Australian Energy Market Commission

Meter Coordinator Planned Interruptions Rule Change Request Advice

Review of Proposal for DNSPs to Install Isolation Devices for Shared Fuse Metering

Second Revised Final | 1 June 2020

Job number 274657-00

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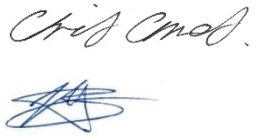
		Signature			
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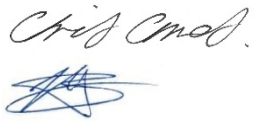
		Signature			
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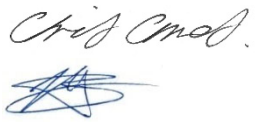
		Signature			

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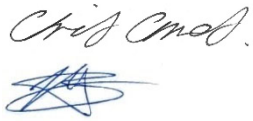
		Signature			
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References

National Electricity Rules, v137

AEMC Rule Change - Introduction of metering coordinator planned interruptions, Reference ERC0275, Initiated 29 August 2019

Service and Installation Rules of New South Wales, October 2019

Queensland Electricity Connection Manual – Service and Installation Rules, 24 August 2018

Evoenergy Service and Installation Rules, Version 10.1, 2019SA Power Networks Service and Installation Rules, Manual No. 32, February 2020

Victorian Electricity Distributors Service and Installation Rules, 2014

TasNetworks Service and Installation Rules, July 2019

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Conventions

Throughout this report, the convention of using italics when using terms defined in the National Electricity Rules (the Rules) has been adopted.

Glossary

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CMIG	Competitive Metering Industry Group
DNSP	Distribution Network Service Provider
EWON	NSW Energy and Water Ombudsman
MC	Metering Coordinator
MP	Metering Provider
NERR	National Energy Retail Rules
NEM	National Electricity Market
PIAC	Public Interest Advocacy Centre
SPD	Service Protective Device, Service Protection Device

1 Executive summary

Arup Australia Advisory and Digital was engaged to assess the proposal to nominate the Distribution Network Service Providers (DNSPs) to install isolation devices to each customer's individual connection. Our conclusion is that while this proposal has merit in terms of simplifying the co-ordination of outages, this proposal is not desirable as the proposed solution departs from the current approach to contestable services.

The DNSP currently has a contract relationship with every customer and their respective retailers at the site. They have the rights to interrupt the power through state and jurisdictional instruments and only have to coordinate directly with customers, and retailers in some circumstances. The DNSP therefore are ideally placed to permanently resolve any problematic sites.

In every jurisdiction the meter panel on which the meters are mounted is not owned by the DNSP or by the metering provider. This is made clear in each jurisdiction's Service and Installation Rules that is given force by each state legislation and regulation. That is, work conducted on a meter panel is always carried out by electrically authorised persons (electricians with various levels of registration and authorisation) competing for these services. This work in every case is conducted in a competitive marketplace.

It is not feasible to install the isolation devices anywhere but on the meter panel immediately adjacent to, and upstream of, the meter terminals and downstream of the common service protective device (SPD). Installing individual isolation devices for each meter upstream of the SPD on the DNSPs network would require new multiple consumers mains from the point of connection with the grid to the meter panel. This would be highly impractical, significantly more expensive than installing isolation devices on the meter panel and would be a competitively sourced activity itself in any case. Further, the DNSP would still need to conduct site visit to provide isolation for future meter replacements.

Under the assessment to determine if DNSPs were able to install separate isolation devices on the meter panel, there appeared to be barriers to DNSPs being allowed to do this work under the current National Electricity Rules, whether through the *network device* provision, or as an alternative control service and defining this as a new service by the Australian Energy Regulator.

Assuming the activity of DNSPs installing isolation devices was defined as a regulated activity then this service would likely be classified as an ancillary service. The costs for this service would generally be charged directly to the party requesting the service, which is the Retailer or Customer. It is recommended that the AEMC and AER consider the service classification and cost recovery further.

Stepping back from the details of who might pay for the service and how the service might be defined under the regulatory framework, the broader issues related to shared fuse metering appear to be state based matters. It is recommended that resolution of this issue may require engagement at a jurisdictional level.

If allowed, the indicative costs of this work, based off the number of connections and fixed pricing for three types of installations, is estimated to be in the order of $74M (between $44-133M) across the National Electricity Market (NEM) (see Table 1 below). The accuracy of the below figures is +80% and -40% predominantly due to the lack of data and the assumptions made regarding the numbers of shared fusing in the NEM. As such the costs have been assessed to determine the order of magnitude and further assessment would need to be conducted to increase the accuracy. Further description on the numbers presented below can be found in the body of the report.

Table 1 Estimated Jurisdictional Costs

Jurisdiction	Typical Installations	Complete board rebuilds	Board basic modifications	Total (+ 80%/ - 40%)
NEM wide	***$44,000,000***	***$15,000,000***	***$15,000,000***	***$74,000,000***
NSW	$28,000,000	$10,000,000	$10,000,000	$48,000,000
QLD	$5,100,000	$1,800,000	$1,800,000	$8,800,000
SA	$7,200,000	$2,600,000	$2,600,000	$12,000,000
VIC	$1,300,000	$200,000	$200,000	$1,700,000
TAS	$130,000	$20,000	$20,000	$170,000
ACT	$1,500,000	$550,000	$550,000	$2,600,000

Table 2 Numbers of shared fuse installations

Description	NEM wide	NSW	QLD	SA	VIC	TAS	ACT
Number of shared fuses/ meter panels ('000)	65.58	42.74	7.76	10.87	1.72	0.17	2.33
% that are typical installations	75.4%	75.0%	75.0%	75.0%	87.5%	87.5%	75.0%
% that require complete board rebuild	4.9%	5.0%	5.0%	5.0%	2.5%	2.5%	5.0%
% that require basic remedial work	19.7%	20.0%	20.0%	20.0%	10.0%	10.0%	20.0%

Table 3 Weighted average costs per installation

Description	% of sites	Number of meters per shared fuse	Typical Costs per site	Remedial costs if required (additional)	Costs for new board
2 meters per shared fuse	40%	2	$550	$220	$2,200
3 meters per shared fuse	20%	3	$650	$260	$3,000
5 meters per shared fuse	15%	5	$900	$300	$4800
12 meters per shared fuse	25%	12	$1,600	$440	$10,000
Weighted average	**-**	**5.15**	**$885**	**$295 additional cost**	**$4,700**

2 Introduction

2.1 Background

2.1.1 Context to Rule change request

An association of Metering Providers known as the Competitive Metering Industry Group (CMIG) has raised a Rule change request to deal with multi-occupancy sites that have one fuse that is shared among multiple consumers.

The particular issue relates to seeking electrical isolation to carry out the meter replacement. Isolation from the distribution network must be carried out by the Distribution Network Service Provider. As a result coordination is required between the Metering Coordinator and the Distribution Network Service Provider (DNSP) when a site has a shared fuse. This is because this cannot be done by the Metering Coordinator, as isolation for their customer will mean all other customers under that shared fuse will also lose supply.

Under Sub-rule 59C of the National Energy Retail Rules (NERR), the Retailer can initiate an interruption of supply to their own customers. However, they are not permitted to interrupt supply to customers other than their own (Sub-rule 59B(b)(ii) of the NERR). DNSPs can be requested to interrupt supply to multiple customers under Sub-rule 91A of the NERR. This then allows metering works to be carried out. However, CMIG argue that utilising this service typically has long lead times and high costs that deliver a poor customer service experience. CMIG also advise that the cost associated with a distributor coordinated interruption can also be disproportionate to the size of the site and the number of customers impacted. For example, waiting 6-7 weeks for a coordinated visit by the distributor to allow a planned interruption for a small number of customers at a shared fused site is inefficient and expensive relative to the customer metering works undertaken.

DNSPs historically managed this by carrying isolation live to avoid interrupting other customers on the shared fuse. They were allowed to perform live isolation in these circumstances under several exemptions under their relevant jurisdictional Workplace Health and Safety legislation. These exemptions are not available to metering technicians (as licenced electrical workers) and therefore supply must be isolated to carry out metering works.

The meter panels where these shared fuse arrangements exist are typically the responsibility the landlord of a multiple tenancy, or the body corporate of a strata scheme, not the individual customers. Such arrangements are referred to in AS/NZS 3000 as “Electrical installation, multiple”. This adds another layer of complexity in resolving this matter, as the typical end use customer is different to the ‘customer’ (i.e. the body corporate) who must be considered if work on the meter panel is carried out. When it is the landlord or body corporate that is being referred to with respect to responsibilities related to a meter panel in this report, that will be made clear. Otherwise the term customer has the usual meaning of *customer* as set out in the Rules

2.1.2 Rule change request

On 27 August 2019 the Australian Energy Market Commission (the AEMC) initiated the introduction of metering coordinator planned interruptions rule change.[1] The aim of the rule change was to reduce delays and costs in installing a customer's meter where the customer's meter could not be installed without interrupting supply to one or more other customers. This arises where a customer has a shared fuse or service protection device with one or more other customers.

The rule proponent, the Competitive Metering Industry Group (CMIG) proposed in the rule change request that metering coordinators (MCs) be allowed to interrupt supply to any customers for the purpose of installing, maintaining, repairing or replacing a meter.

CMIG was of the view that this would reduce both delays in metering installation for customers with share fusing, and reduce costs associated with multiple site visits and in arranging for distributor planned interruptions.

2.1.3 AEMC preferred draft rule change

In the draft determination on the 19th December 2019, the AEMC was of the view that the proposed rule did not provide adequate customer protections, and that customers whose supply was interrupted under such an interruption would have limited recourse with no direct relationship between the metering coordinator and impacted customers. A revised draft rule was published by the AEMC on 19 December 2019.

The revised draft rule introduced additional metering installation timeframes which would apply when shared fusing was discovered. Obligations would be placed on retailers to install meters within 30 business days, and distributors would be required to carry out planned interruptions within 25 business days when requested by retailers to enable the meter installation to occur. Additionally, under the draft rule change, when share fusing is discovered it would be recorded and the information available to market participants to reduce unnecessary site visits.

2.1.4 Proposed solution

Although many stakeholders supported the draft rule or proposed amendments to the draft rule, a cohort of stakeholders comprising metering coordinators and retailers proposed an alternative solution.

The solution proposed by the cohort was to require distributors to install separate isolation devices for each of the premises sharing fusing at the first distributor planned interruption arranged to allow for the installation of a meter.

[1] AEMC Rule Change - *Introduction of metering coordinator planned interruptions*, Reference ERC0275, Initiated 29 August 2019. Available from https://www.aemc.gov.au/rule-changes/introduction-metering-coordinator-planned-interruptions

2.2 Scope of works

Arup was requested by the AEMC to provide an assessment on the viability of the proposed solution to require *Distribution Network Service Providers* (DNSPs) to install separate isolation devices for all *retail customers* impacted by a shared isolation device during the first DNSP planned interruption to facilitate the installation of a meter at the site, considering:

- Cost of the proposed solution. This may include cost of isolation devices as well as associated costs with separation of supply (e.g. if re-wiring may be required in some cases or new meter panels).
- Whether and/or how the solution could work.
- Practical issues and complexities.
- Who would pay for the installation of separate isolation devices and associated work including possible service classification implications.

In preparing advice, Arup was also asked to have regard to the assessment framework set out in the AEMC's draft report when assessing the proposed solution. This is set out under Section 3.1 immediately below.

3 Assessment

3.1 Assumptions and clarifications

- This report does not constitute legal advice, rather a general assessment of the Rules for consideration by the AEMC.
- The assessment has used the AEMC's assessment framework as a guide:
    - The efficient use of energy – customers who cannot get timely installation of an advanced meter may miss out on benefits from new services that can help them manage their energy use and cost;
    - Customer protections – delays in meter installation can have an impact on small customers, however, it is also important that customers, particularly those with life support equipment, have appropriate protections in relation to interruptions to their electricity supply, and effective remedies if those protections are not complied with;
    - Efficient provision of electricity services - the degree to which the proposed rule change may reduce the likelihood that retailers undertake inefficient processes leading to customers bearing higher costs; and
    - Regulatory and administrative burden- the benefits of the proposed solution against the implementation costs that would likely pass through to customers in a workably competitive market.
- The assessment has been conducted for the proposed solution requiring DNSPs to install isolation devices where there is only one fuse among a number of customer's metering installations. No assessment of the AEMC's preferred draft rule change time frames has been conducted.
- Data collection and validity:
    - Data regarding numbers has been provided by stakeholders and extrapolated across the jurisdictions. Where no data has been made available conservative assumptions have been made on historic issues and industry practice. No validity of numbers has been conducted.
    - Cost data has been provided by vendors, accredited service providers and cross checked against stakeholder and typical industry values.
- Direct and indirect costs:
    - The estimated costs provided are for supply and installation of isolation devices for a typical installation and associated remedial works across all jurisdictions.

  - Additional costs for indirect processes such as subcontracting, software and reporting upgrades, coordination, regulatory changes, additional training, etc. have not been accounted for.

- A benefit analysis has not been undertaken, only a cost analysis:
  - the assessment does not quantify the benefits of having DNSPs install isolation devices and discusses benefits in a qualitative manner.
  - Our assessment does not compare the costs associated with the previous rule change proposals, business as usual processes or any other scenario.
  - The costs have been assessed to determine the order of magnitude and further assessment would need to be conducted to increase the accuracy.

3.2 Stakeholder engagement

As part of our assessment we engaged with the following organisations:

- SA Power Network
- Ausgrid
- Energy Queensland
- Public Interest Advocacy Centre
- NSW Energy and Water Ombudsmen
- Citipower/Powercor
- Vector AMS
- Contestable Metering Industry Group
- Master Electricians Australia
- Momentum Energy
- Origin Energy
- Red/Lumo Energy

Stakeholder comments around the practical issues and complexities with the proposed solution were obtained to gain an understanding of the differing viewpoints and insights. Data, photos and examples that were relevant to the proposed solution were also obtained. The assessment and advice provided in this report remains independent of the views held by the stakeholders.

3.3 Implementation of the proposed solution

3.3.1 Benefits of proposed solution

The proposal is to nominate the DNSP to install isolation devices to each customer's individual connection. This has merit by simplifying the co-ordination of outages with customers. The DNSP no longer has to co-ordinate with both customers and the Metering Provider (MP) in timing an outage. They can simply proceed to install the isolation devices at a time suitable in terms of the resource planning and in accord with customer requirements (where possible). The MP can return at any time to carry out the meter replacement, as they will have an isolation device. There are no longer multiple parties to coordinate with (i.e. DNSP, Retailer, MC).

The proposed solution would avoid multiple visits by the DNSP and the Metering Provider (MP) to install isolators and meters in a piecemeal approach with multiple interruptions to customers supply. In the proposed approach all the isolation issues for a site would be resolved in one go.[2] It would also resolve the ongoing problem of more complex sites that are only otherwise resolved when the whole building undergoes major maintenance works.

In addition to the above point, the DNSP already has a contract relationship with every customer and their respective retailers at the site. They already have the rights to interrupt the power through state and jurisdictional instruments and the NERR, and they only have to coordinate directly with customers and retailers in some circumstances. As a result, they are ideally placed to permanently resolve such problematic sites. This quickly streamlines the processes of resolving these sites.

The NSW Energy and Water Ombudsman (EWON) raised some concerns about managing life support customers. Assuming the relevant status on life support is up to date in Market Settlement and Transfer Solutions (MSATS) (which is already an obligation on both DNSPs and Retailers when they become aware of such sites) then there is less risk of causing an outage on such customers since there are fewer failure points in the process.

3.3.2 Updating the B2B Process under this proposal

SA Power Networks advised that the changes required to IT platforms and processes around those platforms for the whole industry (Retailers, Meter Providers, DNSPs and AEMO) usually takes around 12 to 18 months. Creation of a new service request that does not exist requires the transaction definition to be established which can take one to two months for the Business-to-business (B2B) Working Group to prepare, followed by two months of industry consultation and feedback to finally have a formal industry transaction definition. Following this, all parties need an additional 12 months approximately to build and test the

[2] Doug Ross, Chair of the Competitive Metering Industry Group, Submission to AEMC Draft Determination Introduction of metering coordinator planned interruptions (Rule Change Ref: ERC0275), dated 13th February, downloaded from https://www.aemc.gov.au/sites/default/files/documents/rule_change_submission_erc0275_-_competitive_metering_industry_group_-_20200213.pdf

transactions and also define and resource their businesses processes to support the new transaction.

The full process would therefore usually take 12 to 18 months to get to the point of market implementation. This is consistent with our experiences in industry over the last 20 years.

This has its own cost beyond simply the work on the meter panel. As noted earlier these costs have not been assessed, though it is considered to be relatively small compared to the costs of the overall meter panel work proposed.

In any case, to make any statement about the cost of the proposed solution needs to be considered against the administrative costs of the status quo. This will be discussed in the next section below.

3.3.3 Current costs verses costs under this proposal

Customers currently end up bearing the costs faced by industry in managing these sites, which already involves costs in trying to co-ordinate outages from multiple visits. And this is multiplied with every return visit over the years as the next customer and then the next customer moves on to a Type 4 meter. When considering the transactional cost burden that is accumulating costs to customers today, the transactional costs would be reduced, even taking account costs of establishing a new service order.

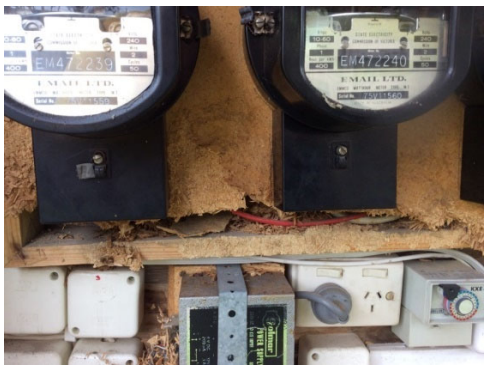
The costs associated with all the above will likely be a fraction of the actual cost of installing the isolation points and sites that require major remediation or in fact complete builds from scratch.

3.4 Practical issues and complexities

3.4.1 Technical issues and complexities

A number of photos of example sites have been provided that involve constraints for the proposed solution. To resolve the constraints of these meter panels is to install a completely new meter panel. The numbers of these sites have been estimated based on Vector and Citipower/Powercor data. Key examples are presented in Figure 1 below with discussion immediately after.

Figure 1 Examples of meter panels that require major work to have isolation points installed (courtesy of Citipower/Powercor)

<table>
<tr><td>  </td><td>(DELIBERATELY LEFT BLANK)</td></tr>
<tr><td>Example A: Plug-in Meter Board</td><td></td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Example B: Multiple Occupancy</td><td>Example B Rearranged to fit Type 4 Meters
Still no space for installation of isolation points</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Example C: Decrepit Meter panel</td><td>Example C Up Close: Decrepit Meter panel</td></tr>
</table>

***Example A**:* This is a photo of what is called a 'plug-in' meter board. Each meter has its own base plate that would have been installed by the customers licenced electrician and then literally plugged in the meters after that. Plug in meters were used during the 1990s in at least in Victoria, Queensland and New South Wales. They represented a cost saving opportunity, as any required replacement or upgrade to a smart meter would have been a simple exercise. There were some safety concerns and plug in meters were abandoned by the industry in the early 2000s. However, as can be seen, there is no space for installing isolation points. Therefore, the only solution here is to build an entire new meter panel.

***Example B**:* This is another example where the existing meter panel was in good condition and was able to be used again for the installation of Victorian smart meters. However, there still is no space for isolation devices, even though the new meters are smaller than the old ones.

Example C: This is an example of an old meter panel that has deteriorated. As can be seen, it would not withstand the stress of meters being taken off and new holes being drilled into it. The board is about to fall apart and cannot be re-used from a safety perspective. This is a good example of a board which should be completely rebuilt. Note also the additional equipment at the base of the meter panel. With a new meter panel construction, all this equipment would need to be at least wired into the new meter panel, if not completely remounted. It is all this additional work that adds significant costs.

These are only a sample of difficult meter panel conditions that would require remediation by a DNSP if they were required to install isolation devices for each individual customer. Other challenging examples include perished wiring insulation, asbestos boards, and subtractive metering configurations.

All these challenges can be resolved but they cost money. And of course these challenges need to be resolved at some point. The question is whether the best approach is to do it as they come to attention through the Type 4 program over the next 5 to 10 years. Or would it be better to leave these sites in-situ, to be resolved when the property is demolished or is deemed unsafe by the relevant jurisdictional safety regulator.

Our assessment of the costs is given Section 3.4.3 below.

3.4.2 How the proposed solution may fit in the current framework

3.4.2.1 Where can the devices be installed

The most effective location to install the individual isolation devices is likely to be in the shared meter panel. This is due to the single supply to the site being separated to supply the individual meters at this panel. If the individual isolators were to be installed as part of the network assets up-stream of the meter panel, individual conductors would need to be run to the point of connection the DNSP's

distribution network, which will often be on a pole or in a pit. This would be a very expensive solution and would also result in requiring the DNSP to be called out to isolate supply for the customer for any meter replacement works, which would also add cost. In this instance some rewiring and potential other works would still need to be carried out on the meter panel in any case.

Two basic scenarios were considered that could take place if a DNSP had to install isolation devices on the meter panel. One where isolation devices can be readily installed on the shared meter panel (and no other work is required) and second, where more work than simply installing isolation devices is required.

Under the first scenario, it would be a simple case of installing the devices. By definition there are no space constraints or other constraints related to the meter panel. In this case, this activity might possibly be conducted under the provisions of treating the isolation devices as *network devices* under the Rules (see discussion on *network devices* in the next section). This might then deal with the difficulty of the DNSP conducting works that would otherwise be carried out in a contestable framework by relevant authorised individuals in each jurisdiction.

The second scenario is where the DNSP is faced with some degree of meter panel issue which in some instances may well be a full meter panel rebuild. In this scenario it would probably not be possible to use the *network device* provisions in the Rules, as more work is being conducted than is contemplated in this provision. Therefore, another regulatory avenue would likely need to be explored or created.

A separate meter panel local to the customer's meter panel could be installed to house the isolation devices and could be considered as part of the second scenario described above. This would require rewiring and potential other works within the Customer's electrical installation.

3.4.2.2 How this service might be defined under the regulatory framework

There does not appear to be a definition for the service described above and it would likely have to be defined to open regulatory pathways to perform the service. It is recommended that the AER and AEMC investigate and explore the definition of this service further.

To assist the assessment and determine the likely definition of this service The Framework and Approach for Ausgrid, Endeavour Energy and Essential Energy for the Regulatory control period commencing 1 July 2019 was looked at as a basis for analysis.[3]

The first step that the AER carries out for each network businesses regulatory reset is to establish what is called a Framework and Approach. In this step the AER would (among many other things) establish a definition of the services provided by the electricity businesses under review. This review is not always the

3 AER Framework and Approach Ausgrid, Endeavour Energy and Essential Energy Regulatory control period commencing 1 July 2019 July 2017, available from https://www.aer.gov.au/system/files/AER%20-%20Final%20framework%20and%20approach%20for%20Ausgrid%2C%20Endeavour%20Energy%20and%20Essential%20Energy%20-%20July%202017.docx

same for each DNSP but is often slightly different to take into account specific jurisdictional arrangements. As such there isn't a generic Framework and Approach. Nevertheless, there is sufficient consistency to examine one Framework & Approach as a proxy for all the others.

Considering Table 2 *Classification of Distribution Services* on page 10 of the *Framework and Approach for Ausgrid, Endeavour Energy and Essential Energy*, the above activity would likely be defined as either a *direct control service* or a *negotiated distribution service*. The third option is to define it as a competitive activity in which case none of these regulated categories are relevant.

The other limb is to potentially define it as a *negotiated distribution service*. This could be a category that this work might be completed under but would require negotiation among the parties over the service. A DNSP is not compelled to offer this service either. As a result, this option has not been analysed further.

Under direct control services, the two limbs that this service could be defined as are as a *standard control service* or an *alternative control service*. The most likely category for this service, consistent with the Framework and Approach paper mentioned above is to define it as an *alternative control service*.

Given the AER's approach, this activity would probably be considered an *alternative control service.* This is because the AER has adopted an approach to define *standard control services* as those relating to management of the distribution network itself and other peripheral activities such as managing connection requirements for example as *alternative control services*.

The *alternative control service* category has three categories underneath it. These are ancillary services, a Type 5 or Type 6 metering service or a public lighting service.[5] It would probably fall under the definition of an Ancillary Service – Metering (p26) which provides a mechanism for DNSPs to carry out services around the metering function to facilitate metering contestability.

Considering the detailed list in Appendix C of the Framework and Approach, it does not appear that there is an activity currently defined for such a service. It would therefore only be potentially added as each jurisdiction begins the Framework and Approach step in their regulatory processes. Given that the regulatory cycle is 5 years, it would therefore likely take around that long from the date of the Rule coming into force before it was applied in every jurisdiction.

It is possible that the AEMC could explicitly define the installation of separate isolation devices for all retail customers impacted by a shared isolation device as a service to be carried out by DNSPs and the AER would then have to include it in their considerations of services for the next regulatory period. But typically, such updates to the services provided would not be addressed in each jurisdiction until the next regulatory control period rolled around. There were no circumstances found where the AER has defined an additional service while a regulatory period is in execution.

[5] Note that this ancillary service defined in the AER Framework and Approach is not to be confused with ancillary services under the Rules which relate to wholesale market services.

Assuming the above redefintions were possible, then as an alternative control service, the DNSP would be required to charge the party requesting the service, which would be the Retailer (on behalf of the Metering Coordinator / Meter Provider). *Alternative Control Services* have been defined by the AER as a separate category of services and are recovered under a separate control mechanism to *standard control services*. These services sit outside the current revenue cap given to DNSPs for each regulatory period.

This means that under this scenario the costs of installing isolation devices are likely to not be able to be smeared across tariff classes which reflect *standard control services*. That is, there appears to be no current regulatory mechanism for these costs to be recovered from all electricity network customers. These costs must be recovered from the party requesting the service (being the Retailer who may choose to recover the costs from the body corporate or the building owner as the owner of the meter panel or recover the costs in some other manner). This is unless the framework is altered to allow this particular service to be defined as a standard control service and therefore able to be smeared in the network prices that generate the income for standard control services.

3.4.2.3 Using Provisions of Network Device in the Rules

As the isolation device would, for all practical purposes, need to be installed on the meter panel, the possibility of defining a DNSP installed isolation device as *network device* to cover this work was explored. The *network device* provisions under clause 7.8.6 of the Rules allows DNSPs the ability to install devices on a customer's meter panel for the purpose of managing the network. Installation of isolation points by DNSPs might possibly use this same provision.

In the majority of cases in New South Wales and Queensland, this provision covers what are called ripple control receivers or time-switch devices that are used by DNSPs for controlling customer's off-peak hot water systems. Energex has also extended this use to also control some customer's air conditioners (where the customer has signed up to such an arrangement). In Victoria, the *network device* provision provides coverage for DNSP owned smart meters (aka Type 4A meters).[7] The *network device* provision used in South Australia, the ACT and Tasmania was not explored in this assessment.

The definition of a *network device* is:[8]

> Apparatus or equipment that:
>
> a) enables a Local Network Service Provider to monitor, operate or control the network for the purposes of providing network services, which may include switching devices, measurement equipment and control equipment;

[7] AEMO Metering Exemption Guideline (Small Consumer Metering Installation), v1.2, 25 July 2019, available from https://aemo.com.au/-/media/files/electricity/nem/retail_and_metering/metering-procedures/exemption-guideline---small-consumer-metering-installation.pdf?la=en&hash=EA255D86706585F60BBA7C691DBFBCC1

[8] Under *Definitions* in the National Electricity Rules v134, p1284.

b) is located at or adjacent to a metering installation at the connection point of a retail customer; and

c) does not have the capability to generate electricity.

If the definition of a network device was assessed to not allow the installation of additional SPDs to improve customer outcomes and facilitate access to additional services, then the AEMC could consider altering the definition to accommodate it.

Any change to the drafting of these provisions could create the problem of allowing DNSPs to install devices that could impinge on the contestable services market to *retail customers*, something which the current drafting appears to intentionally exclude DNSPs from. It is recommended that the provisions and any potential changes is explored further and investigated for unintended consequences..

Clause 7.8.6(a)(2) on a *network device* might potentially present challenges where a full meter panel construction was required and metering needed to be temporarily removed and remounted. This scenario may possibly not be workable with this clause, since a Local Network Service Provider must not remove a metering installation.

But the main issue is clause 7.8.6(a)(3), as a Local Network Service provider (in this case a DNSP) is currently not allowed to use a *network device* to provide services to a retail customer or any other third party. If the device is installed to assist the retail customer in avoiding future outages, then it might not be allowed. It is recommended that this is explored further by the AEMC.

Replacing a functioning service protection device (the shared fuse) with more service protection devices on each customer downstream from the existing service protection device (the fuse) would most likely improve the quality of protection for the service mains upstream (which is the role of an SPD). Installing SPDs downstream of the existing SPD would minimise the number of customers impacted by a fault in another installation and so provide an appropriate benefit to the network. There may also be the possibility of installing smaller rated fuses which would improve the detection and isolation of lower fault currents. But it could be argued that this is a side benefit and could not be considered the main reason why DNSPs would be installing these devices.

Currently it seems possible that the network device provisions might be used as a vehicle to allow DNSPs to install isolation devices on customer meter panels. However, given the range of issues discussed above, on balance it is unclear if the installation of additional SPDs to facilitate metering competition would fit within the current provisions of the Rules relating to a *network device*.

Should the AEMC wish to further consider the installation of separate isolation devices by DNSPs then it is recommended that the provision to cover this work as a *network device* be explored.

3.4.2.4 Ownership of assets

The demarcation of work between DNSPs and customers on the electrical installation that is owned by the customer was examined.

It was found that each jurisdiction is almost exactly the same: the meter panel is always downstream of the DNSPs network. In most cases the meter panel is electrically connected to the customer mains, most likely owned by the body corporate, which then connect the DNSPs service mains upstream. The DNSPs meters (and any other DNSP equipment) that is mounted in the customers meter panel are in fact 'islanded' DNSP assets in some sense from the DNSPs network. They may belong to the DNSP, but they aren't actually connected to the DNSPs network.

The ownership is demonstrated in the below figures showing typical arrangements with the network assets upstream of the Connection point with Consumers Mains to the premises.

Figure 2 Typical Supply Arrangement for a Shared Fuse Metering Scenario[9]

In this example, the blue line of the Consumer's Mains is the responsibility of the Body Corporate, as are the Consumers Sub-mains. The metering would in this example be located on the Distribution Meter panels. Each individual property would have a sub-board (which would not have metering) and these would be the particular responsibility of the owner of each individual property (and not the Body Corporate).

The key point to observe is that the demarcation between the DNSPs distribution network and the 'customers' electrical installation (in this case made up of the Body Corporate and the end use customers in each lot) is where the consumers mains terminate on the DNSPs substation. The meter panel is downstream of the

[9] *Victorian Service and Installation Rules 2014*, Figure 7.10-F Example Supply Arrangements for a Subdivision, Incorporating Common Property, from p 7-50

DNSPs network. Another example is give in Figure 3 that demonstrates the key difference between a shared fuse scenario (where a Body Corporate is involved) versus a simple connection where the end use customer is also the owner of the meter panel.

Figure 3 Example of Shared Fuse Metering Scenario versus a Simple Supply Arrangement[10]

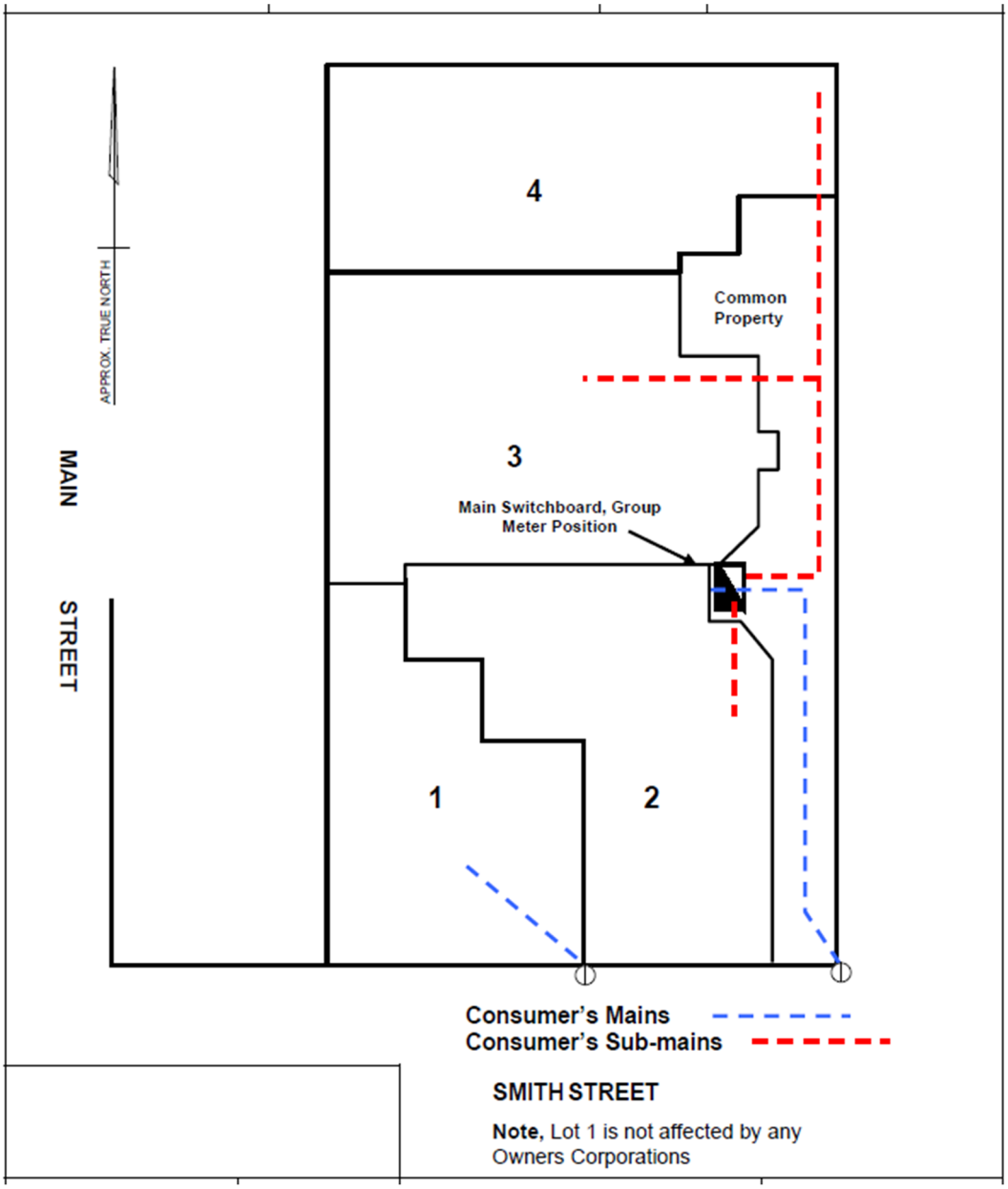


Figure 3 demonstrates how Lot 1 is not affected by a building owner or Body Corporate, while Lots 2, 3 and 4 are. Again, the point of demarcation between the grid and (in this case) the Body Corporate (the 'customer' in some sense) is at the pole/pillar at the property. The dotted blue and red lines, as well as the meter

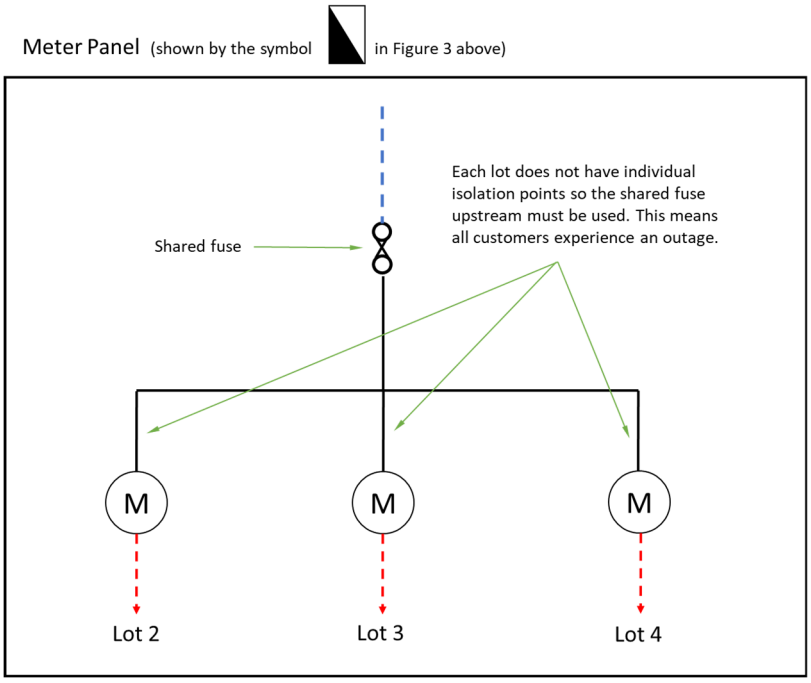
[10] *Victorian Service and Installation Rules 2014*, Figure 7.10-H Example Supply Arrangements for a Subdivision, Incorporating Common Property, from p 7-55

panels, all belong to the Body Corporate. The DNSPs network terminates at the pole/pillar at the boundary in this example.

Figure 3 demonstrates the added complexity of the involvement of a Body Corporate (in the Figure referred to as an Owners Corporation) against the simple supply arrangement of Lot 1 in the same Figure. It also highlights again the important point that the meter panel (where the shared fuse meter scenario presents) is downstream of the DNSPs electricity network. Again, the customer here is the Body Corporate. The Body Corporate owns the meter panel and seeks services from electrically qualified persons for electrical work to be conducted on the meter panel.

Expanding the meter panel in Figure 3 above, we find the following arrangement:

Figure 4 Meter Panel with One Fuse Shared by Multiple Connections



This meter panel is owned by the Body Corporate. The meters belong to either the DNSP (if they are Type 4A, Type 5 or Type 6) or the Meter Provider (if they are Type 4 and above).

As can be seen, the only way to carry a replacement of the meter for Lot 4 is to isolate supply at the shared fuse. This requires a negotiation with the Body Corporate (or Landlord as applicable) to get access to the panel and co-ordination with the Body Corporate to advise customers of the upcoming outage. Each customer then experiences an outage, even though the outage is only to replace Lot 4's meter.

A summary of the relevant jurisdictional arrangements and the Service and Installation Rule for that jurisdiction is given in Table 4 below.

Table 4 Summary of Jurisdictional Arrangements on Demarcation between Distribution Network and Customers' Electrical Installation

Jurisdiction	Relevant Instrument	Boundary Between DNSP and Customer
Queensland	Queensland Electricity Connection Manual (QECM) – Service and Installation Rules[11] Queensland Electricity Metering Manual (QEMM) – Service and Installation Rules	Varies, but always upstream from meter panel and usually at somewhere like the barge board on front of house or at boundary of property
New South Wales	NSW Service and Installation Rules [12] NSW Service and Installation Rules – Annexure – Metering Requirements[13]	Varies, but always upstream from meter panel and usually at somewhere like the barge board on front of house or at boundary of property
Australian Capital Territory	Evoenergy Service and Installation Rules [14]	Varies, but always upstream from meter panel and usually at somewhere like the barge board on front of house or at boundary of property
Victoria	Victorian Service and Installation Rules [15]	Varies, but always upstream from meter panel and usually at somewhere like the barge board on front of house or at boundary of property
South Australia	SA Power Networks Service and Installation Rules [16]	Varies, but always upstream from meter panel and usually at somewhere like the barge board on front of house or at boundary of property
Tasmania	TasNetworks Service and Installation Rules [17]	Varies, but always upstream from meter panel and usually at somewhere like the barge board on front of house or at boundary of property

[11] Available from https://www.energex.com.au/contractors-And-service-providers/contractor-information/electrical-contractors/qecm-and-qemm

[12] Available from https://energy.nsw.gov.au/sites/default/files/2018-09/Service-and-Installation-Rules-of-NSW-July-2018.pdf

[13] Available from https://energy.nsw.gov.au/sites/default/files/2018-09/Annexure-to-Service-and-Installation-Rules-of-NSW-July-2018.pdf

[14] Available from https://www.evoenergy.com.au/-/media/evoenergy/documents/si-rules/evoenergy-service-and-installation-rules.pdf?la=en&hash=EAC6AF969600EC4A52EAB11F8968663B5C36C998

[15] Available from http://www.victoriansir.org.au/

[16] Available from https://www.sapowernetworks.com.au/public/download.jsp?id=9510

[17] Available from https://www.tasnetworks.com.au/config/getattachment/7baa482e-94c9-4a22-9e13-233dde5b50bd/service-and-installation-rules.pdf

Table 5 Ownership of Shared Meter Panel, Building Main Switchboard and Consumers' Switchboard

Jurisdiction	Ownership of shared meter panel	Ownership of Main Switchboard	Ownership of Consumers' Switchboard	Reference within Jurisdictional Instrument
Queensland	Landlord / Body Corporate	Landlord / Body Corporate	Owner of Individual Property	See clauses 5.2.1 & 5.2.2
	Who does work?			
	Licenced electrician engaged by Landlord / Body Corporate Competitive metering provider	Licenced electrician engaged by Landlord / Body Corporate	Licenced electrician engaged by Property Owner or Tenant	
New South Wales	Landlord / Body Corporate	Landlord / Body Corporate	Owner of Individual Property	See definition of a *Connection Point* on p4. See also Figures 1.1 & 1.2 (p8-11)
	Who does work?			
	Licenced electrician or Accredited Service Provider engaged by Landlord / Body Corporate Competitive metering provider	Licenced electrician or Accredited Service Provider engaged by Landlord / Body Corporate	Licenced electrician or Accredited Service Provider engaged by Property Owner or Tenant	
Australian Capital Territory	Landlord / Body Corporate	Landlord / Body Corporate	Owner of Individual Property	See definition of a *Connection Point* on p15 & also Figures 1 & 2 (p22)
	Who does work?			
	Licenced electrician engaged by Landlord / Body Corporate Competitive metering provider	Licenced electrician engaged by Landlord / Body Corporate	Licenced electrician engaged by Property Owner or Tenant	
Victoria	Landlord / Body Corporate	Landlord / Body Corporate	Owner of Individual Property	See Section 6.2.2 & also to Table 6.2.1 and Figures 7.10.A to I (pgs 7-45 to 7-53)
	Who does work?			
	Licenced electrician engaged by Landlord / Body Corporate Competitive metering provider	Licenced electrician engaged by Landlord / Body Corporate	Licenced electrician engaged by Property Owner or Tenant	
South Australia	Landlord / Body Corporate	Landlord / Body Corporate	Owner of Individual Property	See section 6.2
	Who does work?			
	Licenced electrician engaged by Landlord / Body Corporate Competitive metering provider	Licenced electrician engaged by Landlord / Body Corporate	Licenced electrician engaged by Owner of Individual Property or Tenant	
Tasmania	Landlord / Body Corporate	Landlord / Body Corporate	Owner of Individual Property	See Sections 2.7 & 2.8 esp. Table 1 on pgs 17-18
	Who does work?			
	Licenced electrician engaged by Landlord / Body Corporate Competitive metering provider	Licenced electrician engaged by Landlord / Body Corporate	Licenced electrician engaged by Property Owner or Tenant	

The main point of this table is to demonstrate that the meter panels in particular are owned and maintained by landlords and bodies corporate rather than DNSPs. Each jurisdiction's Service and Installation Rules are given their power from that state's relevant state electricity legislation or regulation. In every jurisdiction, the meter panel is owned and maintained by the customer. That is, work on the meter panel is currently carried out in a contestable environment by authorised persons.

Perhaps the one exception to this is the role of the DNSP carrying out the final step of energisation of supply at the meter panel. This is the case in all jurisdictions except NSW where ASPs carry out this step as a contestable activity.

Note again the key point that the meter panel belongs to the Body Corporate, not the DNSP. The only circumstance that was found where DNSP conducted activity on a meter panel was where:

- A site requires energisation or isolation from the distribution network
- For testing of Type 4A, Type 5 or 6 meters (which are owned by the DNSP)
- In very particular cases replace defective devices that impinge on life support customers (these are allowed under the Distribution Ringfencing Guidelines).

Other than these particular exceptions, no other examples could be found where DNSPs did construction or remediation work on meter panels.

There seems to be presumption that the DNSP owns the customers meter panel or has powers to carry out work on the panel. This is not the case. There was a time prior to ring-fencing provisions when DNSPs did carry out work incidental work on meter panels and main switchboards for customers. But this was in the particular circumstances when some DNSPs was called out because a customer complained of an outage and the DNSP identified the fault with within their electrical installation. In that case the customer was advised this was contestable work and the DNSP could complete the work on a contestable basis. Often for convenience the customer would opt to use the DNSP to quickly resolve the problem as it was usually minor. But it should be noted that this type of work was relatively infrequent and small. This no longer takes place with the AER's distribution ring-fencing guideline now in place.[20]

There is a significant exception of the smart meter roll out in Victoria that was carried out by DNSPs. But in that case, the Victorian DNSPs were required to get an exemption to the Victorian regulations to complete the roll-out. This exempted them from the relevant regulations in Victoria. It is recommended that the AEMC considers the matter of ongoing liability for work completed on a Body's Corporate meter panel being resolved with each jurisdictional technical regulator before progressing with a proposal for DNSPs to work on meter panels

Note also that under a shared fuse scenario, the bulk of these sites can be expected to be on meter panels that are the responsibility of a body corporate or landlord. These parties are generally not contemplated in the National Electricity Rules, National Electricity Customer Framework, AEMO Metrology Procedures or the National Energy Retail Rules (NERR).[21] While this does not immediately impact

20 Australian Energy Regulator, Ring-fencing Guideline - Electricity Distribution - Version 2 - October 2017, available from https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/electricity-ring-fencing-guideline-october-2017

21 The term 'body corporate' appears four times in the NERR ('landlord' does not), and only relates to a body corporate of an electricity retailer, not of a strata title for example. In the NER 'body corporate' appears 11 times ('landlord' does not) and does not particularly relate the term to a strata title, but to a body corporate of an electricity Retailer. The AEMO Metrology Procedures do not have the term 'body corporate' or 'landlord' at all.

the particular rule change proposal considered in this report, it may need to be considered under other approaches.

As an added note, if the Rules were modified to require DNSPs to conduct work on the meter panel, it is recommended that redrafting of all the jurisdictions Service and Installation Rules be considered. This in itself isn't particularly problematic, as updates are made to these documents on a semi-regular basis. But it is not a trivial exercise. Jurisdictions may also need to consider whether changes to jurisdictional regulations are required to align with the new rules. The main change that might be required is ensuring that the distinction in ownership and therefore responsibilities on a customers meter panel are aligned.

Returning to the scenarios outlined originally in this section, the simple sceanrio of installaling isolation device and the more complex sceanarios requiring substantive remediation or replacement, both fall within an existing contestable environment. While in the past DNSPs may have installed meters on meter panels, they do not complete major remediation work on customer meter panels nor do they construct meter panels on behalf of customers. This has always been the responsibility of electrically authorised person procured by the customer. The DNSP has performed an inspection function, but that is all. As a result, finding a regulatory mechanism for completing the substantial remediation scenario has not been explored, as there is already a competitive framework for delivery of this work.

Our preliminary assessment is that this matter likely requires resolution at a jurisdictional level. It is recommeneded the AEMC consider engagement with jurisdictional regulators if it wishes to progress this proposal.

3.4.3 How the costs could be recovered

There appears to be barriers in the current framework that are likely to prevent the DNSPs from carrying out this work without changes to the Rules and other instruments as discussed in the above section.

Assuming the barriers which may prevent the DNSPs from installing the isolation devices are removed it appears that under the current AER guidelines this service would likely be classified as an ancillary service under the alternative control service category part of direct control *service*. The costs for this service would generally be charged directly to the party requesting the service, which is the Retailer or Customer. It is recommended that the AEMC and AER consider the service classification and cost recovery further if pursuing this option.

3.5 Costs of proposed solution

3.5.1 Numbers of shared fuse installations

Data provided by Metering Coordinator Vector AMS has been for the number estimates below. Their data covers only Queensland, New South Wales and South Australia. Of note is that the numbers and percentages of shared fuse installations vary by jurisdiction.

For Victoria, data provided by CitiPower and Powercor has been relied upon. The percentages here have then been assumed as the percentages for whole state. And for the ACT and Tasmania, the ratios have been assumed from New South Wales and Victoria respectively.

These assumptions are considered to be reasonable for the purpose of what they are being used for.

The percentages for remedial works and complete board replacements has been based on the smart meter roll out data from Victoria. The Victorian DNSPs found that 29% of meter boards required remedial works. Vector AMS's status reports that have shown that about 8% of sites had customer defects resulting in unsuccessful meter installations, and this has been assumed across all the states.

Table 6 Number of shared fuse installations

Description	NEM wide	NSW	QLD	SA	VIC	TAS	ACT
# of connections November 2019 ('000)[22]	10,201	3,639	2,234	8,94	2,950	288	198
# of meters ('000) (meter factor 1.2)[23]	12,241	4,367	2,681	1,073	3,540	346	238
# of customers on shared fuses ('000)	337.7	220.1	39.9	56.0	8.9	0.9	12.0
% of customers on a shared fuse[24,25]	2.76%	5.04%	1.49%	5.22%	0.25%	0.25%	5.04%
Average number of meters per shared fuse (see Table 7)	Assumed to be 5.15 for all states						
Number of shared fuses/ meter panels ('000)	65.58	42.74	7.76	10.87	1.72	0.17	2.33
% that are typical installations	75.4%	75.0%	75.0%	75.0%	87.5%	87.5%	75.0%
% that require complete board rebuild	4.9%	5.0%	5.0%	5.0%	2.5%	2.5%	5.0%
% that require basic remedial work	19.7%	20.0%	20.0%	20.0%	10.0%	10.0%	20.0%

Table 7 below sets out the working of how the anticipated number of meters requiring an isolation device at each site was determined. This assisted in determining costs per site, as each isolation device costs money to procure and install.

22 State of the energy market – Data update, November 2019, Downloaded from https://www.aer.gov.au/publications/state-of-the-energy-market-reports

23 Doug Ross from CMIG provided an approximation of 1.2 meters per connection.

24 Vector unsuccessful meter installation data for NSW, QLD and SA.

25 Citipower/Powercor data on shared fuses for VIC.

Table 7 Weighted average of meters per site

Description	% of sites	Number of meters per shared fuse
2 meters per shared fuse	40%	2
3 meters per shared fuse	20%	3
5 meters per shared fuse	15%	5
12 meters per shared fuse	25%	12
Weighted average	**-**	***5.15***

The breakdown on average number of fuses per site has been estimated based on data provided by Vector AMS. Vector indicated that approximately 60% of the sites with shared fuses had 2 to 3 meters and further data indicated 25% had greater than 9 meters.

The above assumptions regarding number of meters per shared fuse cause the greatest uncertainty in the number estimates impacting the costs significantly.

3.5.2 Costs per installation

The costs for individual installations are per meter panel and have been developed to give an approximate value of the works carried out to supply and install the isolation devices, basic remedial works and a complete board replacement. These values do not incorporate costs associated with coordination activities such as multiple site visits, B2B process development, industry training, regulatory changes or scale economy cost savings.

Refer to Table 16 for the estimates on costs per jurisdiction. This table take into considerations of the numbers of shared fuse installations in the NEM.

Table 8 Summary of individual installation costs

Line item	Description	Fee (ex GST)
Typical installation	Good condition board that requires installation of isolators only.	$450-1,600
Basic remedial works	Requires basic rewiring, meter remounting and/or small modifications	$220-440 (in addition to typical installation)
Complete board replacement	New meter panel of varying size and number of meters	$1,800 – 12,000 (depending on size and complexity)

Table 9 Weighted average of costs

Description	% of sites	Typical Costs per site	Remedial costs if required (additional)	Costs for new board
2 meters per shared fuse	40%	$550	$220	$2,200
3 meters per shared fuse	20%	$650	$260	$3,000
5 meters per shared fuse	15%	$900	$300	$4800
12 meters per shared fuse	25%	$1,600	$440	$10,000
Weighted average	**-**	**$885**	**$295 additional cost**	**$4,700**

Cost values have been extrapolated and engineering judgement applied to determine the cost estimates in the above table. The weighted average of the costs provides the input to determining the estimate for overall costs. Please read subsequent sections for further details on determining individual costs.

3.5.2.1 Typical installation

Costs of installing isolation devices as well as potentially carry out major remediation or full replacements was sourced from the market. The summary of our findings is given below.

In NSW, the Accredited Service Provider (ASP) scheme allows accredited electricians to carry out work on service mains (which are owned by the DNSP) as well as install and wire meters (a normal electrician is not allowed to do this work). A breakdown of costs was sourced from an ASP who provided the following figures:

Table 10 ASP Cost breakdown

Line Item	Fee (ex GST)
Ausgrid application for job number	$19.58
NOSW submission for A Grade ASP 2 (include in call-out fee)	($32.47)
Call out fee	$380.00
Cost of 1 x Meter Protective Device	$50.00
Labour	$120/hour
Approximate cost to supply and install 1 x MPD	**$450.00**

It is noted that if Ausgrid was completing this work, they would not charge themselves the fee for generating the job number. This cost has been left in as a reasonable estimate of the administrative costs of managing each job if Ausgrid were indeed doing this work themselves.

Table 11 Costs for supply and install of individual isolators for a meter panel with three customers

Line Item	Fee (ex GST)
Ausgrid application for job number	$19.58
Call out fee	$380.00
Cost of the 3 x Meter Protective Devices	$150.00
Labour (about 1-2 hr)	$100.00
Approximate cost to supply and install 3 x MPDs	**$650.00**

Table 12 Costs for supply and install of individual isolators for a meter panel with 10 customers with hours

Line Item	Fee (ex GST)
Ausgrid application for job number	$19.58
Call out fee	$380.00
Cost of the (10 x 1 phase meters) 10 x Meter Protective Devices	$500.00
Consumables	$50
Labour (about 4 hrs at $120/hr)	$480.00
Approximate cost to supply and install 10 x MPDs	**$1430.00**

3.5.2.2 Remedial works cost estimates

The following tables provide the remedial works estimates sourced from an ASP contractor, Citipower/Powercor costs from the 2010-2013 roll out of smart meters and from the Energeia – report (2015).[26]

[26] Energeia – *Advice on Establishing a Second Connection Point*, July 2015, available from https://www.aemc.gov.au/sites/default/files/content/0d9db434-981e-4857-b94c-334e37a505a4/Report-to-AEMC-Energeia-Second-Connection-Point.PDF.

Table 13 Remedial work cost estimates from ASP contractor

Line Item	Fee (ex GST)
Rewiring	$250-300
Removing/remounting meters	$120
Asbestos control work	$250
Complete board rebuild (small, 3 meters)*	$2,000-5,000
Complete board rebuild (large, 10 meters)*	$8,000-12,000

* Basic breakdown for the board rebuild:

- $900-4,500 for new meter panel
- ~$600-4,000 of labour
- $100-800 for protective devices ($50 per MPD)
- $150-350 for consumables and administration fees

Table 14 Remedial works cost estimates from Citipower/Powercor

Line Item	Fee (ex GST)	2020 AUD**
Remedial works (average cost)*	~$100	~$116
Meter panel replacement (per customer)	$300	~$348
Mains control installation (per customer)	$400	~$464

*** 343,000 individual remedial work issues for approximately $30,000,000 (2012 AUD) assumed that each issue was for a separate board/meter.**

**** approximately 16% higher than 2012**

The Citipower/Powercor costs have been used to validate and adjust the remedial costs presented by the ASP contractor. The meter panel and mains control installation also provide indication for the costs of a replacement of a single meter panel if required.

Table 15 Electrician fees from Energeia report (2015) [27]

Line Item	Fee (ex GST)	2020 AUD*
Prepare meter panel (for second meter install)	$300-500	$326-543
Replace meter panel (single customer)	$1000	$1080

*** approximately 8% higher than 2015**

The electrician fees in the Energeia report for preparing the meter panel for a second meter installation is assumed to be similar to that for installing a single isolation for a single meter panel. This has been used to help validate and adjust the ASP contractor prices.

[27] Energeia – Advice on Establishing a Second Connection Point, July 2015, available from https://www.aemc.gov.au/sites/default/files/content/0d9db434-981e-4857-b94c-334e37a505a4/Report-to-AEMC-Energeia-Second-Connection-Point.PDF.

3.5.3 Costs per jurisdiction

The following overall costs are based on multiplying the estimated numbers of shared fuse installations by the weighted average costs per individual installation. These costs are based on the supply and installation of the isolation devices, basic remedial works and complete meter panel replacements. These values do not incorporate costs associated with coordination activities such as multiple site visits, B2B process development, industry training, regulatory changes or scale economy cost savings.

The accuracy of the costs below is +80% and -40% so for the NEM wide total it would range between $44-134 million. As such the costs have been assessed to determine the order of magnitude and further assessment would need to be conducted to increase the accuracy.

Table 16 Estimated costs per jurisdiction

Jurisdiction	Typical Installations	Complete board rebuilds	Board basic modifications	Total (+ 80%/ - 40%)
NEM wide	***$44,000,000***	***$15,000,000***	***$15,000,000***	***$74,000,000***
NSW	$28,000,000	$10,000,000	$10,000,000	$48,000,000
QLD	$5,100,000	$1,800,000	$1,800,000	$8,800,000
SA	$7,200,000	$2,600,000	$2,600,000	$12,000,000
VIC	$1,300,000	$200,000	$200,000	$1,700,000
TAS	$130,000	$20,000	$20,000	$170,000
ACT	$1,500,000	$550,000	$550,000	$2,600,000

Since the work of installing isolation devices at each site would only arise as these shared fuse sites became known through the normal course of day to day operations, it is likely that this work may be spread out over say 5 to 10 years. On a worse case of 5 years, then the annual cost (without considering inflation and so on) would be circa $15M p.a. Noting from Table 6 above that the number of connections in the NEM is about 10,201,000, then this is a cost of about $1.47 per customer p.a. for five years.

3.5.4 Cost recovery mechanism

Various stakeholders have proposed that if the DNSP was nominated to carry out this work then they could readily recover the costs through smearing arrangements across all customers. Indeed, there was a preference for that as this is a legacy issue that customers (past and present) were never party to.

There is merit in smearing of the costs for this work. It is a simple method of cost recovery and customers who did not cause this situation are not faced with the cost burden of a potentially significant expenditure. This is particularly the case where costs could be in the thousands of dollars if a full meter panel replacement is required. These costs could fit the category of being unexpected costs that individual costs could not reasonably foresee and manage, nor be the cause of such costs.

Further discussion on cost recovery is in Section 3.4.3.

3.6 AEMC Assessment Framework

For ease of reference, a summary of this reports consideration against the criteria set by the AEMC for this review is given. These criteria were kept in mind in forming the conclusions of the report.

Table 17 AEMC assessment framework commentary

Key Area	Assessment Criteria
Efficient use of energy	The proposed solution provides for an efficient roll out of isolation devices that will allow for the customers to have timely installation of advanced metering services. It is noted that there may currently be barriers to the DNSP completing this work which would need to be removed should it be decided that the preferred solution is for DNSPs to carry out this work Nevertheless, our view is that delivery of this work is likely to be more efficiently delivered by a competitive service provider in any case. They will be subject to competitive forces and therefore are far more likely to provide the least cost solution for this work in total.
Customer protections	Customer protection already exists in the Rules and jurisdictional legislation and regulation as applied to DNSPs. Therefore, if this proposal was adopted, customers would have the same protections as they do today. The DNSPs already have contract relationships with every customer and their respective retailers at the sites. They already have the rights to interrupt the power through the Rules and jurisdictional instruments. They are members of EWON and so customers have redress to any abuses that might take place under this proposal. In addition, DNSPs have access to life support data and as a result, they are ideally placed to ensure customer protections are maintained.
Efficient provision of electricity services	There is a likelihood that DNSPs could undertake inefficient processes as they do not have the workforce and particular experience installing equipment on meter panels. While installing isolation devices is relatively straightforward, there is still an efficiency loss as this work is not part of a DNSPs day-to-day activity, so they will not be able to complete this work as the same pace of electrically qualified persons. The proposed rule change could also set a precedent regarding customer installations which in turn can create unintended consequences in the future and confusion in the industry.
Regulatory and administrative burdens	The proposed solution is faced in our view with significant regulatory and administrative obstacles.

4 Conclusion

Our main conclusions are that:

1. The costs of the proposal are anticipated to be about $74M across the NEM. Assuming a 5-year period in which this work is carried out (as these sites become revealed in the normal course of meter replacements) then this equates to about $1.74 per customer per year.

2. If DNSPs were allowed to install devices on meter panels, then possibly the most straightforward approach would be to use the existing provisions under the Rules of a *network device*. This could potentially reduce any need for the drafting of new provisions in the Rules. The use of the *network device* provisions under the Rules was considered and it was concluded that it was unclear whether the installation of additional SPDs to facilitate metering competition would fit within the provisions of the Rules relating to a *network device*. This report recommends that the AEMC give further consideration to this avenue.

3. An assessment of how such an activity might be classified under the current regulatory framework was explored. It was considered whether this activity would be either standard control services or alternative control services and the preliminary assessment was that it was likely to be defined as an alternative control service by the Australian Energy Regulator. This conclusion was made by considering the Australian Energy Regulator's Framework and Approach for NSW for the 2019 to 2024 regulatory period as a proxy for the NEM in general. It was also concluded that it would likely be defined as an ancillary service under the alternative control service limb of defining services. If this was the case it would not be likely that it could be smeared on to *standard control service* customers. This is because it probably could not be considered an activity related to the function of *network services*. It is recommended that the AEMC and AER investigate the definition of the service further.

4. It is recommended that the role of the body corporate or landlord who owns the switchboard / meter panel be explored in more detail. Understanding the legal relationship with all the parties will be critical to a resolution to this matter. Bodies corporate and landlords are not contemplated under the National Electricity Law or the Rules and other national instruments. While they are recognised at a jurisdictional level, there is little guidance from those instruments about how they relate legally to end use customers, nor to DNSPs, MPs, MCs and Retailers in terms of outages or any other supply issues. They function like an intermediary, but they have little relationship to any other party other than being responsible for the meter panel.

5. Notwithstanding points 1, 2 and 3 above, the main conclusion is that the installation of SPDs on a meter panel is likely to be a contestable activity in each jurisdiction, including Victoria. If so, this activity has barriers to consider if it becomes a regulated service. Any installation work or remediation work on a meter panel is currently carried out on a contestable

basis, so *Distribution Network Service Providers* cannot currently carry out this work or contract someone else to complete this work on their behalf.

Appendix

Alternative proposal to deem the initiating MC to have MC status to all customers

An alternative proposal was presented by some stakeholders to assign the initiating MC as having deemed MC status for all the customers at that site. On this basis, the proposal is that the MC would then immediately have the legal powers to manage the installation of isolation devices on all customers as they would be the MC to all the retailers that have a customer off that meter panel.

On initial review, this appeared to be an elegant solution as it would allocate all the legal power to resolve these shared meter sites in one go (like the DNSP proposal), but that it would be done under the contestable provisions already intended under the Power of Choice umbrella.

This deemed MC would then coordinate with all customers through each customer's Retailer, conduct the work, and then recover their costs on a negotiated and presumably cost sharing basis.

Under Chapter 7 or the Rules, clause 7.8.2(b).8. contemplates that:

> A *metering installation* may consist of combinations of:
>
> (8) test links and fusing;

This provision appears to allow *Metering Providers* to install an isolation point (in the form of test links and fusing) when installing a meter. The Rules therefore appear to allow the *Metering Coordinator* (via the *Metering Provider*) the powers to install these type of isolation points for the metering installations that they are assigned to. It appears therefore that if the MC was deemed to be the MC for all the customers at a shared fuse metering site then they appear already have the power to install the isolation points. The next consideration is whether the MC should be given the temporary status of MC for all *metering installations* at these locations.

Being deemed to be the temporary MC for all customers at these sites is in many ways a natural extension of the original rule change proposal to deem the initiating MC to have powers to isolate all the customers in the shared fuse. The AEMC has already considered the implications of this proposal in their draft decision. They contend that there is a "*lack of any relationship between the MC and the customer whose meter is being installed*".[29] On this basis they have provisionally proposed a preferable rule that does not assign such power to the MC.

The proposal to assign the incoming MC to have powers to install isolating devices for each customer on the switchboard / meter panel appears to have the

[29] AEMC, *Introduction of metering coordinator planned interruptions – Draft Determination*, Clause 3.4.1 Relationship between MC and customer requesting installation, p23. Downloaded from https://www.aemc.gov.au/sites/default/files/documents/introduction_of_metering_coordinator_planned_interruptions_draft_determination_final_version.pdf.

same problem. That is, the *Metering Coordinator* lacks any relationship with the customer.

On this basis, this proposal does not appear to viable. The AEMC should consider this matter and make their own assessment.

Turning now to who is the relevant party to represent the customer in these scenarios, the body corporate or landlord would be the most appropriate party. They would be the party to engage the *Metering Provider* directly to carry out the work on the meter panel beyond the installation of the meter. It is worth noting also that the body corporate or landlord are an affected party in two respects. They are affected as a customer themselves that takes supply in their own right for common property and affected as they body that bears the cost of any work done on any common property meter panels.