24 February 2017

Mr Chris Pattas
General Manager
Australian Energy Regulator
GPO Box 520
Melbourne VIC 3001
By email: AERInquiry@aer.gov.au

Dear Mr Pattas

Re: ISSUES PAPER – SERVICE TARGET PERFORMANCE INCENTIVE SCHEME AND DISTIRBUTION RELIABILITY MEASURES GUIDELINES

CitiPower and Powercor welcome the opportunity to respond to the Australia Energy Regulator's (**AER**) issues paper on the Services Target Performance Incentive Scheme (**STPIS**) and distribution reliability measures.

Our submission covers the following key points:

- It is not necessary or efficient to increase the System Average Interruption Duration Index (**SAIDI**) incentive rate to promote operating expenditure (**opex**) based reliability solutions, because:
  - we prioritise reliability improvement programmes based on identification of worst performing feeders in terms of SAIDI outcomes. We do not target reliability improvements based on System Average Interruption Frequency Index (**SAIFI**) or the number of customers located close to the zone substation;
  - we employ a range of opex and capital expenditure (**capex**) solutions to improve SAIDI, the best solution depends on the nature of fault causes;
  - the most effective way to reduce SAIDI is to first prevent outage occurrence (no customers affected), second mitigate outage scope (less customers affected and faster identification of fault location) and third restore supply quickly (reduce duration);
  - capex based solutions are often the most efficient for improving SAIDI. Capex based solutions, such as Automatic Circuit Reclosers (**ACRs**), are cost effective and provide the greatest benefit to customers in terms of both SAIDI and SAIFI reductions; and
  - due to the unknown location and cause of unplanned faults, employing additional field crew is unlikely to materially improve fault response but is likely to lead to underutilisation of labour and will increase costs for customers.
- Amending the definition of momentary interruptions to capture interruptions of less than three minutes duration would promote greater investment in fault automation systems and provide customer benefit from faster restoration of short duration outages.
- The current volatility in the Value of Customer Reliability (**VCR**) is not conducive to efficient long term investment decision making and is unlikely to be representative of the underlying value of reliability to customers. We recommend the VCR be calculated based on the average of VCR studies conducted over the previous ten years.
- Consideration should be given to broadening the measures of customer service performance to incentivise customer services that better reflects current customer expectations.

- Further consideration should be given to whether planned outages should be included in the STPIS. Customer experience is impacted by planned outages, albeit to a lesser extent than unplanned outages. At the same time however the safety risks of live line works needs to be appropriately managed.

Our submission also responds to other aspects of the STPIS raised in the AER's issues paper.

Should the AER have any queries regarding this submission, please do not hesitate to contact Megan Willcox on (03) 9236 7048, or mwillcox@powercor.com.au

Yours sincerely,

Brent Cleeve
Head of Regulation, CitiPower and Powercor

1.1 Ratio of SAIFI and SAIDI incentive rates

The AER seeks comment on whether the relative strength of the incentive on SAIFI and SAIDI is appropriate and in line with customer expectations. The AER appears minded to increase the strength of the incentive on SAIDI based on its view that:

- the average time to restore faults is increasing;[1]
- the current ratio incentivises capital investment over operating expenditure solutions and:
  - capital solutions improve SAIFI more than SAIDI;[2]
  - capex is targeted at restoring faults to customers near zone substations at the expense of improving reliability to customers further away.[3]

We consider the current balance of incentives on SAIFI and SAIDI to be appropriate and should not be changed. We do not agree with the AER's view that we have focused our efforts on capital solutions to reduce SAIFI rather than focussing effort on reducing SAIDI. Our reasons are set out in the sections below.

1.1.1 Network Reliability Strategy

Our Network Reliability Strategy adopts the following steps to improve reliability:

1. Identify—identify the worst performing feeders based on the SAIDI outcomes;
2. Prevent—implement cost effective solutions to avoid feeder outages;
3. Mitigate—implement cost effective solutions to minimise the scope of outages (i.e., minimise outage area and number of customers affected); and
4. Respond—implement cost effective solutions to reduce the time to restore supply.

Our strategy aims to provide the greatest reliability improvement for the lowest cost to our customers. Importantly, by preventing the occurrence of an outage and mitigating the scope of the outage we are significantly reducing the duration of outages experienced by our customers. This is an efficient outcome for customers because:

- from a customer perspective, it is preferable to avoid outages than to reduce the time to respond to them. This is supported by Oakley Greenwood's 2012 report for the Australian Energy Market Commission (**AEMC**) on reliability which found that across the three NSW distributors, 58-62 per cent of residential customers prefer distributors to invest in infrastructure to reduce the number of power failures that occur, and only 16-17 per cent had a preference for investment in systems to reduce outage length. These preferences were consistent across feeder type;[4]
- we can restore supply to customers that experience outages faster if the outage scope is smaller; and
- it is more cost effective to prevent the occurrence of an outage, which removes the need to respond completely, than to only reduce the response time.

Our strategy is a prudent and efficient approach and would not change should the SAIDI incentive increase.

1.1.2 The relative impact of capital and operational expenditure on reliability

When assessing reliability solutions we seek the most efficient solution which provides the greatest reliability benefit to customers at the lowest cost. We do not have a predefined preference for capex or opex and the relative balance in the SAIDI/SAIFI incentive rate does not create an incentive for preferring capex or opex

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1 AER, STPIS Issues Paper, January 2017, p. 16, 52

2 AER, STPIS Issues Paper, January 2017, p. 16

3 AER, STPIS Issues Paper, January 2017, p. 14

4 Oakley Greenwood, NSW Value of Customer Reliability, May 2012, p. 51 <http://www.aemc.gov.au/Media/docs/Oakley-Greenwood---NSW-customer-survey-results-662076de-5235-4e43-a451-188661253092-0.pdf>

solutions. Capex-based solutions are however often most effective and efficient for reducing both SAIDI and SAIFI.

When we identify poor performing feeders (based on SAIDI performance) we consider the best option to improve reliability taking account of the underlying cause. Examples of typical solutions include:

- replacing wooden cross arms with steel to reduce pole top faults;
- insulator washing to reduce pole top faults;
- relocating assets (particularly for those subject to overhead truck damage);
- installing ACRs, switches and monitoring equipment;
- reviewing vegetation and maintenance procedures; and
- investing in field mobility and works management tools.

Capex based solutions can be employed to reduce both the number of customers affected (SAIFI) and to specifically target the time to restore supply to remaining customers (SAIDI). For example we have undertaken the following capex programs to reduce SAIDI:

- installing ACRs, switches and monitoring devices to narrow the fault area. Field crew are then deployed to a more targeted location enabling quicker identification of the fault cause and faster restoration.

  For example, we have a 400 kilometre rural long feeder supplying approximately 4,500 customers in the Castlemaine, Guildford and Taradale areas. Prior to 2015, identifying outage location involved field crew patrolling up to 400 kilometres (**km**) of line which prolonged outage duration. Based on its SAIDI performance, in 2015 we installed an ACR on the Guildford section, which serves approximately 1,200 customers and consists of 65 km of feeder. This investment was justified on the basis it would greatly reduce patrol times and therefore reduce outage times. It also reduced the number of customers affected by an outage in the Castlemain and Taradale areas; and

- in late 2016, we developed a capex-based IT tool to improve scheduling and dispatch of field crew. As this tool is rolled out, field crew will be deployed more efficiently, reducing travel times and enabling faster outage response.

The AER implies distributors are not focussing on opex solutions—such as additional field crew—to reduce the duration of outages. As noted above, we do employ opex solutions to decrease SAIDI, for example reviewing maintenance and vegetation management procedures and monitoring and managing field performance. In general however, employing additional field crew is a less efficient solution for improving SAIDI. This is because:

- Powercor operates an expansive network covering 65 per cent of Victoria's area and the cause and location of unplanned faults is unknown. Therefore seeking to base additional field crew with right skills and equipment in the correct location to restore unplanned faults, is impracticable and inefficient. Employing additional field crew would risk under-utilisation of employees and will not materially reduce SAIDI;
- rural feeders do not take the most direct route from start to end of the feeder. Feeders traverses the country side, often through inaccessible terrain and spurs often head cross country away from roads and developments to supply small groups of customers. Without monitoring devices and ACRs, additional field crews would be ineffectual at reducing SAIDI because the greatest time is spent following the feeder route to find a fault location. With monitoring devices, crews typically save time (even if located further away) by driving straight to the affected network area and then inspecting a few km of line; and
- capex solutions involve one-off expenditure on assets with average lives of over 50 years, whereas opex for additional field crew is incurred on an ongoing annual basis. We estimate the cost of every one additional field employee (without considering vehicle and equipment cost) is equivalent to the cost of procuring and installing around 45 ACRs, with the latter proving having a more material improvement in SAIDI.

A higher SAIDI incentive will not change the relative efficiency of capex and opex solutions, and the AER should not seek to promote less efficient solutions, in the pursuit of SAIDI improvements.

1.1.3 Targeting reliability improvements to customers located near zone substations

The AER is concerned that we may focus on restoring supply for customers closer to zone substations.[5]

As noted in section 1.1.1 we focus reliability improvements on the worst performing feeders, measured in terms of SAIDI performance. We do not focus on customer location relative to zone substations.

While in areas where the network is less meshed (particularly remote and rural areas) some reliability solutions have less impact, because there are fewer switching options to isolate the faulted section of the network and restore customers from alternate feeders, we are committed to improving reliability outcomes for our remote customers and customers located further from zone substations. Some recent programs to improve reliability for customers located further from zone substations include:

- the 2015 Guildford ACR program discussed in section 1.1.2 was specifically targeted to reduce SAIDI to customers on rural long feeders, 65 km of feeder length from the zone substation;
- in 2016 we installed ACRs on rural long feeders in the Heywood area to enable loop automation (switching to keep customers on supply). This improves reliability to customers in Dartmoor, 67 km of feeder length from the zone substation; and
- in 2014 we invested $2.7 million to improve reliability at Port Fairy and surrounding localities. Works included configuring ACRs and installing remote controllable switches on rural short and rural long feeders to allow loop automation and reduce fault area. Reliability was enhanced in a number of locations including Port Fairy and Yambuk which are 27 km and 48 km of feeder length from the zone substation respectively.

There will nevertheless always be areas of the network where it is inefficient to provide higher reliability. The purpose of the Guaranteed Service Level (**GSL**) scheme is to provide compensation to our worst served customers.

Importantly, increasing the incentive rate on SAIDI relative to the SAIFI would not make it more efficient to improve reliability to customers located further from the zone substation. This is because it is still more efficient to deploy capex solutions, which provide both SAIFI and SAIDI benefits, than employ more field crew which provides no SAIFI benefit and is unlikely to provide material SAIDI improvements.

1.1.4 Restoration time is not increasing

Customer Average Interruption Duration Index (**CAIDI**) does not provide a true representation of network performance. CAIDI reflects the ratio of SAIDI to SAIFI and therefore performance will appear to be deteriorating even when both SAIFI and SAIDI are improving, but SAIFI is improving at a faster rate. It is therefore important to assess each measure independently.

Our underlying SAIDI performance has not deteriorated. Over the past 10 years Powercor's SAIDI performance has improved and CitiPower's SAIDI performance has remained constant. CitiPower's reliability is already at a very high level with very few outages experienced and limited opportunity for further improvement. Consequently, CitiPower's annual reliability performance is highly influenced by external factors.

Both networks have experienced pressure on SAIDI as a result of exogenous factors including:

- more stringent work practice requirements in relation to traffic management and Job Safety Analysis which increase the time to restore outages;
- increasing traffic congestion, which increases the time to locate faults and reach fault locations; and
- significant outages in 2014 due to unusually inclement weather and the Lancefield bushfires, which did not meet the MED exclusion.

Nevertheless, we have maintained or improved SAIDI performance on both our networks. Therefore, there is no basis for increasing the incentive rate on SAIDI based on the performance of our networks.

[5] AER, STPIS Issues Paper, January 2017, p. 14

1.2 Momentary interruptions

We support the AEMC's recommendation to amend the definition of momentary interruptions to capture interruptions of less than three minutes duration.

Fault restoration automation systems involve multiple actions by field devices and multiple communication flows between IT systems and field protection devices. While the process is automated, all the actions and communications may not be completed in less than one minute. Amending the definition of momentary interruptions to increase the duration beyond one minute would provide more flexibility in the functionality and performance of fault automation solutions. This would reduce the costs of implementation and promote greater investment in fault automation systems. If fault automation systems are implemented, customers will benefit from faster restoration of short duration outages. In 2000, Ofgem amended its definition of momentary interruptions from one to three minutes on the basis it would better incentivise investment in distribution automation systems that speed up supply restoration. Further, increasing the duration of momentary interruptions is consistent with the IEEE standard which defines a momentary interruption as being less than five minutes.

As discussed in section 1.1, we do not consider there to be an imbalance in the incentives between SAIFI and SAIDI. Therefore, we do not agree that increasing the duration of momentary interruptions would create a further imbalance. Customer benefit is maximised by implementing cost effective solutions which avoid the interruption where possible and restore supply quickly when interruptions occur.

MAIFIe should be formalised as the standard measure of momentary interruptions under the STPIS. MAIFIe better reflects the customer experience and is the measure currently applied in practice to Victorian distributors.

1.3 Value of customer reliability

The VCR is a key input in our investment decision making. The VCR impacts both the STPIS incentive rate and the Regulatory Investment Test for Distribution (**RIT-D**). The current volatility in the VCR is not conducive to efficient investment decisions, particularly when investing in assets with average lives of 50 plus years.

Further, substantive volatility in the VCR is unlikely to be representative of changes in the underlying value of reliability to customers. Volatility in VCR outcomes is most likely driven by a combination of survey structure, survey sample and recent reliability performance experienced by customers.

We therefore propose the VCR be applied in the STPIS incentive rate calculation be based on a longer term average of VCR studies. A ten year average would provide an appropriate balance between capturing recent customer sentiment and long term underlying customer value of reliability.

Further, we consider the AER may be better placed than the Australian Energy Market Operator (**AEMO**) to have responsibility for VCR studies. The VCR is a key input into the STPIS and RIT-D, both of which fall under the AER's responsibility. The AER is therefore more likely to take into account the economic implications of the VCR. Conversely, AEMO is the system operator with responsibility for regulation of technical market operations.

1.4 Customer service performance

Customer service performance is currently only incentivised under the STPIS through the telephone answering parameter. Customer expectations of quality service have evolved over time and there are now numerous ways of communicating and engaging with our customers. Consideration should be given to broadening the measures of customer service performance included in the STPIS to incentivise customer services that better reflects current customer expectations.

1.5 Planned outages

Further consideration should be given to whether planned outages should be included in the STPIS. Customer experience is impacted by planned outages, albeit to a lesser extent than unplanned outages. At the same time however the safety risks of live line works needs to be appropriately managed.

1.6 Exclusions

We support extending the exclusions criteria to enable load interruptions caused or extended by direction from state or federal emergency services to be excluded from the STPIS performance measures. This exclusion is important for removing the impact of events beyond our control. An example of this situation on our network is load interruptions made upon direction of the Country Fire Authority (**CFA**) to mitigate fire risk and impact. In some cases we are unable to restore supply or assess asset damage until the CFA provides permission for us to re-enter the area.

The impact of catastrophic events should be removed from the calculation of the Major Event Day (**MED**) threshold. Including catastrophic events in the calculation can lead to undue volatility in the MED threshold. As a consequence the MED threshold no longer represents the underlying distribution of reliability outcomes and may not adequately capture major event days in subsequent years. Catastrophic events should be identified using the IEEE 4.15 beta method. For clarification, we do not consider it necessary to exclude catastrophic events from the assessment of performance against targets as these events should already be captured by the MED threshold.

We do not support an exclusion for under-performance of demand management projects. We support efficient investment in demand management solutions. However, excluding the reliability impact of demand management projects would lead to customers bearing the full risk of poor reliability performance and the potential for inefficient demand management solutions. The decision whether to invest in demand management solutions should take into account the expected reliability impact on customers.

1.7 Definitions

1.7.1 Feeder definitions

We do not support the changes to feeder definitions proposed by the AEMC.

Central Business District (CBD) feeders

The current definition of CBD areas should be retained, with additional clarification that it applies to major capital cities, as follows:

> *A feeder in a major capital city that is supplying predominantly commercial, high-rise buildings, supplied by a predominantly underground distribution network containing significant interconnection and redundancy when compared to urban areas.*

Determination of the CBD area should be made by the relevant distributor in line with the above definition. Distributors, rather than the relevant jurisdiction, are best placed to validate where the network in the area is predominantly underground and contains significant interconnection and redundancy when compared to urban areas.

Urban feeders

We modelled the impact of the proposed definition of urban feeders for our network and found applying the 0.3 MVA/km limit to weather adjusted maximum demand does not materially reduce annual feeder category variability. We propose applying a band of +/- 10 per cent to the 0.3MVA/km limit to remove small differences in average demands driving annual category variability.

1.7.2 Standardised reporting definitions

The limited discretion afforded in respect to reporting definitions recognises jurisdictional differences and differences in the equipment and systems used to record reliability. It is appropriate to maintain this limited discretion so that distributors do not unnecessarily incur costs to change their reporting method and re-calculate targets. The limited discretion does not undermine the comparability of distributor performance—any difference would have only a minor impact on reported outcomes.

Nevertheless, if the reporting definitions are changed:

- reliability performance should be reported for active National Metering Identifier (**NMI**) codes only—only active NMI codes are impacted by our reliability performance;
- single customer outages should be included in performance reporting, provided the cause of the outage is on the network side and not the customer side; and
- unmetered sites, excluding unmetered street lighting, should be included in performance reporting. Customers often undervalue public services, and removing unmetered supply from the STPIS will reduce the incentive to maintain and improve reliability to these sites.

1.7.3 Common reliability definitions

In appendix E the AER outlines its views on a number of common definitions used in the STPIS.

The definition of Distribution Customer in the AER's Issues Paper excludes unmetered connection points. We believe the definition should include unmetered supply points (except public lighting), as discussed above.

The definition of interruptions states interruptions are measured from when the interruption is initially automatically recorded by equipment such as SCADA or, where such equipment does not exist, at the time of the first customer reports that there has been an outage in the network. While we receive a Meter Outage Notification (**MON**) for single customer outages, we do not rely on this to initiate fault response procedures. This is because a MON may be received due to electrician's working at the customer premise or other unexplained noise, rather than a network fault. For single premise outages, we wait until a customer notifies us they are off-supply before considering (and responding to) the event as an outage for the purposes of the STPIS. This is an efficient way to deal with single MON notifications to avoid wasted truck visits, but may not be consistent with the abovementioned interruption definition. We therefore recommend the definition should be amended to accommodate this circumstance.

1.8 Incentive symmetry

It would not be appropriate to have an asymmetric incentive scheme where there are greater penalties than rewards for changes in reliability performance. The rewards under the STPIS scheme are intended to provide funding for networks to undertake initiatives that maintain or improve reliability performance. If there is no, or limited, funding available under the STPIS, this would need to be provided through the regulatory determination.

1.9 Interaction with distributed energy resources

At this stage there is no need to fundamentally change the STPIS to accommodate the impact of distributed energy resources. Customers with distributed energy resources still have a preference to remain connected to the network to ensure supply continuity and assurance, and expect network supply to be available at all times. Therefore, customers with distributed energy resources still value the reliability of the network and are still impacted by network reliability performance. Further, while there are pockets of high distributed energy resource penetration, at this time it is not sufficiently widespread to warrant changes to the STPIS.

1.10 Technical refinements

The AER proposes a number of technical refinements to the STPIS guideline including:

- redefining year 't' in the STPIS to align with the year 't' in the revenue control formula;
- applying a dollar value adjustment to the revenue control formula in place of the current percentage adjustment; and
- introducing a method for adjusting the performance data for calculating the targets when the revenue at risk is exceeded.

We support the proposed refinements in principle, subject to reviewing the draft formula.