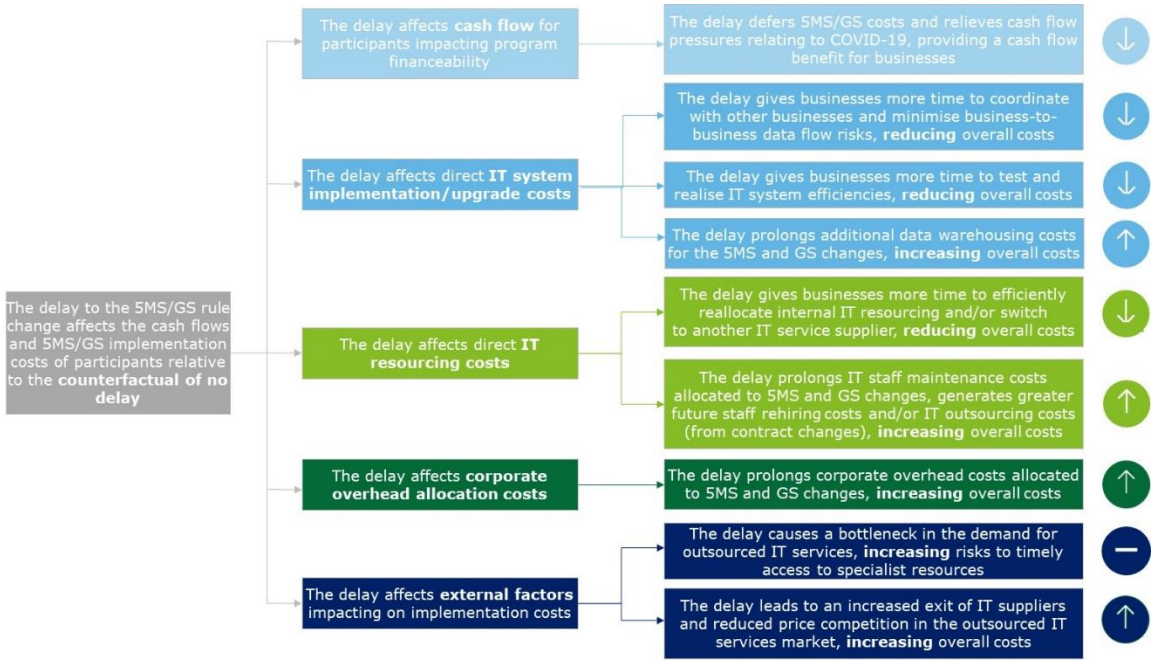
2.2 Cost analysis of base case and proposed rule change scenario

The cost analysis in this report compares the:

- Base case: Participant costs to meet 5MS and GS requirements on time by 1 July 2021 – including the impact of COVID-19 on business operations and other contractors.
- Rule change scenario: Participant costs to meet delayed 5MS requirements by 1 July 2022, and delayed GS requirements.

Our approach to this analysis has included the development of hypotheses about the costs and benefits as well as the cost drivers for a delayed 5MS and GS implementation. Below in Figure 2.1 are the hypotheses designed in consultation with the AEMC and analysed in this report.

Figure 2.1 Hypotheses analysed



Note: Arrows in the above reflect the impact of each hypothesis on total program costs, i.e. a down arrow indicates that the outcome of the hypothesis is a reduction in total costs.

Importantly, we note that some participants have already made decisions to delay or amend their 5MS and GS implementation programs in anticipation of the proposed rule change being implemented. These business decisions to 'ramp down' the 5MS and GS campaigns, while partly in response to COVID-19 and the IT and financial capability challenges posed, are independent of the base case scenario. Based on consultation with the AEMC, the costs associated with reversing these decisions to meet the current timeframe in the Rules have been excluded from our analysis in consultation with the AEMC.

Our base case assumes that participants are able to meet the current Rules timeframe, consistent with AEMO's industry readiness assessments, and that the costs for doing so, while impacted by COVID-19, are not impacted by the anticipation of the proposed rule change itself.

3 COVID-19 impact on delivering 5MS and GS within the current timeline

This section:

- Outlines the economic impacts of COVID-19 on the economy and energy sector.
- Assesses the reasonableness of participants' claimed impacts of COVID-19 on their ability to implement 5MS and GS on the current timeline.
- Identifies the effect of COVID-19 on the capability of participant types and the electricity industry to implement 5MS and GS on the current timeline.
- Presents our view on each of the above issues, which is based on our market insights and expertise in the industry supported by the information provided by industry participants in their submissions to the rule change process.

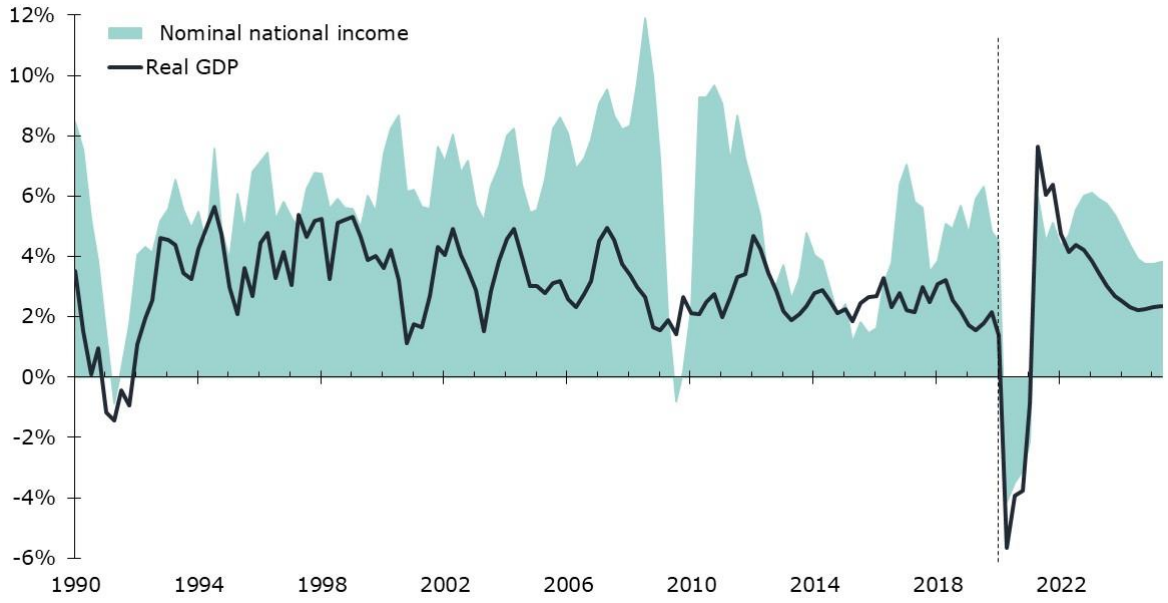
3.1 Economic impacts of COVID-19

Coronavirus (COVID-19) has had a significant impact on Australia's economy in 2020, although utilities businesses have remained relatively sheltered from the steep declines in demand and revenue seen in some other industries. We expect the economic decline due to COVID-19 to continue through 2020, before the recovery begins and a return to positive growth in 2021 (see Chart 2.1).

Thousands of jobs have been lost since March when restrictions came into effect. In May 2020, business investment fell to around 11% of nominal GDP – a share not seen since the 1991 recession.[1] People and businesses have become uncertain, and uncertainty has resulted in lower spending and investment. Supply chains have become disrupted amid global and local shutdowns and travel bans, while businesses are delaying investment and capacity expansion, and consumers are delaying discretionary spending. With the short-term stimulus measures introduced by the Commonwealth and states set to taper off in the second half of 2020, we expect the impact on the economy to remain challenging through 2020. Chart 3.1 shows our forecast that real GDP growth will continue to decline through 2020 before returning to growth in 2021.

[1] Reserve Bank of Australia, June 2020 Chart Pack, https://www.rba.gov.au/chart-pack/

Chart 3.1 Growth in Australia's real GDP and nominal national income



Source: Deloitte Access Economics, Business Outlook June 2020

Utilities (from small to large) are faring relatively well in the economic downturn to date, but the deterioration in the economy in the coming year will undoubtedly have an impact on their financial positions.

As an essential rather than discretionary service, energy is more sheltered from the downturn in consumer spending and lockdowns. While residential energy consumption has increased in some regions during the lockdown period, small and large business energy use has declined. Overall, NEM energy consumption was down modestly in April and May compared to the previous year. In the first half of 2020, the impacts on energy industry participants were more varied. The wholesale electricity prices (spot or forward contracts) are down by around 50% from last year, placing those retailers with greater spot exposure in a potentially advantageous position, while exposed generators are facing lower revenues. The value of lending to utilities has remained at around long-term levels in the year to April 2020, which shows that access to funds and levels of investment have not to-date been impacted.[2]

However, over the coming year we expect challenges to increase for the energy industry due to COVID-19. There could be an increased risk of insolvency among retailers and IT suppliers, which would place some businesses at risk of achieving the current 5MS and GS timeframe. The impact on the economy and the potential for reduced employment and increased unemployment is likely to create energy affordability pressures for energy customers creating challenges in paying bills. There will also be pressures on small to medium enterprise businesses and corporate and industrial customers, and we have already seen significant declines in their consumption.

The potential increased levels of consumers with payment difficulty will require retail and network businesses to reallocate resources to deal with more consumers entering into hardship programs. Data on customer debt levels has not yet indicated an immediate financial risk.[3] But as JobKeeper, free childcare, mortgage holidays and other government stimulus tapers in the second half of 2020, there is the potential for increases in energy bill defaults, hardship programs and payment

[2] Reserve Bank of Australia, June 2020 D14.1 Lending to business – business finance outstanding by business size and industry, https://www.rba.gov.au/statistics/tables/
[3] AER, Weekly Retail Market Dashboards – COVID-19, https://www.aer.gov.au/retail-markets/performance-reporting/weekly-retail-market-dashboards-covid-19

plan support. This would impact business revenues and increased resources would be required to deal with the rising numbers of customers requiring support.

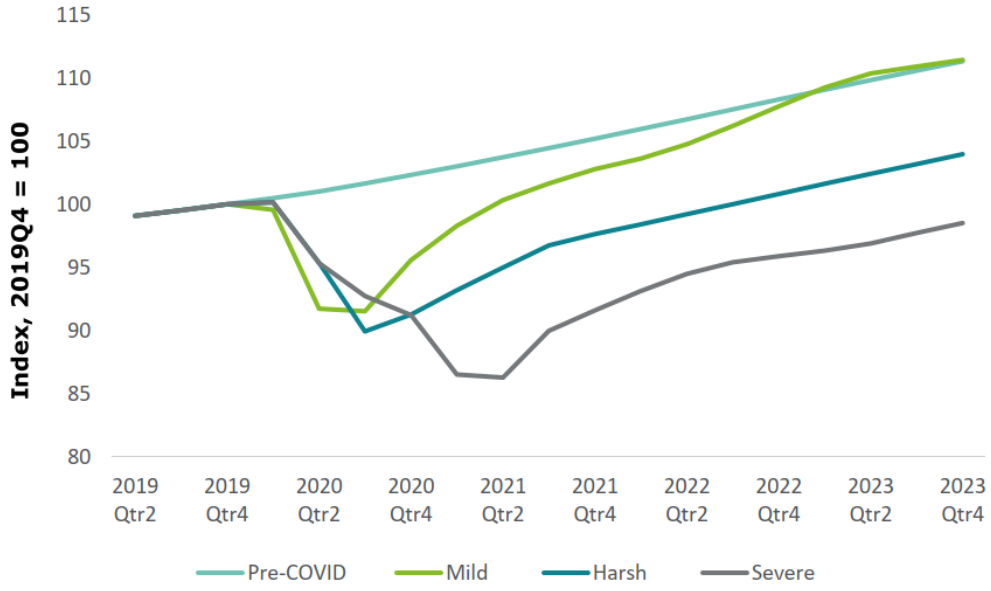
Energy businesses have had to change their work practices and reallocate IT resources to accommodate work-from-home arrangements through the COVID-19 pandemic. The sudden shift in work practices has been felt across the sector – but also across all sectors. The transition back to workplaces over the coming year will require resources to plan and execute.

COVID-19 is also disrupting global supply chains for both goods and services which the energy industry relies on. As other nations deal with lockdowns and the gradual easing of lockdowns over the coming year, outbreaks and measures by nations globally to control the spread will continue. This means the energy industry could continue to be impacted by IT supplier delays and IT capacity constraints as workforces are disrupted.

Limitations

Here we have outlined our forecasts of what is the most likely future for the Australian economy – a mild scenario shown in Chart 3.2 below. But 'most likely' is much less certain than it has been in the recent past. The good news for Australia is that (1) we entered this crisis with a strong health care system and government budgets, and that (2) our Asian trading partners will fare much better than the rest of the world in 2020. But the bad news is that (1) virus numbers can grow at an exponential rate unless economies are shut down, and that (2) this crisis will not truly be over until we have a vaccine and effective anti-viral medications.

Chart 3.2 Real GDP impact, relative to pre-COVID outlook



Source: Deloitte Access Economics 2020

Although the outlook is subject to wide bounds, this looks set to be the sharpest recession Australia has seen since the Great Depression of the 1930s. While the uncertainty about the progression of the virus and the economic recovery are uncertain, we expect that the economy will begin to recover through 2021 and beyond.

3.2 Impact of COVID-19 on industry participants' ability to meet the 5MS and GS timeframe

Submissions from stakeholders have outlined information relating to the impact of COVID-19 on the IT capability and financial capability of participants. Submissions showed that while COVID did not affect all participants, it materially impacted some participant's capabilities in general for two to three months.

Some submissions have confirmed that COVID-19 has resulted in the reallocation of specialist IT resources away from 5MS and GS projects, to more business critical activities, therefore significantly reducing their ability to meet the current timeframe.[4] [Confidential].[5] Snowy Hydro also reported that COVID-19 has compromised its ability to access IT services and deliver on the requirements of 5MS.[6] Businesses' IT systems have been significantly affected during this time as more people work from home.

Some businesses have reported a minor impact of COVID-19 on their IT capability, with delays of only a few months,[7] and others have reported improvements to their productivity for the 5MS program as a result of staff working from home. Others have noted the varied, offsetting impacts of COVID-19 on IT capability, as some industries experience lower demand and reduced need for IT services (accommodation and food services, tourism, entertainment).[8]

While IT capacity might have been stretched with the impact of working from home, evidence was not provided to suggest it will have an enduring effect.

Submissions did not identify increased costs to IT systems due to the COVID-19 pandemic but did acknowledge the business-wide cash flow challenges. In a number of submissions, there was an acknowledgement that COVID-19 had placed pressure on cash flows for some participants either as a result of increasing 'bad debt' from customers requesting hardship assistance with their bills (e.g. retail rebates or payment plans) and changing trends in electricity consumption and wholesale energy prices.[9]

In particular, Essential Energy's submission noted that the recent Energy Networks Australia (ENA) relief package and the AER's recent rule change request to extend the time that retailers can pay networks in respect of customers on hardship or other forms of deferred payment arrangements in response to COVID-19, will have an impact on cash flows.[10] The exact reported cash flow impacts from COVID-19 varied from submission to submission, and was dependent on a participant's business type, size, and maturity.

Some submissions also noted the substantial disruption to global workforces and supply chains for outsourced services as well as materials. South Australian Power Networks (SAPN) said that its IT developer and support service provider, based in India had experienced substantial workforce disruption at a time SAPN required system changes and enhancements to deal with the impact of COVID-19 on Australian consumers.[11]

3.3 Has COVID-19 materially impacted participants' ability to deliver?

We do not find that COVID-19 has materially impacted the ability of industry to deliver the 5MS and GS changes within the existing timeframe. As noted above, it impacted participant capabilities in general for two to three months, but not for longer.

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[4] Ausnet Services, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, pp. 1, 6; Mondo, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, pp. 3-4; CitiPower, Powercor and United Energy, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, pp. 1.

[5] Tango Energy, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June

[6] Snowy Hydro, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 1.

[7] Arrow Energy, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 10 June 2020, p. 8.

[8] Fiona Mackay, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 4.

[9] Essential Energy, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, p. 1-2.

[10] Essential Energy, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, p. 1-2.

[11] SAPN, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, p. 2.

Submissions have presented limited evidence of the disruption to resources beyond an immediate impact and it is not clear if the impact that has been identified will be enduring. For example, the transition to work-from-home, whilst a significant IT disruption for all businesses in the first 1-2 months of social distancing restrictions, has now largely been implemented by most businesses.

The economic downturn, supply chain disruptions and uncertainty resulting from COVID-19 are significant. However, the progress to meet the 5MS and GS timeframe prior the emergence of the COVID-19 pandemic was substantial. AEMO's Round 2 Market Readiness report[12] (based on responses provided in April 2020) identified that "respondents are generally on track" to transition within the timeframe.

The views presented by industry indicate that there have been changes to capacity and capability to deliver the rule change. However, the impact on the timeframe to deliver the 5MS and GS changes is not likely to be material based on our view of the market and the limited evidence provided in responses.

While we find from a technical IT perspective there is unlikely to be a material impact of COVID-19 on participants' ability to meet the existing timeframe, in terms of the financial risks, there is uncertainty to this outlook. There is uncertainty about the progression of the ongoing pandemic and the necessary public health response. Small retailers are likely to be disproportionally impacted by any reductions in revenue that might arise if there are increases in bad debt or the need for other forms of consumer support. The capacity for smaller retailers to deliver on time is a risk.

Across the supply chain, COVID-19 requires the time and focus of senior executives and leaders to respond. However, we find that the impact of this draw on time is likely to be limited in its impact on the existing timeline. The impact on executive resources is likely to be most felt among smaller industry participants with fewer resources.

[12] AEMO, *Five-minute settlement and global settlement: Market Readiness Report - Round 2*, May 2020, p. 4.

4 Implementation costs and benefits of a delay to 5MS and GS

This section:

- Assesses the participants' claimed impacts of a 12-month delay on their costs to implement 5MS and GS
- Examines and estimates the expected increase in 5MS and GS implementation costs for participant types and the electricity industry from a 12-month delay, relative to the counterfactual of no delay
- Examines and estimates the expected cashflow benefit or deferred of costs associated with 5MS and GS implementation for participant types and the electricity industry for a 12-month delay, relative to the counterfactual of no delay
- Provides a qualitative assessment on the changes to costs from having a shorter or longer timeframe for delay than the 12-month period proposed by AEMO
- Outlines our concluding advice.

4.1 What are the possible impacts of a 12-month delay to the 5MS and GS rule changes on industry participants?

A 12-month delay to the 5MS and GS rule change has the potential to create additional costs for business as well as providing some offsetting benefits, in particular those associated with being able to defer IT expenditure.

For the purpose of this analysis we have called the costs of delay 'cost drivers'. The costs associated with delay and potential benefits from cost deferral are described in this section. Further, the evidence presented in submissions and our assessment of the costs is provided in the sections that follow.

4.1.1 Program cost drivers

To understand the arguments and assess the reasonableness of participants' claimed impacts for each submission, we identified the associated cost drivers attributed to each submission.

Cost drivers represent categories of costs that participants would incur if there was a delay and were only allocated to responses that were referring to costs associated with a delay. Allocating cost drivers to submissions enables the identification, then assessment of what the increases in cost would be for participant types and to the industry as a whole. Based on our analysis we identified seven cost drivers which are explained in Table 4.1.

Table 4.1 Delay cost drivers

	Cost Driver	Explanation
1	Resources	Resource costs refers to costs incurred from the need to lay-off or reallocate resources to other projects (ramp up and down). Costs could include re-hiring or reallocation of resources in the future, loss of IP, requirement to re-train resources.

	Cost Driver	Explanation
2	IT Infrastructure & Maintenance	IT Infrastructure & Maintenance costs refer to the additional technology costs associated with maintaining IT components to enable both 30 minute settlement and 5MS/GS. Costs could include the need to store increased volumes of data and maintaining multiple technology environments.
3	IT Systems Change	IT Systems Change costs refer to additional costs associated with systems and software design and delivery changes that may need to be made due to a delay.
4	Market Testing & Implementation	Market Testing & Implementation refers to additional costs associated with market testing and trial durations and business-to-business data flow testing over a longer period of time in addition to other projects that have a dependency on 5MS and GS implementation to be completed.
5	Regulatory Risks & Costs	Regulatory Risks & Costs refers to additional costs associated with updating and meeting regulatory and compliance agreements.
6	Reduced Investments	Reduced Investments costs refers to reduction in demand for investments in new energy technologies and DER associated projects.
7	Contract & Commercial	Contract & Commercial costs refers to additional costs associated with the changing or cancellation of vendor contracts. In some instances, this may include new contracts.

The rest of this section summarises the information and views provided in submissions to the AEMC in relation to cost drivers.

4.1.2 Resources

Participants generally agreed that a delay would allow reprioritisation of resources to their COVID-19 response, focusing on improving work-from-home arrangements and strategy through the economic downturn, with some 5MS and GS project and IT teams already deployed to help other parts of the business.[13] Some participants felt that focusing their resources to critical business processes during COVID-19 would provide more value to customers during this period than the transition to 5MS and GS would.

There were also participants who expressed support for a delay period shorter than 12-months. For example, Jemena suggested a 6-month delay instead of a 12-month one, stating that a 12-month delay would impact current staffing, vendor deliverables and commercial agreements in place.[14] Jemena felt that a 12-month delay to 5MS and GS would defer the costs they would incur in 2020 to 2021, add ramping down and ramping up costs in 2021 and possibly additional vendor support costs for a longer duration of the 5MS program.[15]

[13] Ausnet Services, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, pp. 1, 6; Mondo, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, pp. 3-4; CitiPower, Powercor and United Energy, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, pp. 1.

[14] Jemena Electricity Networks, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, pp. 1, 3.

[15] Jemena Electricity Networks, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, p. 3.

However, there were several concerns expressed regarding the necessary capital expenditure funding to support a project extension from participants who had already prepared to meet the current delivery timeline. Retaining the requisite resources and products in place until the delayed deadline would likely increase costs. [Confidential].[16] PLUS ES indicated they were unlikely to have an ICT department on hand after 1 July 2021 when remaining tasks are business and operational.[17]

4.1.3 IT system changes

The information and views presented in submissions in relation to the IT system implementation costs of a delay were split between those in favour of the delay and those against. There were consistent themes on both sides of the argument.

For those not in favour of a delay, they cited inefficiencies in the market that would ultimately increase the cost of implementation.[18] These businesses have already begun making changes and IT upgrades to meet the requirements of and prepare for the commencement of 5MS and GS on 1 July 2021. A 12-month delay would require participants to maintain existing and new systems (if they are implementing a new solution) to continue with the subtraction methodology,[19] thus changing the project scope, solution design and project duration, and increasing overall costs. The Energy and Technical Regulation Division of the Department for Energy and Mining of the South Australian Government suggested the Commission carefully consider the potential cost impacts in delaying this process and having to potentially recommence processes and procedures at a later date.[20]

Lastly, while some businesses expressed neutrality to the delay, they acknowledged that a delay would cause additional implementation costs on their businesses. TasNetworks stated the consequence of a delay in AEMO implementing its internal IT system changes would be additional and unnecessary IT system expenditure that would need to be added to its program.[21] AEMO, who was indifferent to the delay, stated that the reallocations solution has already gone live and that a delay would require changes to the system commencement date. AEMO characterised these costs as 'limited'.[22] AEMO also stated that if there was a delay to the Rules, then it was preparing for a two-speed industry implementation incurring an incremental cost to operate in this way.[23]

4.1.4 Other costs and risks

The delay to the implementation of 5MS and GS changes would prolong the transition for businesses and extend corporate overhead costs attributable to 5MS and GS changes, increasing overall costs. While some industry participants raised this issue in interviews, no specific cost estimates were provided.

The delay to the rule change could lead to challenges for contracting for services as the implementation re-starts. The delay to the rule change could cause a bottleneck in the demand for outsourced IT services, increasing risks to accessing specialist resources on time. The delay could

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[16] Energy Queensland, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020.
[17] PLUS ES, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, p. 3.
[18] Tesla, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020; AGL, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 14 June 2020, p. 3.
[19] Energy Queensland, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 7.
[20] Energy and Technical Regulation Division of the Department of Energy and Mining for Government of South Australia, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 5 June 2020, p. 1.
[21] TasNetworks, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper (Cover Letter)*, 11 June 2020, p. 1.
[22] Australian Energy Market Operator (AEMO), *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 3.
[23] Australian Energy Market Operator (AEMO), *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 5.

also increase costs of supply of services and create greater revenue challenges for IT suppliers, which may increase the risk of suppliers exiting the market and reducing competition in the future. Industry participant submissions did not identify this potential risk to capacity for specialist services and the potential cost driver as a concern, so it is not likely to be significant or widespread.

AFMA noted that a delay may mitigate additional risks for smaller retailers who would have to absorb material IT costs at a time of revenue pressure associated with an economic downturn.[24]

4.2 Cost of a 12-month delay

4.2.1 Analysis of the cost of a 12-month delay based on submissions

The purpose of this section is to analyse the costs and drivers of costs identified within the submissions to ascertain:

1. What are costs of delay to 5MS and GS programs based on participant type and/or size?

2. What are the primary cost drivers that will impact participants and does this differ in regard to participant type and size?

Of the 48 submissions received, only 16 explained what costs would be incurred from a delay, and only 9 of the 16 provided forecast actual costs for a delay. A summary of the reported costs of delay to participants and associated cost drivers based on submissions is in Table 4.2.

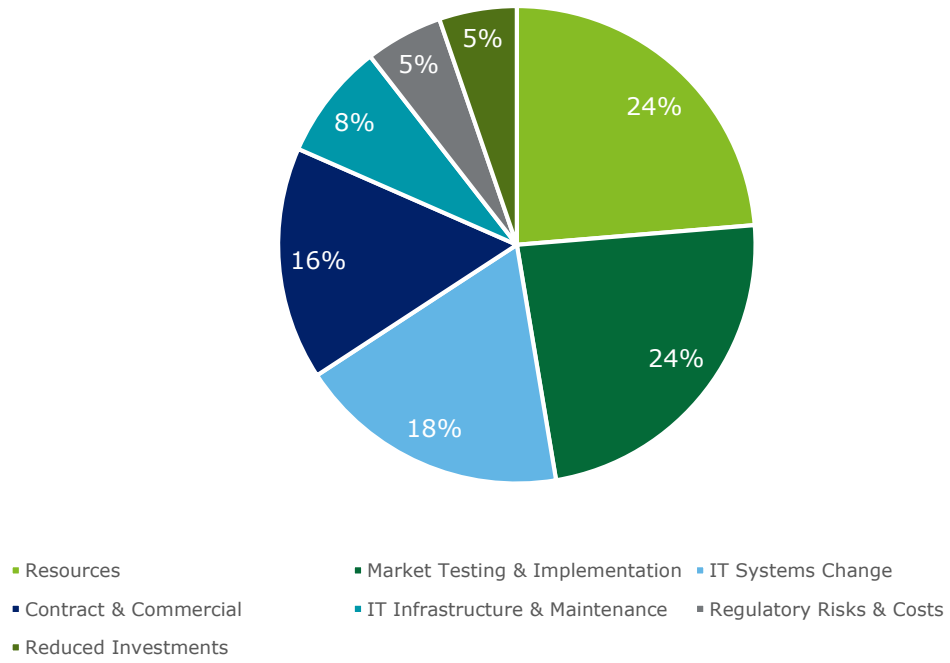
[24] AFMA, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 2.

Table 4.2 Costs of Delay to Participant and Associated Cost Drivers

Business name	Participant size	Cost of Delay ($M)	Resources	IT Infra & Maintenance	IT Systems Change	Market Testing & Implementation	Regulatory Risks & Costs	Reduced Investments	Contract & Commercial	
AEMO	Large	$5-7M	✔	✔	✔	✔	✔	☐	☐	5
AGL	Large	[confidential]	✔	✔	☐	✔	☐	☐	✔	4
Ergon Energy Retail	Medium	[confidential]	✔	☐	✔	✔	☐	☐	✔	4
Energex	Medium	[confidential]	✔	☐	☐	✔	☐	☐	✔	3
Energy Australia	Large	[confidential]	✔	☐	✔	✔	☐	☐	☐	3
EvoEnergy	Medium	[confidential]	✔	☐	☐	✔	☐	☐	☐	2
Hansen	N/A		✔	☐	✔	☐	☐	☐	☐	2
Jemena	Medium		✔	☐	☐	☐	☐	☐	✔	2
Vector	N/A			☐	☐	✔	✔	☐	☐	2
AFMA	N/A		☐	☐	☐	☐	☐	☐	✔	1
Enel X	N/A		☐	☐	☐	☐	☐	✔	☐	1
Origin	Large	[confidential]		☐	☐	✔	☐	☐	☐	1
PLUS ES	Small	$2M	✔	☐	☐	☐	☐	☐	☐	1
Stanwell	Medium	[confidential]	✔	☐	☐	✔	☐	☐	✔	3
Tango Energy	Small		☐	✔	☐	☐	☐	☐	☐	1
TasNetworks	Medium		☐	☐	✔	☐	☐	☐	☐	1
				☐	☐	☐	☐	☐	☐	
			10	3	5	9	2	1	6	

The summary of the cost drivers associated with the submissions can be seen in Chart 4.1.

Chart 4.1 Cost drivers by share of responses



Source: Deloitte analysis based on submissions

Across the different submissions, the most commonly reported drivers behind the cost associated with a 12-month delay were resourcing (24% of responses), market testing and implementation (24%), and IT systems changes (18%). Chart 4.2 below shows the cost drivers identified by broad energy business type. Note that for the purpose of this analysis vertically integrated retailers – i.e. those with both generation and retail businesses – have been allocated to the 'retail' business type.

We would expect **resourcing** to be a major cost driver, given that any delay in 5MS and GS would likely require participants to ramp down resourcing capacity, reallocate resourcing to other projects where appropriate and/or re-hire resources at some future point in time based on the new implementation date. Additional costs associated with the loss of corporate knowledge and re-training resources would also likely be incurred by a wide range of participants. This was highlighted across a number of submissions.

Jemena noted in its submission that while a delay would allow for the deferral of costs, this would come at a loss of key resources and additional ramping up and down staff costs.[25] [Confidential].

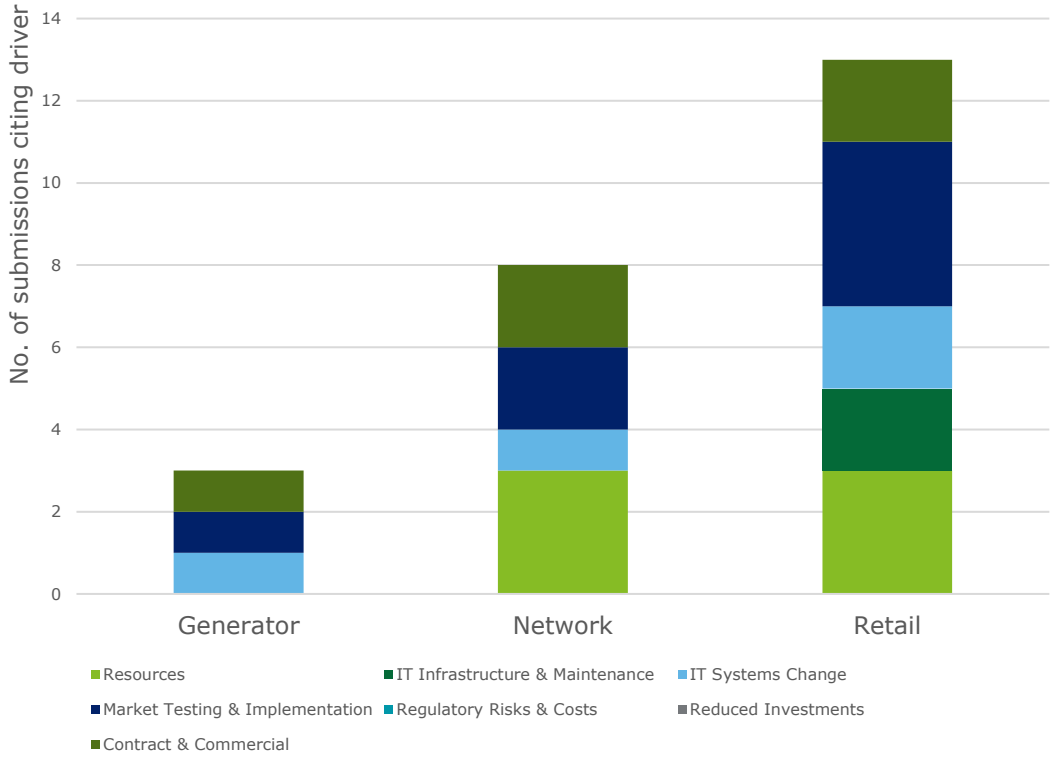
IT system changes were also a commonly identified cost driver, reflecting the need of many participants to undertake additional work on systems, software design and delivery as a result of the delay. Energy Queensland highlighted in its submission that a delay to 5MS and GS would require Ergon Energy Retail to build an entirely new system for its market gateway, meter data management (MDM) and settlement solution [confidential].[26] On a smaller scale, AEMO noted that

[25] Jemena Electricity Networks, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, June 2020, p. 3.
[26] Energy Queensland, *Confidential Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 7.

it would incur some costs to update IT systems to reflect the proposed new 5MS commencement date.[27]

Finally, it would also be expected that **IT infrastructure and maintenance** would be another significant cost driver, particularly for any participants likely to continue with 5MS and GS regardless of the delay. Such participants would not only face higher data storage and IT maintenance costs from operating 30MS, 5MS and GS, but would also see these costs prolonged for the entire duration of any proposed delay in 5MS and GS. This was highlighted across various submissions.[28],[29]

Chart 4.2 Cost driver by energy market participant type



Note: Retail in the chart includes those vertically integrated retailers – i.e. those with generation and retail businesses.

Looking across the different participant types (Chart 4.2), retailers (which includes vertically integrated businesses) were most concerned about the additional costs of resourcing and market testing and implementation associated with a 12-month delay. Networks were primarily concerned about additional resourcing costs, and then, market testing and implementation and contract and commercial costs. Generators, in contrast, were not so concerned with resourcing costs, as they were with costs in IT systems change, market testing and implementation and contract and commercial costs.

Outside of direct market participants, IT systems change and resourcing costs continued to be a concern for IT suppliers, metering providers and the AEMO alike.

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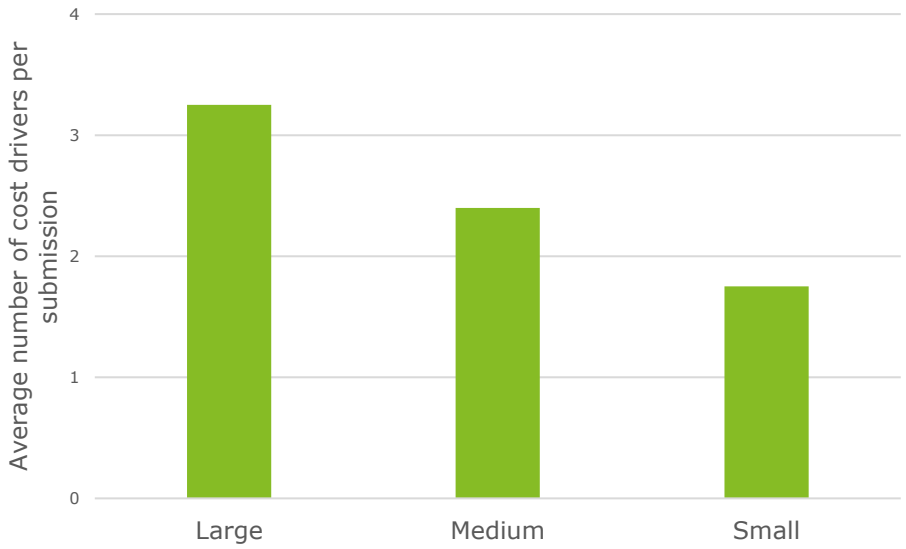
[27] Australian Energy Market Operator (AEMO), *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 3.
[28] AGL, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 14 June 2020, p. 3.
[29] EnergyAustralia, *Confidential Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 2.

Chart 4.3 Average number of cost drivers by participant size*



* Participant size is defined by the estimated level of expenditure on the program to move to 5MS and GS
Source: Deloitte analysis based on submissions

Participant size also appeared to be correlated with the average number of cost drivers claimed in a submission (see Chart 4.3). Large businesses appeared to be affected by the most cost drivers, citing about three different cost drivers on average in a submission. This was followed by medium and small businesses, which both claimed about two different cost drivers per submission. The impact of cost drivers on businesses is in line with our expectation that higher cost drivers will be incurred by those with the most advanced programs of 5MS and GS implementation, which tend to be the larger businesses.

4.2.2 Estimated industry cost of a 12-month delay

To determine the expected change in 5MS and GS implementation costs for participant types and the electricity industry as a whole for a 12-month delay, we have first drawn on our cost baseline amount for the total 5MS and GS program cost for participant types (generator, network and retailer) and participant size (small, medium, large) (outlined in section 2.2 above). We note that the retailer category also includes vertically integrated retailers – i.e. those with generation businesses.

Drawing on both our own experience and the information provided in submissions, for the majority of participants, we believe that around a 5% cost increase to participant 5MS and GS program costs would be an accurate estimate of IT cost change. The main contributors to this increase in cost being, increased resource costs and increased time for market testing.

Based on this assumption, and our cost baseline presented in section 2.2, our estimated IT cost of delay for generators, networks and retailers is presented in Table 4.3.

Table 4.3 Estimated industry cost associated with a delay of 5MS for 12 months ($million) (Retailers, networks, Generators only)

Participant Type	Participant Size					
	Small (<1% Market Share)		Medium (1-10% Market Share)		Large (>10% Market Share)	
	Low	High	Low	High	Low	High
Generator	-	-	$0.25	$1.00	$1.25	$2.00
Network (T&D)	-	-	$0.25	$1.00	$1.00	$1.50
Retailer*	$0.005	$0.05	$ 0.75	$1.25	$1.25	$2.00

Note: *The retailer category as noted earlier includes vertically integrated retailers. Further, participants in the table are defined by their 'main activity'. The full classification list is presented in Appendix B below. Participant size is based on connection points, number of customers or number of generation sites for the purpose of this table.

We note that some submissions from large participants identified costs associated with a delay that exceeded the range for their participant type in our assessment above. We have reviewed program cost baseline and our estimate of delay costs, being 5% of total program baseline costs for each participant. We recognise that there may be some participants that will, for different reasons, face higher or lower costs outside these ranges, however we consider our estimated ranges to be reasonable for the purposes of this report and to estimate total industry costs.

We note that small retailers are likely to outsource their 5MS programs to IT providers. It is reasonable to assume that the costs of delay would be shared between small retailers and IT providers. Therefore, the cost impact on small retailers may in fact be lower than 5%. The table also does not include costs discussed by AEMO.

We have estimated an aggregate delay cost for generators, networks and retailers only based on a current list of market participants[30] and our assessment of their relative size, of between $19 million and $41 million. While the effective cost for participants may exceed this range, this analysis is focused purely on the 5MS related costs and does not include other costs for system upgrades or improvements that are not required for 5MS and GS implementation.

We note that for all small retailers, the aggregated industry cost increase estimate range is between $140,000 and $1,250,000. This is the aggregated estimated cost for all small energy retail businesses operating in the NEM.

4.3 Benefits of a 12-month delay

4.3.1 Cashflow benefit from delaying costs

As described earlier in Section 3.2, one of the reported impacts of COVID-19 has been an adverse change to cash flows for participants and broader industry. With the cash flow pressures caused by COVID-19, a delay to the 5MS and GS rule changes could allow for the deferral of 5MS and GS program costs, provide an immediate cash flow benefit for businesses and ensuring 5MS and GS

[30] List of market participants and assumptions on size is provided in Appendix B.

program financing. Across submissions, however, there was little consensus on whether delaying the 5MS and GS rule changes would provide an immediate cash flow benefit one way or another.

For participants who have to date experienced a minimal impact on cash flows from COVID-19 (or greater ability to absorb increases in costs due to COVID-19), the delay was seen as providing a relatively minor cash flow benefit.[31]

TasNetworks similarly highlighted in its submission that the impacts of COVID-19 on its cash flows had no impact on its ability to deliver the 5MS and GS rule change requirements and that the proposed 5MS and GS delays presented little cash flow benefit.[32] This was because TasNetworks' funding, securing of project resources, and execution of vendor agreements had largely been completed prior to the COVID-19 restrictions.[33]

For other participants facing more severe cash flow difficulties as a result COVID-19, the delay was viewed as a welcome change, allowing for 5MS and GS costs to be deferred and providing a much-needed financial buffer against COVID-19. Capital expenditure associated with 5MS and GS programs could be better apportioned over a longer time frame, with potential savings from cost deferral in the form of the cost of capital.

Origin Energy stated in its submission that a delay [confidential] allow it to defer capital expenditure of between, [confidential] from the 2021 financial year to the 2022 financial year.[34]

Arrow Energy similarly highlighted that the deferral of 5MS and GS costs from the delay would provide it with short-term cost savings, and more broadly support better pricing outcomes for consumers.[35]

4.3.2 Estimating the cashflow benefit of deferred costs of a 12-month delay

To understand the potential cashflow benefit (or cost deferral benefit) associated with delaying 5MS and GS implementation by 12 months and deferring IT costs, we have developed an estimate of potential benefits for different categories of participants, based on the following assumptions (which have been informed through our review of the submissions):

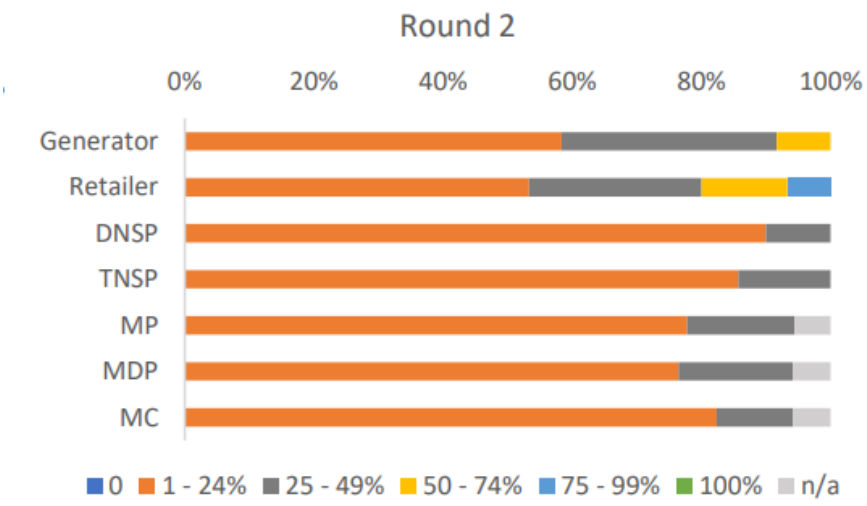
- Baseline participant 5MS and GS costs, pre-COVID-19, as outlined in Section 2.2 above.
- AEMO's 5MS and GS Market Readiness Report, 20 May 2020, which states that:
    - Retailers and generators are the most progressed participant type:
        - 47% of retailers are between 25-49% progressed overall
        - 42% of generators are between 25-49% progressed overall
    - A majority of organisations have secured project funding
    - Almost all participants have established project plans

Chart 4.4 below provides a summary of AEMO's assessment of readiness by participant type.

    - Agreements with vendors have been finalised for 50% of participants in each category.[36]

[31] AGL, *Public submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 14 June 2020, p. 3.
[32] TasNetworks, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 3.
[33] TasNetworks, *Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 3.
[34] Origin Energy, *Confidential Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 11 June 2020, p. 6.
[35] Arrow Energy, *Confidential Submission to the National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*, 10 June 2020, p. 4.
[36] AEMO, *Market Readiness Report – Round 2*, May 2020, <https://aemo.com.au/-/media/files/electricity/nem/5ms/readiness-workstream/2020/5ms-gs-market-readiness-report-2---may-20.pdf?la=en>.

Chart 4.4 AEMO 5MS and GS Readiness assessment – 20 May 2020 (% of participants ready by level of readiness)



Note: DNSP is distribution network service provider. TNSP is transmission network service provider. MP is metering provider. MDP is meter data provider. MC is metering coordinator.
Source: AEMO, 20 May 2020

We note that AEMO's assessment of overall readiness includes a range of criteria, and that the ability for participants to defer costs in the event of a rule change delay will depend upon the status of their contracts with vendors and the extent to which significant scoping and planning costs have already been incurred. Based on AEMO's findings above, information provided in submissions, and our experience in IT program implementation, we have assumed proportions of participant costs which may be able to be deferred as a result of a rule change to delay 5MS and GS by 12 months, as outlined in Table 4.4.

Table 4.4 Cost deferral benefit assumptions by participant type

Participant category	Size	Proportion of total 5MS and GS implementation costs that could be deferred by 12 months
Retailers	Large	1/3
	Medium	1/3
	Small	2/3
Generators	Large	1/3
	Medium	2/3
DNSPs/TNSPs	Large	1/2
	Medium	1/2

Source: Deloitte

Our assumptions are:

- Large and medium retailers and large generators are relatively well progressed in their 5MS and GS programs, and therefore have already incurred around 2/3 of their total program costs. The benefit for these participants is the deferral of the remaining 1/3 of program costs by 12 months.
- Small retailers and medium sized generators are relatively less progressed in their 5MS and GS implementations, and have incurred 1/3 of their total program costs to date. They would therefore benefit from the deferral of 2/3 of the total program costs.
- Networks have incurred around 50% of their total program costs and would benefit from the deferral of the remaining 50%.
- We have not estimated a cashflow benefit for other market participants because of the wide variety of participant types, costs and maturity levels, which makes a high-level estimate less valid. However, we make qualitative statements in this report around the potential impacts, based on information provided in submissions.
- To estimate the value of cashflow benefit from the deferral of IT costs, we have applied varying discount rates for different participants, based on industry analysis of internal discount rates[37]:
    - Network businesses – the current nominal Weighted Average Cost of Capital (WACC) as determined by the AER in August 2019 (3.84%)
    - Large retail or generation businesses – 7% based on analyst reports
    - Medium retail or generation businesses – 8% based on analyst reports
    - Small retailers – 10%.
- We have implicitly assumed that all costs are capitalised, however we note that some participants (particularly smaller retailers) are likely to outsource the majority of their 5MS programs, and the costs would therefore have been treated as operating expenditure. As a result, smaller participants may in fact benefit to a greater extent than we have estimated, as they could retain the full benefit of the lower expenditure, rather than just the financing benefit we have assumed.

Table 4.5 Estimated cashflow benefit associated with deferred costs due to a delay of 5MS for 12 months

Participant Type	**Participant Size**					
	Small (<1% Market Share)		Medium (1-10% Market Share)		Large (>10% Market Share)	
	Low	High	Low	High	Low	High
Generator	-	-	$0.27	$1.06	$0.58	$0.93
Network (T&D)	-	-	$0.10	$0.38	$0.38	$0.58
Retailer	$0.006	$0.07	$ 0.40	$0.67	$0.58	$0.93

[37] JP Morgan, *Origin Energy: Trimming Energy Markets EBITDA estimates*, <https://markets.jpmorgan.com/research/email/-o9ibtjf/o7RIRsFpGMTfnPJPzKJwRg/GPS-3364905-0>.

Source: Deloitte
Note: Retailer includes vertically-integrated retailers – i.e. those with generation assets. Participants are also defined by 'main activity'. The full classification list is presented in Appendix B. Participant size is based on connection points, number of customers or number of generation sites for the purpose of this table.

Based on these assumptions, and the list of market participants and their sizes outlined in Appendix A, we have estimated that implementing the rule change to delay the commencement of 5MS and GS could result in deferral of expenditure that provides an aggregate industry-wide financial benefit for retailers, generators and networks of between $10 million and $24 million, in total.

We note that for all small retailers, the aggregate industry cashflow benefit estimated range is around $187,000 to $1,867,000. This is the total estimated cashflow benefit across all small retail energy businesses operating in the NEM.

4.4 Cost implications from changing the time of delay

The delay to the implementation of 5MS and GS changes could include a range of options including a delay of 3-months, 6-months, 12-months or 18-months. Table 4.6 below provides a qualitative assessment of the likely impacts of a delay, relative to a central case of a 12-month delay. That is, the changes to the cost drivers that are likely to arise from a delay to implementing 5MS and GS, is analysed relative to a 12-month delay.

Resource costs are likely to be lower under a 12-month and 18-month delay scenario as businesses can flex specialised resources over a longer period of time. A three-month and six-month delay is likely to lead to higher resources costs relative to a 12-month delay, because businesses will need to keep key specialist resources on with insufficient time to stand down and re-commence a transition program of work. Specialist resources are largely procured through contractors and delaying for a short period of time will result in higher contract costs, relative to a 12-month or 18-month scenario. A 12-month to 18-month delay would allow market participants time to stand down these resources.

IT system change costs are likely to increase with the length of the delay and be highest under an 18-month delay scenario. Businesses are implementing the transition to 5MS and GS by operating dual systems, which run simultaneously in the lead up to the transition day. Under a 3-month delay scenario the length of time and cost of running dual systems is minimised. Under an 18-month scenario the costs are higher.

Those businesses that have acted in anticipation of the rule change and stood down specialised resources will need to re-onboard and re-start processes rapidly to ensure timeframes are met. While businesses that have acted to halt their programs prior to the rule change determination are outside of the scope of the assessment of costs here, a shorter delay would be most costly to such businesses and increase their risk of meeting the new timeframes. Conversely, those businesses which are continuing with their program and have invested to meet the current timeframe should not incur costs or disincentives for their advanced preparation.

Table 4.6 Cost of delay by length of delay

	3-month	6-month	12-month	18-month
Resources	Continue with current team and timeframe Key resources continue longer than initially planned	Deliver to existing timeframe, or new timeframe Key resources continue longer than initially planned	Stand down or reallocate key resources to other tasks Greater ability to flex resources	Stand down or reallocate key resources to other tasks Greatest ability to flex resources
IT system changes	Dual system running for least amount of time	Dual system running for longer	Dual system running for longer	Dual systems running the longest incurring highest cost
Other costs and risks	Those who stood down specialised resources will need to re-onboard and re-start processes rapidly to ensure timeframes are met. Increased risk to meet timeframe compared to a 12-month delay	Increased risk to meet timeframe.	Very low risk to meeting timeframe	Greatest ability to flex resourcing and meet timeframe

4.5 Deloitte's advice on the industry cost from delay in 5MS and GS implementation

Submissions have suggested that the increase in participant IT costs of a delay (versus no delay) is in the range of 5-10% of participants' total 5MS and GS program costs. For the majority of participants, we believe that around a 5% cost increase to participant 5MS and GS program costs would be an accurate representation of cost change, with resource costs and increased time for market testing being the main contributors to cost.

However, the percentage cost increase will be influenced by the current maturity of the participants' 5MS and GS program, recognising that participants will be at different stages in their implementation.

It is likely that the level of cost incurred from a delay will be influenced by the:

- level of technology change required (for small or large participants)
- approach taken to deliver the change (technology, people, finance and commercial)
- maturity of the change being delivered (how far progressed the program is).

Participants' approach and circumstances to implementing 5MS and GS will vary significantly. We believe that those participants who will incur the greatest cost of delay, which are material, are likely to be those who are the most prepared, mature in program delivery and have resourcing, contractual and commercial agreements tied to the current July 2021 deadline. Those participants that are less prepared, or have shorter implementation durations to be 5MS and GS compliant (for example, smaller participants or those only requiring minor changes to technology or have outsourced IT services), are likely to be less impacted by the delay and more likely to receive the financing benefit of the delay.

The impact on smaller participants is largely unknown. However, we anticipate that for some who are already delivering 5MS and GS programs against the current July 2021 deadline, the cost could be quite large and disproportionate in comparison to larger industry participants. Based on their submission, PLUS ES are an example of a small participant that is being disproportionately affected. PLUS ES have indicated it will incur a $2 million, which is similar to the cost of delay we have estimated for large, vertically integrated generators and retailers.

We note that small retailers are likely to outsource their 5MS programs to IT providers. It is reasonable to assume that the costs of delay would be shared between small retailers and IT providers, and therefore the cost impact of a delay on small retailers may be lower than 5%.

With some participants stating in their submissions that they intend to continue to deliver their 5MS and GS programs to the current July 2021 deadline, irrespective of a delay, they are likely to incur the greatest cost if there is a 12-month delay. However, the ability for these participants to test their IT changes earlier than their peers to ensure their solutions can receive and cater for the increased volumes and utilise the increased frequency of data may also be of benefit to them.

For the largest retailer and generator participants, a 5% increase in total costs (based on our assumed cost baseline) could be between $1.25 million to $2 million, and for the smaller to medium participants this could be as low as $5,000 and as high as $1.25 million, depending on the size of the business and program.

Based on our cost baseline presented in section 2.2, and the list of market participants and their assumed size in Appendix A, we have estimated that the aggregate industry cost for retailers, networks and generators for a 12-month delay is between $19 million and $41 million.

We note that for all small retailers, the aggregate industry IT cost increase estimate range is between $140,000 and $1,250,000.

We have also estimated the cashflow benefit from a delay in 5MS and GS costs for 12 months. Based on our assumed cost baseline, assumptions on participants' program maturity, and varying discount rates outlined in section 4.2, we estimate that the range of benefits across generators, networks and retailers is between $10 million and $24 million, in total.

We note that for all small retailers, the aggregate industry cashflow benefit estimated range is $187,000 to $1,867,000.

Although a 12-month delay may result in greater costs for market testing and implementation, many submissions also stated the benefits and need for longer testing durations than 12 months. We have assessed the likely costs of an 18-month delay and consider that there will only be a marginal change in overall costs to participants in comparison to the proposed 12-month delay.

However, if the timeframe of the delay was three or six months rather than 12 or 18 months, it could create a higher cost for participants. This is because under a three or six-month delay, participants would be more likely to retain the current specialist resources to deliver the program, whereas a 12-month or 18-month delay would allow participants to stand down those resources until required. A 12-month or 18-month delay effectively provides a smaller program cost over a longer period than a three-month to six-month delay.

While the costs of a three-month delay are likely to be smaller than that of a six-month delay, as specialist resources are kept on for a shorter period, the exception will be for those businesses that have paused their current programs in expectation of a longer delay being put in place. We have not estimated the costs or benefits of delay for such participants, but they are likely to face greater risks in achieving the timeframe for delivery for a period of delay between three to six months.

Appendix A List of submissions

In preparing this report, Deloitte reviewed submissions to the AEMC's *National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper*. We note that some participants submitted both a public and a confidential submission, while others submitted one submission and noted confidential information within it.

Table A.1 provides a list of all the submissions reviewed by Deloitte.

Table A.1 List of submissions to the AEMC's *National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper* reviewed by Deloitte

Participant name	Participant type	Confidential submission?
Adam Clarke	Individual	
Adam Lippiatt	Individual	
AEMO	Market operator	
AFMA	Other	
AGL	Generator, Retailer	✓
Alinta Energy	Generator, Retailer	
Arrow Energy	Generator	✓
ASX	Other	✓
Ausgrid	Network	
Ausnet Services	Network	
Brave Energy Systems	IT supplier	
CEC	Industry association	
CitiPower, Powercor and United Energy	Network	
CS Energy	Generator	
Enel X	Generator	
Energy Queensland	Network, Retailer	✓
EnergyAustralia	Retail	✓
ENGIE	Generator	
ERM Power	Generator, Retailer	
Essential Energy	Network	✓
EUAA	Industry association	
EvoEnergy	Network	✓
Fiona Mackay	Individual	
Hansen	IT supplier	
Jemena	Network	

Table A.1 List of submissions to the AEMC's *National Electricity Amendment (Delayed Implementation of Five Minute and Global Settlement) Rule 2020 Consultation Paper* reviewed by Deloitte (continued)

Participant name	Participant type	Confidential submission?
Major Energy Users Inc. (MEU)	Industry association	
Mondo	Retail	
Ms Rachel Barley	Individual	
Origin Energy	Generator, Retailer	✓
PEM Solar	Generator	
PLUS ES	Metering	
Red Lumo	Retail	✓
SA Government - The Energy and Technical Regulation Division of the Department for Energy Mining	Government	
SA Power Networks (SAPN)	Network	
SIMEC Energy Australia (SEA)	Generator	
Snowy Hydro	Generator	
Stanwell	Generator	✓
Tango Energy	Retail	✓
TasNetworks	Network	
Tesla	Generator	✓
The Australia Institute	Government	
Tilt Renewables	Generator	
Vector	Metering	

Appendix B List of market participants

In order to estimate the total industry costs and cashflow benefits associated with a delay to the 5MS rule change, we have used the list of market participants (generators, networks and retailers) as set out in table B.1. Vertically integrated businesses which are both generators and retailers were allocated to the retailer category for the purpose of this analysis.

Table B.1 List of generators, networks and retailers assumed in industry analysis

Participant name	Participant type assumption for cost estimate	Size assumed for cost estimate
1st Energy	Retailer	Small
AGL	Retailer	Large
ActewAGL	Retailer	Medium
Alinta Energy	Retailer	Medium
Amaysim	Retailer	Medium
Arrow Energy	Generator	Medium
Aurora Energy	Retailer	Medium
Ausgrid	Network (T&D)	Large
Ausnet Services	Network (T&D)	Large
BlueNRG	Retailer	Small
Click Energy	Retailer	Small
Commander Power and Gas	Retailer	Small
Covau	Retailer	Small
CS Energy	Generator	Medium
Diamond Energy	Retailer	Small
Discover Energy	Retailer	Small
Dodo Power & Gas	Retailer	Small
Electranet	Network (T&D)	Medium
Elysian Energy	Retailer	Small
Endeavour Energy	Network (T&D)	Medium
Energy Locals	Retailer	Small
EnergyAustralia	Retailer	Large
Engie	Generator	Medium
Ergon Energy and Energex	Retailer and Network	Medium
ERM Power	Retailer	Medium
Essential Energy	Network (T&D)	Medium

Participant name	Participant type assumption for cost estimate	Size assumed for cost estimate
EVO Energy	Network (T&D)	Medium
Future X Power	Retailer	Small
Globird Energy	Retailer	Small
Infigen	Generator	Medium
Jemena	Network (T&D)	Large
Kogan Energy	Retailer	Small
Meridian Energy	Generator	Medium
Mojo Power	Retailer	Small
Momentum Energy	Retailer	Small
Neighbourhood Energy	Retailer	Small
Next Business Energy	Retailer	Small
NRG Gladstone Operating Services	Generator	Medium
Online Power & Gas	Retailer	Small
Orgin Energy	Retailer	Large
Pacific Hydro	Generator	Medium
People Energy	Retailer	Small
Pooled Energy	Retailer	Small
Powerclub	Retailer	Small
Powercor Australia (Includes Citipower)	Network (T&D)	Large
Powerdirect	Retailer	Small
Powerlink Queensland	Network (T&D)	Medium
Powershop	Retailer	Small
Qenergy	Retailer	Small
ReAMped Energy	Retailer	Small
Red/Lumo Energy, Snowy Hydro	Retailer	Medium
SA Power Networks	Network (T&D)	Large
Sanctuary Energy	Retailer	Small
Simply Energy	Retailer	Medium
Stanwell Corporation	Generator	Medium
Sumo	Retailer	Small
Tango	Retailer	Small
Transgrid	Network (T&D)	Medium
Trustpower	Generator	Medium
United Energy Distribution	Network (T&D)	Medium

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