AEMC

REVIEW

Australian Energy Market Commission

DIRECTIONS PAPER

REVIEW OF THE REGULATORY FRAMEWORK FOR METERING SERVICES

16 SEPTEMBER 2021

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

Smart meters are a key enabler to unlocking benefits to consumers as part of the energy sector transition

1 Smart meters are a key to enable a more connected, modern, and efficient energy system that supports future technologies, services and innovation. Many of the ESB's post 2025 Market Design rely on critical upgrades to our energy system through smart meters, especially for the two-sided market and DER integration. These projects would allow consumers to actively participate in the national electricity market (NEM) through their smart meters.

2 The rapid expansion of distributed energy resources (DER), and the associated use of smart meters, at a small and large consumer level also opens up opportunities for consumers to participate in new and emerging services and innovations such as virtual power plants through collective engagements. Along with increasing opportunities to engage in the market, smart meters open up innovative opportunities for data sharing and access. For instance, some consumers may be interested in controlling their appliances through a mobile application or hub-based service to take advantage of low wholesale prices. Data could also be aggregated much faster allowing regulators to design more targeted policy.

3 Smart meters can also deliver benefits to consumers individually. They are also key to providing benefits to all consumers as a group by enabling a more efficient and lower cost energy system. An efficient system which maximises the benefits for all consumers will in turn provide greater benefits for all energy system stakeholders, regardless of whether they choose to take up the services enabled by smart meters.

But current arrangements are not supporting the timely roll out of smart meters

4 To realise the benefits, a high penetration of smart meters will be needed – with some services requiring a penetration in excess of 50 per cent. Outside of Victoria, the current average level of smart meter penetration is currently around 25%. If the current rate of installation continues, it will take at least another four to five years before a 50 per cent penetration is achieved and full deployment of smart meters may not occur until after 2040.

5 The current arrangements for smart meter deployment are not optimal. Meters are generally replaced one-by-one with meter providers often having to travel significant distances within one day to install meters. Further, the benefits of smart meters also accrue to different parties within the electricity supply chain. For consumers, the benefit to them individually is often not sufficient for them to proactively request a smart meter.

6 Obtaining some of the key benefits from smart meters also relies on efficient access beyond consumption and billing data. Parties such as distribution network service providers (DNSPs) and others can obtain benefits from other types of information such as power quality data to develop improved management of the LV network, safety improvements and provision of other value-added services.

Drawing upon stakeholder feedback, this Directions Paper sets out potential options to improve the current arrangements

7 Many of the issues are interrelated and a framework that addresses these issues in isolation will likely not be effective. Changes to the regulatory framework for metering services will need to address inefficiencies in the roll out, split incentives and access to meter data and services to ensure that metering contributes to an efficient energy system capable of maximising the benefits for all consumers.

8 This Directions Paper draws upon the Commission's extensive consultation with a broad range of stakeholders since the commencement of this review and sets out potential changes that could be made to the regulatory framework for metering services. This includes incremental changes, such as improvements to the retailer-led roll out and meter malfunction processes, with more significant changes also be considered if appropriate. These more significant changes being considered include options for increasing the roll out of smart meters, options for addressing split incentives and the development of a data access framework. These potential changes are discussed further below.

Preliminary recommendations and options

Options to accelerate the roll out should be considered

9 As noted in the consultation paper, the roll out of smart meters in the NEM has been largely driven by consumers requesting new meters, often as a result of installing solar PV systems, or by new connections. Roll outs initiated by retailers have been minimal in most jurisdictions, with incentives for the roll out being split and the regulatory framework leading to a piecemeal approach to meter installation.

10 The Commission considers that issues relating to incentives and the current installation processes need to be addressed at a minimum to improve the efficiency and speed of the roll out. However, it is likely that a timely and efficient roll out will not be achieved by addressing these issues alone and additional measures may be required. Four potential options are:

- improving incentives to rolling out smart meters by removing inefficiencies in the installation processes, improving cost sharing, and aligning incentives
- requiring meters to be replaced once they have reached a certain age, for example 30 years, under an aged-replacement roll out
- setting targets for the roll out under which a retailer (or the responsible party) will be required to replace a certain percentage of their customers' meters with smart meters each year
- introducing a 'backstop' date or dates by which time all accumulation meters or manually read interval meters must be replaced, for example 90% of meters required to be smart meters by 2030.

11 The Commission welcomes stakeholder views on how incentives issues under the current regulatory framework for metering services can be addressed, including feedback on the above options.

12 Further details on these options, and the issues raised by stakeholders in relation to the roll out of smart meters, can be found in appendix A.1of this paper.

Options which could be considered to assist in aligning incentives

13 An issue which is impacting the roll out of smart meters is a lack of, or split, incentives. Mechanisms that allow reallocation of costs as well as reducing the barriers to other parties accessing the benefits may assist in incentivising a higher roll out of smart meters. Some of these options include:

- **Development of additional revenue streams from smart meters** — retailers remain responsible for the provision of metering services. The framework would enable the development of additional revenue streams to offset the cost of meter installation. This would likely include data access and payment, for example, for the provision of power quality data to DNSPs. A tiered user-pays approach could apply to provide revenue from the provision of these services.
- **Spreading the costs of installation** — retailer remains responsible for the provision of metering services. Parties who derive benefits from higher penetration contribute to part of the ongoing cost of the meter. This could mean some form of regulated pricing or cost sharing.
- **Multiple parties responsible for metering** — multiple parties could be responsible for metering services. If a party could derive significant benefits from smart meters being installed, they could bear the cost and responsibility for the roll out. This option could see retailers (or traders in the future), DNSPs and potentially other parties having the responsibility for metering.

14 The Commission welcomes stakeholder views on how incentives issues under the current regulatory framework for metering services can be addressed, including feedback on the above options.

15 Further details on these options, and the issues raised by stakeholders in relation to incentives, can be found in appendix A.2 of this paper.

Enabling appropriate access to data from meters

16 A crucial enabler of smart meters providing more services is the access and exchange of power quality data that they provide. Many of these benefits (and the services required to provide the benefits) require consistent access to smart meter data. The Commission has found the current arrangements for negotiating and utilising data that the meter can provide are inefficient and likely not contributing to the long-term interest of consumers.

17 In the context of the evolving NEM, the Commission is of the view that developing a data access and exchange framework that addresses the issues with the current arrangements is in consumers' long-term interest. The efficient exchange of other energy data such as power quality data is one integral piece in operating a more dynamic system without compromising reliability and safety. The Commission considers that a data access and exchange framework would likely satisfy this Review's assessment criteria by providing certainty to responsible parties, assisting in the provision of more innovative products and services, improving

investment decisions via improved data, and providing information to improve system integrity. Improved data will also assist in integrating DER.

18 To provide advice on potential options for data access, the Commission engaged NERA Economic Consulting. A number of initial options developed by NERA include:

1. Authorising a centralised organisation to provide all metering data — with high prescription on data exchange
2. Minimum content requirements to standardise contracts and agreements on data exchange between market participants
3. Exchange architecture to facilitate a common interface for data exchange, with low obligation but a high incentive to participate
4. A negotiate-arbitrate framework for utilisation in access disputes.

19 The above options could be adopted on a stand-alone basis, or as a combination of measures. The Commission will seek stakeholder views on the above options through further discussion with Reference Group members as well as submissions to this paper.

20 The Commission preliminary position is that the minimum service specification for smart meters should remain the same. The Commission considers that the current minimum service specifications are likely in the long-term interest of consumers by delivering service outcomes based on core processes of a relatively lower marginal cost.

21 Further, details on this recommendation, and the issues raised by stakeholders in relation to data access, can be found in appendix B.2 of this paper.

Amendments to the installation process to improve efficiencies

22 The smart meter installation process currently has a number of inefficiencies and barriers impacting the successful completion of meter installation attempts. Stakeholders have indicated that these inefficiencies and barriers stem from the regulatory framework, physical site issues, communication and coordination issues and jurisdictional regulations.

23 The preliminary recommendations, options and areas for further analysis seek to:

- Improve customers' experience by:
  - requiring retailers to provide information to consumers prior to a smart meter being installed
  - enabling customers to request a smart meter from their retailer for any reason and requiring retailers to install a smart meter on receipt of such a request
- Reduce delays in meter replacement by:
  - implementing a practicable replacement timeframe for malfunctioning meters
  - considering whether there are any measures which could address remediation issues preventing the installation of a smart meter
- Support more efficient deployment of smart meters by:
  - reducing the number of notices for retailer-led roll outs to one notice

- considering whether a small customer's ability to opt-out from retailer-led roll outs should be removed
- Considering options for improving the efficiency of meter installations in multi-occupancy situations.

24 The Commission has also provided preliminary comments on a number of other installations issues raised by stakeholders and invites stakeholder feedback on solutions to address these issues.

25 Further details on these recommendations, and the issues raised by stakeholders in relation to improving the installation of smart meter can be found in appendix C of this paper.

Next steps

26 Written submissions from stakeholders commenting on key questions raised in this Directions paper are requested by **28 October 2021**. Following receipt of submissions, the Commission may make use of stakeholder workshops and/or roundtable meetings to progress any matters requiring further consideration.

27 The Reference Group and Sub-Reference Groups will continue to be held. The Commission also intends to hold a jurisdictional working group and a Sub-Reference Group on roll out and roles and responsibilities shortly after the publication of the Directions Paper.

28 The Commission intends to publish a draft report in early December 2021, with the final report expected to be published by March 2022.

CONTENTS

APPENDICES

TABLES

FIGURES

1 INTRODUCTION

In December 2020, the Australian Energy Market Commission (AEMC or Commission) self initiated this *Review of the regulatory framework for metering services* (the Review) to determine whether the reforms introduced under the *Expanding competition in metering and related services* (*Competition in metering*)[1] rule change have met expectations and whether changes are required to improve the efficiency and effectiveness of the regulatory framework for metering services. The Review will also examine whether the regulatory framework for metering services supports the implementation of other electricity sector reforms where metering services will play a role. The focus of the review is residential and small business customers. For further background to the review, please see the consultation paper.[2]

The Commission intends to develop recommendations relating to the regulatory framework for metering services which may include changes to the National Electricity Rules (NER), National Energy Retail Rules (NERR) and any other relevant regulatory instruments.

1.1 This Directions paper

The Commission has conducted extensive consultation with a broad range of stakeholders since the commencement of this review. This Directions paper sets out:

- the key issues and challenges that are preventing a higher penetration of smart meters
- the Commission's preliminary position on changes to the regulatory framework
- the consultation process and the feedback received that underpin the Commission's analysis.

Through this directions paper, the Commission also seeks stakeholders feedback on the recommendations contained in this paper.

1.2 An extensive consultation process to identify issues and develop solutions

Under the Review's terms of reference (TOR), the Commission is required to consult with the Australian Energy Regulator (AER), the Australian Energy Market Operator (AEMO), energy departments of jurisdictions, consumer groups and ombudsmen of jurisdictions.[3]

The Commission has also established a Reference Group (with four Sub-Reference Groups) to facilitate a collaborative approach to the metering review and provide a consultative platform to discuss and stress test policy recommendations. Public workshops and forums and discussion papers on particular issues raised by stakeholders may also be undertaken over the course of the review.

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1 Available at https://www.aemc.gov.au/rule-changes/expanding-competition-in-metering-and-related-serv.
2 AEMC, *Review of the regulatory framework for metering services,* Consultation paper, 3 December 2020.
3 AEMC, *Review of the regulatory frameworks for metering services,* Terms of reference, December 2020.

In addition, the Commission is partnering with Energy Consumer Australia (ECA) in this review to better understand consumers' views in relation to metering services. ECA's advice is crucial in developing policy that deliver benefits to all energy consumers.

1.2.1 Submissions to the review's consultation paper provided guidance on four areas for this review to focus on

The Commission published a consultation paper on 3 December 2020, receiving 62 submissions from a wide breadth of stakeholders. Submissions can be found on the review's project page.[4]

From the submissions, the Commission identified four areas of focus for the review. These four areas of focus were:

- The consumer experience
- Metering services
- The roll out
- Roles and responsibilities.

1.2.2 A Reference Group with broad representation to provide feedback and stress test policy positions

Industry collaboration is key to delivering better outcomes for consumers. Recognising this, the Commission has established a Reference Group with four Sub-Reference Groups. The Sub-Reference Groups were established to progress issues analysis and policy development for the four areas of focus of the review. These four Sub-Reference Groups are:

1. **Consumer**: Understanding how consumers want to engage with energy
2. **Installation**: How to make the installation process more efficient and timely
3. **Services and data**: Services that meters can enable and data that meters can provide
4. **Roles, incentives and roll out**: Considering the overall structure, roles and responsibilities, incentives and the roll out.

There are over 50 organisations represented including consumer groups, retailers, distribution network service providers (DNSPs), metering parties, metering manufacturers, market bodies, industry bodies, jurisdictional governments and other organisations.

Three Reference Group meetings have been held. The presentations and minutes from these Reference Groups can be found on the project webpage.[5]

Three of the Sub-Reference Groups have met on numerous occasions over the past four months, with the Sub-Reference Group on roles, incentives and roll out to meet after the publication of this paper. The analysis of issues raised in the first three Sub-Reference Groups is key prior to progressing work in this fourth group.

Members of the Sub-Reference Groups were determined by nomination from the Reference Group with the Commission seeking a broad representation across each of these groups. The

4 https://www.aemc.gov.au/market-reviews-advice/review-regulatory-framework-metering-services
5 https://www.aemc.gov.au/market-reviews-advice/review-regulatory-framework-metering-services

majority of the recommendations and options in this paper have been discussed with the Sub-Reference Groups and Reference Group.

The Commission would like to thank the members of the Reference Group and Sub-Reference Groups for their time, commitment, sharing of knowledge and expertise in exploring the underlying drivers of issues in the current framework and contribution to the development of options and solutions.

1.2.3 Bilateral discussions to provide deeper understanding of key issues

Along with the Reference Group and Sub-Reference groups, the Commission has also held around 50 bilateral and multilateral meetings with stakeholders since the publication of the consultation paper. These meetings have been instrumental in assisting the Commission increasing its understanding of the current processes, issues and potential solutions for improving the regulatory framework for metering services to develop preliminary recommendations. Bilateral and multilateral meetings have been held with:

- Consumer Groups
- Retailers
- DNSPs
- Metering parties
- Metering manufacturers
- Market bodies
- Jurisdictional regulators
- Industry bodies
- Technology companies
- Unions
- Investors.

The Commission has held meetings with officials in most of the jurisdictions and is meeting with the AER and AEMO on a regular basis. The Commission will be continuing these arrangements and seeking to engage with jurisdictions more formally.

1.3 Research to better understand consumer sentiments: engagement of Newgate Research undertake customer research

It is important that the metering framework operates in the long-term interests of consumers, and that the needs and wants of consumers are adequately understood in developing recommendations under the Review. To provide greater insight into consumer views and attitudes the Commission engaged Newgate Research (Newgate) to investigate:

- how consumers want to engage with the energy market
- awareness of smart meters
- consumer interest in the services enabled by smart meters and
- any challenges consumers have faced trying to obtain a smart meter.

As part of the research, Newgate carried out 14 consumer focus groups with residential and small business customers and quantitative surveys of 1,407 residential consumers and 541 small business consumers. Newgate sought diverse consumer views across the national electricity market (NEM) throughout this engagement, including in Victoria where relevant.

Newgate's research found that the main way participants engaged with the energy market was finding ways to economise and save money on their electricity bills.[6] Participants were interested in ways to monitor their electricity usage and understand which appliances use the most electricity. However, residential customers often indicated a 'wait and see' mindset around new technological adoption.[7] Participants were most interested in learning more about ways to save money on their electricity bills. This was reflected in the benefits that smart meters can enable that participants expressed the most interest in.

Participants with and without smart meters tended to highly value tangible smart meter services like the removal of estimated reads and improved electrical safety. In addition, participants with smart meters showed strong interest in being able to use real-time consumption data to budget more effectively. Financial benefits or costs were a key reason for participants to be likely or unlikely to request a smart meter.[8]

After being informed of the benefits of smart meters most residential and small business participants felt positive or neutral about having a smart meter installed at their property, but they remain unlikely to proactively seek installation. While participants appreciated the potential benefits, they were put off by uncertainty about installation costs and the likely impact of a transition to time of use pricing, leading to uncertainty around whether the benefits will outweigh potential costs.[9] Participant positivity towards smart meters did not translate into an increased likelihood to proactively request a smart meter in the near-term.[10]

When concerns around obtaining a smart meter were explored, participants often focused on their costs increasing, either because they were not sure that they would be able to adjust their consumption patterns for time-of-use pricing or because they were concerned about the costs of getting the meter itself or associated remediation work. Many others were renters or homeowners with strata arrangements who thought the decision was out of their hands.[11]

In relation to consumer awareness of smart meters, the research discovered that participant awareness of smart meters and smart meter services is reasonably low. A relatively large number of participants were unaware that they were likely to have a smart meter. Further, many residential participants who have smart meters did not recall receiving information about the services they enable and were less happy about having a smart meter as a result. Customers without a smart meter indicated that information on how to make the most of a smart meter would be desired prior to having one installed.[12]

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6 Newgate Research, *AEMC Metering Review*, report, pp. 5, 17-19.
7 Newgate Research, *AEMC Metering Review*, report, pp. 5, 17-20.
8 Newgate Research, *AEMC Metering Review,* report, pp. 37-39, 49, 50.
9 Newgate Research, *AEMC Metering Review*, report, p. 8.
10 Newgate Research, *AEMC Metering Review*, report, p. 36.
11 Newgate Research, *AEMC Metering Review*, report, pp. 5, 62-64.
12 Newgate Research, *AEMC Metering Review*, report, pp. 66-68.

Participants who had smart meters were also asked about their installation experience. Newgate found that most participants who recalled the meter installation process found it somewhat or very easy, while only a minority experiencing difficulties. Those difficulties generally related to the process being complex or time-consuming, or alternatively requiring additional remediation costs.[13]

Newgate's final report has been published on the Metering Review project page. The Commission has made references to Newgate's findings where relevant in later chapters and appendices of this paper.

1.4 Issues and options identified so far

As noted in section 1.2.1, four areas of focus were identified from submissions to the consultation paper. The issues identified by the Commission in conjunction with the Reference Group and Sub-Reference Group and through bilateral discussions are:

- **Consumer experience.** Consumers are not generally engaged with smart meters or the benefits they can enable. Further, some stakeholders consider that complexities in the framework as well as divided roles and responsibilities are providing a poor consumer experience.
- **Metering services and data.** Stakeholders submitted the benefits of smart meters and raised whole-of-system benefits which benefits consumers as a whole, along with benefits to individual consumers are smart meters are key to enabling.
- **The roll out.** Overall, most stakeholders indicated that the roll out is not proceeding as quickly or efficiently as it should to maximise benefits for all consumers and end users.
- **Roles and responsibilities.** Stakeholders considered that the current framework requires extensive coordination between many parties, with incentives misaligned or unclear.

The Commission has worked with the Sub-Reference Groups and stakeholders to develop a more complete understanding of the underlying drivers of these issues, as well as potential options for changes to the regulatory framework for metering services which would achieve the objective of the review, and meet the assessment framework criteria (see section 1.5 and section 1.5 for the objective of the Review and the assessment framework respectively).[14]

The Commission's preliminary views detailed in this paper centre around the following issues:

- benefits from smart meters are not being enabled on scale
- the underlying issues of incentives and cost allocation needs to be addressed
- roles and responsibilities should be considered to improve efficiencies
- changes should be made to the installation processes to improve efficiencies and economies of scale
- a critical mass of smart meters needs to be installed, and

13 Newgate Research, *AEMC Metering Review*, report, pp. 66-68.

14 The Review's assessment framework can be found on pp. 7-9 of the consultation paper.

- a clear framework for appropriate access to data to enable the benefits from smart meters needs to be developed.

Each of these issues are discussed in more detail in chapter 2 and chapter 3, and in the three appendices to the paper.

1.5 Objective of the Review

In conjunction with the Consumers Sub-Reference Group, the Commission developed an objective for the review.

> To enable the roll out of appropriately capable smart metering to consumers in a timely, cost effective, safe and equitable way, and to ensure metering contributes to an efficient energy system capable of maximising the benefits for all consumers.

The objective for the Review seeks to address the current issues with the framework for metering services to achieve a more efficient and effective roll out of smart meters and encompasses providing value to the whole supply chain. The objective recognises the role that meters play in delivering benefits, both to consumers individually and, by enabling a more efficient and lower cost energy system, to all consumers whether or not they choose to take up the services enabled by smart meters. An efficient system which maximises the benefits for all consumers will in turn provide greater benefits for all energy system stakeholders.

The objective also recognises the importance of reducing barriers consumers face in obtaining both of these benefits. The objective aligns with the four areas of focus of the review:

- delivering for the consumer – it is important that the framework delivers timely benefits for consumers in a cost effective, safe, and equitable way and access is enabled for all consumers
- services that meters should enable – barriers to services and data being delivered via a meter where the provision of those services via a meter is most appropriate should be minimised
- driving the roll out of smart meters – the regulatory framework should support a timely, cost effective, safe and equitable roll out of smart meters where all consumers are able to access the benefits smart meters can enable
- roles and responsibilities – exploring ways to improve cooperation, coordination and communication to improve the consumer experience and maximise benefits.

The Commission will consider allocation of costs to enable the efficient realisation of metering benefits for all, how to reduce any barriers to metering services and the important data the meters can provide, and consider the most appropriate roll out strategy to achieve the objective.

It is important that the regulatory framework is resilient, robust and adaptable to continue to provide maximum benefits for all consumers now and into the future. The Assessment

Framework will guide the Commission in its decision-making process and aligns with the objective.

1.6 How this paper is structured

The remainder of the Directions paper is structured as follows:

- Chapter 2**:** provides the case for change including the Review problem statement, information on the benefits that smart meters can enable, the penetration needed to enable benefits to be realised, and why the current arrangements not effectively and efficiently enabling their realisation.
- Chapter 3**:** details the options, preliminary recommendations and other areas the Commission is seeking feedback on in this Directions paper.

The appendices of this paper provide further detail on each of the options and preliminary recommendations the Commission has developed, as well as issues raised by stakeholders in submissions to the consultation paper or in the Reference Groups.

- Appendix A**:** examines options for the roll out of smart meters, incentives issues under the current framework and roles and responsibilities.
- Appendix B**:** examines metering services and access to data
- **Appendix C**: examines the meter installation process.

1.7 Lodging a submission

Written submissions on this Directions paper must be lodged with Commission by 28 October 2021 online via the Commission's website, www.aemc.gov.au, using the "lodge a submission" function and selecting the project reference code EMO0040.

The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated.

Where practicable, submissions should be prepared in accordance with the Commission's guidelines for making written submissions. The Commission publishes all submissions on its website, subject to a claim of confidentiality.

All enquiries on this project should be addressed to Alisa Toomey on (02) 8296 0633 or alisa.toomey@aemc.gov.au.

2 CASE FOR CHANGE

Smart meters are a key enabling technology that unlock benefits to consumers and DNSPs as well as supporting the transition to a low-cost, decarbonised system. This view is shared by many in the industry, and particularly by ECA and other consumer advocates.[15]

In making the *Competition in metering* rule, the Commission considered that metering services can be more effectively provided by entities that are operating competitively with each other — such as energy retailers. The metering reforms were expected to lead to an extensive smart meter uptake and deliver significant benefits to consumers. However, the smart meter roll out has not met expectations. Much of the anticipated benefits to consumers have yet to be realised because the pace of the smart meter roll out has been slower than anticipated, inhibiting the flow of benefits to consumers. Further, the importance of smart meters in modernising the energy market, and providing additional benefits to enable this transition has become apparent since the implementation of the rule.

Where smart meters have been installed, the scope of services that were expected to be provided are narrower than expected. There have also been implementation issues, especially in relation to installation delays, as shown through ombudsmen and AER complaints data. Reviews conducted by jurisdictional regulators such as Independent Planning and Regulatory Tribunal (IPART) have identified industry cooperation as an issue. The complexity of the model for providing metering services may have inhibited industry cooperation.

Since the publication of the Review's consultation paper, the Commission has worked closely with the Review's Reference Group to develop a problem statement for this review. The problem statement has guided the Commission and the Reference Group to identify the underlying issues with the current framework that are preventing the smart meter benefits from being realised.

This chapter sets out the Commission's initial findings on these issues based on the extensive feedback provided by members of the Reference Group.

- Section 2.2 discusses the benefits that smart meters can provide
- Section 2.3 discusses the need for data access and a higher penetration of smart meters in order for the benefits to be realised
- Section 2.4 sets out the inefficiencies under the current framework and the issues with the lack of incentives to roll out smart meters that are hampering a higher rate of penetration.

2.1 A problem statement to focus discussions

In its submission to the Review's consultation paper (and reiterated in the initial Reference Group meeting), Australian Council of Social Service (ACOSS) suggested that it is important for the Review to have 'clear objectives and principles to guide the approach to ensure the

15 ECA, submission to consultation paper, p. 1; ACOSS et al, submission to consultation paper, p. 3.

desired consumer benefits and outcomes are achieved'.[16] The Commission adopted ACOSS' suggestion and worked with the Consumer Sub-reference Group to develop the problem statement below.[17]

> The current metering arrangements are not efficiently and effectively realising the key potential benefits that metering technology can enable for all consumers.

The problem statement aligns with the National Electricity Objective (NEO) and the National Energy Retail Objective (NERO), and acknowledges the need for metering arrangements to enable services that benefit all consumers. This includes taking the interests of all end users, including vulnerable consumers into account.

The statement reflects stakeholder views that the current regulatory arrangements have created sub-optimal outcomes for consumers. There are inefficiencies that arose from complex relationships, unclear objectives and separation of responsibilities, and incentive problems.

It is also important to note that factors such as legacy electrical and installation issues cannot always be addressed by changes to the metering regulatory framework, but are impacting on the effectiveness of its operation. The Review will seek to address these inefficiencies, and provide accountability when issues arise which are outside of the Commission's remit.

An important aspect of the problem statement is that the benefits enabled by smart meters should benefit all consumers. In their submission to the consultation paper, a cohort of consumer groups including ACOSS, ACT Australian Council of Social Service (ACTCOSS), Queensland Council of Social Service (QCOSS), renew, South Australian Council of Social Service (SACOSS), Tasmanian Council of Social Service (TasCOSS), Uniting and the Total Environment Centre (ACOSS et al), expressed their views that a framework for smart meter roll needs to consider how all customers, especially vulnerable ones, can also benefit from the benefits. ACOSS et al consider that:[18]

> [S]mart metering will become an essential infrastructure for all consumers, to enable access to new services, markets and pricing and to facilitate more effective and efficient management of the grid. It will therefore be critical that all consumers including people with low income or experiencing disadvantage can access smart metering to ensure they are not left behind in the energy transition.

2.2 Smart meters can enable benefits for consumers and other end users

Smart meters are an enabler in delivering benefits to consumers individually. They are also key to providing benefits to all consumers as a group by enabling a more efficient and lower cost energy system. An efficient system which maximises the benefits for all consumers will

16 ACOSS et al, submission to consultation paper, p. 16.
17 This statement was endorsed by members of the Reference Group.
18 ACOSS et al, submission to the consultation paper, p. 6.

in turn provide greater benefits for all energy system stakeholders, regardless of whether they choose to take up the services enabled by smart meters.

Smart meters are currently primarily being used to measure electricity consumption and generation for market settlement purposes. However, they can also enable a range of other benefits and services. Some of these benefits relate to:

- providing consumers with visibility and control of their electricity consumption and costs (for example, reduced estimated meter reads, better visibility of consumption and more product options)
- improving network operation, investment, security and reliability (for example, better outage management, better management of the low voltage (LV) network)
- improving safety outcomes (for example, detection of neutral integrity which can cause electrocution, and hot joints which can cause fires). Further, the data from meters should assist DNSPs more efficiently invest in and operate their LV network
- supporting and enabling better integration of distributed energy resources (DER) such as solar systems, batteries and electric vehicles.

In unlocking many of the benefits of smart meters identified, higher smart meter penetration has been identified as an important factor, as well as access to data. Enabling efficient access to data is discussed further in both chapter 3 and appendix B.

2.2.1 What are the benefits that smart meters could enable in the current market?

Smart meters can enable a number of benefits to consumers relating to better visibility and control over electricity consumption and costs. The research conducted by Newgate revealed consumers value the following benefits highly:[19]

- Reduction in estimated reads
- Increased electrical safety
- Improved visibility and management of energy consumption.

Better visibility of the LV network is also seen as a key benefit that smart meters can enable. With increasing penetration of DER, DNSPs need to operate their networks more dynamically. Their ability to integrate DER and maintain security and reliability of the grid is hampered by their current lack of visibility of the LV parts of their network. Through data that can be provided by smart meters, DNSPs would be able to make better investment and operational decisions that could support more DER connections, and potentially delay or remove the need for augmentation. Access to data from meters could also improve outage management.

The Energy Security Board (ESB) noted the importance of data from smart meters to provide better bottom up visibility of consumer demand to improve network planning and minimise increases to network infrastructure costs and price rises.[20] Energy Networks Australia (ENA) and ENEA Consulting also considered that smart meter data was key for improving network

19 Newgate Research, *AEMC metering review*, Full research report, August 2021, p. 6

20 ESB, *Data Strategy*, Consultation paper, October 2020.

management and operations and increasing efficiency in their *Data opportunities for smarter networks* report.[21]

In the *Competition in metering* rule change, some of the key benefits of smart meters were seen to be tariff reform, remote re-energisation and de-energisation and the removal of estimated meter reads. These are still important benefits of smart meters, however, smart meters can provide many other benefits to customers which have increasing prominence, and are key enablers of the energy transition and digitisation of the national electricity market.

Table 2.1 below lists the benefits smart meters can provide that were identified through the Commission's consultation process (Reference Group meetings and bilateral discussions) and in submissions to the consultation paper.[22]

Table 2.1: Benefits which smart meters can enable

BENEFITS	FACILITATOR OF BENEFITS AND CONSIDERATIONS
Providing consumers with visibility and control of electricity consumption and costs • Accurate bills based on actual meter reads • More accurate flexible billing options • Greater choice of products and services which may be more tailored to individual customers • Improved energy literacy and understanding of energy usage patterns • Improved control over energy cost • Apps that can improve access to information • Faster switching and quicker realisation of contract benefits • Development of new services and participation in new markets such as energy storage, virtual power plants (VPPs) etc.	Retailers are the key facilitators of these benefits for consumers. All of these benefits are only available to those consumers who have a smart meter installed at their premises.

21 ENA and ENEA, *Data opportunities for smarter networks,* October 2020.

22 Feedback in the Services and Data Sub-Reference Group and Submissions to the consultation paper: ACOSS et al, pp. 5-6; Ausgrid, pp. 4-7; Bright Spark Power, pp. 2, 6; Citipower, Powercor and United Energy, pp. 1,3; Energy Queensland, pp. 5, 15-16; Essential Energy, p. 3; Intellihub, pp. 5-10, 25; 32-33; Momentum Energy, p. 2; Powermetric pp. 2, 4-5; ReAmped, pp. 2, 4; Secure Meters, p. 3; PIAC, p. 14; EWOSA, p. 2; Red and Lumo, PP. 1-2; Alinta, pp. 2-3; Aurora, p. 3; AEC, p. 3; Clean Energy Council, p. 1; EDMI, pp. 2-3; ENA, p. 11; Gridsight, pp. 4-5; IPART, p. 2; PLUS ES, pp. 5-6; Powershop, pp. 2, 4; Simply Energy p. 2, 4-5; VRT Systems p. 4; ECA, pp. 1-3; Horizon Power, pp. 2-3; Ausgrid, pp. 6-7; Endeavour Energy, p. 2; Vector, pp. 3-7, 25; AGL, p. 5; EnergyAustralia, p. 2; PIAC, pp. 8-10; Ausgrid, p. 6; Energy Queensland, pp. 15-16; Essential Energy, p. 3.

BENEFITS	FACILITATOR OF BENEFITS AND CONSIDERATIONS
Improving network operation, investment, security and reliability • Support more efficient operation of the network • Improved data for network planning and investment • Innovative tariffs to manage peak demand and drive behavioural change. • Improved outage management through faster detection of outages and restoration of supply • Improved visibility and management of network assets such as transformers and fuses • Improved visibility of the low voltage network toward dynamic voltage management • Improved management of controlled load.	DNSPs would facilitate these benefits for consumers utilising data provided from metering coordinators (MCs). Access to data for DNSPs as well as greater penetration of smart meters (at least 50%) is required for these benefits to be enabled.
Improving safety outcomes: • Neutral fault detection • Identification of other safety issues such a hot joints • Improved pinpointing of outage location.	DNSPs would facilitate these benefits for consumers utilising data provided from MCs. Neutral fault detection and identification of safety issues at a customer level are only available to those consumers who have a smart meter installed at their premises.
Improving DER integration: • Support dynamic operation of the network to better manage a more distributed energy system • Better understanding of LV DER hosting capacity, dynamic export limits to help manage network peaks. • Improved management of DER • Allowing more customers to connect DER to the grid.	DNSPs would facilitate these benefits for consumers utilising data provided from MCs. Access to data for DNSPs as well as greater penetration of smart meters (at least 50%) is required for these benefits to be enabled.
Other benefits include: •	Data provided by MCs. Privacy and data access issues will need to be

BENEFITS	FACILITATOR OF BENEFITS AND CONSIDERATIONS
• Introduction of new market participants via new technologies • Safer reconnection and disconnection for those carrying out the reconnection and disconnection • Aggregators require smart meters to provide their services • Better data and visibility for policy-makers • Better data and visibility for researchers • Better street light management for Councils • Data use for police operations.	considered in the enabling of these benefits.

Source: Stakeholder submissions and consultation.

2.2.2 Smart meters are key enablers of the energy transition

As well as enabling many benefits in the current market, smart meters are key to enabling emerging technologies and future services and innovations. Many of the ESB's post-2025 Market Design rely on greater smart meter deployment, especially for the two-sided market and DER integration. These projects would allow consumers to actively participate in the NEM through their smart meters.

The rapid expansion of DER, and the associated use of smart meters, at a small and large consumer level also opens up opportunities for consumers to participate in new and emerging services and innovations such as virtual power plants through collective engagements. Along with increasing opportunities to engage in the market, smart meters open up innovative opportunities for data sharing and access. For instance, some consumers may be interested in controlling their appliances through a mobile application or hub based service to take advantage of low wholesale prices. Data could also be aggregated much faster allowing regulators to design more targeted policy.

In submissions to the AEMC consultation paper, the importance of meters in relation to future market reforms was raised by many stakeholder groups, particularly in relation to:[23]

- addressing minimum operational demand
- two-sided markets, demand side participation and the ESB post 2025 market reforms
- DER integration and services, standards, visibility and management

23 Submissions to the consultation paper: South Australian Department for Energy and Mining, p. 2; PLUS ES, p. 27; Vector, pp. 1, 3, 16-18; AER, pp. 1-4; Ausgrid, pp. 3, 6; Citipower, Powercor and United Energy, pp. 6, 8; Dr Martin Gill, pp. 1, 11; ECA, p. 1; Essential, pp. 1, 5; Gridsight, pp. 1, 4; Intellihub, pp. 1-2, 5; NECA, p. 6; NICE pp. 2-5; PIAC, p. 3; Powermetric, p. 2; Powershop, p. 4; ACOSS, p. 16; AEC p. 2; AGL pp. 5-6; Alinta p. 5; EDMI pp. 4, 8; ENA p. 10; Horizon pp. 5-6; Landis+Gyr p. 2; Metlogic p. 2; Momentum p. 2; Origin pp. 2, 4; PIAC, pp. 12, 17-18; PLUS ES, pp. 21-22; ReAmped, p. 2; Secure Meters, pp. 5, 7; SolarAnalytics, pp. 3-4; VRT Systems, pp. 4, 8; AMS, pp. 2, 6; Endeavour Energy, p. 5; EWON, p. 6; IPART, p. 2.

- consumer data rights and the ESB data strategy
- jurisdictional regulatory programs.

The Commission is cognisant of these key reforms and will consider the potential impacts and needs from these reforms where practicable and appropriate throughout this Review.

Energy Security Board – Post 2025 Market Design

The ESB published its final advice to Energy Ministers on the Post 2025 Market Design on 27 July 2021. Of the reform pathways included in the Post 2025 Design, Integration of DER and flexible demand is most relevant when considering metering reform.

The focus of the reform pathway Integration of DER and flexible demand is on delivering benefits to households and businesses through the most efficient integration of rooftop solar, battery storage, smart appliances and other resources. There is significant potential for customers to benefit from using their DER resources to provide demand flexibility and participate in the wholesale energy market, system services markets and network services. These opportunities improve the return on customer's investments in DER and can help all customers, even those without DER, by lowering the costs of operating the electricity system.

This pathway is also designed to support innovation in wholesale market arrangements, provide DNSPs with the ability to accommodate the continued uptake of DER and manage network security, and AEMO with visibility and tools to operate a safe, secure and reliable system.

The July 2021 paper includes flexible trading arrangements, to separate controllable load (for example, solar PV, batteries, EVs, pool pumps) from uncontrollable resources (the primary source of electricity).[24] Flexible trading arrangements are particularly relevant to this Review. The ESB's work has outlined how clarifying different metering options in the Rules, will help to make it easier for customers with DER to participate in the wholesale market and other markets via a retailer or aggregator. They provide additional ways for new retailers and aggregators to enter the market and provide different choices to customers, such as where customers wish to engage more than one service provider (e.g for the supply of electricity to their electric vehicle to be managed separately from their standard energy use).

The Commission considers that smart meters play a crucial role in the immediate, initial, and next reforms as an interface between consumers, settlement of participation, and the grid. The focus on the future grid is particularly relevant when considering the recommendations this Review makes, such as greater access to data and enabling participation through smart meters.

In particular, a more fully developed two-sided market with flexible trading arrangements enabling greater participation on the demand side of the market, will rely on sufficiently capable smart metering, potentially with an additional connection point to achieve the benefits of engaging multiple service providers.

24 ESB, *Post 2025 Market Design Final Advice to Ministers Part B,* p. 85.

Energy Security Board – Data strategy

The ESB released its second consultation paper on the ESB Data Strategy in November 2020. In this paper the ESB recommended that the Commission's metering review consider LV-DER visibility issues (as part of its broader scope) including: metering data access rights for DNSPs, network connection points, voltage reporting, gross metering, DER minimum requirements and opportunities for improved uptake of competitive metering to assist low voltage (LV) visibility.

The ESB considered that data from meters is underutilised and can provide benefits for consumers, retailers, DNSPs and others if issues with access and incentives are addressed. The ESB considered that the Commission's review should address areas including metering data access rights for DNSPs, voltage reporting, DER minimum metering requirements, opportunities to accelerate uptake of competitive metering to assist LV visibility and updated metering requirements, to ensure consumers are getting optimal value in terms of LV visibility and wider DER integration.

Commonwealth Treasury – The Consumer Data Right

The Commonwealth Treasury is currently progressing the Consumer Data Right (CDR) for energy, looking at a peer-to-peer data access model. Under this model retailers will be responsible for receiving and responding to consumer data requests, including requesting and receiving relevant CDR data from AEMO, in accordance with the standards and after carrying out authentication processes. AEMO will be responsible for disclosing relevant CDR data to a retailer when requested, in accordance with the data standards. For further information see Treasury's *Peer-to-peer data access model in the energy sector* Design Paper.[25]

Stakeholders raised the CDR in submissions to the Review's consultation paper, including the importance of implementing the CDR and the role it may play in enabling innovative products and services. Stakeholders also notes that the CDR will likely not include access to engineering data.[26]

The data that CDR is seeking to provide consumers, to enable better understanding of their electricity consumption and access to a greater variety of products and services, would benefit from the more granular data smart meters can provide. Without smart meters, consumers would only have visibility of overall consumption for each billing period, which provides limited value.

Work being undertaken by Jurisdictions

There are a number of jurisdiction specific projects underway that are impacted by the roll out of smart meters.

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25 Available at https://treasury.gov.au/sites/default/files/2021-05/c2021-168954-cdr_design_paper_peer_to_peer.pdf

26 Submissions to the consultation paper: AGL, p. 5; Alinta, p. 5; Ausgrid, p. 6; EDMI p. 8; Endeavour Energy, p. 5; EWON, p. 6; Origin, p. 4; Secure Meters, p. 7; Solar Analytics, p. 3; PLUS ES, p. 19; Vector, pp. 7, 16-17; VRT Systems, p. 8.

In particular, the Commission understands that the NSW Department of Primary Industries and Environment will shortly release a consultation paper on areas which include smart metering. The Commission will follow responses to this consultation paper closely.

2.2.3 Are smart meters the right enabler of these benefits?

Some stakeholders raised in submissions and during consultation that other devices are capable of providing some of the benefits that smart meters can enable. The Internet of Things (IoT), home management systems, using inverters on solar panels and installing network devices were some possibilities suggested.[27]

Home energy management systems or smart inverters, connected to the grid, could provide alternative or complimentary services to those provided by smart meters. For example, a home energy management system may facilitate further demand-side participation, or an inverter could respond actively to grid conditions. These electrical devices can also provide data, behave as sensors at the grid edge, and usually have some degree of automation for consumer benefit. However, at this stage, these devices are not recognised for settlement. As well, these devices are usually situated behind-the-meter, under the consumer's remit, making regulation and compliance of these devices complicated.

The Commission considers that IoT devices and inverters could potentially provide similar information to consumers. However, not all consumers have the financial capacity to invest in appliance with IoT capabilities or would have solar PV. Further, developing standardised information to be provided to other end users, such as DNSPs, could be complex with a very large number of parties involved. These devices will likely not be able to provide a whole of premises view to enable DNSPs to obtain better visibility of the LV network.

Further, the Commission understands that some DNSPs have been investigating obtaining visibility of their LV network through network-owned and controlled monitoring assets strategically placed throughout their network areas. Some have also considered obtaining data from devices such as inverters.

Smart meters will replace all electricity meters at consumers' premises for measurement of consumption in the future and are capable of providing the additional data most DNSPs are seeking under the current specifications. Widespread penetration and improved data access via smart meters should provide an efficient and cost-effective solution for DNSPs. Installing separate devices to provide data which could be provided by the meter does not appear to be efficient.

Therefore, the Commission considers that smart meters would likely be an appropriate device to enable the benefits for consumers individually and collectively, and the framework should enable these benefits to be provided by smart meters where it is efficient. Nevertheless, the framework should not preclude other devices being utilised for services other than consumption, billing and market settlement, where it is more efficient to do so. Consumers'

27 Submissions to the consultation paper: CEC, pp. 3, 5, 7; Dr Martin Gill, p. 5; Energy Queensland, p. 4; NICE, pp, 17-18; Aurora, p. 6; ECA, p. 1; Origin, pp. 1-2.

will likely derive even greater benefits with a combination of smart meters and other devices such as home management systems and inverter.

> QUESTION 1: BENEFITS WHICH CAN BE ENABLED BY SMART METERS
>
> (a) Are there other benefits which can be enabled by smart meters that are important to include in developing policy under the Review?
>
> (b) What are stakeholders views on alternative devices enabling benefits? What are the pros and cons of these alternative devices?

2.3 To realise the benefits we need high penetration and data access

Although many of the benefits that smart meters can enable are, in theory, available today and provided for under the current metering specifications, the Commission considers it is likely that many of the benefits of smart meters will not be realised at scale unless there is smart meter penetration of at least 50 per cent.

2.3.1 Higher penetration is required to enable many of the benefits

The vast majority of stakeholders were of the view that more products and services will be available for consumers, and more benefits will be realised for the market, if penetrations of smart meters increase. A geographic spread of smart meters was also seen as important in making additional services more efficient by some stakeholders.

Higher penetrations of smart meters will enable greater provision of other services

A number of retailers and storage providers have developed electronic portals for consumers to obtain more information on usage, with some of them providing consumption and expenditure information up to the prior day. Nevertheless, it is apparent that the development of innovative products, services, information portals and devices is relatively immature compared to what was anticipated under the *Competition in metering* rules.

The Commission considers it is likely that a higher penetration of smart meters will enable more consumers to access more granular consumption information, reduce the number of estimated meter reads, enable more consumers to access different tariff options and should lead to more innovative products and services. Further customers will not receive direct benefits unless they themselves have smart meter installed at their premises.

Many stakeholders agreed that higher penetrations of smart meters would be needed to provide additional services and benefits to consumers and market participants.[28] For example, Aurora was of the view that higher penetration will provide opportunities for retailers and improve the customer experience and products and services offered.[29]

28 Submissions to the consultation paper: ACOSS et al, p. 16; AEC p. 7; AER pp. 1, 3; AGL p. 6; Ausgrid p. 6; Citipower, Powercor and United Energy, pp. 6, 8; EDMI p. 4; ENA pp. 7, 10; Endeavour Energy, p. 6; Essential Energy pp. 3-4; Horizon p. 6; Intellihub p. 5; Landis+Gyr pp. 1-2; Origin p. 2; PIAC pp. 3,12; PLUS ES pp. 5, 9, 20; Secure Meters, pp. 2, 8; South Australian Department for Energy and Mining p. 2; Powermetric p. 2; Powershop p. 4; Aurora, p. 6; Energy Queensland, p. 4, EWON, p. 6.

A number of consumer groups supported a more complete roll out of smart meters in their submissions. Energy and Water Ombudsman of New South Wales (EWON) expressed support for an increased penetration of smart meters to enable customers to realise benefits and drive improvements in the energy section.[30] ACOSS et al. expressed concern that many vulnerable customers are not able to access smart meters and the benefits enabled by them under the current roll out.[31]

Higher penetration of smart meters are required for network benefits to be enabled

The Commission understands that many of the network benefits require smart meter penetration in excess of 50 per cent. In addition, it is likely that this scale of smart meter penetration would also drive innovation in other products and services.

Stakeholders, particularly DNSPs, metering parties, and most public bodies expressed views that increased penetration may be required, particularly for power quality benefits.[32] For example, Ausgrid was of the view that with sufficient meter penetration, DNSPs would be able to provide more cost-effective services to customers by utilising smart meter data.[33]

ENA has provided the following indicative optimal penetrations required to realise network benefits:

Table 2.2: **Indicative penetrations for network data from smart meters to provide benefits**

OPTIMAL INDICATIVE PENETRATION OF SMART METERS	BENEFITS TO DNSPS	BENEFITS TO CONSUMERS
Benefits on a meter-by-meter basis	• Remote connection/disconnection. • Management of controlled load and DER. • Energy meter theft detection. • Neutral fault detection. • Single to bulk (or area) meter ping.	• Lower overall costs in the long run from lower network costs passed through. • Avoided manual visits or reading costs passed through, better service. • Improved safety, potential prevention of electrical shock.
20-50%	• Improved ability to connect DER on more accurate hosting capacity. •	• More efficient connection and integration of DERs. • Improved forecasting of the local network.

29 Aurora, submission to the consultation paper, p. 6.

30 EWON, submission to the consultation paper, p. 6.

31 ACOSS et al, submission to the consultation paper, p. 6.

32 Submissions to the consultation paper: AEC p. 7; AER, pp. 1, 3; AGL p. 6; Ausgrid, p. 6; ENA, pp. 7, 10; Endeavour Energy, p. 6; Energy Queensland pp. 4-5, 8; Essential Energy, pp. 3-4; Secure Meters, p. 8; Intellihub, p. 6; PLUS ES, p. 20; Powershop, p. 4.

33 Ausgrid, submission to the consultation paper, p. 6.

OPTIMAL INDICATIVE PENETRATION OF SMART METERS	BENEFITS TO DNSPS	BENEFITS TO CONSUMERS
	• Improved investment planning. • Real-time low voltage network visibility. • Better identification of outages. • Dynamic operating envelopes. • Transformer load management	• More accurate voltage management, improving the utilisation of hosting capacity. • Faster restoration of supply, lower operating expenses.
>50%	• Cost reflective network tariffs. • LV Network optimisation. • Dynamic voltage management. • Accurate outage identification to rapid response. • Cross-referencing error correction. • Automated transformer load management. • Outage notification service for off-supply national meter identifiers (NMIs).	• Lower overall customer cost in the long term via lower network costs. • Consumer reward options for reducing demand during peak demand periods. • Faster restoration of supply and potential automation of supply restoration. • Reduced direct costs to consumers through error or theft. • Advanced DER integration, particularly improved export service performance, and enhanced network support for services like VPP and aggregation.

Source: Information provided by the ENA, adapted by the Commission.
Note: Percentages are indicative based on best current estimates. Penetrations may vary based on access to smart meters and meter data.

A higher penetration of smart meters will be required to enable future market services

It is likely that a higher penetration will be required for future market services as well. The Commission's *2019 Economic regulatory framework review* as well as the DEIP Access and Pricing Working Group's *Outcomes Report* considered that a high penetration of smart meters are required to support energy market transition.

2.3.2 Access to data is required to enable many of the benefits to be realised

There are substantial benefits that can be enabled by access to power quality data from smart meters. Consumers could also benefit from easier access to their own data. Along with penetration of smart meters, access to data is key in enabling the benefits from smart meters. However, the Commission understands there are constraints to accessing data, particularly power quality data, with provision of this data only at trial stages.

From submissions and ongoing consultation with stakeholders, the Commission has identified the following issues relating to efficient access to data:

- complexities and cost to negotiate
- information is not provided in a consistent form
- the price of data.

Stakeholders raised concerns about the lack of a framework for the exchange of power quality data including uncertainty over accountabilities and ownership, issues with ongoing provision of data if consumers switch retailers and treatment of costs associated with access.[34]

Submissions to the consultation paper also expressed concerns relating to:[35]

- limited bargaining power or incentives to negotiate between parties
- potential for perverse incentives through duplicative devices, such as network devices to access data
- restrictive commercial arrangements impacting the ability to provide data to third-parties, including DNSPs
- market power issues.

The Queensland Competition Authority (QCA) also examined the benefits of smart meters, and how they could be better utlised in the future in its 2019 Ministerial advice *Benefits of advanced digital metering.* The QCA considered that there are a number of barriers to realising the benefits from smart meters, faced by consumers and retailers. However, the QCA was of the view that the use of smart meters in more detailed data gathering would provide for greater understanding, and more efficient usage of resources to lower costs.[36]

The ESB in its Data Strategy Consultation paper noted that metering is a key source of data to support greater LV and DER visibility, but this data is currently being underutilised due to commercial barriers and out-of-date requirements.[37]

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34 Submissions to the consultation paper, i: AER p. 3; Aurora pp. 5-6; Ausgrid p. 7; Clean Energy Council pp. 6, 9; Citipower, Powercor and United Energy, p. 7; ENA pp. 6-7, 9-10; Endeavour Energy, pp. 3, 5; Energy Queensland p. 20; Essential pp. 2, 6-7; Intellihub pp. 13, 17, 32; Gridsight p. 2, 6; NICE p. 9; ReAmped p. 5; SAPN pp. 7-9; Secure Meters pp. 2, 6-7; SolarAnalytics pp. 2-4; VRT Systems, p. 2, 9. AEC pp. 6-7; AGL p. 5; Ausgrid p. 7; Dr Martin Gill p. 5; EDMI p. 3; ENA pp. 11, 14; Endeavour Energy, pp. 2, 6; EnergyAustralia pp. 5-6; Energy Queensland p. 11; 2 Origin p. 8; PIAC pp. 11, 16; PLUS ES p. 20; ReAmped p. 4. SAPN pp. 2, 7-9; 2 Vector p. 21; VRT Systems, p. 9.

35 ACOSS p. 16; AEC pp. 4, 6; Alinta p. 5; Ausgrid pp. 6-7; Clean Energy Council, p. 6; ENA pp. 11, Endeavour Energy, p. 3; Energy Queensland pp. 7-8; Essential p. 7; Gridsight pp. 5-6; Horizon p. 4; Intellihub p. 13; IPART p. 3; Origin p. 8; PIAC pp. 14-15; PLUS ES p. PLUS ES p. 9; Powermetric p. 6; TasNetworks p. 1; SAPN pp. 5, 7-9; Vector pp. 8-10; VRT Systems, p. 9; AER p. 3; AEC p. 4; ENA p. 10-11; Endeavour Energy, p. 1; IPART pp. 1, 3; Intellihub p. 18; Vector p. 4; Clean Energy Council pp. 6, 9; ENA p. 11; Endeavour Energy, pp. 3, 5; PLUS ES pp. 9-10; ReAmped pp. 4-5.

36 QCA, *Benefits of advanced digital metering,* August 2018.

37 ESB, *Data Strategy,* Consultation paper, November 2020, p. 34.

The Commission considers data access issues is a significant factor limiting the realisation of benefits from smart meters. The Commission's preliminary position on data access is discussed further in appendix B of this paper.

> QUESTION 2: PENETRATION OF SMART METERS REQUIRED TO REALISE BENEFITS
>
> (a) Do stakeholders agree that a higher penetration of smart meters is likely required to more fully realise the benefits of smart meters? If so, why? If no, why not
>
> (b) Do stakeholders have any feedback on the level of smart meter penetration required for specific benefits? Or to optimise all benefits?

2.4 We need to address inefficiencies and lack of incentives to reach critical mass

Reference Group members and stakeholder submissions have indicated that the current framework for metering services is not effectively and efficiently realising smart meter benefits for consumers. In conjunction with the Reference Group, the Commission has identified inefficiencies with the roll out of smart meters, particularly with smart meters being rolled out in a piecemeal fashion.

The Commission has also identified a misalignment of incentives and split incentives for the roll out of meters. The benefits from smart meters are split between multiple parties, in particular between the consumer, DNSP and retailer which is impacting the roll out of smart meters and benefits for all end users being realised.

2.4.1 Current inefficiencies

The Commission considers that the current arrangements for the roll out smart meters are inefficient. Under the current arrangements, meters are generally replaced one-by-one with meter providers incurring significant costs in travelling to individual sites. These costs are exacerbated in regional areas where installers may have to travel long distances to visit a site.

The majority of stakeholders who commented on the roll out of smart meters in the consultation paper considered the roll out of smart meters to be piecemeal, ad hoc, and ultimately slower than expected. Stakeholders commented on inefficiencies in physically installing smart meters as well as coordinating smart meter exchanges.[38] Powermetric was of the view that the current regulatory framework, which sees meters installed on a customer basis not by area, limits scale efficiency with scale required to provide metering services at reasonable cost.[39]

38 Submissions to the consultation paper: ACOSS et al, p. 12; AGL, p. 3; EDMI, pp. 3, 9; ENA, pp. 5-6, 8; Endeavour Energy, pp. 2, 5-6; Energy Queensland, pp. 12, 14, 21; EnergyAustralia, p. 6; Essential Energy, p. 8; EWON, p. 9; IPART, p. 2; Origin, pp. 6-7; PIAC, p. 11; PLUS ES, pp. 15-16, 27; Powermetric, p. 3; Powershop, pp. 1, 2, 3; ReAmped, pp. 3-4; SAPN, p. 6; Secure Meters, pp. 2, 9.

In addition, stakeholders generally considered that more advanced additional metering services are less efficient under a slower roll out, with the realisation of many benefits dependent upon a critical mass of smart meters. Submissions to the consultation paper tend to indicate that a timelier and more efficient roll out of smart meters may reduce market participants' cost-to-serve for new service options. For example, Landis + Gyr considered that an increase in the speed of the roll out would improve benefits, with breadth of deployment required for full benefits to be realised.[40] Energy Queensland expressed the view that a higher penetration of meters is required to smear the costs of smart metering across a large customer base and provide economies of scale.[41]

As the benefits of smart meters accrue to different parties, the benefit to an individual customer is often not sufficient for them to proactively request a smart meter. This leads to an inefficiently slow smart meter roll out as the benefits to other parties (discussed in section 2.3) are not reflected in the preferences of the individual consumer. A faster, coordinated roll out of smart meters would allow these benefits to be realised sooner and is in the long-term interests of consumers. As indicated in the smart meter benefits sections above the current penetration of meters is limiting the realisation of benefits from current metering services and may be inhibiting the development of new services.

A coordinated roll out would enable a greater deployment of smart meters at a location at a point in time. This would enable greater efficiencies in installation such as a reduction in travelling or 'call out' costs, reducing the per meter costs of installation. These savings would initially be shared by the meter provider and retailer and will ultimately benefit consumers through the competitive process.

Therefore, the Commission considers that developing options to improve efficiencies of the roll out, and in providing additional services is an important component to this Review. How to reduce inefficiencies in the meter roll out is discussed further in section 3.1 and in appendix A. Ways in which to reduce inefficiencies in meter installations, irrespective of the overarching roll out policy, is discussed further in section 3.6 and appendix C.

2.4.2 Lack of incentives

Under the current regulatory framework retailers are responsible for the provision of metering services. While the framework requires smart meters to be installed if a customer's meter has malfunctioned or is no longer fit for purpose, or the customer has requested a smart meter and the retailer has agreed to its installation, it does not place any mandatory obligation or targets on retailers to roll out smart meters. This approach reflects the original intent of the rule where retailers would proactively deploy smart meters where they see benefits, but has reduced and split the incentives for a proactive roll out.

Stakeholders have indicated that the combination of a vertically-separated industry structure and the regulatory setting means that the benefits of a widespread penetration of smart meters are divided between a number of parties, but the responsibility for the roll out is

39 Powermetric, submission to the consultation paper, p. 3.
40 Landis + Gyr, submission to the consultation paper, p. 1.
41 Energy Queensland, submission to the consultation paper, p. 21.

vested in only one market participant category (retailers). Incentives for retailers to accelerate meter uptake are not clear, and while DNSPs would benefit from greater penetrations of smart meters, DNSPs currently bear none of the costs or logistic and administrative burden.

Regardless of the reason behind the installation, retailers generally pay for the installation of smart meters and the ongoing operating costs through contracted charges with the MC. Retailers, however, currently lack strong incentives to roll out smart meters, and other parties that can obtain benefits from smart meters being installed (for example by accessing data from the meter) have limited influence over the roll out.

Whilst commercial incentives were intended lead to the development of smart meter services on behalf of consumers and provide services where it was efficient or demanded under the regulatory framework, these incentives have not eventuated as expected. Consequently, positive consumer outcomes and choice are being stymied under the current framework.

Low incentives for retailers to roll out smart meters

Issues in relation to lack of, or misalignment of, incentives were raised by many stakeholders in submissions to the consultation paper.[42] Stakeholders expressed concerns that there is a lack of incentives for retailers to roll out smart meters, with the costs of smart meters not currently covering the benefits that can be provided to retailers alone.[43]

Public Interest Advocacy Centre (PIAC) considered that retailers do not have an incentive to roll out smart meters. In contrast, it considered that metering parties have incentives to increase the roll out of smart meters, and DNSPs have an incentive to use the data from smart meters if they can get access to the data. However, PIAC noted that those parties are unable to roll out smart meters on their own accord.[44]

Energy Queensland provided a list of incentive issues it considered exist under the current framework:[45]

> There are currently limited incentives for a market-led rollout of smart meters. Key reasons include:
>
> - a market structure that has resulted in a split incentive scenario where the benefits of smart meter deployment accrues to parties who do not share in the costs;
> - inability to provide the full range of smart meter services, including remote disconnection and reconnection;
> - inability to realise the full potential benefits of smart meters without high penetrations of smart meters and integrated data systems;

42 Submissions to the consultation paper: PIAC, pp. 13-15; EWON, p. 3; Endeavour Energy, p. 3; Essential Energy, p. 4; Bright Spark Power, p. 3; EnergyAustralia, p. 2; Energy Queensland, p. 11; Origin, p. 2; Vector, p. 8; Powermetric, p. 3; EDMI, p. 3; Intellihub, p, 13.

43 Submissions to the consultation paper: PIAC, p. 13; EnergyAustralia, p.2; EWON, p. 3; Endeavour Energy, p. 3; Energy Queensland, p. 11.

44 PIAC, submission to the consultation paper, pp. 13-15.

45 Energy Queensland, submission to the consultation paper, p. 11.

- difficulties for networks to negotiate consistent, secure and cost-effective access to asset and engineering data that will lead to network efficiencies and cost-savings;
- uncertainty regarding ownership of asset and engineering data;
- high costs to set up information systems to support high volumes of smart metering data which is sourced by multiple providers and provided in multiple formats;
- physical barriers to installing smart meters, including onerous opt-out provisions, shared fusing in multi-tenancy premises, access difficulties, the need for existing customer switchboards to be upgraded and coordination issues between multiple parties;
- lack of customer understanding of and interest in adopting new technologies, products and services; and
- limited interest in taking up cost-reflective pricing by customers.

In contrast to those submissions indicating there were issues with incentives, Aurora, Alinta and the Australian Energy Council (AEC) considered current incentives to be appropriate and viewed benefits and use cases for smart meters as increasing over time.[46] Aurora considered the metering reforms to be a significant change, with time required to allow the market to settle before any further invention takes place.

Consumers are not incentivised to seek smart meters

Newgate's research found that although most residential and small business consumers participating in the research felt positive or neutral about having a smart meter installed at their property, there was little likelihood of those participants proactively requesting installations in the next 12 months. Newgate found that whilst participants appreciate the potential benefits of smart meters, concerns over uncertain installation costs and the likely impact of a transition to time of use pricing disincentivised participants from seeking a smart meter.[47]

In addition to the Newgate research, PIAC was of the view that most consumers have little incentive to request a smart meter, with limited access to services and concerns over tariff reassignment.[48] Similarly, EWON considered that the incentives for consumers were unclear and needed to be examined and addressed along with retailer incentives.[49]

Cost allocation and recovery and impact of access to data on the development of innovative products

Commercial incentives for metering service providers to deliver value-add outcomes to consumers or third parties are also unclear. This may be due, in part, to incentives for DNSPs to utilise capital expenditure over operating expenditure, a lack of scale of smart meters,

46 Submissions to the consultation paper: Alinta, p. 3; Aurora, pp. 3-4; AEC, p. 4.
47 Newgate, *AEMC Metering Review*, final report, p. 8.
48 PIAC, submission to the consultation paper, p. 15.
49 EWON, submission to the consultation paper, p. 3.

confusion relating to accountability or ability to provide additional services under the current framework and lack of clarity around cost recovery.

In addition, the Commission considers that a reduction in barriers to accessing data will likely be required to unlock incentives both for installing meters, and providing additional services and data.

Cost recovery was raised as an issue in a number of submissions.[50]Difficulty in DNSPs being able to negotiate consistent, secure and cost-effective access to asset and engineering data was another raised in submissions, as well as concerns that the current DNSP funding model incentives capital expenditure over operating expenditure to obtain this data.[51] In its submission, the AER expressed concern that without widespread penetration of smart meters there is likely to be insufficient incentives to develop new innovative products and services that are better tailed to consumers individual needs.[52]

The Commission considers there is a need to better align incentives in the supply of and demand for metering services is this Review. Having regard to feedback provided by stakeholders, the Commission is considering a number of options to address the issue of incentives. This is further discussed in section A.2.

50 Submissions to the consultation paper: AMS, p. 7; Ausgrid, p. 7; Bright Spark Power, pp. 5, 8; ENA p. 12; Endeavour Energy, p. 3; EnergyAustralia, p.2; Origin, p.2; Intellihub pp. 17, 19; Origin, p. 4; PLUS ES, pp. 18, 21; ReAmped, p. 3; Vector, pp. 8-10.

51 Submissions to the consultation paper: AEC, pp. 6-7; EDMI, p. 3; Intellihub, pp. 17-18; Origin, p. 8; PIAC, p. 11; Vector, p. 21; VRT Systems, p. 9; EDMI, p. 3.

52 AER, submission to the consultation paper, p. 3.

3 PRELIMINARY RECOMMENDATIONS AND OPTIONS

Smart meters can enable significant benefits for the market, and are essential for the modernisation of the national energy market. To maximise services and benefits from smart meters, enable modernisation and provide a lower cost energy system, meter penetration needs to increase.

The current arrangements for smart meter deployment are not optimal. Meters are generally replaced one-by-one with meter providers often having to travel significant distances within one day to install meters. Further, the benefits of smart meters also accrue to different parties within the electricity supply chain. For consumers, the benefit to them individually is often not sufficient for them to proactively request a smart meter.

Obtaining some of the key benefits from smart meters relies on unhindered access to data from smart meters, including power quality data. DNSPs and others can obtain benefits from smart meter data to provide better visibility of the LV network, improved management of the LV network and reduced need for network augmentation and safety improvements.

The Commission is cognisant that many of these issues are interrelated and a framework that addresses these issues in isolation will likely not be effective. Changes to the regulatory framework for metering services will need to address inefficiencies in the roll out, split incentives and access to meter data and services to ensure that metering contributes to an efficient energy system capable of maximising the benefits for all consumers.

Consequently, the Commission considers that changes should be made to the regulatory framework for metering services. This includes incremental changes, such as improvements to the retailer-led roll out and meter malfunction processes, with more significant changes also be considered if appropriate. These more significant changes being considered include options for increasing the roll out of smart meters, options for addressing split incentives and the development of a data access framework.

The Commission has identified a number of options for improving the regulatory framework for metering services which it is seeking stakeholder feedback on, as well as a number of areas where the Commission considers it requires more information, including stakeholder feedback, to develop appropriate solutions.

In addition, there are a number of preliminary recommendations that the Commission has made, primarily in relation to improving the consumer experience and efficiency of smart meter installations.

These recommendations, options and policy areas where the Commission is seeking further feedback are discussed in more detail in this Chapter, and in each of the Appendices to the Paper.

3.1 To reach a critical mass in a timely manner, options to accelerate the roll out should be considered

Chapter 2 of this Directions paper discussed that a high penetration of smart meters (as well as efficient data access) are needed in order for benefits of smart meters to be realised. However, the current roll out of smart meters is not proceeding at a pace that would enable a critical mass of smart meters to be reached in a timely manner. If the current rate of installation continues, it will take at least another four to five years before a 50 percent penetration is achieved. In addition to the slow pace, the current roll-out is also occurring in a piecemeal fashion, which is not efficient.

As noted in the consultation paper, the roll out of smart meters in the NEM has been largely driven by consumers requesting new meters, often as a result of installing solar PV systems, or by new connections. Roll outs initiated by retailers have been minimal in most jurisdictions, with incentives for the roll out being split and the regulatory framework leading to a piecemeal approach to meter installation.

The Commission considers that issues relating to incentives and the current installation processes need to be addressed at a minimum to improve the efficiency and speed of the roll out. However, it is likely that a timely and efficient roll out will not be achieved by addressing these issues alone and additional measures may be required. Four potential options are:

- improving incentives to rolling out smart meters by removing inefficiencies in the installation processes, improving cost sharing, and aligning incentives
- requiring meters to be replaced once they have reached a certain age, for example 30 years, under an aged-replacement roll out
- setting targets for the roll out under which a retailer (or the responsible party) will be required to replace a certain percentage of their customers' meters with smart meters each year
- introducing a 'backstop' date or dates by which time all accumulation meters or manually read interval meters must be replaced, for example 90% of meters required to be smart meters by 2030.

The Commission is interested in stakeholder feedback on the above potential measures that could accelerate the roll out, including the merits, costs and benefits of each approach. The Commission also welcomes stakeholder suggestion on other measures that could help accelerate the roll out.

Further details on these options, and the issues raised by stakeholders in relation to the roll out of smart meters, can be found in appendix A of this paper.

> QUESTION 3: TO REACH A CRITICAL MASS IN A TIMELY MANNER, OPTIONS TO ACCELERATE THE ROLL OUT SHOULD BE CONSIDERED
>
> (a) Do you consider that the roll out of smart meters should be accelerated? Please provide details of why or why not.

(b) What are the merits, costs and benefits of each option? Is there a particular option which would be most appropriate in providing a timely, cost effective, safe and equitable roll out of smart meters?

(c) How would each of these options for rolling out smart meters impact the cost profiles of smart meters?

(d) Are there other options that you consider would better provide a timely, cost effective, safe and equitable roll out of smart meters?

3.2 There are options which could be considered to assist in aligning incentives

An issue which is impacting the roll out of smart meters is a lack of, or split, incentives. The Commission is interested in stakeholder views on how to address the incentives issues in the current regulatory framework for metering services. Some potential options include the development of additional revenue streams from smart meters to offset the costs that retailers are paying, spreading the cost of installation across the parties who benefit and allowing multiple parties to be responsible for metering. Retailers would retain responsibility for metering under the first two approaches.

Stakeholders have indicated that the combination of a vertically-separated industry structure and the regulatory settings mean that the benefits of a widespread penetration of smart meters are divided between a number of parties, but the responsibility for the roll out is vested in only one market participant category, namely the retailers.

The Commission understands that retailers find little incentive to proactively deploy meters. While DNSPs would benefit from greater penetrations of smart meters, they currently bear none of the costs or logistics and administrative burden.

The Commission considers the issue of split incentives is a key barrier to a high penetration of smart meters. Mechanisms that allow reallocation of costs as well as reducing the barriers to other parties accessing the benefits may assist in incentivising a higher roll out of smart meters.

- **Development of additional revenue streams from smart meters** — retailers remain responsible for the provision of metering services. The framework would enable the development of additional revenue streams to offset the cost of meter installation. This would likely include data access and payment, for example, for the provision of power quality data to DNSPs. A tiered user-pays approach could apply to provide revenue from the provision of these services.
- **Spreading the costs of installation** — retailer remains responsible for the provision of metering services. Parties who derive benefits from higher penetration contribute to part of the ongoing cost of the meter. This could mean some form of regulated pricing or cost sharing.

- **Multiple parties responsible for metering** — multiple parties could be responsible for metering services. If a party could derive significant benefits from smart meters being installed, they could bear the cost and responsibility for the roll out. This option could see retailers (or traders in the future), DNSPs and potentially other parties having the responsibility for metering.

The Commission welcomes stakeholder views on how incentives issues under the current regulatory framework for metering services can be addressed, including feedback on the above options.

Further details on these options, and the issues raised by stakeholders in relation to the roll out of smart meters, can be found in appendix A of this paper.

QUESTION 4: OPTIONS TO ASSIST IN ALIGNING INCENTIVES

(a) What are the costs and benefits of each option? Is there a particular option which would best align incentives for stakeholders?

(b) Are there other options that you consider would better align incentives?

3.3 The current minimum service specifications enable the required services to be provided

The Commission preliminary position is that the minimum service specification for smart meters should remain the same. The Commission considers that meters that meet the minimum service specification are able to provide the range of services that the consumer and the market require now and into the future. Recommendations made in other areas of focus under this Review are more likely to enable the services identified by stakeholders (see appendix B.1 for further details of those services identified by stakeholders).

The *Competition in Metering* final rule was intended to provide a framework that promotes innovation and investment in smart meters that deliver the services valued by consumers at a price they are willing to pay.

The minimum service specification is intended to balance the trade-off between the cost of the meter and providing an appropriate level of services. This approach means that the capability of the base model meter (i.e. a meter that meets but does not exceed the minimum specification) would be sufficiently high, and the incremental cost of any additional services will be modest when compared to requiring meters to be capable of providing all services.

The Commission considers that the current minimum service specifications are likely in the long-term interest of consumers by delivering service outcomes based on core processes of a relatively lower marginal cost. Although some stakeholders recommended additional services be included in the minimum service specifications, the Commission is of the view that the minimum service specification adequately provides for the accuracy, safety, and security

outcomes to enable those additional services. Rather, achieving those outcomes is dependent on changes to data access, and improved smart meter penetration.

However, the Commission's preliminary position does not mean changes to the existing minimum service specification are not needed. In order to facilitate better and more consistent data access, the description of the minimum services specification may be required. The Commission welcomes feedback to this initial position.

Further details on this recommendation, and the issues raised by stakeholders in relation to the minimum service specifications, can be found in appendix B.1of this paper.

QUESTION 5: THE CURRENT MINIMUM SERVICE SPECIFICATIONS ENABLE THE REQUIRED SERVICES TO BE PROVIDED

(a) Do you agree with the Commission's preliminary position that the minimum service specification and physical requirements of the meter are sufficient? If not, what are the specific changes required?

(b) Are there changes to the minimum service specifications, or elsewhere in Chapter 7 of the NER, required to enable new services and innovation?

(c) What is the most cost-effective way to support electrical safety outcomes, like neutral integrity? Would enabling data access for DNSPs or requiring smart meters to physically provide the service, such as via an alarm within the meter, achieve this?

(d) Do you agree smart meters provide the most efficient means for DNSPs to improve the visibility of their low voltage networks? Why, or why not? What would alternatives for network monitoring be, and would any of these alternatives be more efficient?

(e) Can smart meters be used to provide an effective solution to emerging system issues?

3.4 Enabling appropriate access to data from meters is key to unlocking benefits for consumers and end users

A crucial enabler of smart meters providing more services is the access and exchange of power quality data that they provide. Many of these benefits (and the services required to provide the benefits) require consistent access to smart meter data. The Commission has found the current arrangements for negotiating and utilising data that the meter can provide are inefficient and likely not contributing to the long-term interest of consumers.

The Commission considers that recommendations to facilitate the exchange of power quality data, including voltage, power factor and current, would likely better contribute to the NEO than requiring the additional capabilities in the minimum service specifications. Therefore, the Commission's preliminary recommendation is that options for a power quality data access and exchange framework be developed with stakeholders.

The current operating environment is very different compared to when the Commission made the *Competition in Metering* final rule in 2015. The Commission and stakeholders are keenly

aware of the growing importance that power quality data holds in the energy transition towards a decentralised system and the development of a two-sided market.

In the context of the evolving NEM, the Commission is of the view that developing a data access and exchange framework that addresses the issues with the current arrangements is in consumers' long term interest. The efficient exchange of other energy data such as power quality data is one integral piece in operating a more dynamic system without compromising reliability and safety. The Commission considers that a data access and exchange framework would likely satisfy this Review's assessment criteria by providing certainty to responsible parties, assisting in the provision of more innovative products and services, improving investment decisions via improved data, and providing information to improve system integrity. Improved data will also assist in integrating DER.

QUESTION 6: ENABLING APPROPRIATE ACCESS TO DATA FROM METERS IS KEY TO UNLOCKING BENEFITS FOR CONSUMERS AND END USERS

(a) Do you agree there is a need to develop a framework for power quality data access and exchange? Why or why not?

(b) Besides DNSPs, which other market participants or third parties may reasonably require access to power quality data under an exchange framework? What are the use cases and benefits that access to this data can offer?

(c) Do you have any views on whether the provision of power quality data should be standardised? If so, what should the Commission take into consideration?

(d)Do you consider the current framework is meeting consumers' demand for energy data (billing and non-billing data), and if not, what changes would be required? Is there data that consumers would benefit from accessing that CDR will not enable?

To provide advice on potential options for data access, the Commission engaged NERA Economic Consulting. A number of initial options developed by NERA include:

1. Authorising a centralised organisation to provide all metering data — with high prescription on data exchange.
2. Minimum content requirements to standardise contracts and agreements on data exchange between market participants.
3. Exchange architecture to facilitate a common interface for data exchange, with low obligation but a high incentive to participate.
4. A negotiate-arbitrate framework for utilisation in access disputes.

The above options could be adopted on a stand-alone basis, or as a combination of measures. The Commission will seek stakeholder views on the above options through further discussion with Reference Group members as well as submissions to this paper.

Further, details on this recommendation, and the issues raised by stakeholders in relation to data access, can be found in appendix B.2of this paper.

QUESTION 7: FEEDBACK ON THE INITIAL OPTIONS FOR DATA ACCESS THAT THE COMMISSION HAS PRESENTED

(a) What are the costs and benefits of a centralised organisation providing all metering data? Is there value in exploring this option further? (e.g. high prescription of data management).

(b) What are the costs and benefits of minimum content requirements for contracts and agreements for data access to provide standardisation? Would such an approach address issues of negotiation, consistency, and price of data?

(c) What are the costs and benefits of developing an exchange architecture to minimise one-to-many interfaces and negotiations? Could B2B be utilised to serve this function? Is there value in exploring a new architecture such as an API-based hub and spoke model?

(d) What are the costs and benefits of a negotiate-arbitrate structure to enable data access for metering? Is there value in exploring this option further? (e.g. coverage tests or non-prescriptive pricing principles).

(e) Are there any other specific options or components the Commission should consider?

3.5 A higher penetration of smart meters will enable more services to be provided more efficiently

The Commission considers that achieving a critical mass of meters faster than the current pace of the roll out will likely improve the economies of scale in providing basic services. Such economies of scale would likely allow for the benefits of advanced services to be delivered to consumers — both consumers who choose to take on additional services and those who do not.

Due to improved economies of scale, the benefits realised by consumers from metering services will likely improve as service providers can leverage the lower cost-to-serve. The Commission considers that improved economies of scale for service providers can support the energy transition and decarbonisation of the NEM while facilitating positive consumer outcomes at an NMI and system level. Consumers could likely expect new service models to be provided. These services offer a direct benefit to consumer participation or economising their energy costs and indirect benefits from a more efficient system that will likely benefit the most consumers at a relatively lower cost in the long run.

Further, while basic services could be provided today utilising the capability of smart meters already deployed, DNSPs have demonstrated throughout the engagement with the Commission that delivering these benefits to consumers relies not only on higher penetration, but also on the capture and provision of power quality data. There may be greater efficiency in these core services as smart meter penetration increases in conjunction with consistent data access.

Advanced services, such as dynamic voltage management, depend on higher resolutions of power quality data (such as every 5 minutes). While a high smart meter penetration is likely

required for the optimal consumer benefits to be realised, these use cases can be implemented at lower metering penetrations while still delivering material benefits to consumers. Distribution business stakeholders have demonstrated that these services may also require more explicit data access or a particular geographically significant spread of smart meters before realising consumer benefits.

Further details on this recommendation, and the issues raised by stakeholders in relation to penetration of meters required to better enable benefits, can be found in section 2.3 and appendix B.3 of this paper.

QUESTION 8: A HIGHER PENETRATION OF SMART METERS WILL ENABLE MORE SERVICES TO BE PROVIDED MORE EFFICIENTLY

(a) Are there other potential use cases that third parties can offer at different penetrations of smart meters? What else is required to enable these use cases?

(b) Noting recommendations in incentives and the roll out, are there other considerations for economies of scale in current and emerging service models?

3.6 Amendments to the installation process should be made to improve efficiencies

The smart meter installation process currently has a number of inefficiencies and barriers impacting the successful completion of meter installation attempts. Stakeholders have indicated that these inefficiencies and barriers stem from the regulatory framework, physical site issues, communication and coordination issues and jurisdictional regulations.

The Commission is seeking to make the metering installation processes more efficient, thereby reducing costs and inconvenience for consumers and industry. Therefore, the Commission has made a number of preliminary recommendations to improve the meter installation process. In addition, the Commission is seeking feedback on measures that could be implemented to resolve outstanding issues.

The preliminary recommendations, options and areas for further analysis seek to:

- improve customers' experience by
  - requiring retailers to provide information to consumers prior to a smart meter being installed
  - enabling customers to request a smart meter from their retailer for any reason and requiring retailers to install a smart meter on receipt of such a request
- reduce delays in meter replacement by
  - implementing a practicable replacement timeframe for malfunctioning meters
  - considering whether there are any measures which could address remediation issues preventing the installation of a smart meter
- support more efficient deployment of smart meters by

- reducing the number of notices for retailer-led roll outs to one notice
- considering whether a small customer's ability to opt-out from retailer-led roll outs should be removed
- considering options for improving the efficiency of meter installations in multi-occupancy situations.

The Commission has also provided preliminary comments on a number of other installations issues raised by stakeholders and invites stakeholder feedback on solutions to address these issues.

Further details on these recommendations, and the issues raised by stakeholders in relation to improving the installation of smart meter can be found in appendix C of this paper.

3.6.1 Improving customers' experience

Retailers to be required to provide information to consumers prior to a smart meter being installed

The Commission proposes to introduce a requirement for retailers to provide information to their customers when a smart meter is being installed. This would apply for all installation scenarios and the retailer would be required to provide the customer with an information notice that contains the following information:

- the reason for the meter's installation
- the consumer's rights and responsibilities involving the installation, including in relation to remediation work
- the party the customer should contact for additional information and to resolve issues, as well as dispute resolution options
- any changes to the terms or conditions to the consumer's retail contract, including tariff change as a result of a smart meter being installed
- a summary of the services available to consumers as a result of them obtaining a smart meter.

Some of the above information requirement, such as any impacts on the customer's bill, already exist under the NERR. However, these provisions do not require the information to be provided before a smart meter's installation.

Enabling customers to request a smart meter from the retailer for any reason

The Commission proposes to enable customers to request a smart meter from their retailer for any reason and require retailers to install a smart meter upon such a request by a small customer. This recommendation seeks to address the issue raise by customers and some stakeholders that some retailers have been declining customer requests to install a smart meter.

QUESTION 9: **IMPROVING CUSTOMERS' EXPERIENCE**

(a) Do you have any feedback on the proposal to require retailers to provide information to their customers when a smart meter is being installed? Is the proposed information adequate, or should any changes be made?

(b) Should an independent party provide information on smart meters for customers? If so, how should this be implemented?

(c) Should retailers be required to install a smart meter when requested by a customer, for any reason? Are there any unintended consequences which may arise from such an approach?

3.6.2 Reducing delays in meter replacement

Implementing a practicable replacement timeframe for malfunctioning meters

In order to improve the process for the replacement of malfunctioning meters, the Commission proposes to make the following changes to the NER:

- Creating two categories of malfunctions for small customer metering installations, each with different rectification timeframes:
  - **Individually identified malfunctions**. The MC must repair or replace meters that have been individually identified as malfunctioning as soon as practicable, but no later than 15 business days from when it has been notified. This category would cover situations such as:
    - A meter reader reporting that a meter that has been physically damaged or the display could no longer be read
    - A metering technician investigating an issue raised by the consumer, retailer (or any party) discovers that components of a smart meter such as the communication module needs to be replaced
  - **Malfunctions identified through statistical testing (family failures).** The MC must repair or replace meters that have been deemed to be malfunctioning through sample testings as soon as practicable, but no later than 60 business days from when it has been notified. This category would cover malfunctions generally known as family failures within the industry
- Exceptions would be provided to the timeframes where the MC is not able to repair or exchange the meter due to issues at the premises where the site is unsafe or there are access issues. The exceptions would be similar to those in clause 7.8.10B(b)(2) and 7.8.10B(b)(3) of the NER. The timeframe requirement would recommence once the site issues have been resolved
- MCs would no longer be able to apply to AEMO for an exemption from the timeframe requirement.

Seeking further feedback on measures to address issues at the customer's premises that

prevent the successful installation of a smart meter

The Commission seeks further feedback on mechanisms to improve remediation issues. Remediation issues arise when the customer's metering panel or wiring is not up to code, or has insufficient space for the smart meter. This is usually discovered when the MP attempts to install a smart meter and finds degradation to the metering panel or wiring, asbestos in the panel or that the panel is too small.

The remediation work is the customer's responsibility and may be a significant cost. The customer may not have the capacity to pay for this remediation work and there is no way for the installation to proceed until the remediation work is completed.

There does not appear to be a clear or straightforward way to address this issue. The Commission will continue to discuss options for addressing these remediation issues with state jurisdictions and stakeholders.

QUESTION 10: REDUCING DELAYS IN METER REPLACEMENT

(a) Do you have any feedback on the proposed changes to the meter malfunction process?

(b) Are there any practicable mechanisms to address remediation issues that can prevent a smart meter from being installed?

3.6.3 Measures that could support more efficient deployment of smart meters

Retailers only need to provide one notice to customer for retailer-led roll outs

The Commission proposes reducing the number of written notices that a retailer is required to send to a consumer from two to one. Under this recommendation, a single notice should be provided to the customer at least 15 business days before the proposed installation date.

The Commission considers that this change would likely improve the efficiency of customer-led roll outs, and the replacement of malfunctioning meters by enabling retailers to replace meters in the same geographic area under a retailer-led roll out at the same time as the other meter installations. This would improve installation efficiencies, particularly in regional or remote areas.

Seeking feedback on whether a small customer's ability to opt-out from retailer-led roll outs should be removed

The Commission considers that there is merit in considering whether the opt-out provisions for small customers for retailer-led roll outs should be removed. This may assist in accelerating the roll out of smart meters, and in improving efficiencies.

The Commission understands that this was introduced as a consumer protection mechanism, albeit prior to consumers being able to request smart meter communications be switched off. Further, it is understood that the majority of customers are on market agreements under which their rights to opt-out of receiving a smart meter have likely been waived. The

Commission is therefore interested in stakeholder views on whether the opt-out provision should be retained.

Seeking further feedback on options for improving the efficiency of meter installations in multi-occupancy situations

The Commission invites stakeholder feedback on ways to improve the efficiency of meter replacement in multi-occupancy situations, as well whether an on-in-all-in approach should be considered.

Meter replacement in multi-occupancy situations is complex with multiple consumers, retailers and metering coordinators involved. It is particularly complex in large apartment buildings where multiple customers' meters are sharing a meter panel. That meter panel may need to be replaced to enable all meters to be replaced with smart meters.

In addition, in these scenarios there is often shared fusing, supply is interrupted to multiple customers when one customer's meter is replaced.

One option which has been raised in discussions with stakeholders is a one-in-all-in option, whereby if one meter sharing a fuse or metering panel needs to be replaced by a smart meter, all other meters attached to that shared fuse or on that meter panel would be replaced with smart meters as well.

QUESTION 11: MEASURES THAT COULD SUPPORT MORE EFFICIENT DEPLOYMENT OF SMART METERS

(a) Do you have any feedback on the proposal to reduce the number of notices for retailer-led roll outs to one?

(b) What are your views on the opt-out provision for retailer-led roll outs? Should the opt-out provision be removed or retained, and why?

(c) Are there solutions which you consider will help to simplify and improve meter replacement in multi-occupancy premises? Should a one-in-all-in approach be considered further?

3.6.4 Preliminary comments on other installation issues

Throughout this review, a number of other issues have been raised relating to meter installation which the Commission considers require further consideration. These include:

1. The process for replacing meters following a natural disaster
2. Changes to testing and inspection processes
3. Issues outside of the Commission's remit to address.
4. The provision of industry keys to metering parties to enable MPs to access meters
5. What PINs are required for installation situations involving retailers, DNSPs and customer electricians.

The Commission welcomes stakeholder feedback on these and any other installation issues which have not been identified in this paper.

> QUESTION 12: FEEDBACK ON OTHER INSTALLATION ISSUES
>
> (a) Do you have feedback on any of the other installation issues raised by stakeholders? Are there any other installation issues the Commission should also consider?

3.7 Improvements to roles and responsibilities may be required

Stakeholders have indicated that the roles and responsibilities, including the number of parties involved, under the current framework is complex — often to the detriment of the consumer's experience. Roles and responsibilities may require re-alignment to improve the consumer experience, and the effectiveness of the metering roll out.

Metering parties, retailers and DNSPs indicated that they find it hard to coordinate meter installation, as well as come to commercial arrangements in relation to the provision of services and data. Further, consumer groups, ombudsmen and market bodies considered there is confusion in relation to roles and responsibilities in some processes. They consider coordination is challenging and there is sometimes low accountability for consumer recourse or it is unclear who the customer needs to contact to progress an issue.

One change to roles and responsibilities suggested by a number of stakeholders was in relation to DNSPs being able to provide Metering Provider (MP) services in certain situations, for example, on request of the MC in remote or rural regions. Another suggestion was that the number of metering roles under the current framework could be reduced, for example, by combining the MC and MP role.

Other stakeholder suggestions which are not incorporated into other areas of the Paper included:

- transferring metering responsibilities back to DNSPs
- clear allocation of responsibility for meter installation to the retailer, and that responsibility is not split between the retailer and MC
- development of a national Accredited Service Provider (ASP) scheme to allow electrical contractors to perform meter installation and maintenance
- allowing MPs to operate network isolation points upstream of the meter installation
- retailers be allowed to interrupt supply to other retailer's customers.

The Commission welcomes feedback on the suggestions provided by stakeholders in relation to roles and responsibilities (see section 3.7). Further, the Commission welcomes feedback on any changes to roles and responsibilities stakeholders consider would meet the objectives of the review, and the assessment criteria.

In addition, the Commission intends to explore these issues more fully with the Sub-Reference Group prior to the draft report being published.

Further details on the issues raised by stakeholders in relation to roles and responsibilities, can be found in appendix A.3 of this paper.

QUESTION 13: IMPROVEMENTS TO ROLES AND RESPONSIBILITIES

(a) Are there any changes to roles and responsibilities that the Commission should consider under this review? If so, what are those changes, and what would be the benefit of those changes?

ABBREVIATIONS

ACOSS	Australian Council of Social Service
ACTCOSS	ACT Council of Social Service
AEC	Australian Energy Council
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
API	Application programming interface
ASP	Accredited service provider
B2B	Business to business
Commission	See AEMC
CDR	Consumer data right
DCC	Data Communications Company
DEIP	Distributed Energy Integration Program
DER	Distributed energy resources
DMO	Default market offer
DNSP	Distribution network service provider
ECA	Energy Consumers Australia
ENA	Energy Networks Australia
ESB	Energy Security Board
EWON	Energy and Water Ombudsman of New South Wales
EWOSA	Energy and Water Ombudsman of South Australia
FCAS	Frequency control ancillary services
FRMP	Financially responsible market participant
IEC	Information Exchange Committee
IoT	Internet of things
IPART	Independent Planning and Regulatory Tribunal
LV	Low voltage
MC	Metering coordinator
MDP	Metering data provider
MP	Metering provider
MSATS	Market settlement and transfer solutions
MCE	Ministerial Council on Energy
NEL	National Electricity Law
NEM	National electricity market
NEO	National electricity objective
NER	National Electricity Rules
NERL	National Energy Retail Law

NERO	National energy retail objective
NERR	National energy retail rules
NMI	National meter identifier
NSW	New South Wales
PIAC	Public Interest Advocacy Centre
PIN	Planned interruption notice
PV	Photovoltaic
QCA	Queensland Competition Authority
QCOSS	Queensland Council of Social Service
SACOSS	South Australian Council of Social Service
SAPN	SA Power Networks
SCADA	Supervisory control and data acquisition
TasCOSS	Tasmanian Council of Social Service
TOR	Terms of Reference
ToU	Time of use
UFLS	Under-frequency load shedding
VDO	Victorian default offer
VPP	Virtual power plant

A ENABLING THE EFFICIENT ROLL OUT OF SMART METERS

This appendix sets out the options which can be considered to improve the efficiency of the roll out of smart meters. It also discusses potential options that could better incentivise a faster roll out of smart meters.

The current arrangements for smart meter deployment are leading to a sub-optimal outcome — both for consumers individually and the market as a whole. Meters are generally replaced one-by-one with meter providers often having to travel significant distances within one day to install meters. These costs are exacerbated in regional areas where installers may have to travel long distances to visit a site.

A more coordinated approach would enable a greater roll out of smart meters at a location at a point in time. This would achieve greater efficiencies in installation such as a reduction in travelling or 'call out' costs, reducing the per meter costs of installation. These savings would initially be shared by the meter provider and retailer and will ultimately benefit consumers through an overall lower cost in the system.

The benefits of smart meters also accrue to different parties within the electricity supply chain. For consumers, the benefit to them individually is often not sufficient for them to proactively request a smart meter. The roll out of smart meters are likely to remain slow unless the benefits to other parties within the supply chain can be recognised or captured. Measures that could lead to a faster and better coordinated roll out of smart meters would allow these benefits to be realised sooner and is in the long-term interests of consumers.

Finally, stakeholders have expressed concerns that the current structure is complex, with some uncertainties around roles and responsibilities and issues with communication and coordination impacting transparency and predictability. The Commission considers that the overarching policy for the roll out of smart meters, addressing incentives and improving access to data needs to be considered prior to determining whether any changes to roles and responsibilities are needed. Nevertheless, the Commission would welcome feedback on issues relating to roles and responsibilities which have been raised in submissions to the consultation paper and throughout ongoing consultation for consideration as the review progresses.

A.1 Options to reach a critical mass of smart meters in a timely manner

Chapter 2 of this Directions Paper discussed that a high penetration of smart meters (as well as efficient data access) is needed in order for benefits to be realised. However, the current roll out of smart meters is not proceeding at a pace that would enable a critical mass of smart meters to be reached in a timely manner. If the current rate of installation continues, it will take at least another four to five years before a 50 percent penetration is achieved. In addition to the slow pace, the current roll-out is also occurring in a piecemeal fashion, which is not efficient.

The Commission considers that issues relating to incentives and the current installation processes need to be addressed at a minimum to improve the efficiency and speed of the roll out. However, it is likely that a timely and efficient roll out will not be achieved by addressing these issues alone and additional measures may be required. Some of the potential options include:

- improving incentives to rolling out smart meters by removing inefficiencies in installation processes, improving cost sharing, and aligning incentives
- requiring meters to be replaced once they have reached a certain age, for example 30 years, under an aged-replacement roll out
- setting targets for the roll out under which a retailer (or the responsible party) will be required to replace a certain percentage of their customers' meters with smart meters each year
- introducing a 'backstop' date or dates by which time all accumulation meters or manually read interval meters must be replaced, for example 90% of meters required to be smart meters by 2030.

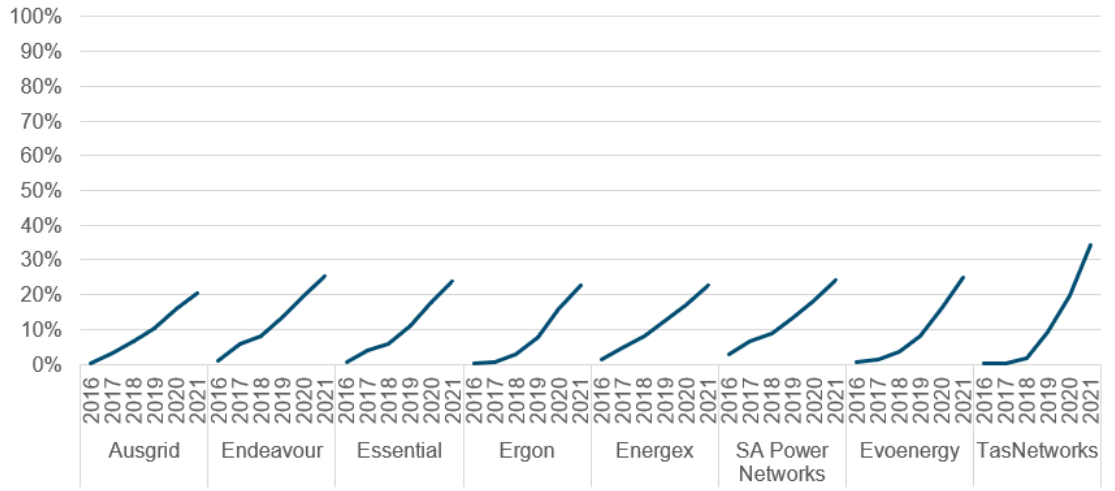
The Commission is interested in stakeholder feedback on the above potential measures that could accelerate the roll out, including the merits, costs and benefits of each approach, and the impacts on the cost profile of smart meters. The Commission also welcomes stakeholder suggestions on other measures that could help accelerate the roll out (see section 3.1).

A.1.1 Current penetration of smart meters

As discussed in chapter 2 and appendix B.3, many of the benefits of smart meters can only be fully realised when a higher penetration of smart meters is achieved. There is a case for considering options for a faster roll out of smart meters to unlock these consumer benefits sooner than under the current arrangements.

While the pace of smart meter uptake has increased in recent years, overall penetration of smart meters remains low. Figure A.1 shows the percentage of small customers with smart meters by DNSPs. The penetration of smart meters varies from around 21 per cent in the Ausgrid area to around 34 per cent in the TasNetworks area. At the current overall rate of increase of around 6 percentage points per year, it would take around 13 years to completely replace the meter population with smart meters.

Figure A.1: Smart meter penetration among small customers



Source: AEMC analysis of AEMO MSATS data.

Note: This chart shows the penetration of smart meters among small customers (residential and small business) as at 30 June of each year.

A.1.2 Issues with current arrangements

There roll out of smart meters has been slower than anticipated by most stakeholders. Since the publication of the Review's consultation paper, the Commission has worked closely with a broad range of stakeholders to analyse the issues with the current arrangements. Stakeholders have broadly indicated that:

- more smart meters need to be rolled out to maximise the benefits they can provide
- underlying issues such as incentives and access to data need to be addressed
- an accelerated roll out of smart meters should drive increased efficiencies
- there are equity concerns in relation to the current roll out.

The roll out has not met the expectations of many stakeholders

Many stakeholders indicated that the roll out of smart meters had not met their expectations, and had been slower than was anticipated.[53] Vector expressed the view that at the current rate of replacement, the remaining 5.8 million legacy meters will not be replaced until at least 2040. In its view, this will not meet the policy objectives of the reform.[54]

53 Submissions to the consultation paper: EWON, p. 2; Ausgrid, p. 4; Endeavour Energy, p. 2; Essential Energy, p. 3; SAPN, p. 5; ReAmped, p. 2; Vector, p.1; PLUS ES, p. 4; Intellihub, p. 14; Secure Meters, p. 2; Ladis + Gyr, p. 2; EDMI, p. 2; CEC, p. 1; VRT Systems, p. 4; Gridsight, p. 3.

54 Vector, submission to the consultation paper, p. 5.

Conversely, some retailers indicated the roll out was in line with their expectations, with the roll out based on consumers' willingness to obtain a smart meter.[55]

PIAC considered that the metering framework is not fit for purpose and was not leading to positive outcomes. However, it indicated that the roll out was in line with its expectations given the framework.[56] Aurora Energy expressed the view that the roll out was commensurate with the incentives for customers and retailers. Aurora considered that economies of scale have been impacted and that there are barriers to the roll out, and given this the roll out is in line with its expectations.[57]

Several stakeholders were of the view that the roll out should be accelerated, with options for improving the speed explored.[58] For example, ReAmped considered that:[59]

> The appropriate pace should be as fast as a coordinated rollout of smart meters can be. A number of supply chain and logistics issues would need to be resolved for this to occur, however with increased scale should come reduced costs, greater learnings in how to resolve installation issues and ultimately improved customer outcomes.

From a different perspective, ACOSS et al expressed concerns with the roll out in relation to equity. ACOSS et al considered that the current model for roll out is not equitable and it is likely that those that rent and people with low incomes will be some of the last to access smart metering.[60]

Underlying issues also need to be addressed if the roll out was to be accelerated

Stakeholders such as Solar Analytics and Energy Queensland considered that issues such as incentives, resource constraints and access to data need to be addressed before an increased roll out should be considered.[61]

Newgate's research suggests that consumers may not be opposed to a stronger roll out

Newgate's research shows that participants felt positive or neutral about having a smart meter installed at their property, but they were unlikely to proactively request installation due to uncertainty about installation costs and the likely impact of a transition to time of use pricing. [62] Further, Newgate's research also showed that there was minimal difference in sentiment towards smart meters from consumers with them in Victoria following a strong roll out and in the rest of the NEM under the current roll out.[63]

55 Submissions to the consultation paper: Energy Queensland, p. 11; EnergyAustralia, p. 2; Enova, p. 2; Auora, p. 4; Alinta, p. 1.
56 PIAC, submission to the consultation paper, p. 10.
57 Aurora, submission to the consultation paper, p. 2.
58 Submissions to the consultation paper: Intellihub, p. 11; Landis + Gyr, p. 2; CEC, p. 1; Vector, p. 5; ReAmped, p. 2.
59 ReAmped, submission to the consultation paper, p. 2.
60 ACOSS et al, submission to the consultation paper, p. 11.
61 Submissions to the consultation paper: Solar Analytics, p. 3; Energy Queensland, p. 12.
62 Newgate Research, *AEMC Metering Review*, Full research report, August 2021, p. 8.
63 Newgate Research, *AEMC Metering Review*, Full research report, August 2021, p. 31.

Suggestions for accelerating the roll out

Improvements to accelerate the roll out were suggested by some stakeholders. These included:[64]

- a universal scaled roll out with a timeline
- an age-based replacement program
- an end date or target date for the roll out
- a retail-led roll out target for a certain penetration of meters by a certain date
- a coordinated roll our across areas with high DER or emerging network constraints
- expediting the roll out to certain groups or areas such a life support customers or bushfire prone areas
- government funding to assist roll out meters where there is sight remediation issues.

Red and Lumo considered that the barriers to retailers carrying out proactive smart meter installations should be addressed, rather than any mandated roll out of smart meters. It suggests the Commission to review the onus placed on retailers by the Rules, in particular for installations involving premises with shared fusing, as well as education on all aspects of smart meter roll out.[65]

A.1.3 Options for accelerating the roll out

As noted in the consultation paper, the roll out of smart meters in the NEM has been largely driven by consumers requesting new meters, often as a result of installing solar PV systems, or by new connections. Roll outs initiated by retailers have been minimal in most jurisdictions, with incentives for the roll out being split and regulatory framework leading to a piecemeal approach to meter installation.

The Commission considers that more prescriptive levers, such as those raised by stakeholders should be explored. Four possible options are discussed below. Retailers would remain the market participant responsible for metering services for these options. The Commission does not consider there is a need to transfer this responsibility to another party.

Improving incentives to rolling out smart meters

Retail-led roll outs remain the smallest proportion of new meter installations. Measures that enable other parties to contribute to meter installation or ongoing costs could increase retailers' incentives to proactively roll out smart meters. Improving the efficiencies in meter installation is also an important component to incentivise the roll out. This includes improvements to both the retailer-led and meter malfunctions process, and improving communication and coordination.

Ways to incentivise the roll out are discussed in more detail in appendix A.2, whilst changes to improve the efficiency of meter installation are discussed further in appendix C.

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64 Submissions to the consultation paper: ACOSS et al, p. 17; EWON, p. 7; PIAC, p. 12; Endeavour Energy, p. 2; ENA, p. 8; Essential Energy, pp. 4-6; Simply Energy, p. 8; Vector, p. 20. PLUS ES, p. 5; Intellihub, pp. 14, 21; Secure Meters, pp. 2-3; SA Department for Energy and Mining, p. 2.

65 Red and Lumo submission to the consultation paper, p. 4.

Age trigger for meter replacements

This approach sees current meters being replaced once they reach a specified age (for example, 30 years). To take advantage of efficiencies in installing meters at scale this trigger may also need to include a geographic dimension. For example, the trigger may be activated once the concentration of meters over the specified age reaches a threshold then all of those meters are replaced.

An advantage of this approach is that it provides a degree of forward certainty and potentially allows metering parties to develop an efficient and sustainable meter replacement plan. Where meters are replaced at the end of their useful lives, there would be no longer be a need for DNSPs to recover residual capital cost from customers.

Under this approach, the need for testing and inspection of legacy meters could be reduced. If aged meters are to be replaced on a regular basis, the case for ongoing testing and inspection of these meters is lessened. Any meters which have been physically identified as malfunctioning would still be replaced under the existing malfunction meter replacement process.

A number of other considerations or supporting measures may also need to be taken into consideration for this approach:

- DNSP responsibility. There may need to be a requirement under the rules for DNSPs to provide information on the age profile of the legacy meters managed and owned by them. This information may not be readily available.
- Number of meters replaced vs timeframe allowance. A timeframe would need to be placed on retailers and metering parties to replace each tranche of meters identified for replacement. The timeframe would need to balance the speed of replacement and issues such as safety and availability of the meter installation workforce.
- Coordination between market participants. Some of the aged meters to be replaced may be situated in multiple occupancy premises. There would need to be coordination between retailers and metering parties — an already existing issue — would still need to be resolved.
- On-site remediation. It is likely that metering parties will encounter issues such as metering boards containing asbestos or the metering board needing replacement because they have degraded or are too small.

Installation quota

Under an installation quota retailers would be required to install smart meters for a specified percentage of their customers in each distribution area by specified dates. This could be a cost-effective way to boost the speed of the roll out as retailers may be able to identify the low cost meter replacements among their customer base and replace these meters.

A disadvantage of this approach is that it may not achieve the same efficiencies that could be achieved through a geographic based roll out as retailers (with potentially different meter providers) have customers that are dispersed throughout different locations. In addition, retailers may cherrypick customers and the roll out may not be carried out equitably.

A further consideration is that customers churn and change retailers. If a specific target is placed on retailers each year, how customer churn can be accounted for under the target is an important consideration.

A backstop date

The introduction of a backstop date would provide a hard end date by when all, or a high percentage of, legacy meters would need to be replaced. For example, a requirement could be that 90 percent of meters in the NEM must be smart meters by 2030. This approach would enable retailers to determine the most cost effective way to replace meters within the timeframe, whilst providing certainty to industry.

As for installation quotas, this approach may not lead to an equitable roll out initially, with retailers able to pick and choose which meters to replace. However, it would provide retailers with flexibility and enable them to determine the most cost-effective manner in which to roll out smart meters.

The Commission welcomes stakeholders feedback on these options, as well as other options stakeholders consider may be appropriate in rolling out smart meters in a timely, cost effective, safe and equitable way (see section 3.1).

A.2 Options to address incentives issues

As detailed in chapter 2, an issue which is impacting the roll out of smart meters is a lack of, or split, incentives.

Stakeholders have indicated that the combination of a vertically-separated industry structure and the regulatory setting means that the benefits of a widespread penetration of smart meters are divided between a number of parties, but the responsibility for the roll out is vested in only one market participant category, namely the retailers. The Commission understands that retailers find little incentive to proactively deploy meters. While DNSPs would benefit from greater penetrations of smart meters, they currently bear none of the costs or logistic and administrative burden.

Whilst commercial incentives were intended lead to the development of smart meter services that would benefit consumers, these incentives have not eventuated as expected. Consequently, positive consumer outcomes and choice are being stymied under the current framework.

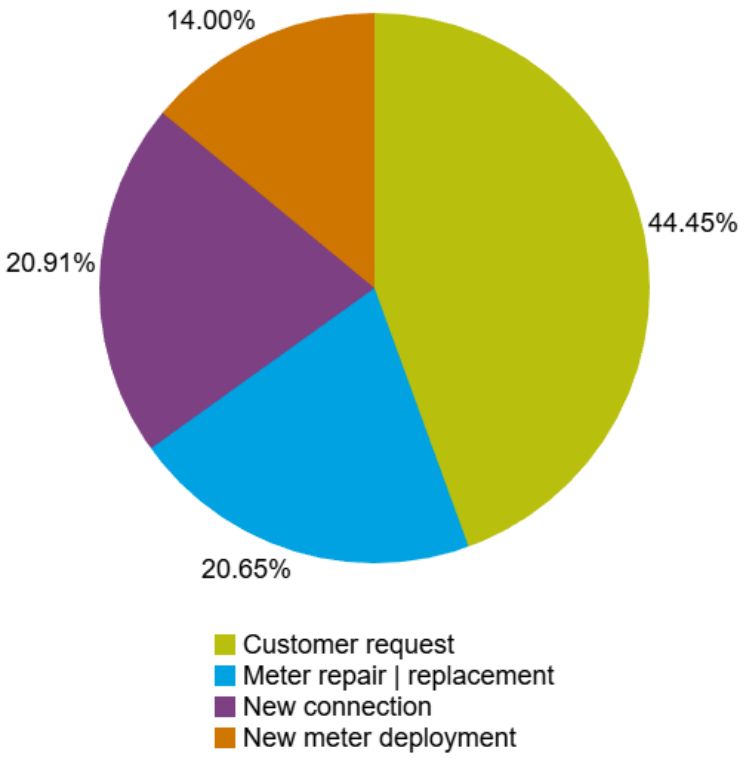
Therefore, the Commission is considering what options may be appropriate to address the incentives issues, and improve the efficiency of the roll out of smart meters, so that a critical mass can be reached in a timely and cost effective manner.

A.2.1 Consumers are driving the biggest proportion of smart meter installations

When considering the roll out of smart meters, it is also important to understand the current drivers for smart meter uptake. Data from the AER's retail energy market performance update for quarter 3, 2020-2021 shows that consumer requests were the key driver of meter installations, making up over a third of meter installations. This was followed by new

connection (also consumer driven) and then meter replacement. New meter deployments, also known as retailer-led roll outs were the smallest proportion. Figure A.2 below provides a breakdown.

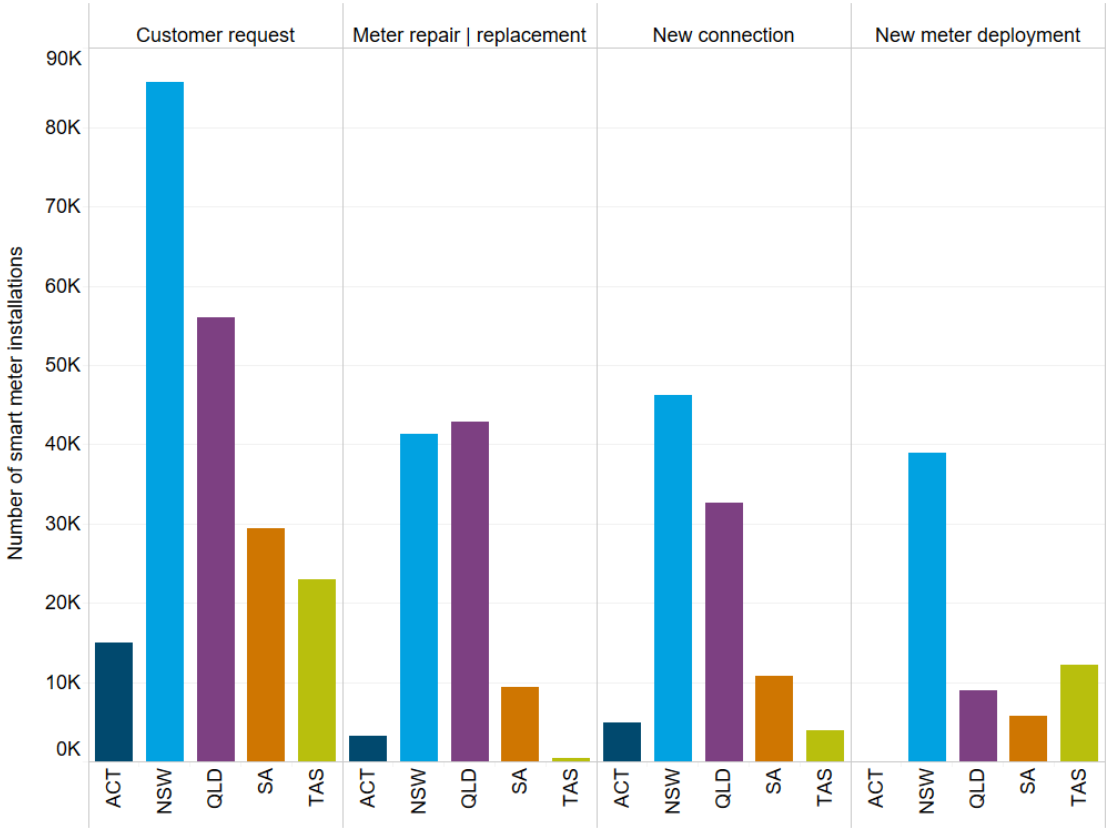
Figure A.2: Reasons for meter replacement overall (April 2020 - March 2021)



Source: AER Retail Performance Statistics Q3 2020-21

While there are some jurisdictional differences in the reasons for new meter installations, Figure A.3 below shows that the number of smart meters deployed under retailer-led roll out by both retailers and meter replacements are generally low compared to customer-initiated requests. Tasmania is the only jurisdiction where retailer-led roll out exceeds meter replacements and new connections. In all the other jurisdictions this remains the smallest category.

Figure A.3: Reasons for meter replacement by jurisdiction (April 2020 - March 2021)



Source: AER Retail Performance Statistics Q3 2020-21

A.2.2 Issues with current arrangements

As noted in chapter 2, stakeholders raised issues in relation to lack of, or misalignment of, incentives and expressed a view that the costs of smart meters does not currently cover the benefits that can be provided to retailers alone. Therefore, retailers have little incentive to roll out smart meters.

Some stakeholders have also suggested that that consumers have little incentive to obtain a smart meter.[66] It was raised in consultation with stakeholders that customers do not seek the smart meter itself, but obtain a smart meter as a result of installing a rooftop solar system or to participate in trials or programs where a smart meter is a prerequisite (such as VPPs). Further, Newgate's research indicated that uncertainty around costs and time-of-use tariffs is reducing consumers incentives to seek a smart meter.[67]

66 Submissions to the consultation paper: EWON, p. 3; PIAC, p. 15.

Issues relating to incentives that were raised in submissions included:[68]

- There are split incentives inherent in the market structure:
  - parties who benefit, or could benefit, from smart meters do not currently share the costs
  - parties who have the responsibility to roll out smart meters do not have direct control over the roll out.
- Cost recovery mechanisms may inhibit the roll out of smart meters and the realisation of new services. For example, whether metering costs can be recovered via the default market offer.
- The current low penetration of smart meters inhibit the realisation of benefits.
- Access to metering data, such as power quality data is complex, with confusion relating to accountability and access rights.
- Installation issues including regulatory barriers relating to the retailer roll out, shared fusing, access difficulties and site remediation issues.
- There are constraints on the provision of services such as remote disconnection and reconnection.
- There are incentives for DNSPs to utilise capital expenditure over operating expenditure.
- There are consumers concerns in relation to site remediation costs and different tariff structures triggered by smart meter installation.

In contrast to those submissions indicating there were issues with incentives, Aurora, Alinta and the AEC considered current incentives to be appropriate and viewed benefits and use cases for smart meters as increasing over time.[69]

BOX 1: THE DEFAULT MARKET OFFER DOES NOT CURRENTLY INCLUDE AN ALLOWANCE FOR METERING COSTS

Some retailer submissions noted that the current level of the default market offer (DMO) does not include an allowance for meter costs. The Commission notes that while this is true for the current level of the DMO, the AER initially set the DMO with 'headroom' and also conducts an annual consultative process for the default market offer which allows retailers to provide evidence for increased costs.

In 2019 the AER introduced the DMO which limits the price retailers can charge standing offer customers in regions without regulated pricing.

The DMO uses a top-down methodology which was initially set for 2019-20 at the midpoint between the median market offer and the median standing offer based on generally available

67 Newgate, *AEMC Metering Review*, final research report, p. 8.

68 Submissions to the consultation paper: PIAC, p. 11; Energy Queensland, p, 11; AMS p. 7; Ausgrid, p. 7; Bright Spark, pp. 5, 8; ENA, p. 12; Endeavour, p. 3; EnergyAustralia, p.2; Origin, p.2; Intellihub, pp. 17, 19; Origin, pp. 4, 8; PlusES, pp. 18, 21; ReAmped, p. 3; Vector, pp. 8-10, 21; AER, p. 3; AEC, pp. 6-7; EDMI, p. 3.

69 Submissions to the consultation paper: Alinta, p. 3; Aurora, pp. 3-4; AEC, p. 4.

offers in October 2018. The key reason for the level of the DMO is as a fall-back for small customers who were not engaged in the market. In their final determination for the 2019-20 DMO (DMO 1) the AER notes that:

"In a period where energy markets are undergoing significant technology and service transformation, we have been mindful of setting DMO prices in a manner that does not constrain innovation and the potential benefits of this to customers."

This is in contrast to the Victorian Default Offer (VDO) which uses the traditional bottom-up cost stack approach where each bill component is estimated to derive an efficient bill.

For DMO 2 which applied for 2020-21, the AER adopted an indexation approach whereby the DMO 1 was indexed by changes in wholesale energy, network and environmental costs and increasing the residual (retailer) component by CPI. For the DMO 3 (2021-22), the AER decided to keep the pricing methodology largely unchanged from the indexing approach adopted for the DMO 2.

In their final determination for DMO 3, the AER decided not to include an extra allowance for metering costs, citing the low penetration of advanced meters and a lack of retailer information that would allow the AER to assess the cost of serving customers with advanced meters.

The AER's annual DMO consultative process should be able to take into account an increase in retailer costs due to a more rapid advanced meter roll out provided retailers can provide evidence of these increased costs to the AER.

Source: AER, Final Determination, Default Market Offer Prices 2019-20, p. 7. Available at: https://www.aer.gov.au/system/files/AER%20Final%20Determination%20-%20Default%20Market%20Offer%20Prices%20-%20April%202019.pdf; Essential Services Commission, Victorian Default Offer to apply from 1 July 2019, p. 19. Available at: https://www.energy.vic.gov.au/__data/assets/pdf_file/0031/420997/Final-Advice-Victorian-Default-Offer-to-apply-from-1-July-2019.pdf; AER, Final Determination, Default Market Offer Prices 2021-22, p. 22. Available at: https://www.aer.gov.au/system/files/AER%20-%20Default%20Market%20Offer%20-%20Price%20determination%202021-22%20Final%20Determination%20-%2027%20April%202021.pdf; AER, Final Determination, Default Market Offer Prices 2021-22, p. 42.

A.2.3 Options for improving incentives should be explored

Currently metering coordinators own the smart meter and (generally) fund the installation and ongoing operation of the meters. This cost is recovered via ongoing charges to the retailer. The Commission understands that currently this cost generally outweighs the benefits that retailers gain, and is not shared by other industry participants. However, as indicated in the earlier discussion about benefits that smart meters can provide, the benefits from smart meters for consumers and market participants as a whole would outweigh the costs of smart meters.

The Commission considers the issue of split incentives is a key barrier to a high penetration of smart meters. Mechanisms that allow reallocation of costs as well as reducing the barriers to other parties accessing the benefits may assist in incentivising a higher roll out of smart meters.

The Commission is interested in stakeholder views on how to address the incentives issues in the current regulatory framework for metering services. Some potential options include the development of additional revenue streams from smart meters to offset the costs that retailers are paying, spreading the cost of installation across the parties who benefit and allowing multiple parties to be responsible for metering. Retailers would retain responsibility for metering under the first two approaches. The Commissions preliminary analysis on these options is provided below.

Development of additional revenue streams from smart meters

Under this option, retailers remain responsible for the provision of metering services. The framework would enable the development of additional revenue streams to offset the cost of meter installation. This would likely include data access and payment, for example, for the provision of power quality data to DNSPs. A tiered user-pays approach could apply to provide revenue from the provision of these services.

An advantage of this approach is that it can operate within the existing market structure and enables greater utilisation of the capabilities that smart meters can provide. This approach may lead to DNSPs contributing additional funds on top of those for the provision of data if the DNSP see advantages in a higher penetration of smart meters across its network, or in specific areas for greater visibility.

However, there are issues with such an approach, the key being cost recovery and allocation. Metering parties would be responsible for the provision of data from the smart meters to the DNSP (and/or other parties as appropriate) and would therefore likely receive any revenue for the provision of this additional service. In providing this additional data, metering parties would likely incur system and development costs. However, to incentivise retailers to roll out smart meters, profits would need to be shared with retailers to reduce the costs they are paying for the installation and ongoing operation of the smart meter. It is unclear if the metering parties would be incentivised to pass on savings to the retailers.

Spreading the costs of installation

This option also sees the retailer remains responsible for the provision of metering services. Parties who derive benefits from higher penetration contribute to part of the ongoing cost of the meter. This could mean some form of regulated pricing or cost sharing.

This approach would provide certainty of costs for retailers and other parties that derive benefits from metering. It could enable meters to be rolled out in a more efficient way, and provider earlier realisation of whole of system benefits such as better visibility of the LV network.

However, cost recovery and allocation is again an issue under this option. The Commission understands that the cost of installation is usually bundled into an ongoing annualised payment with operating costs. One of the factors to consider would be how the cost and payment are allocated, especially in situations when the customer switches between retailers. For example, if the DNSP shares the installation cost upfront with the retailer, and the

customer subsequently switches to a new retailer, would the bundle price of the metering services charged by the metering coordinator remain the same?

Multiple parties responsible for metering

Under this option, multiple parties could be responsible for metering services. If a party could derive significant benefits from smart meters being installed, they could bear the cost and responsibility for the roll out. This option could see retailers (or traders in the future), DNSPs and potentially other parties having the responsibility for metering.

A disadvantage of this option is that it is complex to implement and could potentially lead to a less equitable outcome for consumers. Market participants could cherry pick which customers to roll meters out to. Given multiple parties would be responsible for metering services, this model is also likely to require some form of access arrangement to ensure the party responsible for metering services do not prevent other participants from accessing the services that a meter could provide. More consideration is required into how multiple parties taking responsibility for metering could work in practice.

The Commission welcomes stakeholder views on how incentives issues under the current regulatory framework for metering services can be addressed.

A.3 Aligning roles and responsibilities

A.3.1 Complexities and inefficiencies in roles and responsibilities were raised as issues

Stakeholders have indicated that the roles and responsibilities, including the number of parties involved, under the current framework is complex — often to the detriment of the consumer experience. Roles and responsibilities may require re-alignment to improve the consumer experience, and the effectiveness of the metering roll out.

Metering parties, retailers and DNSPs indicated that they find it hard to coordinate meter installation, as well as come to commercial arrangements in relation to the provision of services and data. For example, coordination on-site when meters being installed, improved communication of installation issues, and clarification in relation to data access and rights were raised as issues.

Consumer groups, ombudsmen and market bodies considered there is confusion in relation to roles and responsibilities in some processes. They consider coordination is challenging and there is sometimes low accountability for consumer recourse. Further, it is sometimes unclear who the consumer needs to contact to progress issues.[70]

This complexity may impinge on innovation, the efficient delivery of services, reaching a critical mass of smart meters and driving best outcomes for consumers. Gridsight, in its submission to the consultation paper expressed the view that the current structure makes it unnecessarily difficult to provide analytical expertise to market participants.[71]

70 Submissions to the consultation paper: EWOQ, p. 2; IPART, p. 2; EWON, pp. 5,7; ACOSS et al, p. 16; Vector, p. 13; Powermetric, p. 4; AGL, p. 2; SAPN, p. 6; Endeavour Energy, p. 2; TasNetworks, p. 1; Horizon Power, p. 4; EDMI, p. 5; EWOQ, p. 7; PLUS ES, p. 13; ReAmped, p. 4.

71 Gridsight, submission to the consultation paper, p. 6.

Nevertheless, the relative infancy of the new structure and framework was raised in a number of submissions, with those stakeholders considering that material changes to roles and responsibilities would not be likely to provide material benefits at that stage.[72]

Some of these issues are considered elsewhere in this review. Cooperation and coordination in relation to current meter installation processes are discussed in appendix C. Accountability and rights in relation to data and improving access is discussed in appendix B.2.

The Commission intends to explore these issues more fully with the Sub-Reference Group prior to the draft report being published.

A.3.2 The Commission welcomes feedback on suggestions raised

There were a few changes to roles and responsibilities which were suggested by stakeholders. The Commission has not explored these suggestions further at this stage, but includes these suggestions for feedback.

One change to roles and responsibilities suggested by a number of stakeholders was in relation to DNSPs being able to provide MP services in certain situations. SA Power Networks (SAPN) expressed the view that DNSPs should be able to provide MP services to MCs, on the request of the MC. SAPN considers that this arrangement would enable efficiencies, particularly in rural and remote regions. The ring-fencing guidelines currently prohibit DNSPs for providing the MP role for smart meters.[73] ENA also suggested that allowing the DNSP to be appointed as MP at the MCs request be explored in the review.[74]

Some metering parties raised the number of metering roles as an area which could be reviewed. Powermetric expressed the view that having three separate metering entities is complex and creates barriers to new entrants.[75] PLUS ES expressed a similar sentiment, recommending that the MC and MP roles are combined into one role. PLUS ES recommended that the MDP role remain separate.[76]

Other stakeholder suggestions included:[77]

- Gridsight suggested the development of a centralised data hub to standardise data sharing
- EWON considered that Retailer should be responsible for the actions of MCs acting on their behalf
- PIAC and ACOSS et al suggested transferring metering responsibilities back to DNSPs
- Endeavour Energy suggested clear allocation of responsibility for meter installation to the retailer, and that responsibility is not split between the retailer and MC

72 Submissions to the consultation paper: Aurora, p. 5; Energy Queensland, p. 17.
73 SAPN, submission to the consultation paper, pp. 2-3.
74 ENA, submission to the consultation paper, p. 8.
75 Powermetric, submission to the consultation paper, p. 6.
76 PLUS ES, submission to the consultation paper, pp 14-15.
77 Submissions to the consultation paper: Gridsight, p. 6; PIAC, p. 8; ACOSS et al, p. 18; EWON, p. 5; AGL, p. 3; Endeavour Energy, P. 2; IPART, p. 3; NECA, p. 5; PLUS ES, p. 10.

- NECA suggested that a national ASP scheme should be developed to allow electrical contractors to perform meter installation and maintenance
- PLUS ES suggested that MPs should be able to operate network isolation points upstream of the meter installation
- PIAC Suggests DNSP should be an MP of last resort
- IPART suggested that retailers be able to interrupt supply to other retailer's customers.

The Commission welcomes feedback on the suggestions provided by stakeholders in relation to roles and responsibilities (see section 3.7). Further, the Commission welcomes feedback on any changes to roles and responsibilities stakeholders consider would meet the objectives of the review, and the assessment criteria.

B FACILITATING THE PROVISION OF METERING SERVICES AND EXCHANGE OF DATA

This appendix provides the Commission's preliminary position on smart metering services and data.

Smart meters can provide benefits to both consumers and the efficiency and effectiveness of the energy system which accumulation meters cannot. Some of these benefits include:[78]

- actual and real-time billing, or eliminating estimated reads
- provision of data to support consumers having more control over their energy use
- reduce overall system costs through supporting better integration of DER Market participants passing through cost savings
- improved services from DNSPs such as outage detection and faster restoration
- enabling competition and increase flexibility, such as faster switching.

However, many of these broader benefits have not been realised and are unlikely to be realised due to issues with the current arrangements.

By engaging with stakeholders across the market, the Commission has sought to identify the underlying causes of why the services that smart meters were expected to provide and enable have not eventuated. Stakeholders have provided feedback through submissions to the consultation paper, which reference groups further explored through extensive consultation.

The Commission's preliminary findings are:

1. The current minimum service specification for type 4 meters is sufficient to provide the services consumers require now and in the future. There is no need to prescribe additional services.
2. Many of the benefits (and the services required to provide the benefits) require access to a sufficient quantity of smart meter data on a regular and ongoing basis. Consultation with stakeholders has identified a number of issues with access, particularly to data not required for consumption or billing purposes (i.e., power quality data like voltage and current). A framework for data access and exchange is necessary.
3. A data access framework alone is not sufficient to enable the services and deliver the benefits to consumers. Many of these services require a high number, or complete amount, of smart meter data points to be viable. To achieve this, a critical mass of smart meters will be required.

These findings are discussed in turn below.

78 These benefits are discussed in full in chapter 2.

B.1 No change or addition to the minimum service specification

B.1.1 What services and features are smart meters required to provide under the current regulatory framework?

The current regulatory framework requires smart meters to have the following physical components:

Table B.1: Physical metering installation components

Visible or accessible display of total energy measured.	Electronic data transfer facilities.	Communications interface, such as a modem or telephone service.
Capable of separately recording the direction of energy flow accurately.	Active energy measurement element.	Local storage of interval energy data.
Current transformer, wired securely and protected to the meter.	Voltage transformer, wired securely and protected to the meter.	Auxiliary electricity supply to the meter.
Alarm circuity.	Interference protection.	Test links and fusing.
Summation equipment.	Several metering points to derive the metering data for a connection point.	Reactive energy.

Source: Current NER Cl. 7.8.2 (a) — (b)

For small customers, the regulatory framework also requires new and replacement meters to be type 4 meters that are capable of providing the following minimum set of services:[79]

- remote disconnection service
- remote reconnection service
- remote on-demand meter read service - active and reactive energy
- remote scheduled meter read service - active and reactive energy
- metering installation inquiry service
- advanced meter reconfiguration service.

During the Commission's consultation, metering parties have indicated that smart meters that are currently being deployed are capable of providing services beyond the minimum service specification.[80] Metering parties also indicated that while additional services may require software or firmware upgrades, they do not envisage a need to replace type 4 meters that are currently installed.[81]

79 This requirement is set out under NER Cl. 7.8.3. The minimum service specification can be found in Schedule S7.5.1, Table S7.5.1.1.

80 Engagement with the Sub-Reference Group, discussions with metering parties, and submissions to the consultation paper: AMS, pp. 3, 10-11; Intellihub, pp. 9-10; Landis+Gyr, p. 2; PLUS ES, pp. 21-22; Vector, pp. 4-5; VRT Systems, p. 5.

81 Ibid.

B.1.2 What services are smart meters reasonably expected to provide?

Smart meters are expected to provide and enable a range of service outcomes now and in the future energy market.[82] Through discussions at the Sub-Reference Group on Services and Data, stakeholders indicated they expect smart meters to be able to enable market participants to provide the services listed in Table B.2.

Table B.2: Additional services the market wants or needs that smart meters could enable

Remote re-energisation and de-energisation.	Better analysis and visualisation of consumption patterns, e.g. to support vulnerable households.	Integrating or communicating with other intelligent electrical devices behind the meter.	Network planning.
Monitoring supply and phase detection.	Measuring asset performance and behaviour, forecasting.	Remote emergency backstop.	Access to real-time data.
Outages: detection, quicker response for supply, e.g after storms.	Tariff options and retail products.	Provide control of DERs through multiple dynamic functions.	Supporting B2B, e-Hub functions.
Inquiry services and reports.	Billing cycle options.	Flexible trading arrangements, multi-element or meter solutions.	Neutral integrity, cross polarity, and overload detection.
Voltage data: interval, overload disconnection.	Energy theft detection.	Validating NMI to transformer data, minimising errors.	VPPs, measuring FCAS.

Source: Services and Data Sub-Reference Group meeting on 3 May 2021. Submission to the consultation paper Ibid.

Sub-reference group members also indicated that meters that meet the current minimum service specification are capable of enabling these service outcomes.

Needs of the future system where smart meters can play a role

As demonstrated by the focus of the ESB's work in DER integration, there is significant potential for consumers to benefit from using their DER resources to provide demand flexibility and participate in the wholesale energy market, system services markets and network services. These opportunities improve the return on consumers' investments in DER

82 Submissions to the consultation paper: ACOSS et al., pp. 6, 16; AEC, pp. 2, 3, 5, 6; AER, pp. 1-4; Ausgrid, p. 6; Alinta, pp. 2, 5; AMS, pp. 3-4; Aurora, pp. 5-6; Bright Spark, p. 6; Citipower, Powercor and United Energy pp. 3, 8; EDMI, pp. 4, 6; ENA, pp. 7, 10-11; Endeavour Energy, pp. 5, 8; Energy Queensland, pp. 5, 16, 20; Essential Energy, pp. 1, 3; Gridsight, pp. 4-5; Horizon, pp. 2, 5-6; Intellihub pp. 6-7; Landis+Gyr, p. 2; Metlogic, p. 2; Momentum, p. 2; NICE, pp. 2, 5; Origin, p. 2; PIAC, p. 12; PLUS ES, pp. 4-5, 16-18, 22, 27; Powermetric, p. 5; ReAmped, p. 2; SAPN, pp. 2, 9; SATEC, p. 3; Simply, pp. 1, 5, 6, 9; Secure, pp. 4-5, 7; SolarAnalytics, p. 4; South Australian DEM, p. 2; Vector, pp. 15, 16, 19; VRT Systems, p. 4, 8.

and can help all consumers, even those without DER, by lowering the costs of operating the electricity system.

As more variable renewable generation enters the system, the way DNSPs and AEMO manage system security and reliability may need to evolve. Existing tools such as under-frequency load shedding (UFLS) that operate to disrupt electricity services to all customers in a specific area (e.g. at zone substation or feeder level) may become less effective in a system with high DER penetration.[83] For UFLS, turning off supply to an entire feeder to reduce demand will also reduce the level of generation available as distributed generation such as solar PV systems are also precluded from generating into the system.

Smart meters could provide alternative solutions to DNSPs and AEMO in managing issues arising from a more distributed system by providing a more targeted response. In the case of UFLS, smart meters (through their ability to disconnect at the connection point) could allow premises that are only consuming to be turned off, while keeping premises with generation connected to the grid. Smart meters could also provide alternative solutions to managing other emerging issues. Jurisdictions such as South Australia have recently included smart meters as one of a number of solutions to manage minimum system load.[84]

The Commission invites stakeholder feedback on whether smart meters can be used to provide an effective solution to emerging system issues, and whether changes to the current requirements for minimum services specification are required (see section 3.3).

Similarly, as the distribution network becomes more dynamic and decentralised, there is an opportunity for existing infrastructure to be utilised differently. A high DER environment is likely to require DNSPs to alter aspects of their operation, from transporting electricity one way to being platforms for multiple services, facilitating electricity flows in multiple directions and enabling efficient access for DER to provide the greatest net benefit to the system as a whole.

One of the implications of this change is that DNSPs will require more information about the performance of the lower level of their network than in the past. The Commission considers that progressively more real-time visibility of the low voltage network through access to consistent power quality data is one critical enabler of this future.

The Commission is interested in stakeholder views on whether smart meters provide the most efficient means for DNSPs to improve the visibility of their low voltage networks (see section 3.3).

B.1.3 The current minimum service specification is not a barrier to smart meters providing these outcomes

Metering parties are of the view that the minimum service specification is not a barrier to the provision of services in Table B.2. Rather, they are of the opinion that the lack of additional

83 AEMO uses the under-frequency load shedding (UFLS) scheme to maintain system security when unexpected events occur that results in large drop in frequency in the electricity system. It reduces demand by turning off a pre-determined group of customers at the zone substation or feeder level in response to insufficient generation in the system.

84 The South Australian Government introduced regulations as part of its Smarter Homes program to provide a number of measures to manage the issue of supply/demand imbalance during the day.

services in the market currently is related to the level of demand and maturity of the services (in excess of the minimum service specification in Table B.2).[85]

- Service outcomes — such as scheduled reads, remote re-energisation/de-energisation, controlled load switching — are fully mature: smart meters can provide and enable these outcomes.
- Other services — like multi-element metering, ad-hoc remote reading, DER management, high-frequency reads, VPPs, and analytics — are considered partially mature: meters that meet the minimum service specification are capable of supporting them; however, MPs may need to build back-end systems where sufficient demand exists, or relevant parties require consistent access to data.
- Metering parties considered only advanced services — for example, ping inquiry, safety indicators, power quality data, sophisticated DER and FCAS outcomes — as potentially having low maturity. This could be based on low market demand. Higher penetration of smart meters may also be needed for these services to become viable.

B.1.4 If smart meters are capable, why aren't these services being provided?

During the consultation process, stakeholders indicated to the Commission that there are issues with current arrangements in providing some smart meter services. Some of these issues include:

- Potential inflexibility and prescription in some clauses cause higher cost-to-serve and fewer services above the minimum.[86]
- Technology-specific requirements may limit innovation in services or optionality.[87]
- Unclear ability to efficiently recover costs for metering services above the minimum service specification.[88]
- Unclear accountability, especially on the provision of additional services above the minimum. This could lower the provision of new services and turn the minimum service specification into an effective maximum.[89] This can particularly be the case in metering energy data, such as voltage and current data (see Box 2 below).[90] Issues with data access are discussed in appendix B.2.3.

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85 Maturity was perceived as a direct function of market demand: full maturity was defined as having standards and industry-wide adoption; partial maturity was defined as vendor-specific solutions with some further research and development to do; and low maturity was defined as needing incentive or demand.

86 Submissions to the consultation paper: AMS, pp. 3, 11; Gridsight, p. 6; Intellihub, p. 21; Metlogic, pp. 2-3; SATEC, p. 1; Secure Meters, p. 8; SolarAnalytics, p. 2; VRT Systems pp. 9-10.

87 Submissions to the consultation paper: AER, p. 4; EDMI, pp. 3, 8; Energy Queensland, pp. 7-8; Essential Energy, p. 8; EWON, p. 7; Metlogic, p. 2; Origin, p. 8; SATEC, pp. 1-2; Secure Meters, p. 3; VRT Systems, p. 9.

88 Submissions to the consultation paper: AMS, p. 7; Ausgrid, p. 7; Bright Spark, pp. 5, 8; ENA, p. 12; Endeavour Energy, p. 3; EnergyAustralia p. 2; Intellihub, pp. 17, 19; Origin, p. 4; PLUS ES, pp. 18, 21; ReAmped, p. 3; Vector, pp. 8-10.

89 Submissions to the consultation paper: AMS, p. 9; EWOQ, p. 3; Powermetric, p. 2; Powershop, p. 4; Origin, p. 2; SolarAnalytics, p. 2; Secure, p. 8.

90 Submissions to the consultation paper: AER, p. 3; Aurora, pp. 5-6; Ausgrid, p. 7; Clean Energy Council, pp. 6, 9; Citipower p. 7; ENA, pp. 6-7, 9-10; Endeavour Energy, pp. 3, 5; Energy Queensland, p. 20; Essential Energy, pp. 2, 6-7; Intellihub, pp. 13, 17, 32; Gridsight, p. 2; NICE, p. 9; ReAmped, p. 5; SAPN, pp. 7-9; Secure Meters, pp. 2, 6-7; SolarAnalytics, pp. 3-4; VRT Systems, p. 2.

BOX 2: THE TREATMENT OF POWER QUALITY DATA UNDER THE RULES

Voltage, current, reactive, and active power measured at the connection point can offer visibility of local network conditions. Today's smart meters are sufficiently capable of recording and transmitting this data remotely.

However, stakeholder submissions to the consultation paper strongly indicated that access to this data is limited. Parties such as distribution businesses and small generation aggregators indicated that they often could not secure power quality data over the long-term that they consider as acceptable and in a standardised format across providers.

Data that a smart meter can provide market participants could enable a range of service outcomes and offers that directly benefit the consumer, such as participation in a VPP or indirectly through improved voltage management.

Submissions also stated that the potential benefits on offer from particular use cases and the broader market reform, such as DER integration and demand-side participation, depend on access to this data. The services that the market demands (Table B.2) depend on data access, not a service specification in the rules.

Currently, clause S7.5.1 of the NER requires the metering installation to be capable of providing the following types of information at a minimum: supply status; voltage; current; power; frequency; average voltage and current; and events that have been recorded in the metering log, including information on alarms. However, this data is accessible under the meter installation inquiry service, not a scheduled read.

The Rules specify that ongoing access to these data types be determined on a commercially negotiated basis between metering parties, and DNSPs, and small generator aggregators. There is no clear accountability on which the data services can be provided besides the minimum billing data.

Source: Ibid.

The Commission considers the above issues are the key reasons that have led to a lower than expected incentive for metering parties to offer additional services, despite the meters being capable of doing so. The Commission considers that solutions aimed at resolving the above issues in incentives and accountabilities for services and data access are likely more suitable than making changes or additions to the minimum service specification because this would likely facilitate more positive consumer outcomes.

Potential jurisdictional barriers due to variations to the national framework

Some stakeholders have raised variations in jurisdictional regulations as another potential impact on service provision. Some views include:

- **Remote re-energisation and de-energisation**. Jurisdictional governments have adopted different approaches to retailers and metering parties affecting remote re-

energisation and de-energisation through smart meters. Some stakeholders noted that remote re-energisation and de-energisation could provide material benefits to retailers.[91]

- **South Australia's Smarter Homes policies.** At the end of 2020, the South Australian Government introduced regulations that amongst other things, require all new rooftop PV systems to have the ability to be remotely disconnected, as well as new requirements for new smart meters to have an additional element to connect generation and load separately.[92,93]
- **Different penetration of smart meters.** The level of smart meter penetration varies greatly, with Victoria having near-universal penetration through a mandated roll out while other jurisdictions relying on a market-led roll out having a significantly lower penetration.[94]

These stakeholders suggested seeking ways to harmonise arrangements where practicable, lowering the complexity or overall cost-to-serve of services — efficiencies that a nationally consistent framework can potentially enable.

B.1.5 Smart meters can also cost-effectively provide electricity safety outcomes

A number of stakeholder submissions to the consultation paper have raised the potential for smart meters to deliver improved safety outcomes for consumers such as detecting neutral integrity issues at consumers' premises.[95] Consumers participating in Newgate's research also indicated that they highly value the increased safety outcomes that smart meters can enable.[96]

Neutral integrity

Detecting and rectifying neutral integrity can prevent electrical shocks in consumers' homes, posing significant value to the safety of all consumers.

The responsible party for rectifying neutral integrity is often the DNSP given their safety obligations under the Rules and jurisdictional legislation.

The Commission understands that smart meters can facilitate the detection of neutral integrity issues through the following methods:[97]

1. An additional module in the smart meter that would detect a fault and automatically send a notification to the DNSP alerting them of the issue. If this requirement is to be introduced, a key consideration would be whether it should cover all meters, or only on a

91 Submissions to the consultation paper: AGL, p. 5; Alinta, pp. 2-3; Brightspark, p. 6; EnergyAustralia, p. 2; Momentum, p. 2; Powershop, p. 4; Powermetric, pp. 2, 4; ReAmped, p. 4; Simply Energy, pp. 2, 4-5; Vector, pp. 3, 7, 25.

92 Submissions to the consultation paper: Dr Martin Gill, pp. 6-7; EDMI, p. 2; PLUS ES, pp. 8-9; Red and Lumo, p. 4; South Australian Department for Energy and Mining, p. 1-3; Vector, pp. 3, 7.

93 For more information on South Australia's policies see: here.

94 Submissions to the consultation paper: ACOSS, pp. 18-19; AEC, p. 3; EDMI, p. 2; NICE, p. 10; PLUS ES, p. 26; Simply, pp. 2, 4-5; Vector, pp. 3, 25.

95 Submission to the consultation paper: AEC, pp. 5-6; Citipower, Powercor and United Energy, p. 3; ENA, pp. 7, 11; Endeavour Energy, p. 8; Energy Queensland, pp. 5, 20; Horizon, p. 2; Gridsight, p. 5; Intellihub, p. 7; PLUS ES, p. 17; Powermetric, p. 5; SAPN, pp. 2, 9; Simply, p. 5; Vector, pp. 15, 19.

96 Newgate Research, *AEMC metering review*, Full research report, August 2021, pp. 46-47.

97 Engagement with the Services and Data Sub-Reference Group.

new and replacement basis. Another consideration is that requiring an additional physical component may increase the per-unit cost of the smart meter and prevent other potential options from being considered.

2. Using data analytics to identify the issue. Another option is to utilise data that can be collected by smart meters to help identify the issue. This option would require the development of a data access framework, however could be applied retrospectively on smart meters today.

The Commission is interested in stakeholder feedback on the most cost-effective option to deliver an improved safety outcome and feedback on whether any changes may be required to ensure the issue is rectified once identified (see section 3.3.

B.1.6 The Commission's preliminary position

The *Competition in Metering* final rule was intended to provide a framework that promotes innovation and investment in smart meters that deliver the services valued by consumers at a price they are willing to pay.

The minimum service specification is intended to balance the trade-off between the cost of the meter and providing an appropriate level of services. This approach means that the capability of the base model meter (i.e. a meter that meets but does not exceed the minimum specification) would be sufficiently high. The incremental cost of any additional services will be modest compared to requiring meters to be capable of providing all services.

The Commission considers that the current minimum service specifications are likely in the long-term interest of consumers by delivering service outcomes based on core processes of a relatively low marginal cost. Although some stakeholders recommended additional services be included in the minimum service specifications, the Commission is of the view that the minimum service specification adequately provides for the accuracy, safety, and security outcomes to enable those additional services. Rather, achieving those additional service outcomes are dependent on other changes (see appendix B.2.2 and appendix B.3.1 and section 3.3).

The Commission preliminary position is that the minimum service specification for smart meters should remain the same. The Commission considers that meters that meet the minimum service specification are able to provide the range of services that the consumer and the market require now and into the future. The Commission is of the view that recommendations made in other parts of this Review are more likely to enable the services identified by stakeholders in Table B.2.

However, the Commission's preliminary position does not preclude changes to the existing minimum service specification in the future. For instance, in order to facilitate better and more consistent data access, changes to the description of the minimum services specification may be required. The Commission welcomes feedback to this initial position.

Questions for stakeholders to respond to on the minimum service specification are located in section 3.3.

B.2 Options for developing a data access and exchange framework

A crucial enabler for smart meters to provide more services is through access and exchange of power quality data that they provide.[98] The Commission is of the view that recommendations to facilitate the exchange of non-billing data like voltage and current would likely better contribute to the NEO than requiring the additional capabilities in the minimum service specification. This section discusses the Commission's analysis and engagement to date on data access.

B.2.1 What data is currently able to be captured and provided by smart meters?

Through discussions with members of the Sub-Reference Group on Services and Data, the Commission understands that the data that smart meters are capable of providing are:

- billing and consumption for market settlement
- power quality data, like voltage and current
- other market data, such as safety alarms.

Billing and consumption data have clear and detailed requirements in the Rules

The NER and AEMO procedures require billing and consumption data to be processed, calculated and validated.[99] AEMO receives this data for the settlements process and requires a certain level of data integrity.

The NER also allow a number of parties to have access to this data. Retail customers can request this data from their retailer or DNSP.[100] Other parties that are able to access this data include those who have a financial interest in the energy being measured by the installation: DNSPs, AEMO, agents authorised by a consumer, and the AER or Jurisdictional Regulators upon request.[101] These parties can access this data at zero cost.

The Commission is aware that some consumers have found the process to access their energy data problematic. For example, consumers access to historical usage data is not always provided in a timely manner, or if it is provided, it is not in an accessible or practical format. While some retailers are providing their customers access to near real-time data through their websites or portals, the Commission understands this is not a common market practice. Newgate's research suggested that apps and portals were required to enable consumers to make the most of smart meter data provided, and would be highly valued as a way to access real time information without too much effort.[102] The Commission is interested in stakeholder feedback on whether they consider the current framework is meeting consumers' demand for energy data, and if not, what changes would be required (see section 3.4).

98 The Commission understands power quality data to include voltage, current, active and reactive power or power factor, frequency, and harmonics, distortions, or flicker imbalances of energy.

99 NER 7.10.

100 NER 7.15.5(d)(1) — (2).

101 NER 7.15.5(c)(1) — (6).

102 Newgate Research, *AEMC metering review*, Full research report, August 2021, pp. 8, 43.

Other energy data has less clear requirements in the Rules

On the other hand, access to other energy data is currently only covered by the minimum service specification through either a remote scheduled or on-demand meter read or an inquiry service. The read or inquiry service includes collecting, retrieving, and providing reactive energy, power in watts, supply frequency in Hertz, average voltage, and a meter log of events such as temperature alarms.

Access to these services is limited to Registered Participants with a financial interest in the metering installation or the energy measured by that metering installation, or a person to whom a consumer has given its consent.[103]

While smart meters are already capable of recording a range of other data, stakeholders have indicated that access to this data can often be constrained. In contrast to billing and consumption data, the Rules do not provide explicit guidance on how non-billing or non-settlement information such as power quality data should be collected.

Power quality data is increasingly essential to a more decentralised NEM, with access to data being the key to unlocking net benefit from metering competition. The current regulatory framework defines the provision of this data by the MC to an accessing party as an additional value-add service to the metering installation. This data service can be provided on commercial and negotiated terms if it is in that MC's reasonable opinion to contribute to the data recipients obligations under the Rules.[104]

B.2.2 Third parties can deliver substantial benefits to consumers with access to power quality data

While DNSPs do have visibility over higher levels of their distribution networks through their supervisory control and data acquisition (SCADA) systems, they generally have limited visibility over their low voltage networks. Except for Victoria and Western Australia, where meters are still owned and controlled by DNSPs, there is little information beyond settlement and billing data that is directly available to DNSPs at the customer premises level. The difficulty for DNSPs outside of Victoria and Western Australia to access data means third parties are unable to develop business cases that can deliver material consumer benefits (these use cases are described in Table B.3).

In presentations to the Sub-Reference Group on Data and Services, Horizon Power as well as Citipower, Powercor and United Energy demonstrated the benefits that they were able to realise with access to power quality data at higher penetrations. Horizon Power collects interval data, register reads, alerts and alarms, and non-billing data toward improving DER integration and better billing. Citipower, Powercor and United Energy can record this data at five-minute intervals and retrieves data from meters anywhere between a sub-five minute or every half-hour interval, time synchronised. These benefits include:

- identifying and rectifying consumer connection point issues, such as hot joints or neutral integrity

103 NER Table S7.5.1.1.

104 NER 7.6.1.

- manage the network more efficiently, such as network infrastructure failures and deliver a faster return of supply after outages
- ability to respond to the issues at a connection point-level
- have improved visibility of the low voltage network and implement solutions such as dynamic voltage management.

In the future, DNSPs' data requirements may evolve with changing DER technologies and the continual growth in DER uptake. The increasing penetration of DER may also create new system security challenges. The need for network visibility, and in particular the data, modelling and level of accuracy requirements for determining real-time constraints, is a common key issue. Power quality data such as voltage will be increasingly important for all DNSPs to maximise hosting capacity for consumers to participate if they choose.

While there are many options for data collection, some options are likely to be more cost-effective than others. Options that leverage existing equipment and data sources — like smart meters — are likely to have a much lower incremental cost than options that involve installing new equipment or procurement of data from proprietary sources.

In addition to DNSPs, other parties such as small generation aggregators, traders, market bodies, or researchers may utilise the data that meters provide. As noted in chapter 2, the ESB is engaging on a data strategy that offers recommendations for this review to explore.

Some stakeholder submissions considered the ESB data strategy as important for aligning the NEM's data needs, recognising the net benefit that third parties can deliver.[105]

B.2.3 The exchange of power quality data has barely progressed beyond the trial phase

Throughout the consultation period, stakeholders have provided the Commission with insights on the complexity of exchanging power quality data under the current arrangements.

From submissions and ongoing consultation with stakeholders, the Commission has identified the following issues relating to data access:

- complexities and cost to negotiate
- information is not provided in a consistent form
- the price of data exceeds its value to access.

Complexities and cost to negotiate

In contrast to billing and consumption data, stakeholders raised concerns about the lack of structure to exchange power quality data.[106]

105 Submissions to the consultation paper: AEC, p. 7; AGL, p. 6; Endeavour Energy, p. 4; Energy Queensland, p. 8; Essential Energy, p. 7; EWON, p. 2; Intellihub, pp. 8-9; Momentum, p. 2; Vector, p. 3.

106 Submissions to the consultation paper: AER, p. 3; Aurora, pp. 5-6; Ausgrid, p. 7; Clean Energy Council, pp. 6, 9; Citipower, Powercor and United Energy, p. 7; ENA, pp. 6-7, 9-10; Endeavour Energy, pp. 3, 5; Energy Queensland, p. 20; Essential Energy, pp. 2, 6-7; Intellihub, pp. 13, 17, 32; Gridsight, p. 2; NICE, p. 9; ReAmped, p. 5; SAPN, pp. 7-9; Secure Meters, pp. 2, 6-7; SolarAnalytics, pp. 3-4; VRT Systems, p. 2.

This has added complexity for parties, in particular DNSPs, seeking access. In relation to the demand for power quality data generally, issues are found in:[107]

- Uncertainty around who the responsible party is. It is unclear whether it is the retailer or metering parties who are able to provide access and charge for access to the data.
- There is no guarantee for ongoing access. Where the parties were able to negotiate access, the party seeking access to the data has no guarantee that they will continue to have access in the event a consumer switches to a different retailer or there is a change in MC.
- Incentives, particularly on distribution businesses, may not align with the commercially negotiated exchange of data as intended by *Competition in Metering*.

Conversely, metering parties who hold data have said that third-party demand for data has been low, only progressing to trial phases. Stakeholder submissions have noted that a reason for this could be the lack of a defined market structure to exchange data, which is shown by:[108]

- no demand for non-billing or settlement data, or a lack of incentive for metering parties to build systems capable of collecting and transferring data
- unclear authority to provide data, such as privacy concerns or customer consent
- uncertain cost recovery — based on perceived low demand and authority to provide data, metering parties are reluctant to provide significant investment in the data systems. The competitive pressure between the FRMP and metering party can cause least-cost investment in data systems or otherwise internalises costs.

The current arrangements tend to raise negotiation costs above the end value of the data. Stakeholders considered that the negotiation costs of data are also exacerbated by:

- Limited bargaining power or efficient incentive to negotiate — from both data holders and receivers.[109] Parties can experience this difficulty in striking an agreement via one-to-many negotiations, perhaps for just one street on a feeder.[110]
- Potential incentives for DNSPs to install duplicative network devices, to limit price and avoid clunky negotiation.[111]

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107 Submissions to the consultation paper: AEC, pp. 6-7; AER, p. 3; AGL, p. 5; Ausgrid, p. 7; Dr Martin Gill, p. 5; EDMI, p. 3; ENA, pp. 11, 14; Endeavour Energy, pp. 2, 6; EnergyAustralia, pp. 5-6; Energy Queensland, p. 11; Gridsight, p. 6; Origin, p. 8; PIAC, pp. 11, 16; PLUS ES, p. 20; ReAmped, p. 4. SAPN, pp. 2, 7-9; SolarAnalytics, pp. 2-3; Vector, p. 21; VRT Systems, p. 9.

108 AER, p. 4; Alinta, p. 5; AMS, pp. 2-3, 6-7, 9-10; Ausgrid, p. 7; Bright Spark, pp. 5, 8; Citipower, Powercor and United Energy, p. 7; EDMI, pp. 3, 8; ENA, p. 12; Endeavour Energy, p. 3; Energy Queensland, pp. 5, 7-8; EnergyAustralia, p. 2; Essential Energy, p. 8; EWON, p. 7; EWOQ, p. 3; Intellihub, pp. 17, 19; Metlogic, p. 2; Origin, pp. 2, 4, 8; PIAC, p. 14; PLUS ES, pp. 18, 21; Powermetric, p. 2; Powershop, p. 4; ReAmped, p. 3; SATEC, pp. 1-2; Secure, pp. 3, 8; SolarAnalytics, p. 2; Vector, pp. 8-10; VRT Systems, p. 9.

109 Submissions to the consultation paper: ACOSS, p. 16; AEC, pp. 4, 6; Alinta, p. 5; Ausgrid, pp. 6-7; Clean Energy Council p. 6; ENA, pp. 11, Endeavour Energy, p. 3; Energy Queensland, pp. 7-8; Essential Energy, p. 7; Gridsight pp. 5-6; Horizon, p. 4; Intellihub, p. 13; IPART p. 3; Origin, p. 8; PIAC, pp. 14-15; PLUSES, p. PLUSES, p. 9; Powermetric, p. 6; TasNetworks, p. 1; SAPN, pp. 5, 7-9; Vector pp. 8-10; VRT Systems, p. 9.

110 Engagement with the Services and Data Sub-Reference Group.

111 Submissions to the consultation paper: AER, p. 3; AEC, p. 4; ENA p. 10-11; Endeavour Energy, p. 1; IPART, pp. 1, 3; Intellihub, p. 18; Vector, p. 4.

- Restrictive commercial arrangements.[112] Contractual agreements between parties can explicitly deny access or exchange between market participants.[113]

A lack of structure for the exchange of data is likely limiting the potential value that consumers may realise from smart meter data services. The Commission is interested in exploring how a structure or framework can align the capabilities of service providers with outcomes that end users value: limiting the complexities to negotiate.

As discussed in the next sub-sections, most stakeholders tended to agree that some framework for data access could provide efficiencies in data exchange by determining consistency and price.[114]

Consistency of data being delivered

Currently, billing and consumption data are defined by AEMO via the NEM 12 or NEM 13 standard format.[115] These formats define the structure, data points, sequencing, and frequency of data captured, providing a standard that enables data to be delivered consistently by different data providers. The Rules and AEMO procedures also define the delivery method, plus the minimum robustness of the data required to settle the market.

However, non-billing or non-settlement data such as voltage is often not standardised or consistent from provider to provider. The lack of standard formatting or agreement on exchange timing appear to be limiting the commercial exchange and scalability of power quality data use cases.[116] Low obligations on the integrity of additional data (e.g. the Rules do not specify whether the data needs to be validated and procedures for missing data) can further lead to unclear costs for ongoing access and limit efficient outcomes.[117]

Some stakeholders suggested that more standard data formatting and exchange would be beneficial.[118] Suggestions to this point include:[119]

- an agreed format, frequency, and delivery mechanism such as the AEMO B2B e-hub
- provision of ongoing access to third parties, especially in the case of retailer churn
- development of a standard by an independent body such as Standards Australia
- facilitation of national consistency through the Rules or an industry standard.

112 Submissions to the consultation paper: Clean Energy Council pp. 6, 9; ENA, p. 11; Endeavour Energy, pp. 3, 5; PLUSES, pp. 9-10; ReAmped, pp. 4-5.

113 Engagement with the Services and Data Sub-Reference Group.

114 Submissions to the consultation paper: AER, p. 3; AGL, pp. 5-6; AMS, p. 6; Ausgrid pp. 1 5-7; Brightspark, pp. 6-7; EDMI, pp. 4, 8; ENA, p. 11; Endeavour Energy, p. 3; Energy Queensland, p. 10; Essential Energy, pp. 1-3, 7; Gridsight, pp. 2-3; Intellihub, pp. 16-17; IPART, p. 3; Origin, pp. 3-4; PIAC, pp. 3, 17-18; Powermetric, pp. 3, 6; PLUS ES, pp. 19-20; ReAmped, pp. 5-6; SAPN pp.7-9; Secure, p. 7; SolarAnalytics, p. 3; Vector, pp. 17.

115 For more information on the NEM 12 or NEM 13 file format specification, see: here.

116 Engagement with the Services and Data Sub-Reference Group.

117 Ibid.

118 Submissions to the consultation paper: AMS, p. 6; Ausgrid, p. 7; EDMI, p. 4; ENA, p. 11; Endeavour Energy, p. 3; Energy Queensland, p. 10; Essential Energy, p. 3; Gridsight, pp. 2-3; Intellihub, pp. 16-17; Secure Meters, p. 7; Vector, p. 17.

119 Ibid. and Engagement with the Services and Data Sub-Reference Group.

According to these stakeholders, consistency of data form and exchange would likely reduce costs by saving time to integrate non-billing data into third-party systems and limit complexity in providing service outcomes.[120]

Price of data being delivered

A number of stakeholders commented on data prices in their submissions including that:[121]

- current data prices demanded by metering parties exceed the likely marginal cost of providing the data
- prices can vary significantly between data providers for the same request (i.e. similar amount of meters, volume of data, and time frame)
- alternate sources, like a capable inverter or network device, could provide a more cost-effective solution.

These factors reduce any potential end-value of the data received. Combined with low obligations on the quality of data, this can constrain the commercial exchange.[122]

The Commission is interested in exploring options for regulated pricing of data to achieve access for third parties. The Commission considers that, at a principles level, more essential data that offers greater consumer benefits could require stricter access pricing. Secondly, more discretionary data with some consumer benefit may necessarily require light touch pricing, such as benchmarking.

On the other hand, essential data that could be considered of some private benefit to the data receiver may require simple price monitoring. Other options could include value-based pricing, cost-floor pricing, or revenue or price capping. Similarly, more discretionary data that delivers some private benefit to the data receiver could exist under the status quo commercial pricing agreements.

The Commission considers that the AER would likely undertake any such pricing of power quality data.

B.2.4 A framework for power quality data access is likely required to facilitate better exchange

The operating environment is now very different from when the Commission made the *Competition in Metering* final rule in 2015. As discussed throughout this Review, the Commission and stakeholders are keenly aware of the growing importance that data including voltage and current holds in the energy transition towards a decentralised system and the development of a two-sided market.[123]

120 Submission to the consultation paper: AMS, p. 4; Ausgrid, p. 7; ENA, p. 11; EDMI, p. 4; Endeavour Energy, p. 3; Essential Energy, p. 3; Gridsight, pp. 2-3; Intellihub, p. 16; Secure Meters, p. 7; Vector, p. 17.

121 Submissions to the consultation paper: AGL, p. 5; Clean Energy Council, p. 3; ENA, p. 10; Endeavour Energy, p. 3; Energy Queensland p. 5; Essential Energy, p. 4; Gridsight, pp. 2-3; Horizon Power p. 4; IPART pp. 3-4; ReAmped, pp. 4-5; SAPN p. 9; SolarAnalytics, p. 3; TasNetworks, p. 1.

122 Engagement with the Services and Data Sub-Reference Group.

123 Submissions to the consultation paper: AER, p. 1; Ausgrid, p. 3; Citipower, Powercor and United Energy, p. 6; Dr Martin Gill, p. 1; ECA, p. 1; Essential Energy, p. 5; Gridsight, p. 1; Intellihub, pp. 2, 5; NECA, p. 6; NICE, p. 2; PIAC, p. 3; Powermetric, p. 2; Powershop, p. 4; Vector, p. 1.

In the context of the evolving NEM, the Commission is of the view that developing a data access and exchange framework that addresses the issues with the current arrangements is in the long term interest of consumers. The efficient exchange of other energy data, such as power quality data, is an integral part of operating a more dynamic system without compromising reliability and safety.

The Commission considers that a data access and exchange framework would likely facilitate consistent and ongoing access to data to provide certainty and enable scale of data services. Providing access to data, and allocation of an appropriate cost to that data, should contribute to better allocation of risks and costs to those that benefit from rolling out smart meters.

In addition, the provision of power quality data can assist in improving the quality, safety, reliability and security of the energy supply and the national electricity system as a whole, and can contribute to supporting the energy transition and decarbonisation of the electricity grid.

B.2.5 Potential options for a data access framework

The Commission engaged NERA Economic Consulting (NERA) to provide advice on potential options for a data access framework. NERA's report presented the following options:[124]

1. **Authorising a centralised organisation**. Modelled off the Great Britain Data Communications Company (DCC), with high prescription on data exchange by one common centralised organisation.
2. **Minimum contents requirements**. Standardising contracts and agreements of the minimum data exchange between market participants.
3. **Exchange architecture**. Facilitating a common interface for data exchange, such as MSATS / B2B or another option, with low obligation but a high incentive to participate.
4. **Negotiate-arbitrate**. For utilisation in access disputes, intended to provide credible threat exercise of market power during negotiations.

The above options could be adopted on a stand-alone basis, or as a combination of measures. The Commission will seek stakeholder views on the above options through further submissions to this Directions Paper (see section 3.4). The Commission will also seek views from the Sub-Reference Group members.

1. Creating a central organisation that is responsible for data collection and exchange

NERA has provided a case study on Great Britain's DCC.[125] This option offers a more prescriptive and centralised model for data access, in which one fully regulated entity centralises data and access is predefined. DNSPs requesting access would be required to submit data privacy plans to a regulatory body to set out the intended use of the data and how it manages data privacy and security. Data would be provided to DNSPs at zero direct cost, but there are indirect costs of processing and storing it. NERA finds that this would address issues with current arrangements on data quality, price, costs to negotiate, and the

124 NERA, *Smart Meter Data Access Framework Options*, August 2021, p. 8.
125 NERA, *Smart Meter Data Access Framework Options*, August 2021, pp. 12-14.

need for regulatory structure. However, the DCC-style organisation has some constraints, such as:[126]

- a lack of flexibility
- cost to implement due to impacts on commercial responsibilities and its information architecture
- high likelihood of over-collection of data requiring larger infrastructure costs
- potential volume issues at lower than a daily frequency
- removal of competition in data provision.

2. Minimum contents requirement

This model is based on New Zealand's Electricity Information Exchange Protocols and details a minimum contents requirement.[127] This establishes essential data to be provided by default while third parties can commercially negotiate more discretionary data. NERA finds that this option could likely limit costs in negotiation for critical data to a minimum. The party responsible for the data must comply with a request if it is within stated and permitted reasons. This arrangement also allows for additional data to be negotiated, providing for flexibility and easier implementation.

However, this arrangement could either externalise costs for the minimum data set to more discretionary data or between the metering parties and the retailer. NERA considers that transmission costs for a consistent stream of data (e.g. 5-minute data 24 hourly) could be material. If the data is required to be provided at no charge, it could further limit more discretionary data negotiation. In the worst case, it could cause MDPs to be loss-making on essential data.[128]

3. Exchange architecture

An exchange architecture acts as a common interface between data suppliers and those who demand it. NERA finds that this option can transfer data in a predefined format and utilise partially defined data exchange contracts. An exchange architecture could include the AEMO B2B e-Hub or a new exchange application programming interface (API) within the current system context. Under this model, a data provider would need to integrate with the exchange architecture. The party seeking access would avoid needing to negotiate with each data provider to exchange data — it is a single transfer. NERA finds that this limits the recurring negotiation costs as MDPs would likely simultaneously commit to providing data, which could avoid the potential for hold out.

NERA considers that the exchange architecture would support new use cases, based on the flexible design of the back-end software, which is likely to have a lower cost than a DCC-style centralised organisation or the potential pricing under a minimum contents requirement. This is strengthened by the non-obligatory nature of the exchange, where a metering party can

126 NERA, *Smart Meter Data Access Framework Options*, August 2021, pp. 23-24.
127 NERA, *Smart Meter Data Access Framework Options*, August 2021, pp. 14-17.
128 NERA, *Smart Meter Data Access Framework Options*, August 2021, pp. 25-26.

participate if the payment received for supplying data exceeds their cost to participate.[129] Minimum contents requirements are suitable in conjunction with an exchange architecture to efficiently form prices and meet minimum data needs.

4. Negotiate-arbitrate

NERA has also provided a case study on gas pipeline access in Australia.[130] NERA considers that a negation and arbitration framework offers a backstop if negotiation fails, and provide a credible threat to the exercise of market power during negotiations. An assessment is made on criteria that define efficient access relative to the value created, whether it's in most consumers' long-term interests, and whether an alternative solution would be economical.[131]

NERA finds that stronger regulation of quality and price control and more commercially negotiated outcomes can be facilitated based on the defined criteria of a negotiate-arbitrate model. This is the key value of this option. Having a light-touch and non-prescriptive form of regulation on predefined principles would facilitate exchange relatively easily. However, NERA finds that this option is unlikely to improve the costs of negotiation borne by exchanging parties and may take considerable time to resolve if it is ever incurred.[132] In this way, negotiate-arbitrate might not solve the issues of the current arrangements on its own.

B.2.6 Standardisation of non-billing data that smart meters can provide

As mentioned in appendix B.2.3, stakeholders have raised issues with identifying and structuring power quality data, such as voltage and current.

The Commission is of the view that regardless of whether a data access framework is introduced, there is a need to standardise some elements of power quality data. This could likely contribute to a more efficient negotiation process between third parties and data holders, setting data on the same terms from provider to provider while allowing a proprietary value add.

Since the publication of the consultation paper, the Commission has been engaging with the Sub-Reference Group on Data and Services, as well as meetings with metering parties and DNSPs to develop industry consensus on the following:

- type of data required by DNSPs and other third parties
- efficient frequency and volume of collection and transfer
- data integrity — the level of validation, substitution and estimation required.

129 NERA, *Smart Meter Data Access Framework Options*, August 2021, pp. 26-28.
130 NERA, *Smart Meter Data Access Framework Options*, August 2021, pp. 18-21.
131 Ibid.
132 NERA, *Smart Meter Data Access Framework Options*, August 2021, pp. 28-29.

B.2.7 Consumer access to data

As discussed in section 2.3.2, the CDR for energy will likely provide competitive pressure in a way that enshrines a consumer's rights and privacy. Stakeholder submissions indicated that:[133]

- full implementation of the CDR is important to the digitising NEM
- CDR would likely enable innovative products and services that consumers value, such as:
  - optimising tariff options and selection
  - operational services like VPPs and aggregation
- it should maximise consent and privacy
- exploring the standards and protocols for sharing data, inclusive of cybersecurity, is necessarily required
- it should not include third-party access to engineering data
- responsible parties should efficiently recover costs.

Consumer access to consumption and billing data is currently available through their retailer and can be accessed by other registered participants or authorised agents that the consumer consents to. While the Rules detail retailers' obligations, the Commission is aware that some consumers have found the process to access their energy data problematic. For example, consumers access to historical usage data is not always provided in a timely manner, or if it is provided, it is not in an accessible or practical format. While some retailers are providing their customers access to near real-time data through their websites or portals, the Commission understands this is not common market practice.

The Commission considers that there may be a need to strengthen the ability of consumers to access billing and consumption data. Some potential options include:

- Providing a prompt in an information provision of a consumer's right to request consumption data or elect an authorised representative.
- Stronger obligations on form, format, and timeframes in which this data is provided.
- Exploring options to make the provision of this data, such as an app, easier for providers.

The Commission is interested in stakeholder feedback on whether they consider the current framework is meeting consumers' demand for energy data, and if not, what changes would be required (see section 3.4).

B.2.8 The Commission's preliminary position

Throughout this Review, the Commission has found the current arrangements for negotiating and utilising data that the meter can provide are inefficient and are likely not contributing to the long-term interest of consumers. Therefore, the Commission's preliminary recommendation is that options for a power quality data access and exchange framework be developed with stakeholders.

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133 Submissions to the consultation paper: AGL, p. 5; Alinta, p. 5; AMS, pp. 2, 6; Ausgrid, p. 6; Dr Martin Gill, p. 11; EDMI, p. 8; Endeavour Energy, p. 5; EWON, p. 6; IPART, p. 2; Origin, p. 4; Secure Meters, p. 7; SolarAnalytics, p. 3; PIAC, pp. 17-18; PLUS ES, p. 21; Vector, pp. 3, 17-18; VRT Systems, p. 8.

Questions for stakeholders to respond to on data access are located in section 3.4.

B.3 Achieving a critical mass of smart meters may be required and would enable more efficient service outcomes

B.3.1 Lower penetration of smart meters limits service innovation and the realisation of consumer benefits

The *Competition in Metering* rule is intended to promote innovation in the supply of metering services by creating a market for different providers to compete for the provision of metering services. However, the Commission recognised in the Review's consultation paper that competition in metering has resulted in a slower roll out of smart meters than generally expected. The Commission sought feedback on stakeholders' expectations on the roll out of smart meters and the implications for the provision of services.

All stakeholders who commented on the roll out of smart meters in the consultation paper suggested that the roll out of smart meters can be piecemeal, ad hoc, and ultimately slower than expected. Submissions point to the inefficiencies in the way smart meters are installed and the challenges in coordinating multiple parties.[134] Appendix C details these issues in greater detail.

The slower pace and smaller scale of smart meter roll out can delay the development of services that could be enabled by smart meters. Some stakeholders were of the view that service benefits from smart meters are available to the market today. However, a faster and more efficient roll out of smart meters could better contribute to economies of scale and scope in installing smart meters by lowering the costs per unit.[135]

Stakeholder submissions also expressed the view that the current penetration of meters is limiting the realisation of net benefits that currently available metering services can provide and could be inhibiting the development of new additional service models due to:

- The roll out requiring a larger sunk expenditure than expected, which limits the end value of services.[136]
- A higher perception of risk to retailers in the market, causing under-investment in service innovation, provision, or procurement.[137]

Some stakeholders considered this could potentially cause long-run implications such as further barriers to entry or consolidation.[138]

Stakeholders generally considered that provision of the more advanced additional metering services would be less efficient under a slower roll out, as the realisation of many benefits

134 Submissions to the consultation paper: ACOSS et al, p. 12; AGL, p. 3; EDMI, pp. 3, 9; ENA, pp. 5-6, 8; Endeavour Energy, pp. 2, 5-6; Energy Queensland, pp. 12, 14, 21; EnergyAustralia, p. 6; Essential Energy, p. 8; EWON, p. 9; IPART, p. 2; Origin, pp. 6-7; PIAC, p. 11; PLUS ES, pp. 15-16, 27; Powermetric, p. 4; Powershop, pp. 1, 2, 3; ReAmped, pp. 3-4; SAPN, p. 6; Secure Meters, pp. 2, 9.

135 Submissions to the consultation paper: Alinta, p. 6; Citipower, p. 2; Energy Queensland, p. 21; Gridsight, pp. 3-4; Secure Meters, pp. 3-4; Simply Energy, p. 4; Vector, pp. 19-20.

136 Submissions to the consultation paper: Alinta, p. 6; Endeavour Energy, p. 5; Red and Lumo, p. 2.

137 Submissions to the consultation paper: Essential Energy, p. 4; Intellihub, p. 6; Secure Meters, p. 3; PLUS ES, p. 7.

138 Submissions to the consultation paper: Aurora, pp. 2, 6; Clean Energy Council, p. 6; Endeavour Energy, p. 2; Energy Queensland, p. 21; Powermetric, p. 2; ReAmped, pp. 5-7.

dependent upon a critical mass of smart meters. Submissions to the consultation paper indicate that a timelier and more efficient roll out of smart meters may reduce market participants' cost-to-serve for new service options. For example:

- Services that a meter could enable or provide at higher penetrations, such as in-home energy management or providing consumers with more opportunities to participate in new energy services.[139]
- A critical mass with geographically significant penetration — having a geographic spread of smart meters would likely make additional services more efficient, particularly low voltage visibility services.[140]
- It may be beneficial to determine notional and indicative penetrations at which new services would be expected to be provided, or provided more efficiently.[141]

Some services that smart metering can provide will likely require a critical mass of smart meters for the full value to be delivered to consumers. It is likely that each additional service that smart meters can provide will likely lower the cost of core services. Through further engagement with the Sub-Reference Group and the ENA, the Commission has gained insights on the particular thresholds required for the net benefits of certain distributor services to be realised. The ENA has provided the following indicative thresholds:

Table B.3: Indicative penetrations in which distribution services would likely provide benefits to consumers

OPTIMAL INDICATIVE PENETRATION OF SMART METERS	POTENTIAL USE CASES BY DISTRIBUTION BUSINESSES	BENEFITS TO CONSUMERS
Benefits on a meter-by-meter basis	• Remote connection/disconnection. • Single to bulk (or area) meter ping. • Management of controlled load and DER. • Energy meter theft detection. • Neutral fault detection.	• Lower overall costs in the long run from lower network costs passed through. • Avoided manual visits or reading costs passed through, better service. • Reduced direct costs to consumers through error or theft. • Improved safety, potential prevention of electrical shock.

139 Submissions to the consultation paper: Aurora, p. 6; Origin, p. 5; Powershop, p. 4; PLUS ES, p. 9.

140 Submissions to the consultation paper: ACOSS, p. 12; Alinta, p. 6; AMS, pp. 8-9; Clean Energy Council, p. 8; EDMI, p. 8; Endeavour Energy, p. 6; EnergyAustralia, p. 4; Energy Queensland, p. 6, 19; NICE, p. 25; PLUS ES, p. 21; Powermetric, p. 3; Vector, p. 19.

141 Submissions to the consultation paper: AMS, p. 8; Clean Energy Council p. 4; EDMI, p. 8; Intellihub, p. 13; NICE, p. 15; Secure, pp. 3-4; Vector, p. 6.

OPTIMAL INDICATIVE PENETRATION OF SMART METERS	POTENTIAL USE CASES BY DISTRIBUTION BUSINESSES	BENEFITS TO CONSUMERS
20-50%	• Improved ability to connect DER on more accurate hosting capacity. • Improved investment planning. • Real-time low voltage network visibility. • Transformer load management • Dynamic operating envelopes. • Better identification of outages.	• More efficient connection and integration of DERs. • Improved forecasting of the local network. • More accurate voltage management improving the utilisation of hosting capacity. • Faster restoration of supply, lower operating expenses.
>50%	• Network cost reductions arising from new network tariffs. • LV network optimisation. • Dynamic voltage management. • Accurate outage Identification to rapid response. • Cross-referencing error correction. • Automated transformer load management. • Outage notification service for off-supply NMIs.	• Lower overall customer cost in the long term via lower network costs. • Consumer reward options for reducing demand during peak demand periods. • Faster restoration of supply and potential automation of supply restoration. • Reduced direct costs to consumers through error or theft. • Advanced DER integration, particularly improved export service performance, and enhanced network support for services like VPP and aggregation.

Source: Information provided by the ENA, adapted by the Commission.
Note: Percentages are indicative based on best current estimates. Penetrations may vary based on access to smart meters and meter data.
Note: ENA has indicated that DNPs could provide most of these services on 10-20%, however, they could be considered less efficient than the optimal indicative penetration.

These indicative penetrations detail the critical mass required for DNSPs to realise consumer benefits. In many use cases, DNSPs can derive material consumer benefits at lower

penetrations. However, the efficacy and effectiveness of these services tend to increase with a critical mass of smart meters. DNSPs may only achieve other services once reaching a critical mass of smart meters. For example, the efficiency in detecting neutral integrity does not increase with a high penetration of meters, but rather the consumer benefits increase linearly with each additional meter installed.

B.3.2 The Commission's preliminary position

The Commission considers that achieving a critical mass of meters faster than at the pace of the current roll out will likely improve the economies of scale in providing basic services. Such economies of scale would likely allow for the net benefits of advanced services to be delivered to consumers — both consumers who choose to take on additional services and those who do not.

While basic services could be provided today utilising the capability of smart meters already deployed, DNSPs have demonstrated throughout the engagement with the Commission that delivering these benefits to consumers relies not only on higher penetration, but also on the capture and provision of non-billing data. There may be greater efficiency in these core services as smart meter penetration increases in conjunction with consistent data access.

Advanced services, such as dynamic voltage management, depend on higher resolutions of voltage data (such as every 5 minutes). While a high smart meter penetration is likely required for the optimal consumer net benefits to be realised, these use cases can be implemented at lower metering penetrations while still delivering material benefits to consumers. Distribution business stakeholders have demonstrated that these services may also require more explicit data access or a particular geographically significant spread of smart meters before realised consumer benefits.

Due to improved economies of scale, the net benefits realised by consumers from metering services will likely improve as service providers can leverage the lower cost-to-serve. The Commission considers that improved economies of scale for service providers can support the energy transition and decarbonisation of the NEM while facilitating positive consumer outcomes at an NMI and system level. Consumers could likely expect new service models (such as in Table B.2 or Table B.3) to be provided by service providers. These services directly benefit consumers through participation or economising their energy costs. There are also indirect net benefits from a more efficient system that will likely benefit the most consumers at a relatively lower cost in the long run.

The Commission's preliminary view is that changes are likely required to improve the pace and scale of smart meter roll out to achieve a timely critical mass. These are addressed in more detail in appendix A.1 and appendix C.

Questions for stakeholders to respond to on a critical mass are located in section 3.5.

C IMPROVING METER INSTALLATION PROCESSES

This appendix details the Commission's preliminary recommendations to improve the smart meter installation process. The recommendations fall under three categories:

- Improving customers' experience
- Reducing delays in meter replacements
- Measures that could support a more efficient roll out.

This appendix also provides the Commission's preliminary comments on a number of other installations issues raised by stakeholders.

The Commission welcomes stakeholder feedback on the recommendations and options discussed in the appendix.

C.1 Improving customers' experience

C.1.1 Retailers to be required to provide information to consumers prior to a smart meter being installed

Preliminary recommendation

The Commission proposes to introduce a requirement for retailers to provide information to their customers when a smart meter is being installed. This would apply for all installation scenarios and the retailer would be required to provide the customer with an information notice that contains the following information:

- the reason for the meter's installation
- the consumer's rights and responsibilities involving the installation, including in relation to remediation work
- the party the customer should contact for additional information and resolve issues, as well as dispute resolution options
- any changes to the terms or conditions to the consumer's retail contract, including tariff change as a result of a smart meter being installed
- a summary of the services available to consumers as a result of them obtaining a smart meter.

Some of the information requirements above, such as any impacts on the customer's bill, already exist under the NER. However, these provisions do not require the information to be provided before a smart meter's installation.

If this recommendation is adopted, retailers would be required to provide this notice to the customer as soon as practicable, but no later than four business days before the meter installation date. The Commission considers that this timeframe would enable retailers to issue the information notice alongside either the PIN or the single retailer opt-out notice (where applicable). This obligation would be in addition to existing notice requirements and could cover situations where the retailer does not intend to change a customer's retail tariff immediately after that customer obtains a smart meter.

The lack of information is affecting customers' experience with smart meters

Stakeholder feedback and findings from Newgate's research suggest that consumers currently may not receive adequate information on the process of obtaining a meter, responsibilities and accountabilities under the installation process, the benefits that smart meters can provide and any changes which may result from the installation of the smart meter, such as tariff changes.

One of Newgate's major research findings was that consumers require more information about both installation processes and the services that become available to them after obtaining a smart meter. In particular, it found that consumers without smart meters would highly value information about services enabled through smart meters upon installation, and that consumers with smart meters that recalled obtaining this information were more satisfied with their smart meters than consumers that did not recall obtaining it.

Newgate also found that when consumers did have a negative consumer experience, this was generally due to either delays or issues with the perceived complexity of the process.

Lack of information, or understanding of obligations, in relation to installation of meters was also raised by stakeholders (including members of the Installations Sub-Reference Group). Issues raised included:[142]

- The installation process can be complex and the following are often not adequately explained to the customer:
  - Unexpected costs and delays that could arise with complex installations
  - The large number of parties involved in installing meters — retailers, MCs, DNSPs (and accredited service providers in New South Wales), solar providers and electricians – and each party's roles and responsibilities
  - In some circumstances, customers are responsible for rectifying electrical issues on their premises at their own expense before the smart meter installation can proceed. Examples of such issues include degraded switchboards and the need to install a new metering panel that could house the smart meter
- Consumers are sometimes not informed of tariff changes (e.g. transition to a time-of-use tariff) that may occur as a result of having a smart meter installed
- The quality of available information provided to customers varies:
  - Publicly available information varies widely between retailers, and many websites contain information that is too complex for customers. Some customers consider that the information may be biased
  - There is also unhelpful information about smart meters on the internet. Some consumers become apprehensive after reading the information and resist having a smart meter installed or replacing a faulty accumulation meter with a smart meter

142 Submissions to the consultation paper: Australian Energy Council, p. 5; AER, p. 5; Aurora Energy, pp. 2-3; Endeavour Energy, p. 2; EWOQ, pp. 5-6; Geoffrey McEntee (Private individual), p. 1; PLUS ES, p. 9; NECA, p. 5; Powermetric, p. 6; Powershop, p. 3; Red and Lumo, pp. 4-5; TasNetworks, p. 1; ECA, p. 2.

- Consumers need to be provided clear information on all aspects of the smart meter roll out, including instances where the Rules require a smart meter to be installed (such as new connections)
- Consumers need to be provided clear information on their ability to request a smart meter from their retailer if they wish to have one.

A number of retailers and their metering coordinator indicated that they provide information to customers on the smart meter after the installation. For example, Aurora Energy and Vector mentioned that they provide post-installation 'leave behind materials' directly to the customer, with Vector suggesting that this has minimised dissatisfaction and poor customer experiences.[143]

Information prior to installation is likely to improve customer experience

Having regard to Newgate's research results and feedback from stakeholders, the Commission considers that providing customers with information on smart meters before the installation process commences, rather than afterwards, is likely to facilitate a positive customer experience. Providing information such as the roles and responsibilities of the various parties, dispute resolution options and potential additional costs ahead of the installation process will likely improve the transparency and predictability of the process of the process for consumers.

Is there a need for the information to be provided by an independent party?

A number of stakeholders suggested that an independent source of information be provided or a link for an independent source of information be included.[144]

In its submission, Red and Lumo expressed concern that a lack of education and communication on smart meters from authorities (including ombudsman schemes) may have hampered the roll out of smart meters.[145] Conversely, Energy Queensland argued that despite consumers not having enough information on both the direct and indirect benefits of smart meters, it is difficult to justify funding additional consumer education to create further demand for smart meters at this time.[146]

Information provided by an independent party (or parties) could potentially help to improve the customer experience. The information could include the benefits smart meters could provide to individual customers as well as the end-to-end process for requesting a meter and its installation. The information provided by the independent party should not replace the requirement for retailers to supply addition details to customers described above, but the independent party's information could be referenced in the retailer's information notice.

The Commission is interested in stakeholder views on whether an independent party should provide information on smart meters for customers. If this measure is supported by

143 Aurora Energy, submission to the consultation paper, p. 2; Vector, submission to the consultation paper, p. 11.
144 Submission to consultation paper: ACOSS et al, p.19; PLUS ES, p. 3; Secure Meters, p. 5.
145 Red and Lumo, submission to the consultation paper, p. 5.
146 Energy Queensland, submission to the consultation paper, pp. 13, 20.

stakeholders, the Commission is also interested in stakeholder views on implementation considerations.

Retailers are best placed to provide additional information

Stakeholders provided differing views on the party or parties that should be responsible for providing information on smart meters to consumers. The majority of stakeholders (many of whom are retailers) suggested that the most appropriate party is the retailer.[147] Other stakeholder suggestions included state authorities and regulators, and Endeavour Energy suggested that DNSPs could provide this information as part of a more collaborative effort along with consumer groups and retailers through the Consumer Charter.[148]

While information on smart meters can be provided by a number of parties, retailers hold responsibilities for customer interaction as well as the provision of metering services. The Commission therefore considers that the obligation to provide additional information should be placed on retailers. This arrangement would also enable customers to receive all the relevant information from one single party, thus minimising the potential for confusion.

C.1.2 Enabling customers to request a smart meter from their retailers for any reason

Preliminary recommendation

The Commission proposes to enable customers to request a smart meter from their retailer for any reason and require retailers to provide a smart meter on receipt of such a request. This recommendation seeks to address the issue raised by customers and some stakeholders that some retailers have been declining customer requests to install a smart meter.

Stakeholders have indicated that some retailers are refusing customers' request to install smart meters

The current framework provides clear guidance that any new or replacement meter for small customer's premises must be a smart meter. This requirement covers situation such as new premises (both green and brownfield locations), a connection being upgraded (e.g. from a single phase connection to a three-phase connection to accommodate a new ducted air-conditioning unit) or a rooftop solar system being installed. However, for situations where the customer's request does not include a connection upgrade or installation of rooftop solar system, the Rules do not provide explicit direction on whether retailers are obliged to install a smart meter.

Since the commencement of the *Competition in metering* rule, the Commission has been contacted directly by customers complaining that their retailers have declined their request to install a smart meter. In most cases, these customers requested smart meters because they would like to understand their usage better or take advantage of tariff options that require a smart meter, and not because alterations at their premises or installation of new equipment such as rooftop solar systems.

147 Submissions to the consultation paper: Australian Energy Council, p. 5; Alinta Energy, p. 4; Aurora Energy, pp. 2-3; Endeavour Energy; p. 6; EnergyAustralia, p. 6; ReAmped Energy, p. 3; Red and Lumo, pp. 4-5.

148 Endeavour Energy, submission to the consultation paper; p. 6; PIAC, submission to the consultation paper, p. 14.

In its submission to the consultation paper, Intellihub also indicated that some retailers will install a smart meter on a customer's request, but others only do so when a new or replacement meter is required.

Customers should be able to receive a smart meter if they request one

As discussed in Chapter 2, smart meters could provide a number of benefits to customers individually. The Commission considers that the regulatory framework should give small customers the right to request a smart meter from their retailer for any reason, and that their retailer should be required to install a smart meter upon receipt of such a request.

This recommendation, if adopted, would complement the existing timeframe provisions for customer-initiated requests under clauses 7.8.10A, 7.8.10B and 7.8.10C of the NER. The Commission considers this would help improve customer experience by providing certainty to customers requesting a smart meter that their retailers would be obliged to accept their request, and that the meter would need to be installed in a reasonable time period.[149]

C.2 Reducing delays in meter replacement

C.2.1 Implementing a practicable replacement timeframe for malfunctioning meters

Preliminary recommendation

In order to improve the process for the replacement of malfunctioning meters, the Commission proposes to make the following changes to the NER:

- Creating two categories of malfunctions for small customer metering installations, each with different rectification timeframes:
  - **Individually identified malfunctions**. The MC must repair or replace meters that have been individually identified as malfunctioning as soon as practicable, but no later than 15 business days from when it has been notified. This category would cover situations such as:
    - A meter reader reporting that a meter that has been physically damaged or the display could no longer be read
    - A metering technician investigating an issue raised by the consumer, retailer (or any party) discovering that components of a smart meter such as the communication module need to be replaced
  - **Malfunctions identified through statistical testing (family failures).** The MC must repair or replace meters that have been deemed to be malfunctioning through sample testings as soon as practicable, but no later than 60 business days from when it has been notified. This category would cover malfunctions generally known as family failures within the industry.
- Exceptions would be provided to the timeframes where the MC is not able to repair or exchange the meter due to issues at the premises where the site is unsafe or there are

149 Clauses 7.8.10A, 7.8.10B and 7.8.10C of the NER also provide exceptions to the timeframes for retailers and metering parties where a smart meter cannot be installed due to circumstances beyond their control. Some of these circumstances include situations such as the site being unsafe or that installing the meter requiring another customer's supply to be interrupted.

access issues. The exceptions would be similar to those in clause 7.8.10B(b)(2) and 7.8.10B(b)(3) of the NER. The timeframe requirement would recommence once the site issues have been resolved.

- MCs would no longer be able to apply to AEMO for an exemption from the timeframe requirement.

It is important to note that the above changes would only apply to small customer metering installations. The Commission does not propose to change the malfunction arrangements for other types of meters. The definition of *metering installation malfunction* would also remain unchanged.[150]

The current framework provides one timeframe for all malfunctioning meters, regardless of how they are identified

There are two ways that meters could be identified as malfunctioning:

- **Individually**. An individual meter would be identified as faulty through physical inspection. A meter reader could report that a meter has been damaged as part of their meter reading walks, or a customer could also inform their retailer that their meter was damaged. Additionally, meters could also be identified to have malfunctioned as part of an MC's physical inspection and testing regime. The number of meters that are identified through these methods would generally be small and the instances of identification could be spread over a longer period of time.
- **Sampling**. MCs (including DNSPs who are MCs of type 5 and 6 meters) typically conduct accuracy testing of meters in the performance of their role. The testing could be conducted through sampling methods where a random sample of meters of a selected group (or 'family') of meters are selected for testing. The family could be chosen based on a combination of characteristics such as manufacturer, model, type, year of installation. The test results of the samples would determine whether the entire family of meters are accepted or non-accepted to be functioning meters. All metering installations within a family that is not accepted as a result of sample testing are considered to have malfunctioned and are therefore required to be replaced. Malfunctioning meters identified under this process are generally called 'family failure' meters, and this process would generally identify a large number of meters to be replaced.

While the Rules are clear about MCs' obligations to replace malfunctioning meters, the timeframe obligation applies to all types of metering malfunctions, regardless of how they are identified. Under the current framework, once the MC has been notified that the meter at a site it is responsible for has malfunctioned, it must replace the meter within 15 business days after being informed, or within 30 business days if the replacement of the meter involves interrupting supply to another customer.[151]

150 This definition could be found in Chapter 10 of the NER. It is important to note that the definition of malfunctioning meters does not include 'aged meters'. That is, meters that have been installed for a long period of time but have not been deemed to have failed are not considered malfunctioning meters.

151 NER cl. 7.8.10(a)(2).

Where the MC is not able to repair of replace the malfunctioning meter within the timeframes above, they may apply to AEMO for an exemption. The MC must provide AEMO with a plan for the rectification of the malfunction as part of the exemption application process.[152] Further, the MC can apply for extensions to those exemptions. If AEMO grants an extension, the MC needs to provide an updated rectification plan as part of its extension application.[153]

There are delays in the replacement of malfunctioning meters, with long time extensions sought under the AEMO exemption framework

The Commission understands that malfunctioning meters are not being replaced in a timely manner, regardless of how they are identified. Information provided by AEMO indicated that as at August 2021, there are nearly 349,000 malfunctioning meters that have been granted exemptions under AEMO's metering installation malfunction exemption framework. Out of these meters, nearly 246,000 meters were identified through the sample testing process, with the remaining 103,000 identified through other means.

AEMO indicated that it generally grants a timeframe extension of around 3-8 months for non-family failure meters. The application for family failure timeframe extension varies, but requests are generally for periods of years instead of months. AEMO also indicated that many of the timeframe exemptions are extended.[154]

A number of stakeholders have also commented on the delays in malfunctioning meter replacement in their submissions to the consultation paper. SAPN, ENA and Endeavour Energy suggested that there are unnecessary delays in replacing malfunctioning meters.[155] To address this issue, Endeavour Energy proposed that the definition of meter malfunctions to be clarified to avoid meter rectification delays and that AEMO be obligated to report on exemptions to meter replacements, while SAPN proposes stronger requirements on retailers and MCs to replace faulty and family failure meters.[156]

AGL and Simply Energy additionally suggested that the current practice for identifying malfunctioning meters leads to a boom/bust program of work, which they argue is inefficient and has costly flow-on effects for scheduling replacements.[157] This issue was also raised by stakeholders during Installations Sub-Reference Group meetings.

The current timeframe extension framework does not support the timely replacement of malfunctioning meters

Changes are required to improve the speed of replacement for malfunctioning meters. The current exemption framework does not represent the most efficient use of resources for either the MCs or AEMO. Further, the current pattern of exemptions and repeated extension

152 NER cl. 7.8.10(c)

153 Details about AEMO's exemption procedures can be found at: https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2019/metering-icf/first-stage/exemption-procedure-meter-installation-malfunctions-v11-initial-consultation-clean.pdf?la=en&hash=0CE159196ACE15D96DD62A7453C1A083

154 Discussions between AEMO and the AEMC.

155 Submissions to the consultation paper: Endeavour Energy, pp. 2, 10-11; SAPN, p. 5; ENA, p. 6.

156 Endeavour Energy, submission to the consultation paper, pp. 10-11; SAPN, submission to the consultation paper, p. 5.

157 AGL, submission to the consultation paper, pp. 3-4; Simply Energy, submission to the consultation paper, p. 2. Simply Energy was referring to end-of-life meters.

under the exemption framework does not provide any certainty on when malfunctioning meters will be replaced.

The Commission considers that the Rules need to provide clear expectations on replacement timeframes for malfunctioning meters. This expectation cannot be achieved through a framework that provides opportunities for repeated timeframe extensions. The Commission therefore proposes to remove MCs' ability to apply to AEMO for timeframe exemptions for small customer metering installations that have malfunctioned, regardless of how they are identified. The exemption framework will continue to be available to all other types of metering installations.

Exceptions to timeframe requirements to provide for situations outside of metering coordinators' control

While it is important to set clear expectations, the Commission also recognises that there are instances where the MC may not be able to repair or replace malfunctioning meters due to circumstances outside its control. Issues such as difficulty in accessing the site or a site not being safe, or a site having shared fusing, are beyond the MC's control. Other issues would require the customer to address electrical issues such as the need to replace a meter board because it is too small or degraded before the meter's installation can proceed. Issues regarding site remediation are discussed in further detail in appendix C.2.2 below.

The Commission considers providing MCs with exceptions to the timeframe requirement would provide a more efficient and less administratively cumbersome approach to address these issues. The Commission proposes to base any exceptions on the existing provisions for customer-initiated timeframe under clauses 7.8.10A, 7.8.10B and 7.8.10C of the NER.

Separate timeframes for family failure malfunctions

As discussed above, family failure meter malfunctions are identified through sample testing, with the process usually identifying a large number of meters that would need to be replaced. While the meters identified through this process belong to the same 'family', they may be spread over a large geographical region. A realistic timeframe for the replacement of family meters needs to be set, especially if MCs no longer have the ability to apply for timeframe extensions through the AEMO exemption process.

The Commission therefore proposes to introduce a requirement for family failure meters to be replaced within 60 business days (around three calendar months) of MCs being notified. Members of the Sub-Reference Group for Installations consider this is a workable timeframe and allow MCs the opportunity to schedule their replacement in the most efficient manner. A longer timeframe for family failure replacement could enable MCs to consider a roll out program for a geographic area that include a combination of customer-initiated installations, retailer-led roll outs and malfunctioning meter replacements.

C.2.2 Seeking further feedback on measures to address issues at the customer's premises that prevent the successful installation of a smart meter

Request for additional stakeholder recommendations

The Commission seeks stakeholder suggestions on potential solutions to address issues at customer premises that prevent smart meters from being successfully installed. Vector's submission indicates that around 15 per cent of its attempted installations in New South Wales, 4.5 per cent in Queensland and nearly 13 per cent in South Australia fail because of issues at the customer's site.

While the issues were raised in submissions to the consultation paper and discussed at Reference Group meetings, the Commission does not believe appropriate solutions have been found yet.

What issues are encountered by metering coordinators at customer premises?

A number of issues at the customer's premises often prevent the MC from successfully installing a smart meter. These issues are outside of the MC's control and they are not able to rectify these issues without first gaining the customer's approval. In most jurisdictions, the customer is responsible for remediating the above issues as the metering panel is part of the customer's property. These issues affect all types of installation scenarios.

The circumstances commonly encountered relate to the metering panel (also known as the switchboard) and MCs indicated that they include the following issues:

- **Meter panel size.** For some customers, their existing metering panels do not have sufficient room for the smart meter to be installed. Replacement panels with sufficient room for the smart meter would need to be installed before installation can proceed.
- **Meter panel and wiring conditions.** For some premises, new metering panels would need to be installed before the meter installation can proceed as the existing meter panels or wiring are in a poor condition, or they contain asbestos.

A large number of stakeholders commented on the above issues in their submissions to the consultation paper. The most common comments raised in these submissions were that:[158]

- these issues have an adverse impact on the consumer experience with unexpected costs and delays from this process
- consumers may not be motivated to resolve these remediation issues, and MCs or retailers cannot compel consumers to resolve them
- these scenarios have no solution under the NER or NERR
- meter installations under these circumstances can end up being abandoned.

Similar views were frequently raised by Installations Sub-Reference Group members.

158 Submissions to the consultation paper: AGL, p. 3; Aurora Energy, p. 2; Bright Spark Power, pp. 3-4; ENA, p. 15; Endeavour Energy, pp. 10-11; Energy Queensland, p. 6; Intellihub, p. 21; Momentum Energy, p. 3; Origin, p. 1; PLUS ES, p. 27; Powermetric, p. 6; Powershop, p. 3; ReAmped Energy, p. 4; Secure Meters, p. 5; Simply Energy, p. 7; Red and Lumo, p. 5; Vector, p. 8.

Current treatment of the issue under the regulatory framework

The regulatory framework recognises that issues at the customer's premises could prevent the successful installation of a meter. Retailers are not required to meet the installation timeframes for customer-initiated requests under the NER where their MCs encounter the above issues. [159] Timeframe obligations would reapply once the site issues have been rectified. However, neither the NER or the NERR imposes obligations on the retailer or the MC to rectify site issues, as this is the customer's responsibility.

EDMI indicated that Masters Electricians Australia and the Competitive Metering Industry Group are working to establish a scheme where licensed electricians working on new connections or solar installations for customers could also install smart meters. EDMI proposed that customers could also use this scheme to have their electrician upgrade both their switchboard and their meter.[160] EDMI proposed examining whether the metering framework could be expanded to accommodate this.

The costs of remediation are a barrier to resolving the issue

The Commission understands that the cost of resolving site issues can range from a small amount to thousands of dollars. In addition to the monetary cost, customers would also be inconvenienced by having to arrange electricians to perform the work and reschedule the installation appointment with their retailer.[161] Some customers do not have the capacity to pay these costs, or refuse to do so. Some respondents in Newgate's focus groups also expressed concerns regarding remediation costs and suggested that they would not accept a smart meter if they have to incur costs to address issues at their premises.[162]

If the issue at the customer's premises are not rectified, the installation of the meter cannot proceed. For customer-initiated requests, this could mean the customer is not able enjoy the benefits they sought by requesting the smart meter.

Wide variety of opinions on who should cover the cost of remediation

Several submissions also discussed whether parties other than the customer can or should cover the costs of this remediation work. Bright Spark Power mentioned that retailers generally consider the costs associated with remediation work to be unsuitable operational costs to incur.[163] Simply Energy and Red and Lumo both said there were expectations from consumers and ombudsman for retailers to bear the costs of remediation work to resolve customer complaints.[164]

Simply Energy in its submissions, and other retailers in the Installations Sub-Reference Group, indicated that some retailers provide a contribution towards remediation work.

159 NER cl 7.8.10A(b), 7.8.10B(b), 7.8.10C(b).
160 EDMI, submission to the consultation paper, p. 9.
161 Simply Energy, submission to the consultation paper, p. 7.
162 Newgate report, p. 46
163 Bright Spark Power, submission to the consultation paper, pp. 3-4.
164 Simply Energy, submission to the consultation paper, p. 7; Red and Lumo, submission to the consultation paper p. 5.

However, Simply Energy also indicated that this arrangement is not sustainable as the number of remediation cases continues to increase.[165]

Origin was of the view that many remediation issues are a legacy deficiency in the distribution network, and that DNSPs should be responsible for ensuring the network remains at a sufficient standard to accommodate smart meters.[166]

Some stakeholders considered that the cost of site remediation should be paid for by either the DNSP or retailer and the cost recovered from the broader customer base. The options to recover the costs from the wider consumer base include:[167]

- through DNSPs via network charges
- through retailers via the default market offer.

The majority of stakeholders who commented on this issue proposed government funding to assist consumers with addressing remediation and site compliance issues in order to accelerate the roll out, with Intellihub further suggesting that the payment could be made to retailers or MCs.[168]

An issue that cannot be resolved through the NER and NERR

Remediation issues create unwelcome delays to the installation of meters, and undermine the scale efficiencies that can be achieved through coordinating multiple meter installations. The cost of remediation also often catch customers unaware.

However, beyond requiring retailers to provide advanced notice that these issues can arise through an information notice (see appendix C.1.1), the Commission considers that there is no clear path to address these issues through the NER and NERR. Enduring solutions to the remediation issues are likely beyond the Commission's rule making power. Similarly, the issue of cost recovery for remediation costs cannot be addressed through Rules obligations alone.

The Commission therefore seeks further stakeholder involvement to identify solutions that would help resolve the issues. Jurisdictional governments' involvement is also likely to be required, as electrical wiring and safety standards are largely governed by jurisdictional regulations.

C.3 Measures that could support more efficient deployment

C.3.1 Retailers only need to provide one notice to customers for retailer-led roll outs

Preliminary recommendation

The Commission proposes to reduce the number of written notices that a retailer is required to send to a consumer from two to one for retailer-led roll outs. Under this recommendation,

165 Simply Energy, submission to the consultation paper, p. 8
166 Origin, submission to the consultation paper, p. 7.
167 Submissions to the consultation paper: Origin pp. 5, 7, Secure Meters, p. 5
168 Submissions to the consultation paper: Alinta Energy, p. 6; Intellihub, p. 21; Momentum Energy, p. 4; Origin, p. 1; Powermetric, p. 6; Powershop, p. 3; ReAmped Energy, p. 4; Secure Meters, p. 5; Simply Energy, p. 7; PLUS ES, p. 27; Red and Lumo, p. 5; Vector, p. 8.

the notice would need to be provided to the customer at least 15 business days before the proposed installation date.

The Commission considers that this change would likely improve the efficiency of customer-led roll outs, and the replacement of malfunctioning meters by enabling retailers to replace meters in the same geographic area under a retailer-led roll out at the same time as the other meter installations. This would improve installation efficiencies, particularly in regional or remote areas.

A measure intended to provide customer protection is causing customer confusion in practice

Under rule 59A of the NERR, if a retailer proposes to undertake a retailer-led deployment of smart meters, it is required to provide a small customer two written notices before it replaces the small customer's meter. The first notice and second notice are to be provided by the retailer to the customer at least 25 business days and 15 business days, respectively, before the retailer's proposed installation date. This measure is intended to provide customers with the ability to opt-out of having a smart meter where the meter exchange is initiated by a retailer.

However, stakeholder submissions have indicated that in practice, the requirement to provide multiple notices had led to poorer customer experience. In its submission to the consultation paper, EWOSA and Powershop considered that the provision of two notices can cause confusion for some customers as to when the meter will be installed and increase customer complaints to retailers.[169] Energy Queensland suggested that the requirement for a retailer to provide a second notice should be removed to improve the retailer-led roll out and improve the end-to-end engagement between retailers and customers upon installation initiation.[170]

Some members of the Sub-Reference Group on Installations also commented that providing multiple notices to customers simply create 'noise', adding little to no value to customers.

Specificity in rule requirement is causing administrative burden

Retailers and metering parties considered that the specificity in the timing requirements under rule 59A of the NERR harms their ability to efficiently deploy smart meters.

EnergyAustralia and Vector considered the requirement to have a specific time and date for installation on the first and second notice does not enable an efficient retailer-led roll out.[171] Some retailers also considered the required length of time between the notification of the retailer's intent to install a meter and the proposed date of installation to be too long.[172] AGL submitted that in their experience, customers generally prefer installations to be as prompt as possible.[173] This issue was also raised in discussions at the Sub-Reference Group for Installations.

169 EWOSA, submission to the consultation paper, p. 8; Powershop, submission to the consultation paper, p. 2.
170 Energy Queensland, submission to the consultation paper, p. 6.
171 Vector, submission to the consultation paper, p. 24; EnergyAustralia, submission to the consultation paper, p. 7.
172 Submissions to the consultation paper: Origin, p. 5; Simply Energy, p. 3; EnergyAustralia, p. 7.
173 AGL, submission to the consultation paper, p. 4.

It was also raised in the Installations Sub-Reference Group that the length of time when the notices must be sent prior to the planned interruption is an issue. Some participants were of the view multiple notices can be seen as noise, adding little to no value to the customer.

Current requirements restrict retailers' ability to use retailer-led roll out to address shared fusing issues

The retailer-led deployment provision in the NERR can be a tool to assist retailers in meeting their installation timeframe requirements where a customer-initiated request cannot proceed because replacing the customer's meter requires interrupting the supply to another customer.[174] Where the same entity is the retailer for customers affected by the supply interruption, a retailer could use the retailer-led deployment provision to attempt to replace multiple meters.

However, retailers submit that the timeframes for providing the two notices under the current rules makes it difficult for a retailer to undertake a retailer-led roll out and replace the other meters sharing a fuse, even for other customers of that retailer. In this scenario, the retailer would need to provide a retailer-led roll out notice to the other customers of the retailer on the shared fuse at least 25 business days prior to the planned installation date, and another notice at least 15 business days prior to the planned installation date. The retailer needs to replace the meter for the customer who has requested the meter replacement within 30 business days of shared fusing being discovered.

These timeframes are generally considered by stakeholders to be very tight and the retailer is unlikely to be able to replace both meters at the same time. Red and Lumo and ENA considered that regulatory changes should be made for the retailer-led roll out to reduce installation barriers, particularly in the case of shared-fusing arrangements.[175]

Reducing the notice requirement could improve customer experience and roll out efficiency

The Commission considers that the current notification requirements in rule 59A of the NERR for retailer-led roll outs are not enabling efficiencies to be gained in the installation of smart meters, and that the costs of providing multiple notices to consumers with a relatively long lead time likely outweigh the benefits they provide.

Reducing the number of notices required from two to one, with the notice to be provided no later than 15 business days prior to the planned meter installation, balances the need to provide customers the ability to opt out without adding unnecessary administrative overhead and confusion to customers. This change should also provide more planning and scheduling flexibility for retailers to be able to meet their timeframe obligations for shared fusing customers.

This recommendation, if adopted, could also improve efficiency of both retailer-led roll outs and consumer-led roll outs by enabling retailers to roll out meters to other customers in the same geographic area as a consumer that has requested a smart meter or experienced a meter malfunction.

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174 NER cl. 7.8.10A(c1), 7.8.10B(c1), 7.8.10C(c1).

175 Red and Lumo, submission to the consultation paper, p. 4; ENA, submission to the consultation paper, p. 8.

C.3.2 Seeking feedback on whether a small customer's ability to opt-out from retailer-led roll outs should be removed

Issue requiring further stakeholder feedback

The Commission seeks stakeholder feedback on whether the rule provision that enable a small customer to opt-out of retailer-led deployment of small meters should be retained.

Is this customer protection still fit-for-purpose?

Rule 59A of the NERR allows customers to opt-out of a retailer-led roll out. This customer protection is included in each of the two notices a retailer must provide to customers. At the time this provision was introduced, the Rules did not provide customers the ability to request for smart meter communications to be switched off.[176]

Under the opt-out provision, customers have a right to opt-out of a retailer roll out up to 7 business days prior to the intended meter installation date. Consumers are informed of this right in the retailer installation notices. Under rule 59A(8) of the NERR, retailers are allowed to include provisions in market retail contracts that remove a small customer's ability to opt-out from retailer-led roll outs. However, this is not permitted for standard retail contracts.

Questions regarding the continued need for a consumer right to opt out were raised by stakeholders in both the meetings for the Sub-Reference group for Installations and bilateral stakeholder discussions. Some stakeholders expressed the view that customers should retain the right to opt-out from retailer-led smart meter installations.

In submissions, Endeavour Energy expressed concern that there were negative customer experiences with the inability to opt out in the case of the Victorian Advanced Metering Infrastructure roll out.[177] However, Simply Energy noted that in their experience, they have successfully managed to upgrade customers who initially requested to opt-out to a smart meter after providing customers with information on its benefits.[178]

In bilateral discussions, some stakeholders considered that the opt-out provision should be removed for consumers. Other stakeholders were of the view that doing so would raise customer concerns or that the right to opt out should be retained.[179] Some stakeholders who participated in the Installations Sub-Reference Group meetings also suggested that consumers losing the right to opt-out could lead to a negative consumer experience.

Could removing the opt-out provision improve roll out efficiency?

The Commission notes AGL's view that opportunities to facilitate the more prompt installations preferred by consumers are inhibited by administrative inefficiency caused by needing to provide an opt-out right to customers.[180] Removing opt-out rights could potentially increase the efficiency of the retailer-led roll out by enabling retailers to take greater

176 The ability for customers to request smart meter communication to be switched off was introduced in March 2019 through the *Meter installation — advanced meter communications* rule.

177 Endeavour Energy, submission to the consultation paper, p. 1.

178 Simply Energy, submission to the consultation paper, p. 8.

179 Submissions to the consultation paper: EWOSA p. 8; Intellihub p. 15; EnergyAustralia p. 7.

180 AGL, submission to the consultation paper, p. 4

advantage of economies of scale and align scheduling for retailer-led roll outs to other installation processes.

Removing the option to opt out for customers could improve retailer-led roll outs by allowing retailers to replace meters for all customers that are on a same fuse as a meter that is already being replaced. This should provide an opportunity for retailers to efficiently and cost-effectively coordinate and schedule multiple meter replacements (e.g. reduce travel times and multiple site visits) in the case of shared-fusing and multi-occupancy arrangements.

The Commission also understands that most retailers have chosen to remove the option to opt-out from retailer-led meter deployment for those customers on a market retail contract. Only around 10% of consumers in most jurisdictions are on standing retail contracts (excluding Tasmania and parts of Queensland). Therefore, in many of the jurisdictions removing the opt-out provision would only impact a small number of customers.

The Commission is interested in stakeholder views on whether the opt-out right for small customers from retailer-led roll outs should be maintained or whether it should be removed, to help increase the efficiency of retailer-led roll outs.

C.3.3 Seeking further feedback on options for improving the efficiency of meter installations in multi-occupancy situations

Request for further stakeholder input

The Commission seeks additional stakeholder suggestions and feedback from stakeholders on approaches that could improve the efficiency of installing meters in multi-occupancy situations. The Commission is particularly interested in solutions that:

- could be implemented through changes to the NER and NERR
- provide appropriate consumer protections
- minimise unnecessary delays and increase scale efficiencies of the smart meter roll out.

What is the issue at multi-occupancy situations?

In multi-occupancy buildings, multiple meters will usually share a meter panel, and there may be one fuse for isolating supply to multiple premises. This arrangement leads to two main issues when existing meters are replaced with smart meters:

- new smart meters may not all fit on the old meter panel
- interrupting supply to replace one meter will interrupt the supply to multiple customers that sharing the same fuse.

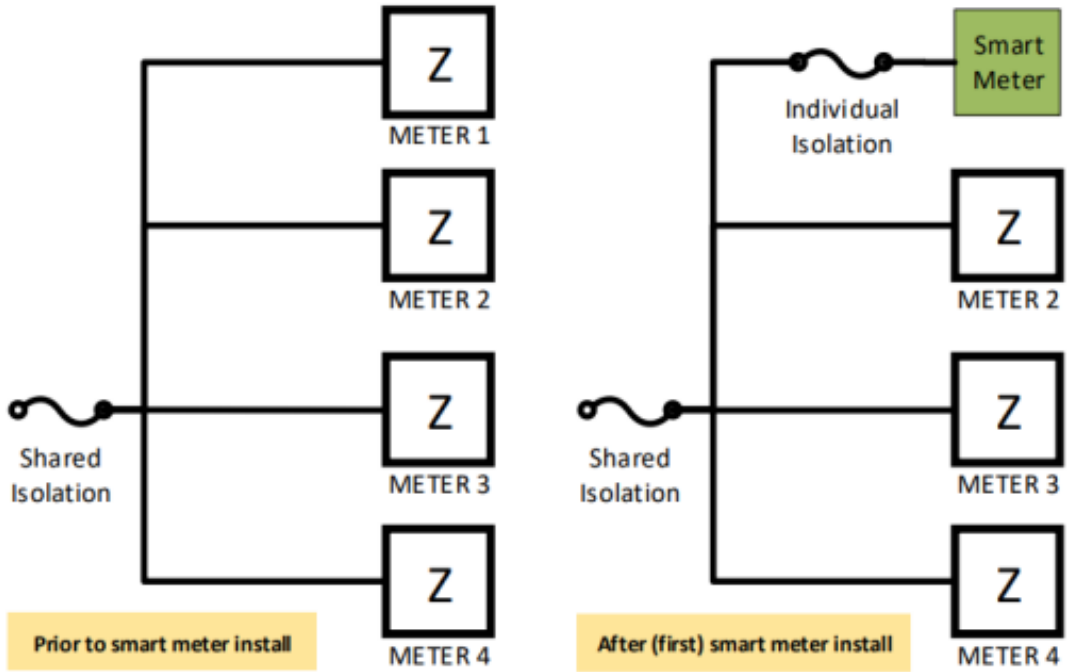
In relation to insufficient space on a meter panel, the Commission understands that in many cases, the existing panel can accommodate a number of new meters without needing to be replaced. However, there comes a point where there is insufficient space on the meter panel and no further meter replacements can occur until a larger panel is installed.

Until relatively recently, jurisdictional provisions in some jurisdictions enabled multi-occupancy buildings to have their connections established using one isolator, known as shared fusing.[181] This means when supply to one consumer is interrupted to replace a meter, all of the other consumers that are on the same shared fuse have their electricity supply interrupted as well.

Shared fusing scenarios can vary from basic ones involving as few as two consumers on a shared fuse (such as in a duplex or a small townhouse) to larger multi-unit complexes that could include more than a hundred people in the same complex.

An example of a shared fusing scenario can be found in Figure C.1 below. To replace customer 1's meter, supply for customers 2-4 needs to be interrupted. Even If customer 1 has an isolation device installed alongside their meter, they will still have their supply interrupted when meter 2, 3 or 4 are replaced. Customers under this scenario could experience multiple interruptions to supply if the replacement of meters is conducted in an uncoordinated manner.

Figure C.1: Shared fusing and isolation scenarios



Source: https://www.aemc.gov.au/sites/default/files/documents/20_april_2020_workshop_final_slides_0.pdf, p. 33

181 Ausgrid's submission states that NSW's jurisdictional rules allowed shared fusing until 2016. Source: Ausgrid, submission to the consultation paper, p. 4.

Sites with larger numbers of consumers on the same shared fuse are particularly complex to resolve for several reasons:

- Under the current framework, retailers can only interrupt supply to their own customers under a shared fusing scenario. A larger number of consumers means a greater likelihood that consumers on the shared fuse will have a different retailer, meaning the DNSP will likely need to be engaged to carry out a planned interruption for the customers of the other retailers.
- The consumers on a shared fuse would likely also share the same meter panel. Larger multi-occupancies can also increase the chance that a meter panel needs to be replaced to accommodate smart meters, as they may be older than the meters which they are replacing.
- A meter panel in a multi-occupancy might not have enough room to accommodate separate isolation devices being installed.

Stakeholder feedback on shared fusing and multi-occupancy issues identified the following issues with multi-occupancy meter replacement:[182]

- are challenging situations to deal with
- may have a negative effect on the consumer experience, particularly when consumers on a shared fuse repeatedly need to experience planned outages regardless of whether their own meters are being replaced or not
- lead to increased administrative inefficiency
- lead to unnecessary delays to resolve
- lead to increased costs due to multiple site visits
- customers in multi-occupancy situations may be required to upgrade meters earlier than they would have chosen themselves
- have no clear solution under the current regulatory framework.
- create ambiguity over whether a new meter would trigger a switchboard replacement because there is not enough room on the switchboard.

Recent rule on multi-occupancy provided more certainty, but installation challenges remain

Several stakeholders also discussed the Commission's recent metering coordinator planned interruptions rule change. Ausgrid, ENA and several retailers indicated that meter replacement for consumers with shared fusing remains a slow and inefficient process, with some also suggesting tthat the rule change created increased certainty.[183] PLUS ES and Red and Lumo suggested that it is difficult for MCs, retailers and consumers to rely on DNSPs to facilitate the meter replacement.[184]

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182 Submissions to the consultation paper: Australian Energy Council, p. 3; Ausgrid, p. 4; Bright Spark Energy, pp. 3-4; ENA, p. 15, Endeavour Energy, pp. 10-11; Energy Queensland, pp. 9-10; Essential Energy, p. 8; Momentum Energy, p. 3, NECA, p. 4; Origin, pp. 5-6; PLUS ES, p. 28; Powermetric, p. 3; Powershop, p. 3; Red and Lumo, p. 2; Simply Energy, p. 8.

183 Ausgrid, submission to the consultation paper, p. 4; ENA, submission to the consultation paper, p. 15. AGL, p. 4; Australian Energy Council, p. 3; Alinta Energy, pp. 2-3; Momentum Energy, p. 3. Members of the installations Sub-Reference Group mentioned this as being an issue for malfunctioning meters in general.

184 PLUS ES, submission to the consultation paper, p. 28; Red and Lumo, submission to the consultation paper, p. 4.

A number of suggestions for improving the process for meter replacement in multi-occupancy buildings were provided by stakeholders. IPART had recommended a rule change to permit retailer planned interruptions to other retailers' customers in a past report.[185] Energy Queensland proposed revisiting this issue and considering other solutions through this review to minimise consumer inconvenience.[186]

ENA and PLUS ES both recommended consideration of replacing all of the meters for customers on a shared fuse and any associated electrical infrastructure through a single coordinated action to reduce overall expenses for consumers.[187] This idea was also supported by some installations Sub-Reference Group members.

Could an option like 'one-in-all-in' help improve the situation?

Resolving issues like shared fusing that affect multiple consumers at the same time is challenging. The process remains complex even after the improvements provided through the MC planned interruptions rule change.

One option could be a 'one-in-all-in' framework for shared fusing scenarios. This would require the meters for all customers on the same shared fuse to be replaced at the same time when the first customer obtains a new meter. This is similar to the suggestion raised by ENA and PLUS ES.

Making all of the meters on a shared fuse be replaced at the same time would likely:

- reduce the number of planned interruptions all customers on the same shared fuse would experience in replacing each meter in an uncoordinated manner
- reduce the number of site visits needed by multiple parties to replace all of the meters.

However, a 'one-in-all-in' option would also remove the right of other affected consumers on the same shared fuse to refuse a replacement meter.

There may be other solutions which could reduce the complexity and costs of meter replacement at multi-occupancy premises. Metering Coordinator planned interruptions were raised as a possibility in the *Metering coordinator planned interruptions* rule change, but the Commission considered that the option introduced unacceptable consumer protection risks.

Another option of allowing retailers to interrupt supply to other retailer's customers has been raised as a possible solution in the past. Requiring a party (such as DNSPs) to remediate sites with insufficient space or shared fusing has also been previously suggested. However, this approach is not possible under the current regulatory framework at the panel is the customer's responsibility. In addition, the DNSP is unable to work on this under both jurisdictional regulations and the Rules framework.[188]

185 IPART, submission to the consultation paper, p. 2.

186 Energy Queensland, submission to the consultation paper, pp. 7-8.

187 ENA, submission to the consultation paper, p. 8; Momentum Energy, submission to the consultation paper, p. 3.

188 ARUP, *Meter Coordinator Planned Interruptions Rule Change Request Advice - Review of Proposal for DNSPs to Install Isolation Devices for Shared Fuse Metering*, June 2020, p. 3.

The Commission invites stakeholder feedback on ways to improve the efficiency of meter replacement in multi-occupancy situations, as well whether an on-in-all-in approach should be considered further (see section 3.6.3).

C.4 Preliminary comments on other installation issues

Throughout this review, a number of other issues have been raised relating to meter installation which the Commission considers require further consideration. These include:

1. The process for replacing meters following a natural disaster
2. Changes to testing and inspection processes
3. Issues outside of the Commission's remit to address.
4. The provision of industry keys to metering parties to enable MPs to access meters
5. What PINs are required for installation situations involving retailers, DNSPs and customer electricians
6. Improved communications with consumer electricians in relation to meter installation.

This Commission has provided preliminary comments on these issues and seeks further feedback from stakeholders.

C.4.1 Replacement of meters following a natural disaster

Issues with current arrangements

Concerns regarding the processes for replacing meters following a natural disaster were raised by EWOSA. In its submission, EWOSA mentioned that it was aware of meter replacement delays following a natural disaster in South Australia.[189]EWOSA questioned whether retailers have a process to deal with metering installations following natural disasters to minimise disruptions for consumers. EWOSA considered that addressing meter replacements following a natural disaster may rely on good cooperation between different parties involved in the process.

Preliminary comments

The Commission understands following installations Sub-Reference Group and bilateral discussions that the common practice for consumers whose meters are destroyed during a natural disaster is that those consumers have their electricity supply restored as quickly as possible.

Until the customer's destroyed meter is replaced, the customer would receive estimated meter reads. While the Commission considers the meter being replaced when the customer's supply is restored to be the ideal outcome, the Commission considers this existing process to be an acceptable one if meter installation delays occur, as the customer is not left without supply in the meantime.

189 EWOSA, submission to the consultation paper, p. 4

C.4.2 Changes to testing and inspection processes

Issues with current arrangements

The Commission through submissions has obtained two proposals from AEMO and Intellihub's submissions to the Metering review consultation paper proposing changes to the metering testing regimes. The relevant changes mostly focus on tables S.7.6.1.2 and S.7.6.1.3 in the NER, which cover the periods allowed between meter testing and meter inspections, respectively.

Both Intellihub and AEMO recommend changes to more clearly distinguish between the NER provisions for meter testing and for meter inspections.

AEMO proposes changes requiring smart, interval and accumulation meters for small customers to be inspected every 5 years, unless they are whole current meters. AEMO also proposes for all whole current meter inspections to need to be in accordance with an asset management strategy approved by AEMO. AEMO suggests that these proposals are intended to provide increased clarity.[190]

Intellihub instead proposes changes to the NER stating that the testing and inspection requirements in the NER apply unless the MC has an asset management strategy that sets out alternative practices. This would mean an MC would not require AEMO's approval of its inspection and testing practices if those practices are in line with the NER.[191]

Intellihub also proposes for the NER to state that for all small customer accumulation, interval and smart meters, a meter inspection would only be required when the meter is tested, regardless of the method used for the frequency of tests. Intellihub suggests that this would allow for either time-based testing or Australian Standards-compliant sample testing by attributes.[192]

Preliminary comments

The Commission considers that the changes that AEMO and Intellihub both agree to in their respective proposals should have positive impacts by clarifying the differences between the meter testing and meter inspection provisions in the NER.

The Commission invites stakeholder feedback on the merits and implications of AEMO and Intellihub's differing proposals regarding the need for AEMO to approve meter inspection and testing requirements, as well as how often meter inspections should be required for small customer meters (see section 3.6.4).

190 AEMO, submission to the consultation paper, p. 27.
191 Intellihub, submission to the consultation paper, p. 32.
192 ibid.

C.4.3 Changes that are beyond the Commission's rule making power

Issues with current arrangements

A number of submissions also highlighted several issues and proposed recommendations to address them that would require changes to jurisdictional arrangements rather than the NER or the NERR. These included:[193]

- An issue that in some jurisdictions, MPs are unable to isolate a customer's electricity supply themselves, which can lead to delays and increased costs. A few proposed enabling MPs to isolate a customer's supply in those jurisdictions.
- That meter installation processes vary across different jurisdictions, which it was argued increases inefficiency and administrative costs.[194] Several stakeholders recommended the implementation of more standardised installation processes across the NEM.
- That schemes such as the ASP scheme which operates in NSW provide benefits such as reducing the number of different parties that need to coordinate for a meter installation. Therefore, this scheme should be implemented in other jurisdictions as well.

Preliminary comments

Regarding the issues and proposed solutions that involve jurisdictional arrangements rather than the Rules, the Commission notes that these issues are outside of the Commission's rule making power. The Commission will raise these issues in discussions with jurisdictional stakeholders following the establishment of the Metering review jurisdictional reference group in the near-term.

C.4.4 Provision of industry keys to metering parties

Issue with current arrangements

The availability of industry keys was an issue that was commonly raised by retailers and metering parties in submissions, as well as by a number of installations Sub-Reference Group members.[195] Due to their long-held responsibility over accumulation (type 6) and interval (type 5) meters, DNSPs tend to have industry keys that provide their staff or contractors with access to meters that are otherwise behind closed doors so they can obtain meter reads.

These submissions and Sub-Reference Group member comments mentioned that some DNSPs are reluctant to provide MPs with their industry keys so those MPs would be able to access and replace those locked-up meters. These parties suggested that DNSPs not sharing access to these keys is leading to wasted site visits, unsuccessful meter replacement attempts and a negative consumer experience.

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193 EnergyAustralia, submission to the consultation paper, p. 5; Intellihub, submission to the consultation paper, p. 20; NECA, submission to the consultation paper, p. 2; PLUS ES, submission to the consultation paper, p. 10; Origin, submission to the consultation paper, pp. 3-4; p. 2; Vector, submission to the consultation paper, p. 8.

194 For an example of these types of jurisdictional installation rules, see NSW's service and installation rules at: https://www.energy.nsw.gov.au/media/1901/download and https://energy.nsw.gov.au/sites/default/files/2018-09/Annexure-to-Service-and-Installation-Rules-of-NSW-July-2018.pdf

195 AGL, submission to the consultation paper, p. 3; EnergyAustralia, submission to the consultation paper, p. 6; Origin, submission to the consultation paper, p. 6; Red and Lumo, submission to the consultation paper, p. 2, Simply Energy, submission to the consultation paper, p. 3, Vector, submission to the consultation paper, p. 13.

Preliminary comments

The Commission understands that industry is developing an industry-led solution to resolve this issue and improve installation outcomes. ENA is coordinating the development of this solution.

C.4.5 Responsible parties for issuing planned interruption notices when multiple parties are involved

Issues with current arrangements

This issue was raised in AGL's submission and by installations Sub-Reference Group members relates to whether market participants need to issue PINs under certain installation circumstances.[196] These circumstances include:

- whether the DNSP needs to provide a customer with a PIN when upgrading a customer's connection in addition to the retailer
- whether the retailer needs to provide the customer with a PIN in addition to the DNSP if the DNSP is carrying out a distributor planned interruption for shared fusing
- whether either a retailer or a DNSP need to provide a PIN to a customer if either carry out work to help replace a customer's meter when that customer's electrician (such as an ASP) is the party interrupting the customer's supply.

Preliminary comments

Regarding PINs, the Commission notes that PINs are not required if a retailer/DNSP obtains explicit consent from the affected customers to interrupt supply on a certain date (or date range for non-life support customers). These issues therefore only occur where a retailer/DNSP decides not to seek an agreed interruption time with the customer or is unable to agree to one.

The Commission's recommended outcome is that only one market participant needs to send the affected customer a PIN for any installation scenario where a market participant is primarily responsible for the customer's supply interruption.

If a customer meter replacement occurs that requires the DNSP to also upgrade the customer's supply, this would involve a retailer planned interruption, and only the retailer should send a PIN in that case. If a DNSP is carrying out a distributor planned interruption for a number of affected customers on a shared fuse to replace any meters, then the retailer shouldn't send their customers a PIN as well.

In cases where a customer has arranged for a non-market participant, such as an ASP, to disconnect and restore their supply to enable work to be carried out, including by their retailer or DNSP, the Commission does not consider either a retailer planned interruption or a distributor planned interruption to have occurred. Therefore, neither the retailer, nor the DNSP, would need to provide the customer with a PIN if either party's representatives carry out work to facilitate a meter replacement while the supply is interrupted.

196 AGL, submission to the consultation paper, p. 3.

C.4.6 Improve communications with consumer electricians in relation to meter installation

Issues with the current arrangements

Consumers often engaging electricians for major electrical works such as installing isolation devices or a meter panel upgrade. In addition, they may also engage electricians to install DER such as rooftop solar systems. Under these circumstances, the electricians that have been engaged by the customer are not responsible for installing the meter. However, they may act as a representative of the customer and request a smart meter from the customer's retailer.

The Commission has heard from some stakeholders that coordination is often complex and frustrating for electricians, solar installers or builders.[197] SAPN and NECA considered that the current processes are inefficient and increase costs.[198]

To address communication and coordination issues, some members of the installation Sub-Reference Group proposed for customer-engaged electricians to obtain access to AEMO's B2B hub and receive installation updates directly from retailers, metering parties and DNSPs there

Alternatively, it was proposed that DNSPs to be obliged to provide other market participants (such as MCs) with portals to facilitate communication and updates on installations. It is understood that some DNSPs already have portals that could be used to facilitate this, such as SAPN's REX portal. However, installations Sub-Reference Group members indicated that MCs cannot access the existing portals currently.

Preliminary comments

Smooth coordination between the customer's electrician and the parties responsible for the smart meter installation (the retailer, metering coordinator and the DNSP when required) is key to enabling the customer to benefit from the meter installation, and to provide a positive customer experience.

The Commission is aware that AEMO's B2B systems provide a special instructions field that allows market participants to include the contact details of an extra party in a message in addition to those of the customer for whom a smart meter installation is being carried out. The Commission understands that some B2B service orders already mandate the provision of an electrician's contact details, including one metering service order.

Using this field may be a relatively low-cost solution for market participants that would provide increased benefits and an improved experience for consumers. The responsible market participant could use the contact information provided in the field to inform the customer's representative when the meter is to be installed so the customers solar can then be connected to export electricity to the grid with minimal delays.

Allowing customer-engaged electricians to receive installation updates directly through AEMO's B2B process is an alternative which could potentially improve coordination involving

197 Submissions to the consultation paper: Energy Queensland, p. 14; SAPN, p. 1; NECA, pp. 2-3.
198 Submissions to the consultation paper: SAPN, p. 6; NECA, pp. 2-3.

these parties, however, electricians are not market participants and the costs of such an approach could be administratively burdensome.

DNSPs providing other market participants with portals that they can use to facilitate communication and updates is another option which could be explored further, however, the Commission understands that not all DNSPs have these portals and establishing new portals and the cost to develop portals specifically to address this concern would likely outweigh the benefits.

The Commission invites stakeholder feedback on the most appropriate mechanisms to improve communication and coordination to electricians acting on consumers behalves (see section 3.6.4).