11 November 2016

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Dear Mark

Transition to Metering Competition in Victoria – Options Paper

United Energy (UE) appreciates the opportunity to make this submission in response to the Energy Policy and Programs Branch Options Paper on the Transition to Metering Competition in Victoria (Options Paper).

UE supports competition wherever possible to provide customers with high quality service at the lowest reasonable price. We have supported metering competition in principle in public forums for some time. However, the decision on Victoria’s approach to transitioning to metering competition at this time is complex and must take into careful consideration the existing benefits of AMI that would be compromised, as well as the impact on delivering those benefits which are yet to be realised.

The Options Paper provides its purpose as being how to:

- Give the Victorian community and industry stakeholders the opportunity to provide their views on how Victoria can best transition to the new national arrangements for metering competition for households and small business’;

The Government also recognises that there are two key criteria for assessment of the Options to transition Victoria to the national metering competition arrangements:

- Ensure appropriate consumer protections
- Preserve AMI benefits.

These two key criteria were identified by the Victorian Auditor General in the report titled, Realising the Benefits of Smart Meters, published in September 2015.

**Option 4** best meets the objectives and criteria and provides the most cost effective outcome for Victorian consumers. Victorians have already made considerable investment in AMI, and as the Networks are

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2 Ibid, p8
beginning to utilise capability in areas never envisaged at the commencement of the AMI program – its benefits risk being undermined through a dilution of the AMI fleet.

Regulators and Government recognised the split incentive problem of moving to newer technology when the Victorian roll out decision was made. The Victorian AMI meter is a combined network and metrology device, and in addition may support off-peak load control for some customers. Option 4 preserves the network benefits at least cost and avoids unnecessary complexity for customers, market participants and regulators. The status quo should be preserved by extending the current arrangements to the end of 2025. It also preserves the significant safety gains and the low (zero) cost associated with these safety tests made via smart meters.

UE is required to perform Neutral Service Tests (NST) every 10 years. Historically, performing this test for 10 per cent of our customer base annually involved significant time and cost. Now, analytics on the smart meter data means this test can now be performed remotely on an hourly basis and problems can be rectified before the customer notices any issues.

In contrast, alternatives to option 4 would variously increase costs to customers, unnecessarily increase regulatory complexity, compromise safety and reliability benefits and fail to allow the investment made by Victoria in the AMI roll out to mature and exhaust the available benefits. These other Options have a different benefits case and loss of the AMI metering and communications network will mean that the network benefits for the remaining customers will deteriorate or will be lost.

Seeking to retain these benefits with an access regime (voluntary or mandatory) will require significant investment and capability by each of the competitive metering providers in the meters, communications, software capability and head end communications system and other back end systems. Delivery of the network and societal benefits would reduce and those benefits that are delivered would come at a higher cost.

The Options Paper recognises a range of network and safety benefits. However, the benefits suggested by metering competition by the AEMC are readily available using the infrastructure already in place in Victoria. We suggest that Government consider how best these innovative products and potential benefits be fully realised using current infrastructure.

A significant benefit of Victorian (or national) metering competition included better network utilisation and peak demand management. UE has offered cost reflective network tariffs for years, yet there has been little uptake of these products. Government could consider further ways to better realise the long-term customer benefits presented by this capability.

A number of the network and societal benefits which allow better network utilisation and peak load management will not be available under metering competition. These network benefits require synchronised timely data from all meters to create near real time network load profiles for distribution zone substations and LV phase detection, in order to allow improved load balancing and integration of renewables onto constrained phases. This data and analytical work supports Government policy to increase penetration of renewables and transition to a low carbon economy.

Options that create further transitions and risks in already tight programs should be avoided.

Any suggestion that other options may deliver equivalent AMI benefits as today, via Networks contracting directly with third party meter providers must be heavily qualified since it is unproven. If Option 4 is not adopted, then network and societal benefits are best preserved with a network device to allow the
innovations and network improvements that are required for the future. A detailed list of benefits already delivered and at risk is provided in Appendix 1.

The AER has recognised our AMI program as being the most efficient of all businesses and the Victorian industry more broadly is now realising AMI benefits. Now is not the time to be putting these at risk. The biggest benefit that can be implemented with zero system implementation costs, being the introduction of demand tariffs, should now be the focus of the program. This best achieves the objectives outlined in the paper.

UE has a long history of efficiency that delivers cost savings to our customers. Since privatisation in 1994, we have delivered over 25 per cent real price cuts to distribution tariffs which should have led to the lowest retail cost to Victorian consumers. We are committed to maintaining this tradition wherever possible, including through the avoidance of unnecessary regulatory and other costs, which are ultimately borne by our customers. In our view, Option 4 clearly provides the least cost implementation approach outlined in the Options Paper.

It is not clear why a working AMI meter rich in functionality needs to be removed to facilitate retail side innovation, nor to allow retailers to offer additional benefits direct to consumers. Indeed, no credible or compelling case has been made that this might be the case. The integration of the metrology and the network data aspects in the one device on a platform that is already deployed should be utilised to gain benefits for consumers at the lowest price.

UE have provided a detailed response to the questions in the Attachment.

Should you have any questions on the response, please Verity Watson on 03 8846 9856 or via email verity.watson@ue.com.au.

Yours sincerely

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Transition to Metering Competition in Victoria

Responses to Options Paper
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Transition to Metering Competition in Victoria

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1. Transition to Metering Competition in Victoria

Responses to Options Paper

1.1 Other options to ensure potential benefits

What is the role for the Victorian Government in ensuring that the potential and benefits of energy data are unlocked through this process, including ensuring electricity distributors have appropriate access? Are there other mechanisms, other than the ‘traditional’ access regime model, that could be utilised? (Q10)

The Options Paper states:

“The benefits of the Victorian smart meters are also being realised. In its 2015 review of the smart meter program, the Victorian Auditor-General’s Office (VAGO) noted that “current estimates suggest that approximately 80 per cent of the expected benefits could be achieved,”8 and recommended that the Department “identifies and implements actions to protect Victorian consumers from additional costs associated with the pending rollout of new competitive metering processes, and ensures that essential Advanced Metering Infrastructure program benefits are preserved.”9 VAGO also noted that Government should have “two priorities” regarding metering competition:

1. Protecting consumers - by ensuring that appropriate consumer protections are in place so that they understand the implications of accepting a new smart meter and are not worse off by doing so. Increasing understanding among consumers will reduce the risk of exploitation

2. Preserving AMI benefits - by monitoring the AEMC’s proposal and engaging with the Australian Energy Regulator (AER) to introduce metering competition in a way that the benefits of competition can be realised with minimal impact on the ability of electricity distributors, and ultimately consumers, to realise network efficiency benefits. 10

However, the new metering competition arrangements do not make special provision for Victoria to recognise that smart meters have already been installed with higher functionality.

The effect of new metering competition arrangements for Victoria is that, unless alternative arrangements are in place from 1 December 2017, distributors will not be installing Victorian AMI meters and existing meters could be churned to competitive metering providers undermining the AMI benefits, stifling innovative network use of the data available from AMI meters and creating two tiers of customers.

Key points to be considered include:

- Victoria has in place consumer protections for distributor provided AMI meters and not competitively provided minimum national smart meters

- Victoria has not yet commenced consideration of the NERR equivalent requirements for Victorian instruments or for maintaining the current customer protections

- The AMI benefits – network and safety benefits are best preserved where the distributor has ongoing management of the real time data from meter through to network operations, this is only achieved where the distributor is providing the meter services. Safety benefits and reducing lives lost is less likely to be achievable through other options.

- The innovations suggested in the AEMC infographic are deliverable with the Victorian meters currently rolled out. Retailers suggest a large level of innovation interstate and yet no description of these innovations and how they can be implemented in Victoria using the Functionality and Services Order in Council has ever been proposed. We have had AMI

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8 DEWLP, Transition to Metering Competition in Victoria – Options Paper, Oct 2016, p8
meters in Victoria for about 7 years now and the uptake in time of use tariffs is low, retail and network data portals are available, DEWLP has provided a retail price comparator. These innovations do not require a change in metering responsibilities at the expense of safety.

The Options Paper notes pages of safety and network benefits and no retail benefits are described in the paper other than the generic interval data benefits in the AEMC Infographic in Appendix 2. There is no compelling case to move away from option 4 based on either of the criteria of preserving the AMI benefits or consumer protections. DEWLP should ensure that the retailer stated benefits case is clear and quantifiable and exceeds the current network benefits and safety benefits that will be compromised, eroded or lost.

AMI meters are expected to have a field life out to 2025 to 2032 (based on the earliest installation being late 2009 to latest installation of late 2017. Of course the bulk of meters were install from mid-2010 to 2014 so the 15 year life for the bulk of meters is 2025 to 2029), it is not economically efficient to remove these meters even with an exit fee and pay for a reduced capability meter to attempt to deliver the same benefits with greater costs and hurdles.

Option 2 will not preserve the AMI related network and safety benefits as the competitive metering regime has:

- No obligation to offer to deliver services by the new metering coordinator (MC) or metering provider (MP)
- Even if an MC/MP were to offer, the terms or conditions of the offering do not need to be fair and reasonable and they can charge customers in Victoria again to establish and implement the network and safety benefits. For the same community or societal benefits to be achieved UE customers would need to pay again for all the competitive providers to develop the same systems capability. In a competitive market the service providers could charge up to the cost of UE to bypass the meters
- If the competitive metering offers are not consistent e.g. the same time stamped engineering data (voltage, current and power factor) capture and logged at 5 min intervals across all meters and disparate service providers, the network data analytics will not be viable
- Some of the benefits from smart meters can only being realised through real time access to data (events/alarms, status and engineering data)
- COAG requested that jurisdictional regulatory obligations be taken into account by the IEC and this was endorsed in the Metering Competition Final Determination by the AEMC. AEMO has suggested that the IEC is beyond scope to consider any jurisdictional requirements in efficient B2B transactions and in fact may be acting in an anti-competitive manner. Whilst the IEC sought independent legal advice on this issue, it appears that AEMO do not support promoting the development of the B2B transaction for an access regime through a national framework. This position will impact the ability to preserve the benefits relating to Vic AMI data and will impact the consistent uptake of transactions nationally. This means that a complex access regime if it were established with Option 2 to preserve some of the AMI benefits would be unlikely to be supported through the national B2B arrangements, creating further rail gauge issues.

The collection of the engineering data required for analysis can be very costly for the new MP as additional back office software is required, upgrade of existing metering head ends and new firmware releases that needs to get deployed to the meters in the field. This needs to go through the full test life cycle of Development, Test, QA and eventually Production.

An access regime is seen as costly and will be time consuming to establish in Victoria. It is unlikely to be in place for a 1 Dec 2017 metering competition commencement and hence will impact the benefits of AMI data. Any access regime which seeks to preserve the benefits established for Victoria is likely to increase costs to consumers in Victoria and the need to implement across increased parties and contractual arrangements will serve to stifle network innovation.
There are no retailer innovative products identified in the Options Paper and the AEMC identified benefits of interval data are already available in Victoria. There is no compelling need to move away from Option 4, rather the Victorian framework can be utilised to provide any additional data/services to ensure that the retailer innovations can be progressed via the current AMI meter. UE understand that many of the retailer innovations could be undertaken using Wi-Fi and do not need the meter, these could be undertaken using customer in home Wi-Fi.

### 1.2 Full adoption with the Victorian metering specification

Do you support implementing metering competition in Victoria so that the current Victorian meter specification and/or the minimum service levels are retained? (Q1)

Should other considerations about the respective capabilities of the meters and service levels be taken into account? (Q2)

Option 2 adopts metering competition with the Victorian metering specification from 1 Dec 2017 for new and replacement meters and at a later date may transition to using the national metering specification.

The benefits of this approach is that it is thought to maximise smart meter services available to parties and provides the consumer benefits suggested by the AEMC and indicated in Appendix 2 of the Options Paper. These benefits are available in Victoria today as the Victorian smart meters already allow or enable these benefits. UE notes that while the safety and network benefits are presented in this paper there are no identified retailer benefits included.

The Options Paper also states that all potential benefits available from the Victorian metering specification will remain available under Option 2. This is incorrect in relation to any option to progress to metering as an access regime is complex to establish and in practice will not be able to achieve the same real time benefits or benefits achieved from complex/complete time stamped data sets.

The Options Paper states that the meter specification would be the Victorian AMI meter specification. This Victorian minimum AMI functionality specification covers the meter, the communications network and the AMI system in terms of functional capability in the end to end system and the performance across the end to end system.

The diagram below indicates how some of the benefits are being achieved by networks in Victoria today. It is not just the meter but the communications card/software in the meter, the time stamping, the ability to obtain data from all meters with the exact same time stamp to enable network analysis that allow the network benefits to be achieved. This will be problematic across disparate vendor meter/communications solutions, software versions and disparate metering service provider and MC arrangements across the one network area. For example phase balancing across areas of the network will not work if not all data is available for the meters connected at each distribution transformer.
The network operational data is real time and links directly to network control rooms. The additional network operational data can be 5 seconds or 5 min data and far exceeds the 30 min data likely to be available from a competitive metering set of arrangements with an extensive access regime. The communications network (wireless mesh or 3G), the head end systems and the internal metering provider information systems will need to support these quantities of data collection and management. Where this is intended to operate with the access regime that is required with option 2, these data collection and management processes and near real time arrangements will extend to the cross industry transactions and the AEMO B2B hub. The diagram below indicates the types of requirements that each component of the overall meter system needs to be able to provide the data.

The ongoing need for near-real time data delivery to the network control room and the network operations will not be the same once metering competition commences, these benefits will diminish over time and customers will pay more. The potential benefits will be stifled as innovation will be limited by the lowest
common denominator of the agreements reached in the access regime and certainly the recent AEMO positions to the IEC will not support these jurisdictional transactions in the shared market protocol framework. Further AEMO suggest that IEC members who support such arrangements to continue benefits in Victoria may be considered discriminatory to the market.

1.3 The alternative options to transition

Do you have any comments or views on Options 1, 3 or 4? (Q3)

Option 2 suggest that all potential benefits from the Vic AMI meter specification remain available. Without an access regime and a requirement that the data be made available in a consistent and useful format, this is not the case. Network benefits being delivered today may be eroded or reduced under Option 2. ENA submissions to the AEMC on metering competition have suggested that any third party will have limited bargaining power with the incumbent metering provider to negotiate services and price.

There is limited time before metering competition commences to establish an access regime to ensure the same data availability as is currently being used to achieve the network and customer benefits. Any access regime established for Victoria in late 2018 and implemented in 2019 -2020 may be short lived in light of a further transition to national arrangements. Differences in the underlying meter specifications and the B2B transactions will lead to additional costs across parties to seek to maintain the benefits. Transitions involve time and additional costs and should be avoided. In practice an access regime is unlikely to be able to deliver the same benefits. Option 4 best meets the criteria of preserving AMI benefits.

Option 3 will be more complex to establish and still involves several transitions from a Victorian meter specification to a national metering specifications, and from new connections being third party metered to full metering competition. This is more complex to implement in regulatory instruments and is also more complex to implement in the field. When a meter fault occurs and the meter is a UE meter that requires replacement, the field resource will exchange the UE meter and restore supply to the customer. Where the meter is a third party meter, the customer will be left off supply until the third party metering provider exchanges the meter and the necessary safety checks can be undertaken. This is just another example of the two tier customer arrangements that will ensue under metering competition.

Option 3 also needs an access regime if the benefits are going to be preserved and suffers from the same transitional issues and costs as Option 2. If the ultimate aim for Victoria is to adopt the national arrangements either stay with the current Vic AMI meter and DB exclusivity until the meter families need replacing or move to option 1, adopting all other options for short periods will lead to additional costs. If Victoria wishes to preserve the benefits of AMI meters that are being utilised now then this could be done by retaining Option 4 until the national arrangements are delivering the same network benefits to interstate distributors.

1.4 Implementation Issues

1.4.1 Implementation safety and accreditation issues

Under Option 2, what additional measures should Victoria take in relation to meter installation and wiring safety, the safety associated with the use of the remote reconnection services enabled by smart meters, and community safety? (Q4)

The Options Paper suggest that Victoria needs to consider metering installation and wiring safety, and safety issues associated with remote re-energisation and community safety. The Victorian framework is underpinned by network licences, Electrical Safety Management Schemes and Victorian regulations and Codes which support network and metering services. Government need to ensure that customer and community safety is maintained. A common national approach is being progressed although the arrangement interstate and the use of other accredited schemes and differing safety acts and regulatory frameworks need to be considered.
1.4.1.1 Metering installation and wiring safety

The Options paper notes that metering equipment must comply with the Electricity Safety Act and regulations, including use of REC’s, issuing certificates of electrical safety and ensuring that metering equipment is in compliance with the VESI wiring rules. UE assumes that this extends to operational practices relating to compliance of metering installation enclosures, quality of metering panels, asbestos removal, management practices in relation to the distributors equipment and operation of that equipment such as the supply fuse and fascia fuse bracket connection etc. What happens when the fuse bracket and fascia board breaks when a third party is operating the equipment? What is the communication protocol for the third party to advise they are about to do metering work at the premises etc. as these arrangements are currently unclear and there appear to be inconsistent papers from the ESV on some matters.

UE note the recent Minister’s reaction to unacceptable asbestos practices and suggest that in a competitive environment this will need to be appropriately managed.²

While AEMO accredit metering providers, the accreditation arrangements are management process and system based, there is no review of the quality of field work undertaken and whether sites are compliant. In the Victorian distributor roll out distributors had extensive training programs for installers and audited work undertaken in the field. There were also extensive safety incident and reporting processes as part of the roll out.

There are no agreed industry processes on sequencing and safety testing of initial connections and supply upgrades as to how this will work with more parties involved. It is important that the safety tests are all conducted and that they ensure safety of the service line, connection, metering installation and supply to the premises. It is suggested that for each of the meter exchange scenarios or supply scenarios that these arrangements are clear and agreed and support safe outcomes for our customers, employees and the community.

Where metering providers don’t have meters or can’t get to site, UE can’t provide interim meters and cannot bridge out wiring to create unmetered supplies, the new metering parties need to be ready before we commence.

1.4.1.2 Victorian Service and Installation Rules (SIRS)

The SIRs ensure that consistent standards are maintained and rework is minimised. The SIRs are managed by industry and consultation occurs before any changes are made. The SIRs represent the reasonable technical requirements of distributors for supply and metering related aspects of connection. These requirements form part of the contract between customers and distributors in relation to initial connection, connection alteration and ongoing supply. We would expect that retailers who are engaging the competitive metering providers would ensure that their sub-contractors all meet these requirements so that there are good outcomes for consumers.

1.4.1.3 Remote disconnection and reconnection

The Options Paper notes the tripartite arrangement between retailers, distributors and the ESV for remote disconnection and reconnection. The Options Paper also notes that the distributors involvement in the process is also under the distributors approved Electrical Safety Management Schemes.

The Options Paper suggests that any revised protocol which stems from the national arrangements for remote disconnection and reconnection will need to be applied in Victoria.

We are not aware that the national arrangement is ensuring the safe use of this metering feature in the same manner as Victoria:

² ABC article, Asbestos rubble from illegally demolished pub found in Melbourne’s north-west, 25 Oct 16
- We have seen no evidence of an independent safety risk assessment on the use of this meter feature in a contestable metering market with the various MP, MC and retailer roles;

- We have seen no evidence that an auto disconnect feature might be adopted or is required so that sites are not reconnected with consumption from unattended appliances in the home; and

- The remote disconnection feature can also be disabled in meters where a life support customer is currently living in the premises, we have seen no evidence of this arrangement being continued nationally.

1.4.1.4 Other Safety benefits

There are a range of other safety benefits being achieved:

- **Life support supply check** - The ping function is being used every 30 minutes with alarm capabilities to ensure that all life support customers remain on supply and ensure that no supply disconnection or other interruption to supply may be impacting the customer

- **Neutral failure checking** – use 5 min current and voltage data to check the neutral line integrity every hour and issue them for investigation where required. This has the potential to save lives.

- **Over voltage, damage and potential fire risk** – UE is using voltage alarms to assess when premises may be considered unsafe. Where the voltage limits are in excess of the Electricity Distribution Code, a voltage alarm is produced in real time. This is assessed in the network control room, the premises taken off supply as unsafe and a truck sent to investigate the issue and restore supply.

- **Ability to identify supply issues in real time**, assess the likelihood of a network issue and send a truck to restore supply. One recent example was an aluminium impact on a copper connection at the TX had gone bad and needed to be replaced with a copper one. This job was done before any customer call to restore supply

- **Voltage compliance** – 5 min voltage data is being used to develop heat maps of the electricity distribution network for voltage compliance at premises. This allows UE to determine where tap changes are needed on the local pole mounted transformers and to this additional information allows UE to better manage voltage levels and voltage sags and swells across the network as more renewables are utilised on the LV network. A 10% sample of all smart meters are also returning the data every 5 minutes that is being used to control zone substation voltage regulators to maximise compliance across the network in near real time

- **Incorrectly wired meters** – Careful analysis of the engineering data provides information on meters that may be incorrectly installed, meters that were partially faulty or have bad/loose terminal connections. These more complex faults are not possible to identify by looking at only the meter 30 minute consumption data and event/alarm information

- **Community safety** – real time identification and prediction, possible hazard isolation for the fault location for supply feeders that have contacted the ground, by checking the supply status of all the AMI meters in the vicinity to determine the issue. Smart meters help to determine the nature as well as the location of the problem. A recent example in Frankston had wires down and sparking, the fire brigade phoned UE, however we had detected the issue and dispatched field resources to resolve the fault prior to receiving the call from the fire brigade, reducing the risk duration for the community.

There is no reason why a retailer/MC cannot offer some of the services above, however there may need to be some development of the algorithms and capability internally and the ability to produce some of the data was omitted in the new national smart meter specification. Retailers will also have the same issue of trying to make these arrangements work across multiple disparate vendor meters and metering service providers. These safety matters essentially will become part of the two tier nature of service delivery – those where distributors are seeking to manage supply and safety and those where metering service providers may have less capability and focus in these areas.
Where network operations use every meter in the street to determine and assess the issues, these benefits will decrease over time as more meters become second tier. In some areas where there is large urban residential developments, these benefits will be eroded completely, as the new metering providers may choose not to offer any services that allow these full network issues visibility to be created and used.

Last gasp is a feature being utilised in our network control room which indicates when a customer is off supply. This could be a real time function pushed to the relevant network business from a third party meter, but the ability to verify quickly that all customers in an area are back on supply will be eroded as the network no longer has full visibility of the supply status at the surrounding premises.

### 1.4.2 Consumer engagement

**Under Option 2, which party or parties should be responsible for communicating the changes to metering arrangements to consumers, and should there be any communication role for the Victorian government? (Q5)**

The Option Paper notes that the VAGO report suggest that the Victorian Government should focus on developing a customer engagement program to explain the reasons behind metering competition so that customers hear from an authoritative voice on their choice in the market and are willing to engage with metering competition.

UE support the development of a strong communication and engagement program which extends to customers, Registered Electrical Contractors, NECA, consumer associations, embedded network operators and owners etc. The Victorian Government need to explain policy changes away from distributor provided metering to ensure that customer confidence in the proposed reform can be maintained. Customers need to be informed by an independent and authoritative source that supply can be interrupted and supply restoration can be delayed because there are more parties involved, that meter data and a range of services are open to competition and hence customers need to be advised what the risks are and consider their rights and opportunities, including the costs and risks of poor service.

The Victorian Government has a role as VAGO stated to explain to customers the move to metering completion regardless of whether Option 1, 2, or 3 is chosen. Government have an important role to provide the necessary information to consumers on the changes. Industry also need to provide support with consistent messaging and processes that address the concerns below.

There are a number of differences between a commercial meter rollout and the obligations in Victoria which may need to be made clear to all stakeholders, we suggest that Government might be best placed to engage with stakeholders or limit these possible regressive impacts:

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<th>Existing Victorian minimum requirements</th>
<th>National minimum requirements</th>
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<tbody>
<tr>
<td>Meter data collection frequency</td>
<td>Daily or more frequently</td>
<td>None specified</td>
</tr>
<tr>
<td>Minimum meter data requirements</td>
<td>Interval data for each channel and accumulated energy for each channel</td>
<td>Interval data</td>
</tr>
<tr>
<td>Minimum meter data delivery</td>
<td>95% actual data by 6am next day, remainder estimated</td>
<td>98% meter data delivery for settlement week by Tuesday night, could be 100% estimated</td>
</tr>
<tr>
<td>Minimum meter data quality</td>
<td>99% actual meter data within 24 hrs</td>
<td>98% actual meter data in 4 months for settlement revisions</td>
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<td>Impacts</td>
<td>Minimum requirements may be exceeded some or all of the time, variable services/service levels may:</td>
<td>Minimum requirements may be exceeded some or all of the time, variable services/service levels may:</td>
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<td>• Impact customer confidence in reform and billing quality, complaints</td>
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A commercial roll out has the potential, and may, but is not required to deliver the same consumer benefits as currently enjoyed in relation to data quality for customers. A commercial roll out could deliver data quality above that of the Victorian requirements but could also be quite variable with corresponding customer impacts, there is no guarantee that as the volumes of data increase with significant volumes of meters in the NEM that the Victorian data quality levels will remain once the NEM is above 10m national smart meters.

The change in metering responsibilities and the move to a competitive metering market is much more than just mass market meter competition and it is important that customers understand the differences in the service models and supply arrangements, including:

- Distributors as regulated businesses will not be able to help out and put in an interim meter to get customers on supply as we will be ring fenced out of the game and any synergies will be removed.
- Distributors will not be able to connect wires and create unmetered situations because competitive meter providers have run out of meters or don’t have resources to complete an installation to get customers back on supply. We consider that creating unmetered arrangements would not meet the requirements of the NER or the NMA despite the fact that metering providers are suggesting this is the standard practice in other markets.
- Where the distributor is not advised of planned interruptions and meter exchanges as intended by the metering competition rules and customers are off supply, distributors may send a truck to determine the cause of the supply issue, however this could be a wasted truck visit where the distributor is not allowed to rectify the matter.
- AEMC recognised that in storm situations there may be delayed restoration where both the distributor and a competitive meter provider need to undertake work to re-establish a customer’s supply.
- The distributor provided smart meters compared to third party meters even with the equivalent meter type will create two tiers of customers those where the network service can be provided and those where they cannot. This will have varying consequences and costs for customers as noted above in our response.
- There is no like for like meter replacement requirement and no processes to maintain time switch settings to meet network tariffs so customers may be moved to default tariff arrangements where retailers have chosen not to support ongoing network tariffs.
- There is no oversight of metering charges and the user pays vs smeared metering charges is open to retailer discretion, it is important that customers understand the retailer offerings and fine print when agreeing to market offers. Competition theory would suggest that prices are lower, however these products and services are driven by commercial business who wish to make a profit and ensure customers are locked-in to the product, meter or retailer. This has the potential to stifle or reduce retail competition, impact new entrant retailers and also in combination with the ring fencing reduce network improvements and innovations.
1.5 Realising the expected AMI societal benefits and access regime

1.5.1 Access regulation for metering services

Under Option 2, would the introduction of access regulation for metering services in Victoria provide greater benefits than costs to Victorian households and small business? (Q6)

The Options Paper states:

‘Under national metering competition, retailers and other parties are likely to focus on customer applications that provide a direct benefit to, and are valued by, the customer, instead of on products and services which generate a shared societal benefit that is difficult to attribute to individual customers.

The Victorian smart meter rollout recognises that a significant proportion of the overall benefits, associated with network operational efficiencies, are ultimately shared between all consumers (societal benefits). This comes about because all consumers share in the reduced cost to build and maintain the network.’

The AEMC in making a final determination on metering competition assumed that competition would ultimately deliver benefits, there was no detailed cost benefit assessment to ensure that the reform was in the interests of consumers. As noted above retailers will focus on the customer facing benefits and the network societal benefits currently or likely to be achieved in Victoria will be lost.

The Victorian rollout has provided an integrated meter and network device which overcomes the split incentive issue. Victoria has a very different starting point compared to other states and the network/societal benefits will be eroded with a move to metering competition.

The Option Paper notes from the price review submissions that the AMI data is transforming the availability of data for network managements and planning. 34 network functions that provide efficiencies were noted. The benefits case for metering competition vs a mandated roll out of meters is different, the network and societal benefits currently being delivered will be lost or the costs to achieve these will be higher and there will be hurdles to any further network innovation. Essentially networks will be constrained by the lowest requirement from distributors and the lowest offering from competitive metering providers. Benefits that require synchronous data snapshots across all meters will be hard to achieve under metering competition.

The Options Paper notes that network benefits can more readily be achieved with new or existing network devices as this means that networks can generate and maintain the data sets required to better management the network. Networks can also control and manage the device and communications software to generate the data capabilities that allows innovation.

The Options Paper notes that distributors may not be able to negotiate for the provision of these services or may be unwilling to procure services if the cost or delivery of data meant that the benefits could not be realised. MC’s or affiliated retailer MC’s can price up to the bypass costs and could frustrate or deny services to distributors and third party demand response parties or could frustrate retail churn to the customer’s chosen retailer. This has the potential to impact the effectiveness of retail competition and costs to consumers.

1.5.1.1 AEMC did not support an access regime for network or demand response services, rather a review in 3 years is targeted

The AEMC considered a range of light handed regulatory options through to heavy handed options and ultimately in the Final Determination decided:

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3 Ibid , p17
“However, there will be no obligation on the Metering Coordinator to provide metering services and no regulation of the price of these services. The Commission recommends that a review into whether some form of access regulation is required should be conducted three years after the commencement of the new Chapter 7 of the NER under the final rule.”

This proposed review is not written into the Final Rules and it is uncertain whether this review would be undertaken after the three years or if it would be completed within the 3 year period. This does not provide certainty of access at a national level if the other jurisdictions have not been able to negotiate and facilitate a consistent national voluntary access regime. It is not clear which body would undertake the review, the AEMC could well adopt the same stance of let the market sort it out. There may not be the will or penetration of meters interstate to warrant access regulation and it will be too late for consideration of these costs within the next round of price reviews.

Option 1 (with a network device) avoids each of the transitions and costs associated with Option 2 and the possible creation of an access regime, whether the Victorian AMI metering specification is adopted and for how long etc. and creates nationally consistency.

The Options Paper provides no indication of any qualitative retail offers or benefits to consumers currently being provided in Victoria, all the benefits suggested by the AEMC in the Infographics in Appendix 2 and 3 are available using the enabling technology already in place in Victoria. There appears no compelling reason to move away from Option 4 as the smart meters enable these benefits today.

Retailers claim significant innovation interstate that can’t be delivered in Victoria. UE has not been approached to progress any of these opportunities that are being missed. Government should identify what these innovations are and work with industry to develop access to data or services that support these arrangements using existing infrastructure. UE has been trialling additional AMI functional capability with a view to reducing peak network demand and could readily provide these capabilities to retailers. The AMI ISC and the AMI service level specification envisaged that other AMI functions could be utilised in future where required, this approach could also be considered.

1.5.1.2 A Victorian access regime may have difficulty translating to the national framework

Both COAG and UE in the B2B framework sort to have jurisdictional requirements recognised so that any additional requirements in Victoria could be accommodated by consideration in the new representative IEC and an efficient method of communication could be agreed. The COAG Energy Council noted that the NEL, NER and jurisdictional requirements can affect the efficient commercial operations of participants. For this reason, the IEC should consider whether an obligation should be supported through B2B procedures with corresponding B2B communications. The AEMC considers that such matters would form part of the assessment of costs and benefits of a proposed B2B procedure. If certain parties are required to provide a service or communicate a particular way, for example under jurisdictional regulations or other retail market procedures, the IEC would be able to consider whether the benefits of including that communication in the B2B procedures.

Whilst AEMC agreed with this approach, AEMO on the other hand has recommended in October 2016 to the new IEC that they are beyond power to consider jurisdictional requirements and these are likely to be unenforceable and that the IEC cannot oblige via B2B procedures non-regulated service providers to follow existing practices of distributors. This seems that if the Victorian Government were to rely on a B2B framework to encourage the voluntary exchange of the additional network data in a consistent manner within the national arrangements, this will be unlikely to be facilitated by AEMO/IEC. Any such access regime, regulated or voluntarily created for Victoria may not be able to transition into national arrangements creating further development, establishment and implementation costs for Victorian consumers for data that is already available and being utilised today. UE does not support a complex and costly access regime being created that is unlikely to be adopted and utilised nationally, this is just more cost for Victorian consumers having to pay for founding the initial requirements.

It would be far better for Victorian consumers to adopt Option 4 retain the existing network benefits and also reduce the barriers to the future benefits which must include higher levels of renewables and more
challenges for the traditional mode of network operations. Networks should be able to realise the benefits of Victorian AMI meters until the end of the meters useful life.

As the dataset available to networks improves and also the networks understanding and analysis of the data, new benefits will become available. An access regime under option 2 will delay the implementation of these new arrangements/benefits as all metering providers will need to build systems, update software to Victorian meters to accommodate the new services, in addition to the 5 network businesses as initial MCs doing this. The more parties with implementation costs the higher the cost to the consumers.

1.5.2 Ability of access regime to preserve unrealised benefits

Under Option 2, will the introduction of access regulation for metering services in Victoria assist in preserving unrealised projected benefits attributed to the Victorian smart meter rollout (please quantify any benefits)? (Q7)

A comprehensive access regime under Option 2 with an obligation on parties to offer on consistent terms, conditions and reasonable price may be able to preserve some of the network benefits. This access regime will take significant time to establish and to build the necessary capability which as we have described earlier in our response is more than the meter specification. This will not be available on 1 Dec 2017 and may not be available during 2018. If this is not available with agreed arrangements and prices by the start of 2019 it is unlikely to eventuate and competitive providers will focus on benefits interstate where any implementation costs will be able to be smeared across a broader group of customers.

It is not clear yet whether the AEMO B2B hub and transactions will be near real time to be able to retain some of the operational service benefits, nor is it clear how a synchronous time stamped and full data set could be taken across disparate parties. With metering competition the benefits case is different, existing AMI benefits will be eroded

Appendix 1 describes the range of benefits being achieved with Victorian AMI meters by UE and allocates the benefits to various categories:

- Reliability improvements
- Efficiency improvements
- Customer focussed
- Safety
- Compliance and regulation.

A number of these benefits require synchronised timely data and significant integration into distributor back end systems and processes. Near real time network load profiles for distribution zone substations and LV phase detection, load balancing and integration of renewables are less achievable with metering competition.

As noted earlier in our response, these network and customer benefits are being achieved not just by the meter functionality itself but by the software versions of the communications module, the capability of the communication infrastructure to handle the data volumes, head end system capability and the network analytics platforms to analyse and process large data volumes. For this to be achieved in a competitive market, significant investment would be required by competitive metering providers to develop the same capability.

Whilst the Victorian Government New Energy Technologies (NETS) sector strategy outlines Governments commitment to ensuring that Victoria can capitalise on the economic and environmental benefits of the energy transformation. The Options Paper suggests that competition in metering may drive innovation in new technology products and services, yet these benefits could be achieved today, i.e. under Option 4.
Whilst the NETS strategy is seeking to integrate more renewables, these also pose challenges to the operations of the networks. UE plan to use the voltage measured by the AMI meters to change the voltage at the zone substation in real time to maintain/improve power quality, allow higher penetration of PV and renewables, introduction of larger numbers of Electric Vehicles, reduce customer energy consumption and greenhouse gas emission and extend the life of customers’ equipment. These type of societal benefits will not be available once metering competition commences as the real time data and completeness of the data set will not be available in practice.

1.5.3 What do DBs need from MCs to preserve AMI benefits

Under Option 2, are there services that Metering Coordinators will not be able to provide that are currently being provided by electricity distributors? If so, what information and/or services will the electricity distributors need to obtain from Metering Coordinators in order to continue to realise these benefits? (Q8)

Appendix 2 contains a list of the AMI benefits and indicates where data from all meters would be sought and used for analysis. Metering vendors that decide not to provide the service or delay the implementation, type 4A meters where there is no public communication network available or where a customer refuses a communicating meter would all lead to a deterioration in the data availability and reduce or possibly even eliminate the benefits. Matters such as phase balancing in constrained parts of the network will be sensitive to missing data, particularly where embedded generators could be of benefit to balance onto constrained phases or to better manage voltage issues.

Benefits relating to network load profiles and transformer loading or LV phase loading requires all data. Many of the other benefits could be achieved with some missing data, however as competition and third party meters increase, these benefits will deteriorate and will eventually be lost. Where benefits are attributed to one meter, whether the benefit can be preserved will depend on the availability of the required data for that meter, i.e. subject to the metering services capability and contractual arrangements.

Victorian regulations have been established to ensure that customers receive planned interruptions notices or energy industry penalties may apply. Real time AMI last gasp data is being used to assess customers off supply in planned maintenance works and checked against customer notification lists. Where customer are off supply and not notified these are being reported to the ESC. These types of customer service improvements, LV network connectivity improvements and compliance reporting to the regulator will be lost with metering competition.

1.5.4 Responsible regulator for access regime and how would this be funded?

If an access regime is introduced, who would be the responsible regulator and how should it be funded? (Q9)

If an access regime were established then there is benefit in the responsible authority being a body that would be able to take on the role in the national framework. Creation of a Victorian only access regime has the potential to reduce the metering service providers available to participate in the Victorian market. Ultimately this may lessen metering competition and increase the cost of metering to Victorian consumers, it may also inhibit the availability of access to services.

Any access regime created to facilitate the benefits in Victoria needs to be able to be adopted in the national framework to ensure that cost increases to Victorian customers are minimised. Development of the end to end systems capability and the information exchanges need to be recouped and useful over a broader customer base to minimise costs to Victorian consumers.

Consistency with national arrangements is important given the cost and complexity of an access regime, UE suggest that the AER as a national regulator would be better placed than the ESC. UE consider that it is important not to create rail gauge issues for Victoria in the later intended transition to national.
1.5.5 Other options to ensure potential benefits?

What is the role for the Victorian Government in ensuring that the potential and benefits of energy data are unlocked through this process, including ensuring electricity distributors have appropriate access? Are there other mechanisms, other than the ‘traditional’ access regime model, that could be utilised? (Q10)

The Options Paper recognises a range of network and societal benefits yet no benefits for retailers or customer focussed benefits are described, including the size of these benefits.

Retailers suggest that their benefits case is bigger, however given that high quality interval data is available today, it is unclear how an access regime could facilitate these retailer benefits better whilst retaining the network operations and society benefits on option 4.

Before moving away from Option 4, UE suggests that the option of gaining the full customer focused benefits be explored with an access regime to benefits retailers with real time energy data etc. It is not clear why a working AMI meter rich in functionality needs to be removed for the retailers to offer benefits to consumers. The integration of the metrology and the network data aspects in the one device on a platform that is already deployed should be utilised to gain benefits for consumers at the lowest price.

1.6 Regulatory Issues to be addressed

1.6.1 Mandatory or Opt Out

Should Victoria vary its current policy position that smart meters are mandatory and households and small business to opt-out of having a communicating smart meter? (Q11)

Victoria has in place regulations for the roll out of Victorian AMI meters to all customers consuming 160MWhpa or below, but also the non-reversion of these meters. This approach to non-reversion preserves the communication and data access and hence preserves the AMI benefits. This meets the Victorian Government objective to ensure all consumers would have the same potential to realise smart meter benefits including safety, network operational benefits and demand response. UE support a consistent meter specification be adopted for all 160MWhpa customers and below – whether this be the Victorian metering specification or the national minimum smart metering specification.

In contrast, the 2017 metering competition rules will allow small customers (sub 40MWhpa) to refuse a national smart meter. Where a meter exchange is required, a small customer that refused will receive a national smart meter without working communications.

The 1 Dec 2017, NER 7.8.4 provides two types of exceptions for small customer metering:

- A Metering Coordinator does not need to roll out a national smart meter to a small customer where there is no existing telecommunications network which enables remote access to the metering installation. The Metering Coordinator can apply for a time limited exemption from AEMO in this situation; or

- In the Metering Coordinator’s reasonable opinion, the small customer has communicated its refusal to the installation or proposed installation of a type 4 metering installation at a connection point then the Metering Coordinator must maintain records of the refusal and the small customer must receive a national smart meter without working communications.

Victoria has the power to use the NEVA clause 16BA to override matters in NER Chapter 7. UE suggest that the Minister uses the NEVA powers to say that NER 7.8.4 (d) to (h) not apply in Victoria.

NER 7.8.4 (a) to (c) could apply in Victoria and should be used on the few occasions when telecommunications network and signal strength cannot are not available at the metering installation. AEMO oversight of this process and the need to re-evaluate when telecommunication signals/options change is appropriate.
1.6.2 Small Customer Threshold

Do you support setting the small customer threshold at 160 MWh rather than 40 MWh as suggested by the AEMC? If not, please provide a reason. (Q12)

The NER post 1 Dec 2017 requires the retailer to choose a small customers Metering Coordinator. Customers above the small threshold are able to choose their own Metering Coordinator, if the customer does not make a choice then the retailer will engage a Metering Coordinator.

The AEMC consider that the small threshold for Victoria is that based on customer protections in the Energy Retail Code – all residential and business customers consuming below 40MWhpa.

The small threshold is used in the NER post 1 Dec 2017 in the following manner:

- Rule 7.3.2 access to small customer, metering installation and services e.g. remote re-energisation and de-energisation, notification of planned interruptions
- Rule 7.8.3 (a) the new obligation on the Metering Coordinator to roll out of the new national smart meter for any meter exchanges on small customers with the two exceptions outlined above
- Rule 7.15.4 additional security controls for small customer metering installations and provision of minimum metering services outlined in S 7.5.1.1. and who can access these services
- Rule 7.17.8 IEC may take into account the interests of small customers
- Certain accreditation and metering service provider requirements for small customers

In contrast being in the large category enables the following:

- Rule 7.6.2 large customers are able to appoint their Metering Coordinator
- Rule 7.15.5 large customer access to metering data.

The large and small categories based on the Energy Retail Code create a disconnect with the customer segment for the Victorian AMI roll out. The Departments initial view is that the small customer threshold be set at 160MWhpa for Victoria which is consistent with the Victorian smart meter roll out.

Victoria has the power to use the NEVA clause 16BA to override matters in NER Chapter 7. UE suggest that the Minister uses the NEVA powers to say that NER 7.8.3 (a) applies up to the x and y limits established as jurisdictional metrology material i.e. the 160 MWhpa limit. This enables consistent metering types to be rolled out for all the relevant customers consistent with the current policy. UE recommend that the Victorian Government work with industry stakeholders to consider making the small category of up to 160MWpa apply to all the relevant clauses in the NER Chapter 7 outlined above, with the possible exception of the large customer rules.

Customers that consume between 40-160MWhpa are still covered by the Electricity Distribution Code in relation to remote services and planned interruption notices. The Government could choose to use the NEVA to expand the coverage of the minimum metering services in S7.5.1.1 to provide a consistent meter and services framework up to 160MWhpa consistent with the current approach in Victoria.

1.6.3 Meters for Large Customers

The Options Paper notes the gap created by the new Rules that allows a business customer between 40-160MWhpa to have a manually read type 5 or 6 meter, or a type 4 standard meter.

The business customers with consumption 40-160MWhpa have Victorian smart meters today and are starting to see the benefits from increased information. These larger customers have a greater individual impact on the operation of the network so it would be concerning if these customers could revert to a
manually read meter or a standard remotely read meter where the additional data was no longer available to the network.

The Department suggests this issue can be resolved by setting the large threshold where customers can choose their MC to above 160MWpa. UE supports this approach.

The jurisdictional metrology material for Victoria has the upper limit for use of a manually read interval meter (5 or 4A), X, set at 160MWhpa and the upper limit for use of a type 6 basic meter, Y, is also set at 160MWhpa. The Victorian Minister is able to vary these limits or re-confirm them with agreement from the Ministers of the MCE, including the ability to retain a Victorian AMI meters as a type 5 metering installation in the metrology procedures. UE suggest that these arrangements be made clear well before the implementation of metering competition.

1.7 Regulatory changes needed for implementation

What regulatory changes would be needed to implement Option 2, and what considerations attach to these changes? (Q13)

The Options Paper acknowledges that there are substantial changes to Victorian instruments necessary to adopt Option 2. It must be recognised that substantial changes are also required for all Options, though proceeding under Option 4 will require the least amendments.

The final rules made for metering competition include a number of consumer protections:

- “safety and disconnection of the supply of electricity to a small customer’s premises, given the potential ability for DNSPs and retailers to remotely disconnect or reconnect a small customer’s premises;
- the circumstances in which a retailer may arrange the disconnection of supply to a small customer’s premises, including if the customer fails to give safe and unhindered access to the premises for the retailer to carry out its responsibilities with regard to metering;
- interruption of the supply of electricity to a customer’s premises for the purposes of installing, maintaining, repairing or replacing metering equipment;
- minimum standard terms and conditions for retail contracts and connection contracts, given that these will be amended to more clearly reflect the role of the retailer and distributor with respect to metering services;
- obtaining consent from customers, given the ability for customers to “opt out” of having their metering installations replaced under a new meter deployment, or alternatively to give their consent under a market retail contract to having their metering installation replaced; and
- provision of information to consumers, given that small customers will be notified of new meter deployments and their right to opt out of having their meter replaced as part of a new meter deployment.”

The matters outlined above extend well beyond the connection/disconnection service envisaged in the Options Paper and need to be considered by the ESC.

There will need to be consideration of the connection process and timeframes as meters need to be in place with certificates of electrical safety, so these arrangements in the Electricity Distribution Code will also need to change. Timely supply restoration is no longer just limited to a distributor responsibility, similarly planned interruption notices and penalties arising from missed notification to consumers are no longer limited to distributor’s responsibilities. Will retailers pick up GSL obligations for matters that impact customer connection and supply?

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5 AEMC Final Determination, Expanding Competition in Metering and Related Services, p26
The final rules made for metering competition noted that the Electricity Customer Metering Code (ECMC) and the Victorian Orders in Council would need to be amended to cater for the MC instead of the responsible person.

The Victorian Government may like to consider whether existing customer protections are still warranted under Options 1-3:

- The ECMC includes provisions regarding non reversion of smart meters and metering costs to consumers. There are also requirements for information to be provided to consumers on how to read meters where the meter is a type 5 or Victorian AMI meter, these obligations do not extend to the same customers that have a type 4 or type 4A meter.

- Any smart metering obligations in any of the Victorian instruments are limited to the Victorian AMI meter. Mass market customers with a type 4 or type 4A meter will not be afforded the same level of protection.

- The Energy Retail Code requires index reads to be included on customers’ bills for Victorian AMI meters, these obligations do not cover type 4 or 4A meters to the same customer segment. AEMO have already finalised the updated meter data file specification and the provision of index reads is not required for meter types other than 4A and 5. Competitive metering providers are likely to be basing their systems requirements on the final AEMO package 1 NEM procedures.

- Victorian AMI meter customers are able to access validated actual meter data in distributor portals the next day, however the minimum metering data requirements are much lower in the national arrangements with actual data of 98% quality for the Revision 1 settlement process in week + 4 months. Whilst retailers are likely to require higher data quality than the minimum market settlement requirement, there is no clear actual data quality for either customer retail billing or network monthly billing requirements. This has the potential to impact the quality of network billing, customer complaints, levels of exceptions and rebilling. AEMC expects that the data quality for basic network billing will be acceptable. If UE does not have access to the required data at the data stream levels then customers will not be afforded continued feed in tariff or off peak tariffs etc. and we may need to revert to billing based on net settlement data.

- There is no like for like metering obligation in the competitive market despite the request from COAG. Customers may not be afforded continued off peak tariffs if time switches and settings are not maintained. Metering competition considers that any off peak load time switches and time switch settings are a value add service. If the retailer chooses not to maintain the arrangements in line with the UE regulated metering arrangements and settings then the customer will revert to the default tariff.

The ESC has advised UE that they are waiting on the Government policy on all of these metering competition matters before they commence discussions on the changes and any consultation processes.

1.7.1 Regulatory approved contracts

There are a number of contract amendments required under the NERR and the NER which need to be approved by regulators. It is important that regulatory changes are clear by the middle of 2017 to allow time for any amendments to be reflected in these contracts and approved by regulators.

1.7.2 Reform implementation

UE strongly suggest that a whole of program project plan be developed across all stakeholders and that a planning and delivery working group be developed with reporting to the Minister on readiness. There is no do nothing option, although the work requirements are different under Option 4 compared to any competitive metering arrangements.

Given the tightness of the program and based on other major reform initiatives, the likely least risk to consumers and services is to delay the commencement of metering competition in Victoria. UE and other industry stakeholders have consistently recommended that all procedures be finalised and industry be
provided at least 12 months to design, build and test. In December 2014, the AEMC consulted on the POC program timetable and UE stated:

“Once the final build packs for the metering competition release are available UE expects that the design, build test phase would require approximately 12 months.”

As we have indicated below, the 12 month period to allow sufficient time to design, build, test and gain accreditation etc. has been breached through the delays in the B2B rule changes and the inability to progress the B2B work ahead of a newly formed IEC. The initial implementation of electricity or gas retail competition took over 12 months as did the implementation of the initial B2B Procedures. This program has an increased number of different entities involved, significant levels of accreditation and registration, including role handovers and contracts. Unlike FRC where any lack of readiness can lead to a slow rate of retailer offers and acceptances in the market and ultimately churn becomes self-throttled, lack of readiness in mass market metering competition customers may be left off supply or have delayed connections. This is particularly a concern where there is an need to remove regulated meters from within embedded network for/on 1 Dec 2017 and the reform implementation is during the peak connections season where builders are trying to hand over properties prior to Christmas. Processes need to work end to end across industry and must be seamless for consumers. There have been no end to end processes for connections and supply, supply upgrades etc. that represent the agreed processes across the multiple entities that will ensure that industry is delivering to agreed processes that will readily work in the testing phase in July 2017. If testing is unable to produce an end to end process to support customer service, the AEMC commencement date is already hard wired into the NER, including the end date for the Victorian derogation.

ENA wrote to all MCE Ministers in February 2015 about implementation and risk management of mass market metering competition, recommending:

“A realistic and prudent approach to implementation of contestable metering should be fundamental to delivery of such major reforms. To support timely delivery of metering reforms, ENA recommends that the COAG Energy Council establish a National Project Office to ensure coordination of the numerous inter-related activities required by various parties during the implementation phase.

ENA and network service providers also recommend that COAG Energy Council commissions a Readiness Review prior to the commencement of the new framework in 2017 along with associated procedures, systems and legal responsibilities. It would be prudent for such a review to include both:

– a safety risk assessment to ensure customer and meter installer safety is not compromised; and

– the readiness of systems and procedures by AEMO and market participants involved in the connection, supply and energisation services to customers.

Such reviews are a common feature of major project and program implementation within most government agencies and a ‘readiness for service’ is particularly important in major ICT or business system changes with the potential to impact service continuity.

By commissioning such a Review, the Council would support the requisite ‘duty of care’ incumbent on all parties involved in the introduction of significant changes to the electricity metering services environment.”

Whilst UE recognise that there is some level of readiness reporting being undertaken by AEMO, there is no equivalent reform implementation project plan and reporting within Victoria which captures the changes to all the Victorian instruments and the implementation tasks in a manner that ensures this is a seamless transition for customers. The change process for amendments to Orders, NEVA, ESC instrument, approval of contracts etc. needs to be clearly mapped out and delivered in an orderly manner.

6 UE response to AEMC, Enabling metering technology reforms: Consultation on implementation timetable, 11 Dec 2014, p1
7 ENA letter to Minister D'Ambrosio MP, Risk Management in Implementation of Electricity Metering Reform, 25 February 2016, p5
UE recommend that a Victorian regulatory or planning and delivery working group also develop a risk assessment of the issues in such a major reform being rushed to meet a date rather than ensuring that the very basic nature of connections and supply services can be maintained without detriment to consumers.

This risk analysis should also consider the other amendments beyond Chapter 7 and the implementation of the other POC rules and the implications of exactly what is being implemented in Victoria, e.g. the new Embedded Network Manager role and the fact that AEMC considers there are no regulated meters for children within embedded networks that are part of the initial deeming arrangements. These child customers may be forced to pay for type 4 competitive metering services despite the fact that the retailer had this option earlier and chose a regulated metering option.

1.7.3 Transition of Vic AMI – meter type and metrology

With metering competition commencing on 1 December 2017, what timing issues does the Victorian Government need to be aware of, and how might these be managed? (Q14)

1.7.3.1 Policy Timing Issues

Below are the AEMO POC program plans regarding the development of changes, consultation, build, testing, accreditation and implementation. The Victorian Government decision on the transition option in Quarter 2 2017 is after all changes have been finalised in NEM and B2B procedures. It is difficult to see how consumer protections for Victoria are considered in this process when decisions are made once Victorian participants are well into build phases.
In order for the preparation of business processes, systems, data and training to be complete by 1 December 2017, it has been necessary for UE to assume full adoption of metering competition in Victoria (i.e. Option 1). The project commenced in March 2016 on that basis, and UE will continue to prepare for metering competition until and unless a firm decision is reached to the contrary in Victoria. To pause the project whilst waiting for the final Victorian decision would have made it extremely difficult (if not impossible) to be prepared for 1 December 2017.

With confirmation that a decision is expected by March 2017, and in light of the current approach within UE, the policy timing impacts vary depending on the selected option and will require a review of market and B2B interactions and possible modifications to process. UE considers that there may be impacts to stakeholder programs even under Option 1 once Victoria considers how best to maintain customer protections and preserve AMI benefits.

1.7.3.2 Transition of Vic AMI – meter type and metrology

In addition, UE wishes to retain Vic AMI meters as type 5. UE, along with many other distributors, retailers and metering providers do not see value in a bulk name change to call the Vic AMI meters installed by distributors a different name. This bulk change to a new name adds no value for customers, just increases costs to all parties in the market.

This is seen as unnecessary and costly work in an already tight program. New national or Vic AMI meters may be type 4 or 4A and there is also now a VIC AMI category in MSATS. It is unclear what the exact and consistent meter naming convention is and where the arrangements are different between type 4 and type 5 in Victorian instruments and in NEM instruments then this will lead to different regulatory obligations and consumer protections. This has the potential to impact service level obligations and access regimes should this be the Governments desired outcome.
AEMO in restructuring the metrology procedures have also decided to alter the meter data processing to categories of remotely read and manually read meters rather than by meter type. This has meant that a Victorian AMI meter will need to have a mix of type 5 and type 4 metrology. This change is thought to be a substitution flag name change, however this impacts multiple systems and would be an expensive change, again for no benefit to any party. No matter which option the Government chooses, the rush to meet a Rules date is leading to decisions that are ultimately not in favour of Victorian consumers.

1.7.4 Conditions required for successful metering competition in Victoria

Are there any other factors or conditions that should be considered to successfully implement metering competition in Victoria? (Q15)

UE recommend that a strong governance framework be established in Victoria with an appropriate program plan and risk assessment.

If consumer protections are not in place and cross industry testing is not proving successful then there could be adverse impacts on customer connections, supply, supply restoration and billing etc. UE suggest that any internal project with these types of risks would have strong governance, including the ability to establish an appropriate ‘Go or No Go’ decision.

All market participants will have to have completed the development and testing of new / amended business processes and systems, and have tested them with other industry participants in a wide range of scenarios. These activities are acknowledged under the AEMO Readiness framework, which assumes full adoption of metering competition. Any deviation from full metering competition in Victoria will require changes in the readiness mechanisms being facilitated by AEMO.

AEMO’s approach to the procedures for metering competition rely quite extensively on commercial agreements between market participants. These will have to be in place, and the operational details upon which they are based will have to have been tested prior to metering competition commencing.
Appendix
A1. AMI data and network benefits

A1.1 Introduction
The smart meter infrastructure provides United Energy with previously unavailable customer energy data, enabling a range of new capabilities and functionalities that benefit both connected customers and the electricity network.

The mandated AMI program meets the base Victorian Government smart meter requirements (originally developed by the then Victorian Department of Primary Industries, DPI). This includes AMI meter data to households, remote reading of half-hourly consumption draft, provision of data to market, remote disconnection/reconnection, emergency supply capacity limitation, meter loss of supply detection as outlined in the original government business case. However, unlocking and leveraging additional functionality beyond the Victorian business case largely falls outside the scope of the AMI program.

The UE AMI program has rolled out 651,000 smart meters utilising the Silver Spring Network (SSN). Specifically, the Advanced Metering Infrastructure consists of secure smart meters each with a Network Interface Card (NIC) connected via mesh radio access points and repeaters (i.e. relays) to SSN head-end application (UtilityIQ i.e. UIQ and Sensor UIQ).

A1.2 Categorisation of AMI Benefits
Benefits from smart meters can be categorised as shown in the pie chart below. The legend developed has been added to the use cases that follow to demonstrate that benefits across various categories.

- Reliability Improvements (R)
- Efficiency Improvement (E)
- Customer focused (Cu)

A1.3 Current Activities
Current activities to extract benefits from the smart meter data and communication systems include:

- **Life support customers**
  The Electricity Distribution Code mandates compliance with the clauses relating to Life Support customers. An application was designed to contact meters using a ping command on a 24/7 basis to easily identify any life support customers off supply as well as confirming that supply is restored back to the meter. This provides a dashboard and visual indication of any problem customers and a targeted call list saving hours of time.

- **Identifying the meter locations for lost/incorrect paperwork, meter fraud or stolen meters**
  An application has been developed analysing the meter communication data by looking at radio signal information to identify the location of “lost” meters or where no meter record exists. Using triangulation techniques has proven very successful and has even detected and located nine stolen meters being used for sub billing in a private residence.

A1.4 Advanced AMI Functions project
The Advance AMI Functions business case was approved in February 2015. The project has a several major deliverables:
• Implementation of the SSN GridScape module. GridScape is a web-based network management application that runs from the utility back-office for remote, secure configuration and management of the Silver Spring Distribution Automation (DA) communication networks. These DA devices are being utilised to return SCADA data for Remote controlled switches and Auto Reclosers back to the SCADA Master Station via the SSN mesh radio network;

• Implementation of the SSN Outage Detection System (ODS) which analyses all outage related data from the smart meters, filters out successful recloses and ensures that only true outages are provided to the Distribution and Outage Management system (DMS/OMS). The integration into the DMS/OMS is included in this project;

• Development and implementation of the SSN SensorIQ module delivering voltage, current and power factor profile data at intervals as small as 10 second. It is expected that the final setting will be five minute interval data returned to the back office every 30 minutes with the final frequency of measurement determined by the mesh radio capacity;

• Commencement of proof of concept (PoC) development of applications realising benefits from the new datasets;

• The integration of extremely high and extremely low voltage alarms directly into the DMS for immediate dispatch to fault trucks to the affected areas; and

• Strengthening of the Mesh communications network. The data volumes transferred across the SSN Mesh network will increase by more than six times as a result of the SensorIQ deployment. Additional communication hardware is required to allow for this additional traffic.

The Advanced AMI Functions project will provide the foundation to finalise the following use cases:

• **Management software for SCADA over AMI Communications network**
  The AMI communications network is currently utilised in a limited SCADA trial utilising the SSN Distribution Automation (DA) products. The SSN mesh provides a stable alternative to complement the existing Trio radio network and 3G communications. This is especially useful in areas where there are Trio or 3G coverage related issues. The GridScape Communications Management module from SSN is deployed as part of this project and was commissioned in July 2015. This will finalise the trial and assist with the final assessments on how successful and cost effective this alternative is and to what extent further rollouts will occur.

• **Integration of Meter Ping to Network Control Centre (NCC) staff**
  Reducing wasted truck visits using meter ping functionality is available to call centre staff since late 2014. Successful meter pinging has saved UE, and ultimately the customer in excess of $1m during the last 12 months. The AMI Advanced Functions project will integrate this capability to NCC staff via DMS allowing them to confirm at any time whether supply is present at a property;

• **Near real-time alert of outages and confirmation of supply restoration**
  Combining UIQ Meter Management System capabilities and the recently procured SSN Module: Outage Detection System (ODS) will provide the control centre with accurate near real-time indications of individual customer and group outages. This empowers the control centre to initiate operational responses almost immediately, even before the customer reports outages. This will clearly identify the number of customers affected by an outage and the location. It will also allow for the confirmation that all customers’ supplies are restored before the field crew leaves the site;

• **Provision of more accurate customer outage information via a web portal**
  Outage information is already provided to consumers via an internet browser in a Google Maps format. This provides customers with updates on outages, causes and expected restoration times. The smart meter integration will mean that the portal will have faster and more accurate information
available and can make it almost immediately available to customers thus reducing call centre traffic and waiting times;

A1.5 Smart Meter Application Development Roadmap

Network planning activities can be limited by a lack of granular load profile data and the absence of network connectivity models for the low voltage (LV) electricity distribution network. (This can potentially result in inefficient processes or even the potential for sub-optimal network investment).

The unprocessed AMI data provides key network end-point load measurements and the opportunity to develop analytics that derive LV network connectivity models. Applications that can be developed from the smart meter data will become invaluable for efficient decision making support for network planners, asset managers, operational staff, customer services staff and United Energy customers.

Some of these new capabilities and functionalities have been included for development in the 2016-2020 EDPR submission. For example:

- **The foundational Analytical Platform**
  The first and most important development will be the establishment of a fit for purpose analytical platform capable of storing and analysing the datasets with sufficient performance to analyse data in near real time where required. This will also include the establishment of reliable interfaces from all the source systems to the analytical platform;

- **Service mains - loss of neutral detection**
  Smart Meter data can be utilised to detect where the neutral connection on the service mains was lost or where it is badly deteriorated. This could significantly reduce the electrical shock risk to customers when touching anything in the house that is solidly earthed (such as plumbing fittings) United Energy is required to inspect every house’s service mains every 10 years. This is performed at a cost of $2.6m per year. Analytics on smart meter data is an alternative method of “remotely inspecting” the quality of the service mains on a daily basis delivering considerable savings;

- **Service Mains Deterioration**
  Smart meter data analytics enables one to “measure” the quality of the service mains. Trends analysis could result in potential problems being identified and fixed before they occur. This also results in a saving as work can now be performed in a planned manner and thus no need for immediate response by a fault truck;

- **Network Load Management (NLM) tools for Distribution Substations**
  Smart meter energy data improves the distribution substation loading information available to network operators and planners. A near real-time load-profile for each distribution sub-station can be created based on half-hourly interval data, or in the near future, down to ten second data, but typically five minute intervals. This can be automatically compared to the dynamically calculated transformer cyclic ratings. This will enhance the information that informs planning to determine which transformers require capacity upgrades. This will further optimise the process to determine transformers requiring upgrade and allow for improved prioritisation.

  United Energy has approximately 12,500 distribution substations and so this translates to a significant benefit to optimise asset investments and to more effective manage plant overload failure risks;

- **LV Phase detection and cross-referencing of customers to distribution subs**
  Applying “big-data” type analysis to the analogue (voltage and current) measurements from smart meters allows development of planning and operational tools that derive the LV phase/s to which each residential customer is connected. This solution will identify and correlate customer data with
the LV phases and then associate them with each three phase distribution substation, thereby creating and populating an LV per-phase network model.

Having phase connectivity information allows network planners to accurately model LV distribution networks and enable them to run detailed “what-if” scenarios on the network. This will greatly assist with the integration of future Distributed Energy Resources (DER) like solar PV penetration, Electric Vehicle charging, additional load growth, etc.

It also enables the accurate notification to customers of planned outages and other network related work;

- **Identifying load unbalance and peak loading asset risks**
  Phase Detection allows for the extension of the NLM capability to include individual distribution transformer LV loads per phase and down to every fuse. This will provide a 30 minute load profile to be compiled for every phase per circuit on every distribution substation. This highlights phase unbalances which could potentially damage the transformer, and creates the opportunity to improve overall transformer loading if unbalanced loads are corrected. It could also act as an alarm indicating which fuses require upgrading under high load conditions. When translated into the operational realm this could have a significant impact as it would limit unnecessary fuse operations and would drive a process of ensuring that appropriate fuses are installed. This could also be extended to 5 minute profiles where required;

- **Identification of prematurely aging transformers due to excess load**
  The 30 minute consumption data can be aggregated to a transformer level to build an accurate record of transformer loading. This data can highlight transformers that are prematurely aging due to excess load which negatively impacts the return on investment for transformers. Identification of these locations can allow network reconfigurations to extend the assets life;

- **Network Load aggregation**
  The smart meter and distribution substation loads can also be aggregated to any point on the network. This means that a half-hourly load profile can be calculated for every conductor segment on the network and the maximum demand compared with the conductor ratings. This provides a priority list of all the overloaded conductors on the network indicating the severity of the overload, the duration as well as how frequent it is occurring;

- **Improving data quality/process issues**
  Smart meter data can assist in detecting data quality, lack of REC notifications or delays in receiving notification and process deficiencies. Data and process issues that could be resolved include:
  - “Disconnected” customers or vacant premises with consumption;
  - Cross referencing where customers are connected to the wrong distribution transformer;
  - Cross referencing issues between customers and meters, etc.;
  - Incorrectly recorded meter serial numbers;
  - Incorrect CT Ratios / Billing constants in the back office.

- **Detecting non-technical losses (Energy Theft)**
  Analysing the voltage, current and power factor profile information from a customer or group of customers helps to identify a customer stealing energy or helps to identify the position of reasonable sized unmetered loads;

- **LV Reticulation problems**
  Smart Meter data can assist in identifying neutral continuity and poor earth connection issues within
the distribution network which ultimately improves power quality and safety for energy consumers. Analytics on smart meter data can identify the exact pole or pillar box location of bad neutral connections on the LV reticulation network. Previously these can take fault truck crews weeks to pinpoint the exact problem and location. Problems can range from poor earth connections or loss of neutral on a distribution transformer to degraded live or neutral connections on the LV reticulation network. High resistive connections in pillar boxes are also known for starting fires;

- **Supply point overloads**
  Granular consumption data (per phase) allows for easy detection of supply point / meter over load conditions and can in some cases also identify fuse bypass conditions. These conditions can lead to switchboard fires;

- **Candling fuse detection**
  Some high voltage dropout fuses can sometimes get stuck during the fuse blow process which can lead to the whole fuse melting and the molten metal can cause a grass fire. Data from smart meters can assist in the early detection of these cases and the fuse can get rectified before meltdowns occur;

- **Identification of network fault location**
  Intelligent analysis of Smart Meter data in conjunction with SCADA data analysis can assist in accurately identifying fault locations on the network, particularly where there are trees across the power lines or live conductors on the ground, thus delivering a large potential safety improvement. Dispatching the fault truck to the exact location and having a good indication upfront of the expected fault, spare parts and crew skill sets required and will decrease the time to restoration;

- **Spatial Visualisation of derived meter attributes**
  The spatial representation of smart meter data presents the problem visually and can lead to immediately pinpointing of the specific network problem, in many cases reducing the timeframe to resolve the consumers power connection issues. Data sets can include anything from voltage heat maps, network/customer/transformer load, service mains impedances, etc.;

- **Monitoring of Distributed Energy Resources (DER)**
  Analysis of smart meter data enables a derived form of monitoring the impact of distributed generation and demand management on a per customer basis, which when aggregated provides valuable inputs for more effective network management. The smart meter data can also help to determine the most appropriate customer groups to target for Demand Reduction/Cogeneration initiatives and also to confirm the actual load reduced/generation provided by the customer when such a load reduction request was made;

- **Demand management capability**
  Some smart meters can remotely control the second contactor on the meter. Hot water and under floor heating is typically connected to these terminals. This functionality can also be expanded to Demand Response Enabled Devices (DRED’s) via ZigBee Home Area Network communications (or other similar protocols) to control devices such as air-conditioners, pool pumps, fridges, electric vehicles etc. This could potentially be extended to very granular total load remote disconnects on a rotation basis should the need arise;

- **Accurate voltage monitoring and enhanced future voltage regulation capabilities**
  Smart meters report every over and under voltage event. They can be configured to the Distribution Code requirements for both over and under voltages. The recently procured SensorIQ module to the Silver Springs Networks Meter Management System can be configured to capture both voltage and current and configurable alarms and to report the data back on request. The resolution of time-based data can be as high as 10 second intervals, if needed and reported back as frequently as every minute. Mesh radio available bandwidth will however be a main constraint and it is expected that the optimum data rate will be five minute profiles returned every 30 minutes.
This enables useful planning and operational tools for investigating network issues or voltage complaints, as well as providing base data for future dynamic intelligent voltage regulation capabilities that can better accommodate the operational integration of emerging technologies (distributed generation, electric vehicles etc.);

- **Power quality measurement and in-meter-capability**
  The greater knowledge of power quality issues introduced by the AMI environment enables one to implement proactive corrective actions. In many cases this can avoid performance penalties or customer claims. One such application is “brown-out” detection and automatic instantaneous service isolation and restoration inside the meter, where the loss of a network LV fuse may otherwise have resulted in customer appliance damage and financial loss;

- **Voltage regulator behaviour monitoring**
  Voltage profile data from the smart meters allows for early detection of any voltage regulators misbehaving on the network. The number of tap changes performed per day or over a period can also be calculated illuminating the need for a regular field visit to read the cyclo meter on the regulator and to determine when the next maintenance is due;

- **Multi-utility metering**
  The AMI environment introduces a technology platform that can be extended to provide other utility smart metering. As there is reasonable geographical overlap between the MultiNet gas and United Energy electricity networks that could introduce efficiency improvements by enabling remotely read gas (and water) meters connecting to the existing mesh network with minimal requirements to expand/augment the existing mesh communications infrastructure;

- **Customer Guaranteed Service Levels (GSL) calculations and verification**
  Smart meters log every outage. This assists in accurate calculations of frequency and duration of interruptions for every customer and ensures accurate GSL pay-outs as well as providing supporting information for any query or complaint;

- **Energy export detection and solar applications**
  Smart Meter data assists in identifying customers with non-compliant/unauthorised solar PV or DER capability as a safety issue that can be resolved and removed. There are also a vast range of other solar related applications that can be developed as a result of the smart meter data. This will include:
  - Solar installations expanded to bigger than contracted size;
  - Solar installations that are tripped and no longer generating;
  - Deteriorating outputs and output trending;
  - Gross generation calculations per customer and/or across the network;

- **Provision of more granular and frequent consumption via a web portal**
  Consumption information is already provided back to consumers via the Energy Easy Web portal. Data is typically 1 day lagging, but can be made as regular as 4 times per day. The high frequency logging of voltage and current data will enable the Energy Easy portal to display data at a more granular level and also with minimal lag. It is expected that the systems should allow 5 minute interval data to be made available every 30 minutes to customers, with the potential to go faster and more granular on “premium” customers should the need arise;

- **Disaggregation of customer load profiles**
  Granular voltage and current profiles can be utilised to feed directly into disaggregation software like Bidgely or ONZO providing the customer a breakdown of various appliance consumption data
without the need to install any additional hardware in the house or a need to utilise the customer’s internet connection. This is also a far easier solution to support.

A1.6 Conclusion

Smart Meters are rapidly becoming an invaluable source of information from the network and customers. Applications utilising current and future datasets will start to become the toolset of choice for network planners, asset managers, Control Centre staff and customer support staff and will deliver new customer information. Data analytics will change the way United Energy is performing its business and will assist in delivering “The Intelligent Utility” for the benefit of the network and our customers.
### A2. Data requirements to achieve network benefits

<table>
<thead>
<tr>
<th>Use case/benefit achievable under meter competition</th>
<th>Data frequency logging</th>
<th>Amount of data required</th>
<th>Retrieval frequency</th>
<th>Once-off / Ongoing</th>
<th>All meters on Substation or 1 alone OK</th>
<th>Averaged or snapshot</th>
<th>All time synched</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral failure</td>
<td>5 min or better</td>
<td>2 days</td>
<td>Daily OK, preference for hourly</td>
<td>Ongoing</td>
<td>1 OK, but more helps to identify fault location</td>
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<tr>
<td>Service degradation</td>
<td>5 min or better</td>
<td>9 months</td>
<td>Weekly OK, preference for daily</td>
<td>Ongoing</td>
<td>1 OK, but more helps to identify fault location</td>
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<tr>
<td>Phase Identification</td>
<td>5 min or better</td>
<td>1 month</td>
<td>Monthly OK, preference for daily</td>
<td>Ongoing</td>
<td>Really needs all of them, but algorithm will work with missing data. They will just not be allocated to a phase.</td>
<td>Snapshot</td>
<td>Yes</td>
</tr>
<tr>
<td>Cross Referencing Error Detection (not carded customers etc)</td>
<td>5 min or better</td>
<td>1 month</td>
<td>Monthly OK, preference for daily</td>
<td>Ongoing</td>
<td>Really needs all of them, but algorithm will work with missing data. They will just not be allocated to a phase.</td>
<td>Snapshot</td>
<td>Yes</td>
</tr>
<tr>
<td>LV Backbone Issue location detection</td>
<td>5 min or better</td>
<td>As much history as possible</td>
<td>Daily, prefer 1h for Proactive, Ad Hoc for reactive</td>
<td>Ongoing / Ad hoc</td>
<td>Really needs all of them, but algorithm will work with missing data. They will just not be allocated to a phase.</td>
<td>Snapshot</td>
<td>Yes</td>
</tr>
<tr>
<td>Advanced Incorrect Wiring / Tampering Detection</td>
<td>5 min or better</td>
<td>As much history as possible</td>
<td>Once off, preference for monthly</td>
<td>Once off can work</td>
<td>1 Alone</td>
<td>Avg or Snapshot</td>
<td>No</td>
</tr>
<tr>
<td>Meter bypass / Theft detection</td>
<td>5 min or better</td>
<td>As much history as possible</td>
<td>Monthly OK, preference for daily</td>
<td>Ongoing</td>
<td>Really needs all of them, but algorithm will work with missing data. They will just not be allocated to a phase.</td>
<td>Snapshot</td>
<td>Yes</td>
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<tr>
<td>Candling Fuse detection</td>
<td>5 min or better</td>
<td>1 month</td>
<td>Hourly, preference for 5 min for profile data, events - real time</td>
<td>Ongoing</td>
<td>Really needs all of them, but algorithm will work with missing data. They will just not be allocated to a phase.</td>
<td>Snapshot</td>
<td>Yes</td>
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<tr>
<td>Brown Out / HV Fuse failure</td>
<td>Real time alarms</td>
<td>Real time alarms</td>
<td>Real Time</td>
<td>Ongoing</td>
<td>Really needs all of them, but algorithm will work with missing data. They will just not be allocated to a phase.</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Use case/benefit achievable under meter competition</td>
<td>Data frequency logging</td>
<td>Amount of data required</td>
<td>Retrieval frequency</td>
<td>Once-off / Ongoing</td>
<td>All meters on Substation or 1 alone OK</td>
<td>Averaged or snapshot</td>
<td>All time synched</td>
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</tr>
<tr>
<td>Outage management (Last Gasp / Power Fail / Power Restore)</td>
<td>✗</td>
<td>Real time alarms</td>
<td>Real time alarms</td>
<td>Real Time</td>
<td>Ongoing</td>
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<td>N/A</td>
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<tr>
<td>Live HV conductor on the ground detection</td>
<td>✗</td>
<td>Real time alarms</td>
<td>Real time alarms</td>
<td>Real Time</td>
<td>Ongoing</td>
<td>Really needs all of them, but algorithm will work with missing data. They will just not be allocated to a phase.</td>
<td>N/A</td>
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<tr>
<td>Switchboard Fires / Loose terminal connections</td>
<td>✓</td>
<td>5 min or better+ Real time alarms</td>
<td>2 days</td>
<td>Daily OK, preference for hourly</td>
<td>Ongoing</td>
<td>1 Alone</td>
<td>Snapshot</td>
</tr>
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<td>Real Time voltage control</td>
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<td>5 min or better+ Real time alarms</td>
<td>2 days</td>
<td>Daily OK, preference for hourly</td>
<td>Ongoing</td>
<td>Representative sample will do</td>
<td>Snapshot</td>
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<td>Transformer total load monitoring - Needs Cross Ref use case to occur 1st</td>
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<td></td>
<td></td>
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<td>100% of meters for Cross Ref</td>
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</tr>
<tr>
<td>Transformer load/phase monitoring (Phase overload / Unbalance) - Needs PhaseID use case to occur 1st</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100% of meters for Cross Ref and PhaseID</td>
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<tr>
<td>Call center / Control Room meter ping</td>
<td>✓</td>
<td>Real Time Ad Hoc, On Demand</td>
<td>N/A</td>
<td>Real Time</td>
<td>Ad Hoc</td>
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<td>Real Time</td>
<td>Ad Hoc</td>
<td>1 Alone, or Groups</td>
<td>N/A</td>
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</table>