

24 February 2017

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Dear Chris

**Issues Paper – Reviewing the Service Target Performance Incentive Scheme and Establishing a new Distribution Reliability Measures Guideline**

I refer to the consultation that the AER is undertaking via the above Issues Paper. I have attached SA Power Networks' submission on the matters raised within the Issues Paper.

If you have any queries or require further clarification on our submission, please contact Mr Grant Cox on 08 8404 5012 or [grant.cox@sapowernetworks.com.au](mailto:grant.cox@sapowernetworks.com.au).

Yours sincerely



Wayne Lissner  
*Acting General Manager Corporate Strategy*



Submission – AER’s Issues Paper reviewing the STPIS  
& establishing new Reliability Measures Guidelines

24 February 2017

**SA Power Networks**  
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## 1. OVERVIEW

Given the Service Target Performance Incentive Scheme (**STPIS**) has been in place since 2009, SA Power Networks agrees with the AER that it is timely to review the scheme – particularly in the context of recent changes to the NER, requiring the AER to publish a distribution reliability measures guideline (**DRMG**). In addition the review needs to be cognisant of the Australian Energy Market Commission (**AEMC**) final report on its review of Distribution Reliability Measures published on 18 September 2014 (**AEMC Final Report**). This submission is in response to both the proposed changes to the STPIS and the development of the DRMG.

As acknowledged by the AER, STPIS is aimed at ensuring that service levels do not deteriorate as a result of expenditure reductions while also providing positive incentives for network businesses to improve existing levels of performance where customers are willing to pay for them. On this basis, SA Power Networks agrees with the AER that the STPIS has been successful in an Australian context. Customers generally have benefited from a reduction in the frequency of power supply outages while the total duration has also had a reduction (albeit smaller). Overall, customers in South Australia (**SA**) have seen over the last 10 years a 15% reduction in the frequency of outages (ie **SAIFI**) and a 10% reduction in the total duration of outages (ie **SAIDI**). Both these improvements have resulted in a 6% decline in average interruption duration (ie **CAIDI**), as **CAIDI** is equal to **SAIDI** divided by **SAIFI**.

In the Australian context, AER analysis suggests the average time to restore power has increased substantially compared to historic levels – which the AER puts down to the current STPIS design. However, this increase in average restoration of supply times (ie **CAIDI**) can logically be attributed to the mathematical consequence of the greater improvements in frequency of outages compared to the improvements in total duration of outages. Why this makes sense in the real world can also be demonstrated by way of example. Distributors typically deploy switching devices along high voltage feeders such that when a fault occurs near the end of the feeder, rather than the whole feeder tripping (with all customers on that feeder losing supply), only customers on the faulted part of the feeder have their supply interrupted. Automatically sectionalising the feeder in this way reduces the number of customers interrupted for a given fault. Because fewer customers are interrupted by that fault, **SAIFI** is reduced but **CAIDI** increases as the outage duration for that fault is averaged by a smaller number of customers. That is, the deterioration in **CAIDI** in these circumstances would not be due to poorer restoration practices but rather from good practices which reduce the total number of customers interrupted by a given fault.

SA Power Networks has analysed SA restoration of supply times for customers and found that there has been:

- a significant reduction (ie more than 30%) in the numbers of customers interrupted where the duration of the interruption did not exceed three hours; and
- no increase in the numbers of customers interrupted where the duration of the interruption exceeds three hours.

That means that customers in SA are not experiencing longer interruptions despite the decline in **CAIDI** but that a significant number of customers are experiencing fewer interruptions.

Based on logical outcomes of distributors’ responses to STPIS incentives, there seems to be little evidence to support a significant change to the design of the STPIS. Our submission highlights that outcomes from the STPIS appear consistent with customer expectations.

On the other hand, SA Power Networks advocates for some minor enhancements to the STPIS:

- Adopting the Momentary Average Interruption Duration Index event (**MAIFle**) definition for measuring momentary interruptions;
- Increasing the maximum time of an interruption from the current one minute to a three minute duration for both Momentary Average Interruption Duration Index (**MAIFI**) and MAIFle;
- Excluding Catastrophic Event Days from the calculation of the Major Event Day (**MED**) SAIDI threshold; and
- Adopting defining a Catastrophic Event Day using the 4.15 Beta method<sup>1</sup>.

In addition, SA Power Networks does not support including planned interruptions in the STPIS regime.

Finally, SA Power Networks considers that while standardisation of definitions may improve benchmarking results, it may also result in a disjoint in a distributor’s apparent performance, where that distributor is unable to back cast its historic performance to align with the new standardised definitions. Therefore, any changes to definitions need to consider minimising the requirement for back casting of distributors’ historic performance. Any amendment to definitions needs to ensure that the benefit to customers outweighs the costs to implement those amended definitions.

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<sup>1</sup> The 4.15 Beta method transforms five years of daily SAIDI data using the natural logarithm . The average and standard deviation are calculated for the transformed data set. The Catastrophic Event day threshold is then determined by calculating the natural exponential of the average plus 4.15 times the standard deviation.

## 2. CURRENT STPIS AND OBSERVED OUTCOMES

### 2.1 Introduction

The Australian Energy Regulator (**AER**) was required by the National Electricity Rules (**NER**) Rule 6.6.2 to establish an incentive scheme that provided incentives to distributors to maintain or improve performance.

The AER highlights in the Issues Paper that the STPIS<sup>2</sup> *“has been successful in minimising the number (frequency) of power supply outages endured by all customers compared to five years ago. While the total time (duration) of power outages experienced by customers also improved (reduced) under the scheme to some degree, the rate of improvement is far less than for the number of power supply interruptions (the frequency)”*.

Customers supplied by SA Power Networks’ distribution network have also seen a greater proportional reduction in the number (frequency) of interruptions than in the total time (duration) of power supply outages, which is consistent with the AER observations.

In addition, the AER stated that *“Overall reliability outcomes for customers (SAIDI) have improved for all distributors with the exception of United Energy<sup>3</sup>”*. The conclusion drawn from these two AER statements is that the STPIS is generally improving network reliability to customers.

### 2.2 Typical methods used to improve reliability performance

When SA Power Networks takes steps to improve reliability performance for its customers, it typically employs the following methods:

- Eliminate the cause of the interruption; and/or
- Harden the network in a specific location against the cause of interruptions (eg lightning); and/or
- Reduce the number of customers interrupted when a fault occurs (eg using switching devices to isolate the fault to a smaller section of the network).

These reliability improvement methods result in fewer customers experiencing an outage, so consequently reducing both the average number of customer interruptions (ie frequency or **SAIFI**) and the total time customers are without supply (ie duration or **SAIDI**).

SA Power Networks has used these methods to maintain underlying reliability performance and to improve reliability to customers in line with STPIS incentives. We understand that these methods are also typically used by other distributors to maintain or improve reliability for their customers.

To reduce the numbers of customers interrupted when a network fault occurs, SA Power Networks typically installs additional protective devices (automatic switches) that reduce the number of customers interrupted by a fault. Prior to installation of the additional protective devices a larger number of customers would have been interrupted by a fault, with some of those customers being restored via manual switches once field crews had determined that the fault was not in the network section that supplied those customers (ie first stage of restoration). The crews would then locate the fault, repair it and restore supply to the remaining customers (ie second stage of restoration). By comparison, with the installation of the additional protective device(s) customers who would

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<sup>2</sup> AER’s Issues Paper Reviewing the Service Target Performance Incentive Scheme and Establishing a new Distribution Reliability Measures Guidelines, Electricity distribution network service providers, January 2017 pg 9.

<sup>3</sup> Issues Paper pg 15.

otherwise be restored in the first stage of restoration would now not see a sustained interruption. However, customers restored in the (previous) second stage would still need the crews to locate the fault, repair it and then restore supply and would see a similar duration interruption in comparison to the situation without the additional protective devices. The combination of some customers no longer seeing an interruption and other customers seeing a similar duration outage means that mathematically those customers who now experience an outage will be recorded as having a longer outage as measured by CAIDI, despite their experience being unchanged. That is, the deterioration in CAIDI is not due to poorer restoration practices but rather from good practices which reduce the total number of customers interrupted by a given fault with a given duration.

Using a combination of these methods typically results in a greater improvement in SAIFI than in SAIDI as has been observed by the AER, when it analysed the STPIS outcomes<sup>4</sup>. This is the case with the reliability improvements made for SA Power Networks’ customers.

### 2.3 Observed outcomes of STPIS to date

The AER has stated that overall there has been an improvement in reliability provided to customers with the exception of United Energy. Consequently, the current STPIS has delivered the vast majority of customers an improvement in reliability performance, which was its objective.

On average, customers supplied by SA Power Networks’ distribution network have seen a:

- 15% reduction in the number of customers interrupted; and
- 10% reduction in the average total minutes off supply per annum.

These improvements have resulted in a 6% decline in the average duration of a single interruption (ie **CAIDI**). Overall, customers on average are seeing a reliability improvement.

The AER has highlighted that in general there has been a decline in the ratio of SAIDI/SAIFI (ie CAIDI) or the average time taken to restore supply to those customers that have an outage. A possible assessment of the AER observations is that when outages do occur it takes longer for distributors to restore supply to customers. SA Power Networks does not agree with that implication. We have examined individual customers’ outage durations since 1 July 2005. The examination determined that there has been:

- A significant reduction in the number of customers (ie more than 30% over the last 10 years) who experience no more than a three hour outage; and
- no material change in the number of customers who have an outage where the duration exceeds three hours. In addition, the percentage of customers who experience outages where the duration exceeds six hours is also stable.

This demonstrates that when outages do occur, that customers are not experiencing longer outages (ie for outages longer than 3 hours and 6 hours) but now a significant number of customers are seeing fewer outages (ie for interruptions where the duration is no more than three hours).

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<sup>4</sup> Issues Paper Table 2 pg 15.

### 3. RATIO OF SAIFI AND SAIDI INCENTIVE RATES

1. *The AER would like views on the appropriateness of the current approach for setting the ratio of the relative reward/penalty rates between SAIDI and SAIFI, which is very close to the duration of a typical outage time, or CAIDI.*

As highlighted above the current approach for setting the ratio of the relative reward/penalty rates between SAIDI and SAIFI have in general provided significant improvements in reliability for the benefit of customers. The current ratios between SAIFI and SAIDI align the incentive rates to distributors’ typical methods for improving network reliability.

The KPMG willingness to pay (**WTP**) study undertaken for the Essential Services Commission of South Australia (**ESCoSA**) in 2002 found that customers valued fewer interruptions to supply. The WTP study did not assign a duration to the one less interruption that customers would like to experience. It would be reasonable to assume that customers would expect that it would reduce their total time without supply by the typical duration of an outage, or the equivalent CAIDI.

The STPIS, Efficiency Benefit Sharing Scheme (**EBSS**) and the Capital Expenditure Sharing Scheme (**CESS**) all apply to distributors (including SA Power Networks). The EBSS and CESS operate so that a distributor is rewarded for reductions in expenditure and penalised for increases in expenditure. However, if a distributor delivers improvements in reliability performance to their customers, by incurring expenditure it is penalised under the EBSS or CESS for that expenditure. Consequently, distributors target reliability improvements that maximise the STPIS benefit to ensure that the expenditure still provides a positive business case despite the penalties under the EBSS and CESS.

To maximise the reward from the STPIS, a distributor will typically target reliability expenditure that delivers both a SAIFI and SAIDI improvement under the STPIS. This is typically achieved by minimising the numbers of customers that are interrupted by a fault on the distribution network. This type of reliability improvement is typically delivered by a once off capital expenditure (ie improvements to the distribution network).

Any adjustment to the STPIS rates may result in a distributor being less aggressive in pursuing improvements in network reliability to the detriment of customers.

SA Power Networks considers that the current approach to setting the ratio of relative reward/penalty rates between SAIFI and SAIDI does not require alteration.

2. *Would allocating a higher incentive rate to the SAIDI measure—by allocating a higher proportion of the energy value to this measure—provide a more balanced approach between incentives to improve reliability through capex and opex, and provide a more even improvement to all customers? If yes, what should be the relative weights between SAIDI and SAIFI incentives?*

As highlighted above, distributors typically use methods to improve reliability that deliver both fewer customers being interrupted and a reduction in total time customers are without supply. SA Power Networks considers that allocating higher incentive rates would not significantly change distributors’ methods for improving network reliability.

Distributors target reliability improvements that provide both the greatest benefit to customers and greatest reward to the distributor. They are not incentivised to target improvements to those customers where it is not cost effective. On the other hand, under our jurisdictional service standard framework SA Power Networks will target improvements to customers, in circumstances where it is not cost effective under the STPIS, but where the network reliability has declined compared to average historic performance.

SA Power Networks in its Regulatory Proposal for the 2015-20 Regulatory Control Period proposed improvements to particular customers who have experienced poor ongoing network reliability. The



AER rejected the proposed expenditure on the basis that the cost to improve reliability to those customers exceeded the benefit as determined by use of the appropriate value of customer reliability (**VCR**). An increase in the SAIDI incentive rates, at the same time as decreasing the SAIFI incentive rate would not incentivise distributors to deliver improvements to these types of customers.

3. *Currently there is a slight difference between the ratios for SAIDI and SAIFI incentive weights across the CBD, urban and rural networks (the  $W_n$  factor of equations (1) and (2) of STPIS, see appendix C). Should a uniform ratio be applied to all network types?*

The AER has not demonstrated any significant reasons for changes to the current differences in the SAIDI and SAIFI incentive weights across the CBD, urban and rural networks (ie the  $W_n$  factor). SA Power Networks has no concern with the current slight difference between the ratios for SAIDI and SAIFI incentive weights across CBD, urban and rural networks.

## 4. DISTRIBUTION RELIABILITY MEASURES

### 4.1 Momentary Interruption measures, MAIFI or MAIFle

4. *Should MAIFle be implemented as the standardised measure for momentary interruptions?*

SA Power Networks supports MAIFle as the preferred measure for the following reasons:

- It more closely aligns with the impact of these types of interruptions on customers.
- It has been used in Victoria to incentivise distributors to reduce momentary interruptions.
- It is preferred over MAIFI which may discourage or limit the incentive for distributors to apply more than a single automatic restoration attempt.
- It is less likely to be skewed by different operational practices.
- It allows for more meaningful Australian and international comparisons and is therefore more reliable for benchmarking.

SA Power Networks considers that MAIFle should be the standardised measure for momentary interruptions. However, MAIFle should only apply where the distributor can accurately measure MAIFle and there is sufficient (eg five years of data) historic annual data to establish targets.

### 4.2 Application of 3-minute MAIFI

5. *Even if the definition for performance comparisons was set at 3 minutes, should the STPIS provide flexibility to change the MAIFI threshold to a value other than 3 minutes to balance the cost of the technologies available to the distributors, the forgone unmeasured unserved energy and customers’ preferences?*

SA Power Networks advocates for the introduction of a three minute MAIFI so that customers can benefit from the implementation of automated restoration e.g. Fault Detection, Isolation and Recovery (**FDIR**) and self-healing networks. The adoption of the three minute MAIFI will maximise the number of customers that could benefit from FDIR. As the benefit the STPIS provides may not justify the use high cost FDIR technology which provides a quicker restoration, but the STPIS benefit does enable the use of lower cost FDIR technology albeit with a slight longer restoration time but still within the three minutes.

In addition, the adoption of a three minute MAIFI would create alignment with European jurisdictions (eg OFGEM) and provide greater alignment with the IEEE (which uses a five minute MAIFI). This could enable improved international benchmarking of performance.

### 4.3 Exclusions

6. *What method should be applied to identify catastrophic days so that it is able to consistently, reasonably and universally operate across all distributors?*

The IEEE identified that catastrophic days can lead to an artificial uplift (ie reliability decline), in day to day underlying reliability (ie normalised by excluding Major Event Days (**MEDs**)) for up to five years, until the effects of the catastrophic day are excluded from the data set used for the calculation of the MED SAIDI threshold. The MED SAIDI threshold is used to determine if a day is classified as a MED and is thus excluded from the underlying reliability measurement. The existence of a catastrophic day in the data set artificially lifts the MED SAIDI threshold, which results in typically fewer MEDs being excluded and worsens underlying reliability performance measurement.

This artificial decline in underlying reliability would be penalised under the STPIS regime for up to five years, and once the effects of the catastrophic day are removed, the distributor would again be rewarded by the STPIS. Such a decline/improvement in reliability performance is not a result of the distributor’s efforts but due to the existence of effects of a catastrophic day, and consequently the distributor should neither be penalised nor rewarded for the existence of such a day.

SA Power Networks advocates for the adoption of the alpha (average) plus 4.15 times Beta (ie standard deviation) method to calculate the catastrophic day threshold. This was one of the options considered by the IEEE. Applying this method, the SA Power Networks distribution network would have experienced only two catastrophic days over the last 11.5 years (ie from 1 July 2005 to 31 December 2016).

7. *Given catastrophic days are already excluded under the MED framework, should such events be treated differently from the "major event days" concept under STPIS?*

SA Power Networks considers that catastrophic days should not be treated any differently under the STPIS than other MEDs, except that a catastrophic day is excluded from the dataset when calculating the MED SAIDI threshold.

8. *Should distributors be permitted to exclude a transmission outage event if the event is caused by the action, or inaction, of that distributor?*

Not applicable for SA.

#### **4.4 Definition of feeders**

9. *The AER would like views on the current definitions of the feeder classifications.*

SA Power Networks considers that feeders located in Metropolitan Areas that are classified as Short Rural (due to their maximum demand), should be classified as Urban. It is more appropriate to classify these feeders as Urban as all their characteristics (eg these feeders are within a meshed network) other than maximum demand are more appropriately characterised as Urban, not Short Rural feeders.

Under the SCoNRRR<sup>5</sup> reporting requirements, ESCoSA and SA Power Networks agreed to classify Short Rural feeders in the residential areas of Metropolitan Adelaide as Urban feeders and classify a few Urban feeders as Short Rural in Rural areas as the feeders were configured more like Short Rural feeders than Urban feeders, despite their demand exceeding the threshold.

Other than the above, SA Power Networks accepts the feeder definitions as proposed by the AER and in the AEMC Final Report.

10. *Historically, only feeders supplying the central business districts of the capital cities of each jurisdiction have been classified as CBD feeders for STPIS purpose. Should this practice be maintained?*

SA Power Networks does not supply any area/customers other than the Adelaide CBD where the feeders supplying that area should be classified as CBD. However, we would not object to similar areas being classified as CBD under the STPIS, even though they may not be in the capital’s CBD.

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<sup>5</sup> SCoNRRR - Steering Committee on National Reporting Requirements

## 4.5 Planned interruptions

### 11. *Should planned outages be included in the STPIS? What is the value/cost of a planned outage?*

SA Power Networks accepts the arguments in favour of incentives for planned work to be coordinated and undertaken in a way that minimises the impact on customers. The concern is that performance benefits that may be achieved by including planned outages in the STPIS are outweighed by the potential negative impacts that may result.

The issue with establishing targets for planned interruptions is that contribution from planned interruptions to network reliability can vary from one regulatory control period to the next. This is a natural variation which results from a change in the type of work performed on the network, typically depending on the age/condition of the network. For example, SA Power Networks has increased its asset refurbishment works as our network ages, including to support achievement of reliability standards. The increase in refurbishment work has led to an increase in planned interruptions. Consequently, the resulting increase in planned outages is likely to be penalised under any STPIS that included a planned interruption incentive. This means that a distributor could be penalised for maintaining the network, contrary to wider distributor obligations related to asset management considerations.

Alternatively, we could use ‘live line’ work to reduce planned outages. However, this increases the costs in comparison to doing the work using a planned interruption. In addition, live line works increase the risks to personnel who perform the work. If the cost of doing the work increases, then we would be penalised under the EBSS or the CESS. Consequently, distributors would be penalised for maintaining and refurbishing the network to meet the reliability standards.

SA Power Networks does not support the inclusion of planned interruption in the STPIS regime, for the reasons outlined above and also noting that customers are notified of the interruption and can thus take actions to mitigate the impact of the interruption.

### 12. *What considerations should we take to address the potential safety related issues in order to enable the introduction of incentives to reduce planned outages?*

As highlighted above, SA Power Networks does not support the adoption of incentives to minimise planned interruptions.

## 4.6 Monitoring service to worst served customers and GSL payments

### 13. *The AER would like views on what level of supply interruptions is considered worst served?*

In South Australia ESCoSA defines worst served customers as customers on high voltage feeders where the SAIDI for that feeder is at least double the Electricity Distribution Code (EDC) SAIDI target for that feeder category for two consecutive years. The threshold for a worst served customer on an Urban feeder is lower than the threshold for a customer on a Short Rural feeder.

The worst served customers’ SAIDI threshold in SA was established at levels so that on average 5% of customers were in the worst served category. Under the jurisdictional regime, SA Power Networks is required to detail reasons for the poor performance, and where it is a systemic issue or a decline in historic performance we are expected to undertake works to improve the reliability for those customers.

A reliability Guarantee Service Level (GSL) scheme also operates in SA to provide significant financial incentives to improve performance to worst served customers. This scheme does not exclude MEDs.

## 4.7 Consistent approach to measure outages

### 14. Do you consider that improved standardization would increase the effectiveness of STPIS?

SA Power Networks considers that the main benefit of standardisation is in benchmarking between utilities. The STPIS rewards or penalises a distributor based on its historic performance.

Performance does not improve with standardisation of measures, provided a distributor has consistently reported current and historic performance.

SA Power Networks is aware that currently the capturing and reporting of electrical interruption data varies between jurisdictions, which is likely to reflect the systems and processes of electricity distributors within those jurisdictions. It is likely that any standardisation process will inevitably involve costs being imposed on those distributors who will need to adapt their existing reporting systems and processes to meet a standardised arrangement.

Changes to standardise feeder categories may require the back casting of performance when proposing targets set under the STPIS regime and will require changes to the reporting applications and associated software.

SA Power Networks considers that the AER should only proceed with changes to the current STPIS definitions if they believe the benefits of increased standardisation, such as more meaningful benchmarking, is justified against the costs which will be passed on to customers in order to meet standardised requirements.

### 15. Should unmetered supplies be included in the performance measure?

SA Power Networks does not currently include unmetered supplies in its reliability performance measures as they are atypical power installations which don’t relate to residential or business premises and consequently are not inconvenienced by unplanned outages.

SA Power Networks does not support the inclusion of unmetered supplies as customers in the STPIS.

## 5. STPIS SPECIFIC ISSUES

### 5.1 Adjusting targets where reward or penalty capped

16. *What is the appropriate method to adjust the target when the performance improvement or deterioration results in the financial reward/penalty that exceeds that cap level?*

SA Power Networks was required to adjust its historic targets when we changed from using the Box-Cox Method to the LN Method (ie the standard STPIS method) to determine the MED SAIDI threshold.

SA Power Networks applied the same factor to all the feeder SAIDI and SAIFI performance so that the resulting performance outcome delivered the actual STPIS outcome for that year. This appears to be consistent with methodology that the AER has proposed on page 32 of the Issues Paper, and on that basis we support the AER approach.

### 5.2 Balancing the incentive to maintain and improve reliability with the incentive to reduce expenditure

17. *Do you consider that allowing distributors to retain the same proportion of the value of reliability improvements as they do capital and operating expenditure reductions will promote economic efficiency?*

The current STPIS already incorporates a regime where distributors receive a benefit for five years for a step improvement in reliability performance, after which customers receive the ongoing benefit of improved reliability performance.

### 5.3 A symmetrical financial incentive scheme

18. *We would like views on whether the scheme should continue to operate in a symmetrical way, i.e. penalties are incurred at the same rate as rewards.*

At this stage, there does not appear to be a strong argument in favour of movement to an asymmetric incentive scheme. The AER addressed this issue when developing the STPIS in 2008. The AER concluded that a symmetrical STPIS more closely approximated the operation of the competitive market. SA Power Networks is not aware of any new evidence that would substantiate a movement away from the conclusion reached by the AER at the scheme’s inception.

### 5.4 How to link with distributor customer engagement findings seeking changes to reliability level

19. *Should consumers’ preferences be reflected through the capital and operating expenditure funding level, or through the STPIS incentives, or a combination of both measures?*

SA Power Networks considers that changes to customers’ preferences should ideally be incorporated into jurisdictional service standards. Where jurisdictional service standards are changed there may be an adjustment to a distributors capital and operating funding levels to efficiently meet those amended standards.

20. *Which input factors of the STPIS should be, or could be, made flexible to reflect consumers’ preference on reliability level, for example the VCR rate, level of revenue at risk and the major event day exclusion criterion (which determines the coverage of the reliability measures).*

It is unclear how the AER considers the STPIS could be adjusted to take account of individual customers’ preferences for performance levels.

## 5.5 Other minor refinements to the scheme

21. *We would like views on the current approach for s-factor calculations. Specifically, should and how the calculation of s-factor be simplified?*

SA Power Networks supports the investigation of any changes that may result in the simplification of the STPIS, and in particular, any changes that may make the STPIS more accessible to customers.

Further discussions would be welcomed in moving toward a more simplified approach, noting:

- there would be benefit in demonstrating how more simplified approaches are calculated and applied to a range of different control mechanisms;
- any transition to a new approach must avoid any risk of distributors being disadvantaged or unable to recover revenues that had previously been determined in justifying STPIS improvement investments; and
- specific consideration should be given to inter-period transition to ensure there is no confusion over how the recovery of the mechanism is applied through prices within a regulatory period and between regulatory periods.

SA Power Networks does not support the move to a fixed dollar amount. The current STPIS incentive based on the percentage of revenue has the advantage of (by referring to the indexed annual revenue) not requiring an adjustment to the time value of money in circumstances where a distributor receives a STPIS reward/penalty in two or more years time. .

22. *We would like views from stakeholders on what other clarification is needed for the GSL section of the current STPIS scheme.*

The STPIS GSL regime does not apply to SA Power Networks as it operates under a jurisdictional GSL scheme as mandated by ESCoSA.

## 6. FUTURE OF STPIS

### 6.1 Interaction with new technologies

23. *In what way could the STPIS be changed to reflect the needs of consumers with storage or other similar technologies?*

SA Power Networks believes the uptake of storage is likely to increase significantly over the next decade and this is likely to require a number of responses at the pricing, regulatory and asset management levels. At this stage however customers with storage represent a small proportion of the overall customer base. Given that the current scheme design represents an aggregated view of residential, commercial, industrial and agricultural customers across the coarse feeder level categories, it would be difficult to amend the STPIS incentives to reflect changes for a small sub-category of customers.

It is likely that the AER will need to respond to the likely transformation of the energy sector over the next decade in a range of regulatory functions and the consideration of STPIS impacts are probably best left to a broader consideration of the regulatory landscape associated with energy market transformation.

### 6.2 Should the service quality incentive only focus on measuring network average SAIDI and SAIFI?

24. *The existing STPIS is not based directly on the energy-not-supplied. Do you think it would be preferable to base the financial reward or penalty directly on the energy not supplied? How shall we measure the social harm associated with network outages?*

It is not possible to directly measure the energy not supplied, it is only possible to estimate the energy not supplied, based on energy consumed by customers at similar times and conditions (eg in line with variations in temperature).

From a customer impact perspective, it would be preferable to estimate the energy not supplied, as this should provide a better estimate of the ‘cost’ to the customer. However, it would require real time access to meters on the customer premises, which would considerably increase the cost and the complexity in determining the STPIS impact of the outage. We do not consider that the increased cost and complexity is warranted, as the current VCRs are an estimation of what individual customers value in an increase or decrease in their reliability.

25. *The existing STPIS is estimated as the product of the outage duration (and frequency) of an average customer and the incentive rates for the SAIDI (and SAIFI). Do you think it would be preferable to base the average outage duration and frequency on energy not supplied (KWH) or load (KVA)?*

It is not possible to estimate accurately the energy not supplied or the load at the time of the outage. This again would increase the costs and the complexity of the STPIS, so we do not consider that this is warranted.

26. *Should the AER move away from service quality measures mainly based on SAIDI and SAIFI measures? If not, how do we know when we have reached that point? What other measures should be considered?*



At this point in time we consider that the current service measures are appropriate but consider that other measures could be considered to measure service quality. For example, customers value the provision of information about their service. However, it is unclear at this point in time what measures could be used to provide incentives for distributors to improve this aspect of service. We consider that further research is required to determine what aspects of service customers most value and then to determine robust measures to monitor the effective delivery of that aspect of the service. These measures could then be used as a basis for providing incentives to distributors.

## 7. ABBREVIATION

Definitions of terms used in this report:

Term	Definition
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
AEMC Final Report	AEMC 2014, Review of Distribution Reliability Measures Final Report, 5 September 2014, Sydney
CAIDI	Customer Average Interruption Duration Index or the average time a customer is without supply who experiences an outage (ie SAIDI/SAIFI)
CESS	Capital Expenditure Sharing Scheme
DRMG	Distribution Reliability Measures Guideline
EBSS	Efficiency Benefit Sharing Scheme
ESCoSA	Essential Services Commission of South Australia
ESCV	Essential Services Commission of Victoria
Issues Paper	AER Issues Paper Reviewing the Service Target Performance Incentive Scheme and Establishing a new Distribution Reliability Measures Guidelines, Electricity distribution network service providers, January 2017
MAIFI	Momentary Average Interruption Frequency Index
MAIFle	Momentary Average Interruption Frequency Index event
MED	Major Event Day – any day where the daily USAIDI accrued on that day, exceeds a predetermined USAIDI threshold. The threshold is determined in accordance with the IEEE Std 1366™-2012 2.5 Beta statistical method.
NER	National Electricity Rules
SAIDI	Unplanned System Average Interruption Duration Index – total number of minutes, on average, that a customer is without electricity as a result of unplanned interruptions <sup>6</sup> in a year.
SAIFI	Unplanned System Average Interruption Frequency Index – average number of times a customer’s supply is interrupted per year from unplanned interruptions
STPIS	Service Target Performance Incentive Scheme
VCR	Value of customer reliability

<sup>6</sup> Excludes momentary interruptions.