Electricity distribution network service providers

Service target performance incentive scheme

Version 2.0

November 2018
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1 Nature and authority

1.1 Introduction
This document sets out the Australian Energy Regulator’s (AER) service target performance incentive scheme for distribution network service providers (DNSPs).

1.2 Authority
Clause 6.6.2 of the National Electricity Rules (NER) requires the AER to develop and publish, in accordance with the distribution consultation procedures, this service target performance incentive scheme.

1.3 NER requirements
(a) Clauses 6.3.2, 6.8.1(b), 6.8.2(c)(2), 6.8.2(d) and 6.12.1 of the NER are relevant clauses for this scheme.

(b) In general, these clauses provide:

(1) The framework and approach paper should set out the AER’s likely approach (together with its reasons for the likely approach), in the forthcoming distribution determination, to how this scheme is likely to be specifically applied in making a DNSP’s distribution determination.

(2) A DNSP’s regulatory proposal must contain at least:

(i) as part of the building block proposal, a description, including relevant explanatory material, of how the DNSP proposes the service target performance incentive scheme should apply for the relevant regulatory control period, in accordance with clause S6.1.3(4) of the NER

(ii) such information as required under any relevant regulatory information instrument issued by the AER.

(c) [deleted]

1.4 Role of this scheme
(a) The role of this scheme is to provide incentives for DNSPs to maintain and improve service performance as set out in clause 6.6.2(a) of the NER.

(b) To that end, this scheme:

(1) defines the performance incentive scheme parameters that measure a DNSP’s service performance
(2) sets out the requirements with which the values to be attributed to the parameters must comply

(3) will be used by the AER to decide the service standards financial reward or penalty component of a distribution determination

(4) provides guidance about the approach the AER will take in reviewing a DNSP’s service performance and explains how this will affect a DNSP’s allowed revenue.

1.5 AER objectives

The AER objectives for this scheme are that the scheme:

(a) is consistent with the national electricity objective in section 7 of National Electricity Law (NEL)

(b) is consistent with clause 6.6.2(b)(3) of the NER which requires that in developing and implementing a service target performance incentive scheme, the AER must take into account:

(1) the need to ensure that benefits to consumers likely to result from the scheme are sufficient to warrant any reward or penalty under the scheme for DNSPs

(2) any regulatory obligation or requirement to which the DNSP is subject

(3) the past performance of the distribution network

(4) any other incentives available to the DNSP under the Rules or a relevant distribution determination

(5) the need to ensure that the incentives are sufficient to offset any financial incentives the service provider may have to reduce costs at the expense of service levels

(6) the willingness of the customer or end user to pay for improved performance in the delivery of services

(7) the possible effects of the scheme on incentives for the implementation of non-network alternatives

(c) promotes transparency in:

(1) the information provided by a DNSP under this scheme to the AER

(2) the decisions made by the AER.

1.6 Confidentiality

The AER’s obligations regarding confidentiality and the disclosure of information provided to it by a DNSP are governed by the Competition and Consumer Act 2010 (Cth), the NEL and the NER. For further information see the AER’s Confidentiality
guideline 2013, which is available on the AER’s website.¹

1.7 Definitions and interpretations

(a) In this scheme, unless otherwise indicated:

(1) the words and phrases presented in italics have the meaning given to them in:

(i) the glossary, or

(ii) if not defined in the glossary, the glossary of the NER or section 2 of the NEL

(2) a reference to:

(i) a ‘clause’ is a reference to a clause in this scheme

(ii) an ‘appendix’ is a reference to an appendix in this scheme.

(b) Explanations in this scheme about why certain information is required are provided for guidance only.

1.8 Processes for revision

(a) The AER may amend or replace this scheme from time to time in accordance with clause 6.6.2(c) of the NER and the distribution consultation procedures.

(b) [Deleted]

(c) A DNSP or other person proposing an amendment to this scheme must submit the proposed amendment in writing to the AER.

(d) [Deleted]

(e) A proposal to amend this scheme must demonstrate how the proposed amendment is consistent with the objectives in clause 1.5 of this scheme.

(f) A proposal by a DNSP to add or vary a parameter must:

(1) provide information and quantitative data on its performance history covering at least the most recent three to five regulatory years, as measured by its proposed parameter, or

(2) where this performance history information is not available, provide an appropriate benchmark or methodology to set performance targets, and incentive rates for the proposed parameter.

¹ See also the ACCC/AER’s Information Policy: collection and disclosure of information, which is available on the AER’s website.
1.9 Version history and effective date

A version number and an effective date of issue will identify every version of this scheme.
2 The service target performance incentive scheme

2.1 General application of the scheme

(a) Consistent with clause 6.2.6 of the NER, this scheme applies to the control mechanism for standard control services.

(b) The parameters and the maximum revenue increment or decrement that a DNSP can receive and the payments to customers that a DNSP must make for a given level of performance are prescribed in this scheme.

(c) The obligation of a DNSP to comply with this scheme is additional to and does not derogate from any obligation imposed upon or provided for under jurisdictional electricity legislation or national electricity legislation applying to a DNSP.

(d) The AER will, in the distribution determination to which this scheme applies, determine the following in accordance with the NER generally, and with this scheme:

   (1) each applicable component and parameter to apply to a DNSP including the method of network segmentation for the reliability of supply component

   (2) the revenue at risk to apply to each applicable component and parameter

   (3) the incentive rate to apply to each applicable parameter including the value of customer reliability (VCR) to be applied in accordance with clause 3.2.2(d) and appendix B

   (4) the performance target to apply to each applicable parameter in each regulatory year of the regulatory control period

   (5) any decision with respect to the transitional arrangements set out in clause 2.6

   (6) the threshold to apply to each applicable GSL parameter

   (7) the payment amount to apply to the applicable GSL parameter

   (8) the major event day boundary to apply to a DNSP:

      (i) where the DNSP has proposed a major event day boundary that is greater than 2.5 standard deviations from the mean; or

      (ii) where the major event day boundary that applied to the DNSP in previous distribution determinations was greater than 2.5 standard deviations from the mean; or
(iii) where the DNSP has proposed a major event day boundary that is greater than 2.5 standard deviations from the mean and where in previous distribution determinations the major event day boundary that has applied to the DNSP was greater than 2.5 standard deviations from the mean.

2.2 Proposals to vary the application of the scheme

(a) Where the scheme indicates that a DNSP can make a proposal to vary the application of this scheme, that proposal should be made in the regulatory proposal in accordance with and subject to clause 6.8.2 of the NER.

(b) A proposal made by a DNSP must be in writing and:

(1) include the reasons for and an explanation of the proposed variation

(2) demonstrate how the proposed variation is consistent with the objectives in clause 1.5

(3) if appropriate, include the calculations and/or methodology which differ to that provided for under this scheme.

(c) The AER will publish its reasons for deciding to accept or reject a proposal by a DNSP in the distribution determination.

2.3 Structure of the scheme

(a) This scheme comprises four components:

(1) the ‘reliability of supply’ component

(2) the ‘quality of supply’ component

(3) the ‘customer service’ component

(4) the ‘guaranteed service level’ (GSL) component.

(b) Each of the four components comprise:

(1) parameters that may apply

(2) the requirements with which the values to be attributed to the parameters must comply

(3) where applicable, the maximum revenue increment or decrement that a DNSP may receive or the payment to customers that a DNSP must make.

(c) Under the reliability of supply, quality of supply and customer service components of this scheme, a DNSP’s revenue is increased (or decreased) based on changes in service performance, as assessed by the AER in accordance with this scheme.
(d) Under the GSL component, payments are made directly to customers where the service performance received by those customers is worse than a specified threshold.

(e) One or more components of this scheme may apply to a DNSP.

2.4 Timing of performance measurement

(a) A DNSP must measure its performance in accordance with this scheme:

(1) from the first day to the last day inclusive of each regulatory year of the regulatory control period to which this scheme applies, or

(2) as otherwise determined by the AER.

(3) [Deleted]

(b) Where a DNSP’s regulatory control period ceases before a full multiple of regulatory years has transpired from the start of the regulatory control period, the DNSP must measure its performance in the final regulatory year until the end of the regulatory control period as determined by the AER.

(c) Where clause 2.4(a)(2) applies, the measured performance may be adjusted to represent annualised performance.

2.5 Revenue at risk

(a) Subject to clause 2.5(b), and excluding the GSL component described in clauses 6.1–6.4, the maximum revenue increment or decrement (the revenue at risk) for the scheme components in aggregate for each regulatory year within the regulatory control period shall be 5%, that is, the sum of the s-factors associated with all parameters must lie between +5% (the upper limit) and −5% (the lower limit).

(b) A DNSP may propose in accordance with clause 2.2 a different revenue at risk to apply where this would satisfy the objectives of the scheme described in clause 1.5.

(c) The s-factor will be calculated and approved annually by the AER in accordance with appendix C.

(d) The application of a revenue increment or decrement or a portion of the revenue increment or decrement may be delayed for a period of one regulatory year, in accordance with appendix C, for the purposes of reducing price variations to customers.

(e) A DNSP proposing a delay in accordance with clause 2.5(d) must provide in writing its reasons and justification for believing that the delay will result in reduced price variations to customers.

(f) This scheme does not operate retrospectively. An adjustment to a DNSP’s allowed revenue can only be made as a result of its performance in a period
where parameters and values have been established under the scheme for the DNSP in advance of that period.

### 2.6 Transitional arrangements

(a) The AER recognises that transitional issues may arise from one regulatory control period to the next regulatory control period if the scheme’s parameters or other attributes are altered.

(b) The AER will give consideration to an arrangement proposed under this scheme that reduces the impact of any transitional issues.

(c) Subject to any transitional arrangements set out in the NEL and the NER, the AER may consider and decide whether the scheme or a component of the scheme should be altered to address a transitional issue.

(d) The AER shall decide on the appropriateness of the arrangement to address a transitional issue on the basis of:

1. materiality of the issue
2. reasonableness and fairness to the DNSP and customers
3. consistency with the objectives as set out in clause 1.5.

(e) The AER shall set out in writing its reasons for deciding on the appropriateness of the proposed transitional arrangements.

### 2.6A Transitional arrangement where a DNSP is unable to back-cast historical data

(a) To implement this STPIS version 2.0, we require historical performance data under the new measurement method. If a DNSP is unable to back-cast historical data based on the new measurement method, the reliability measures SAIDI, SAIFI, MAIFI and MAIFIle are taken as having the same meaning as that shown in Table A2 of Appendix A.

### 2.7 Suspension of the scheme

(a) At any time during a regulatory control period in which a scheme applies to a DNSP, the AER may decide whether the scheme or a component of the scheme should be suspended for a regulatory control period or a portion of a regulatory control period.

(b) A DNSP proposing that the scheme or a component of the scheme be suspended must provide in writing its reasons for proposing the suspension.

(c) The AER will publish its reasons for deciding to suspend or to not suspend the scheme.

(d) Before making a decision to suspend a scheme, the AER will consult with the relevant DNSP and such other persons as it considers may be affected by and/or
have an interest in such a decision.
3 Reliability of supply component

3.1 Performance incentive scheme parameters

(a) Table A1 of Appendix A defines the following reliability of supply parameters:

1) Unplanned SAIDI
2) Unplanned SAIFI
3) MAIFI or MAIFIe.

Note: MAIFIe is the preferred momentary interruption measurement parameter. However, if a DNSP is unable to measure momentary interruptions under the MAIFIe method, MAIFI measurement method will apply.

(aa) Where a DNSP is unable to back-cast historical data based on the measurement method specified by Table A1, the reliability measures SAIDI, SAIFI, MAIFI, MAIFIe are taken as having the same meaning as that shown in Table A2 of Appendix A.

(b) Each of these parameters will apply during a regulatory control period except where the AER determines otherwise in its distribution determination for a DNSP.

(c) The electricity distribution network area shall be divided into segments by network type.

(d) The network area may be segmented by a method other than network type if the alternative method better meets the objectives set out in clause 1.5.

(e) Performance targets and incentive rates will be applied to each parameter segment.

(f) Where the DNSP demonstrates to the AER it is unable to measure MAIFIe or MAIFI, a DNSP may propose a variation to exclude MAIFI or MAIFIe in accordance with clause 2.2, for a regulatory control period or a portion of a regulatory control period.

3.2 Values for parameters

3.2.1 Performance targets

(a) The performance targets to apply during the regulatory control period must not deteriorate across regulatory years and must be based on average performance over the past five regulatory years, modified by the following:

1) an adjustment to ensure that average performance over the past five regulatory years reflects events excluded under clause 3.3 and appendix D of this scheme.
(1A) any reliability improvements completed or planned where the planned reliability improvements are:

(i) included in the expenditure program proposed by the DNSP in its regulatory proposal, or

(ii) proposed by the DNSP, and the cost of the improvements is allowed by the relevant regulator, in the DNSP’s previous regulatory proposal or regulatory submission, and

(iii) expected to result in a material improvement in supply reliability.

(1B) an adjustment to correct for the revenue at risk, that is the sum of the s-factors for all parameters, to the extent it does not lie between the upper limit and the lower limit in accordance with clause 2.5(a). The adjustment must be calculated in accordance with the method specified in Appendix F.

(2) any other factors that are expected to materially affect network reliability performance.

(b) Where a DNSP proposes a performance target modified in accordance with clause 3.2.1(a), the DNSP must provide in writing an explanation of how the modified performance target has been calculated.

(c) Where five regulatory years of data is not available the AER may approve a performance target based on an alternative methodology or benchmark where the AER is satisfied that the performance target meets the objectives set out in clause 1.5.

3.2.2 Incentive rates

(a) Unless the AER decides otherwise in a relevant distribution determination, the incentive rates must be based on the value that customers place on supply reliability, referred to as the ‘value of customer reliability’ (VCR).

(b) Unless otherwise determined, if the electricity distribution network is divided into segments by network type, the VCR to be used to determine incentive rates is:

(1) for the CBD segment, $95 700/MWh adjusted for Consumer Price Index (CPI) from the September quarter 2008 to the start of the relevant regulatory control period, and

(2) for all other parameter segments, $47 850/MWh adjusted for CPI from the September quarter 2008 to the start of the relevant regulatory control period.

(3) However, if the AER considers it appropriate the AER may determine alternative VCR values in a distribution determination (to those set out in sub-clause (1) and (2)).

(c) Where the electricity distribution network is divided into segments by a method other than network type in accordance with clause 3.1(d), the VCR to be used to determine incentive rates for parameter segments will be based on the VCR to
be used under clause 3.2.2(b).

(d) An alternative VCR may apply to a parameter segment. Where a DNSP makes a proposal for an alternative VCR to apply, the proposal must be made in accordance with clause 2.2.

(e) The portion of the VCR assigned to the unplanned SAIDI and unplanned SAIFI parameters is determined by applying an appropriate weighting to each parameter.

(f) Where the electricity distribution network is divided into segments by network type, the weighting of each parameter segment between unplanned SAIDI and unplanned SAIFI will be:

1. as set out in Table 1, or

2. a value determined from an applicable assessment of the value that customers attribute to the level of service measured by each parameter proposed by the DNSP in accordance with clause 2.2.

Table 1: Weightings for unplanned SAIDI and unplanned SAIFI

<table>
<thead>
<tr>
<th>Parameter segment</th>
<th>Ratio of unplanned SAIDI to unplanned SAIFI</th>
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<tbody>
<tr>
<td>CBD</td>
<td>1.5</td>
</tr>
<tr>
<td>Urban</td>
<td>1.5</td>
</tr>
<tr>
<td>Rural (short and long)</td>
<td>1.5</td>
</tr>
</tbody>
</table>

(g) Where the electricity distribution network is divided into segments by a method other than network type in accordance with clause 3.1(d), the weighting will be a value determined from an applicable assessment of the value that customers attribute to the level of service measured by each parameter proposed by the DNSP in accordance with clause 2.2.

(h) The incentive rate for unplanned SAIDI is calculated by:

1. multiplying the portion of VCR assigned to unplanned SAIDI (in $/MWh) by the average annual energy consumption by network type (in MWh) expected for the regulatory control period

2. dividing by the average of the smoothed annual revenue requirement for the regulatory control period (in $, real referenced to the first regulatory year of the regulatory control period) as determined by the AER in the relevant distribution determination, and

3. dividing by the average number of minutes in a regulatory year.

(i) The incentive rate for unplanned SAIFI is calculated by:

1. multiplying the portion of VCR assigned to unplanned SAIFI (in $/MWh) by the average annual energy consumption by network type (in MWh) expected for the regulatory control period
(2) dividing by the average of the smoothed annual revenue requirement for the regulatory control period (in $, real referenced to the first regulatory year of the regulatory control period) as determined by the AER in the relevant distribution determination

(3) dividing by the average number of minutes in the relevant regulatory year, and

(4) multiplying by the average of the annual performance targets for unplanned SAIDI in the regulatory control period and divide by the average of the annual performance targets for unplanned SAIFI in the regulatory control period.

(j) The incentive rate for MAIFI or MAIFI must be:

(1) 8% of the incentive rate for unplanned SAIFI, or

(2) a value determined from an applicable assessment of the value that customers attribute to a reduction in MAIFI proposed by the DNSP in accordance with clause 2.2.

(k) Incentive rates are calculated at the commencement of the regulatory control period and apply for the duration of the regulatory control period.

3.3 Exclusions

(a) The following events may be excluded when calculating the revenue increment or decrement under the scheme when an interruption on the DNSP’s distribution network has not already occurred or is concurrently occurring at the same time:

(1) [Deleted]

(2) load shedding due to a generation shortfall

(3) automatic load shedding due to the operation of under frequency relays following the occurrence of a power system under-frequency condition

(4) load shedding at the direction of the Australian Energy Market Operator (AEMO) or a system operator

(5) load interruptions caused by a failure of the shared transmission network

(6) load interruptions caused by a failure of transmission connection assets except where the interruptions were due to:
   (a) actions, or inactions, of the DNSP that are inconsistent with good industry practice; or
   (b) inadequate planning of transmission connections and the DNSP is responsible for transmission connection planning

Example: a DNSP omits to suppress back-up earth fault (BUEF) protection when undertaking network switching operation that results in momentary paralleling of supplies from two different terminal stations, where this is
inconsistent with the standard practice.

(7) load *interruptions* caused by the exercise of any obligation, right or discretion imposed upon or provided for under *jurisdictional electricity legislation* or *national electricity legislation* applying to a DNSP.

(8) load interruptions caused or extended by a direction from state or federal emergency services, provided that a fault in, or the operation of, the network did not cause, in whole or part, the event giving rise to the direction.

(b) An event may also be excluded where daily unplanned *SAIDI* for the DNSP’s distribution network exceeds the *major event day* boundary, as set out in appendix D, when the event has not been excluded under clause 3.3(a).
4 Quality of supply component

4.1 Performance incentive scheme parameters

No quality of supply parameters are currently specified for inclusion in the scheme.
5 Customer service component

5.1 Performance incentive scheme parameters

(a) Appendix A defines the following customer service parameters:

   (1) telephone answering

   (2) streetlight repair

   (3) new connections

   (4) response to written enquiries.

(b) The ‘telephone answering’ parameter referred to in clause 5.1(a)(1) will apply during a regulatory control period except where the AER determines otherwise in its distribution determination for a DNSP.

(c) The ‘streetlight repair’ and/or ‘new connections’ and/or ‘response to written enquiries’ parameters referred to in clauses 5.1(a)(2)–5.1(a)(4) may be proposed by a DNSP, in accordance with clause 2.2, to apply during the relevant regulatory control period.

(d) The AER may require a DNSP to apply any or all of the parameters referred to in clauses 5.1(a)(2)–5.1(a)(4) during the relevant regulatory control period where the AER considers it would satisfy the objectives of the scheme described in clause 1.5.

(e) The AER will only require a DNSP to include a parameter referred to in clauses 5.1(a)(2)–5.1(a)(4) during the relevant regulatory control period where the AER has classified the customer service being measured by the parameter as a standard control service in the relevant distribution determination.

(f) Performance targets and incentive rates will be applied to each parameter.

5.2 Revenue at risk

(a) Subject to clause 5.2(c), the maximum revenue increment or decrement (the revenue at risk) for all customer service parameters in aggregate for each regulatory year of the regulatory control period shall be 1%, that is, the sum of the s-factors associated with all customer service parameters must lie between +1% (the upper limit) and −1% (the lower limit).

(b) Subject to clause 5.2(c), the maximum revenue increment or decrement (the revenue at risk) for an individual customer service parameter for each regulatory year of the regulatory control period shall be 0.5%, that is, the s-factor associated with an individual customer service parameter must lie between +0.5% (the upper limit) and −0.5% (the lower limit).
(c) A DNSP may propose in accordance with clause 2.2 a different revenue at risk from that referred to in clauses 5.2(a) and/or 5.2(b) to apply where this would satisfy the objectives of the scheme described in clause 1.5.

5.3 Value of parameters

5.3.1 Performance targets

(a) The performance targets must be based on average performance over the past five regulatory years.

(b) The performance targets are to be modified by the following, where applicable:

(1) an adjustment to ensure that average performance over the past five regulatory years reflects events excluded under clause 5.4 and appendix D of this scheme.

(1A) any customer service improvements completed or planned where the planned customer service improvements are:

(i) included in the expenditure program proposed by the DNSP in its regulatory proposal, or

(ii) proposed by the DNSP, and the cost of the improvements is allowed by the regulator, in the DNSP’s previous regulatory proposal or regulatory submission, and

(iii) where the customer service improvements are expected to result in a material improvement in customer service.

(1B) an adjustment to correct for the revenue at risk, that is the sum of the s-factors for all parameters, to the extent it does not lie between the upper limit and the lower limit in accordance with clause 2.5(a).

(1C) an adjustment to correct for the revenue at risk, that is the sum of the s-factors for all customer service parameters, to the extent it does not lie between the upper limit and the lower limit in accordance with clause 5.2(a).

(1D) an adjustment to correct for the revenue at risk, that is the s-factor associated with an individual customer service parameter, to the extent it does not lie between the upper limit and the lower limit in accordance with clause 5.2(b).

(2) any other factors that are expected to materially affect the service being measured by the parameter.

(c) Where a DNSP makes a proposal to vary a performance target in accordance with clause 5.3.1(b), the proposal must be made in accordance with clause 2.2.

(d) Where five regulatory years of data is not available the AER may approve a performance target based on an alternative methodology or benchmark where
the AER is satisfied that the performance target meets the objectives set out in clause 1.5.

5.3.2 Incentive rates
(a) Unless the AER decides otherwise, the incentive rate for the ‘telephone answering' parameter must be either:
   (1) −0.040% per unit of the ‘telephone answering’ parameter, or
   (2) a value determined from an applicable assessment of the value that customers attribute to the level of service proposed.
(b) Where practicable, the incentive rates for the parameters referred to in clauses 5.1(a)(2)–5.1(a)(4) should be based on the value that customers attribute to the level of service proposed.
(c) Where the requirements in clause 5.3.2(a) cannot be complied with, the DNSP must propose an appropriate alternative methodology for setting an incentive rate that is consistent with the objectives set out in clause 1.5.
(d) Where a DNSP makes a proposal for the purposes of clause 5.3.2(c), the proposal must be made in accordance with clause 2.2.
(e) Incentive rates are calculated at the commencement of the regulatory control period and these rates apply for the duration of the regulatory control period.

5.4 Exclusions
(a) Where the impact of an event is to be excluded from the calculation of a revenue increment or decrement under the ‘reliability of supply' component as provided for in clause 3.3, the impact of that event may be excluded from the calculation of a revenue increment or decrement for the ‘telephone answering’ parameter as appropriate.
(b) For other customer service parameters, the DNSP may make a proposal for exclusions if appropriate, as long as the proposal is consistent with the objectives set out in clause 1.5.
(c) Where a DNSP makes a proposal for the purposes of clause 5.4(b), the proposal must be made in accordance with clause 2.2.
6 Guaranteed service level component

6.1 Application

(a) Where jurisdictional electricity legislation imposes an obligation on a DNSP to operate a guaranteed service level scheme, clauses 6.2–6.4 do not apply to the DNSP.

(b) Should jurisdictional electricity legislation be altered within the current regulatory control period to no longer impose an obligation on a DNSP to operate a guaranteed service level scheme, the AER may decide to apply clauses 6.2–6.4 to the DNSP.

6.2 Performance incentive scheme parameters

(a) Appendix A defines the following parameters:

(1) frequency of interruptions, and
(2) streetlight repair, and
(3) new connections, and
(4) notice of planned interruptions, and
(5) duration of interruptions or total duration of interruptions.

(6) [Deleted]

(b) Each of these parameters will apply during a regulatory control period except where the AER determines otherwise in a relevant distribution determination.

(c) A parameter should not apply during a regulatory control period where:

(1) the DNSP cannot measure service performance, or
(2) insufficient historical data is available to determine the DNSP’s current service performance, or
(3) the cost of applying the parameter during the regulatory control period is likely to be greater than the cost customers are willing to pay for the inclusion of the measure, or
(4) the AER has classified the service being measured by the parameter as a standard control service in the relevant distribution determination.

(d) Customers may be segmented into groups by geographic area or by feeder type or by some other method. Different thresholds and GSL payment amounts may apply for each customer group.
6.3 Value of parameters

6.3.1 Thresholds

(a) The thresholds for the parameters are shown in Table 2.

Table 2: GSL parameter thresholds

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of interruptions</td>
<td>CBD and Urban feeders – 9 interruptions</td>
</tr>
<tr>
<td></td>
<td>Rural (short and long) feeders – 15 interruptions</td>
</tr>
<tr>
<td>Duration of interruptions</td>
<td>CBD and urban feeders – 12 hours</td>
</tr>
<tr>
<td></td>
<td>Rural (short and long) feeders – 18 hours</td>
</tr>
<tr>
<td>Total duration of interruptions</td>
<td>Level 1 – 20 hours</td>
</tr>
<tr>
<td></td>
<td>Level 2 – 30 hours</td>
</tr>
<tr>
<td></td>
<td>Level 3 – 60 hours</td>
</tr>
<tr>
<td>Streetlight repair</td>
<td>5 days</td>
</tr>
<tr>
<td>New connections</td>
<td>Connection on or before the day agreed</td>
</tr>
<tr>
<td>Notice of planned interruptions</td>
<td>4 days, excluding Saturday, Sunday and any Public Holiday applicable to the customer’s location</td>
</tr>
</tbody>
</table>

(b) A DNSP may propose or the AER may require a different threshold for a parameter where:

(1) the forecast cost of GSL payments is likely to be greater than the cost customers are prepared to pay, or

(2) the application of the threshold in Table 2 would require the DNSP to undertake expenditure in excess of the expected benefit to customers, or

(3) the services currently provided by the DNSP are significantly better than the threshold level for the parameter.

(c) Where a DNSP makes a proposal for the purposes of clause 6.3.1(b), the proposal must be made in accordance with clause 2.2.

6.3.2 Payment

(a) A GSL payment must be made to a customer when the service performance to that customer exceeds the GSL parameter threshold.

(b) Any payments required to be made by the DNSP to a customer under clause 6.3.2(a) must be paid by the DNSP as soon as practicable after the obligation arises.

(c) A DNSP is required to monitor service levels to promptly detect when actual service performance has exceeded the GSL parameter threshold.
(d) A DNSP may apply to the AER for an exclusion from clause 6.3.2(a) where the DNSP does not have the systems required to detect when a service exceeds the threshold.

(e) Where a DNSP has applied for an exclusion from clause 6.3.2(a), the AER may grant the DNSP an exemption from the requirement to make payments in accordance with clause 6.3.2(a) for a period of up to one regulatory year.

(f) During the period of an exemption granted by the AER, the DNSP must make GSL payments when it becomes aware that the service provided has exceeded the GSL parameter threshold. This includes when a customer shows reasonable evidence that a GSL parameter threshold has been exceeded.

(g) A DNSP must make GSL payments by:

1. applying a credit to the customer’s account, or
2. posting or delivering a cheque to the customer, or
3. electronic transfer of the payment to the customer’s bank account, or
4. a method agreed with the customer.

6.3.3 Payment amount

(a) GSL payments are not intended to compensate customers for loss suffered as a result of poor service. GSL payments are intended to be an acknowledgement of poor service.

(b) Payment amounts are shown in Table 3.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Payment Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of interruptions</td>
<td>$80</td>
</tr>
<tr>
<td>Duration of interruptions</td>
<td>$80</td>
</tr>
<tr>
<td>Total duration of interruptions</td>
<td>Level 1 – $100</td>
</tr>
<tr>
<td></td>
<td>Level 2 – $150</td>
</tr>
<tr>
<td></td>
<td>Level 3 – $300</td>
</tr>
<tr>
<td>Streetlight repair</td>
<td>$25</td>
</tr>
<tr>
<td>New connections</td>
<td>$50 per day to a maximum of $300</td>
</tr>
<tr>
<td>Notice of planned interruptions</td>
<td>$50</td>
</tr>
</tbody>
</table>

DNSPs must make GSL payments to customers for each of the GSL parameters independently. For example, if a rural customer experienced two unplanned interruptions in a particular year—the first interruption with 1 hour duration followed by a second interruption of 21 hours in duration—this customer is entitled to the following GSL payments:

- $80 for the second interruption because the duration of this interruption exceeded the 18 hours threshold for rural customers
- $100 for the total duration of interruptions (22 hours in total).
(c) A DNSP may propose or the AER may require alternative payment amounts where:

(1) the forecast number of payments is small and the DNSP or AER considers that a larger payment would provide a better incentive to meet the GSL targets, or

(2) the forecast number of payments is large and the DNSP or AER considers that a smaller payment would constrain the total forecast cost of GSL payments to a level that customers are prepared to pay.

(d) A DNSP may propose or the AER may require additional payment amounts in conjunction with additional thresholds for any parameter. That is, the DNSP or AER may propose that a customer who experiences a level of service that exceeds a second threshold is paid a larger amount than a customer who experiences a level of service that exceeds the specified threshold.

(e) Alternative payment amounts proposed under clauses 6.3.3(c) and 6.3.3(d) should recognise the intent of GSL payments as outlined in clause 6.3.3(a).

6.4 Exclusions

(a) Despite clause 6.3.2, a DNSP is not required to make GSL payments when the GSL threshold for the frequency of interruptions parameter or the duration of interruptions parameter or the total duration of interruptions parameter is exceeded as a result of any of the following events when an interruption on a DNSP’s distribution network has not already occurred or is concurrently occurring at the same time:

(1) [Deleted]

(2) load shedding due to a generation shortfall

(3) automatic load shedding due to the operation of under frequency relays following the occurrence of a power system under-frequency condition

(4) load shedding at the direction of the Australian Energy Market Operator (AEMO) or a system operator

(5) load interruptions caused by a failure of the shared transmission network

(6) load interruptions caused by a failure of transmission connection assets except where the interruptions were due to:

(a) actions, or inactions, of the DNSP that are inconsistent with good industry practice; or

(b) inadequate planning of transmission connections and the DNSP is responsible for transmission connection planning

Example: A DNSP omits to suppress back-up earth fault (BUEF) protection when undertaking network switching operation that results in momentary paralleling of supplies from two different terminal stations, where this is inconsistent with the standard practice.

(7) load interruptions caused by the exercise of any obligation, right or
discretion imposed upon or provided for under *jurisdictional electricity legislation or national electricity legislation* applying to a DNSP.

(8) load interruptions caused or extended by a direction from state or federal emergency services, provided that a fault in, or the operation of, the network did not cause, in whole or part, the event giving rise to the direction.

(b) An event may also be excluded where daily *unplanned SAIDI* for the DNSP’s distribution network exceeds the *major event day* boundary, as set out in appendix D, when the event has not been excluded under clause 6.4(a).
7 Information and reporting requirements

7.1 Information for annual compliance

(a) A DNSP must report on its annual performance against the parameters applicable to it as set out in the relevant distribution determination in accordance with any applicable regulatory information instrument.

(b) A DNSP must provide details annually of each of the exclusions under clauses 3.3, 5.4 and 6.4 that has applied in calculating the revenue increment or decrement or GSL payments made under the scheme.

7.2 Annual review

(a) The AER may review the service performance information relevant to the scheme that a DNSP is required to provide annually under any applicable regulatory information instrument.

(b) In undertaking the review referred to in clause 7.2(a), the AER may consider:

1. the appropriateness and accuracy of the DNSP’s data collection, reporting and recording processes and systems

2. whether the performance data reported is consistent with the parameter definitions contained in appendix A and other elements contained in appendix C and the distribution determination

3. whether the revenue increment or decrement proposed by the DNSP has been calculated in accordance with this scheme.

(c) The AER will advise the DNSP of the outcome of any review conducted under clause 7.2(a).

7.3 Changes in data collection

(a) A DNSP must notify the AER in writing as soon as it becomes aware of, or plans any material changes to data collection or recording methods used by the DNSP to record and report on the DNSP’s performance against the DNSP’s parameters.

(b) Any notice provided to the AER under clause 7.3(a) must include an assessment of whether the changes to the data collection or recording methods no longer allow the DNSP to accurately record and report on the DNSP’s performance against one of the parameters applicable to the DNSP.

(c) The AER may amend this scheme as a result of the DNSP’s new data collection methods.
Appendix A: Performance incentive scheme parameters—standard definitions

Table A1: Reliability component

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unplanned SAIDI (System Average Interruption Duration Index)</td>
<td>The sum of the duration of each unplanned sustained customer interruption (in minutes) divided, by the Customer Base. Unplanned SAIDI excludes momentary interruptions (three minutes or less).</td>
</tr>
<tr>
<td>Unplanned SAIFI (System Average Interruption Frequency Index)</td>
<td>The total number of unplanned sustained customer interruptions divided, by the Customer Base. Unplanned SAIFI excludes momentary interruptions (three minutes or less). SAIFI is expressed per 0.01 interruptions.</td>
</tr>
<tr>
<td>MAIFIE (Momentary Average Interruption Frequency Index event)</td>
<td>The total number of Momentary Interruption Events, divided by the Customer Base for the relevant period, provided that Momentary Interruptions that occur within the first three minutes of a Sustained Interruption are excluded from the calculation.</td>
</tr>
<tr>
<td>MAIFI (Momentary Average Interruption Frequency Index)</td>
<td>The total number of Momentary Interruptions, divided by the Customer Base, provided that Momentary Interruptions that occur within the first three minutes of a Sustained Interruption are excluded from the calculation.</td>
</tr>
<tr>
<td>Momentary Interruption Event</td>
<td>Means one or more Momentary Interruptions that occur within a continued duration of 3 minutes or less, provided that the successful restoration of electricity supply after any number of Momentary Interruptions is taken to be the end of the Momentary Interruption Event.</td>
</tr>
<tr>
<td>Momentary Interruption</td>
<td>Means an Interruption to a Distribution Customer’s electricity supply with a duration of 3 minutes or less, provided that the end of each Momentary Interruption is taken to be when electricity supply is restored for any duration.</td>
</tr>
<tr>
<td>Sustained Interruption</td>
<td>Means an Interruption to a Distribution Customer’s electricity supply at the point of supply that has a duration longer than 3 minutes, provided that the successful restoration of supply to the Distribution Customer is taken to be the end of the Sustained Interruption.</td>
</tr>
</tbody>
</table>

Notes:

1. [Deleted]
2. Unmetered street lighting supplies are excluded. Other unmetered supplies should be excluded from the calculation of reliability measures, except where a DNSP is unable to identify the unmetered supplies from its historical performance data.
3. Inactive accounts are excluded.
4. [Deleted]
5. If a customer advises the DNSP that it does not want supply to be restored, the customer minutes off supply of this specific customer should not be included in the SAIDI calculation.
6. A single premises outage is a network interruption irrespective of whether the outage is caused by the customer’s installation. However, if power is still available at the point of supply, there is no supply interruption.

7. For high voltage (HV) feeder single phase outages – unless there are accurate means to determine the exact number of customers affected, 67% of all downstream customers are taken to be affected for a single-phase HV feeder outage on a three phase network. 100% of customers are taken to be affected for all other HV outages. For example, when there is a single HV phase outage on a two phase or single phase HV system, 100% of customers are taken to be affected.

8. For low voltage single phase outage – unless there are accurate means to determine the exact number of customers affected, 33% of all downstream customers for a single phase outage are taken to be affected.

Table A2: Transitional reliability measurement method, applicable to those DNSPs unable to back cast historical performance based on the reliability measures as shown in Table A1 above.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unplanned SAIDI (System Average Interruption Duration Index)</td>
<td>The sum of the duration of each unplanned sustained customer interruption (in minutes), divided by the Customer Base. Unplanned SAIDI excludes momentary interruptions (one minute or less).</td>
</tr>
<tr>
<td>Unplanned SAIFI (System Average Interruption Frequency Index)</td>
<td>The total number of unplanned sustained customer interruptions, divided by the Customer Base. Unplanned SAIFI excludes momentary interruptions (one minute or less). SAIFI is expressed per 0.01 interruptions.</td>
</tr>
<tr>
<td>MAIFIe (Momentary Average Interruption Frequency Index event)</td>
<td>The total number of Momentary Interruption, divided by the Customer Base, provided that Momentary Interruptions that occur within the first minute of a Sustained Interruption are excluded from the calculation.</td>
</tr>
<tr>
<td>MAIFI (Momentary Average Interruption Frequency Index)</td>
<td>The total number of Momentary Interruptions, divided by the Customer Base, provided that Momentary Interruptions that occur within the first minute of a Sustained Interruption are excluded from the calculation.</td>
</tr>
<tr>
<td>Momentary Interruption Event</td>
<td>Means one or more Momentary Interruptions that occur within a continued duration of 1 minute or less, provided that the successful restoration of electricity supply after any number of Momentary Interruptions is taken to be the end of the Momentary Interruption Event.</td>
</tr>
<tr>
<td>Momentary Interruption</td>
<td>Means an Interruption to a Distribution Customer’s electricity supply with a duration of 1 minute or less, provided that the end of each Momentary Interruption is taken to be when electricity supply is restored for any duration.</td>
</tr>
</tbody>
</table>

Notes:

1. Unmetered street lighting supplies are excluded. Other unmetered supplies should be excluded from the calculation of reliability measures, except where a DNSP is unable to identify the unmetered supplies from its historical performance data.

2. Inactive accounts are excluded.
3. If a customer advises the DNSP that it does not want supply to be restored, the customer minutes off supply of this specific customer should not be included in the SAIDI calculation.

4. A single premises outage is a network interruption irrespective of whether the outage is caused by the customer’s installation. However, if power is still available at the point of supply, there is no supply interruption.

5. For high voltage (HV) feeder single phase outages – unless there are accurate means to determine the exact number of customers affected, 67% of all downstream customers are taken to be affected for a single-phase HV feeder outage on a three phase network. 100% of customers are taken to be affected for all other HV outages. For example, when there is a single HV phase outage on a two phase or single phase HV system, 100% of customers are taken to be affected.

6. For low voltage single phase outage – unless there are accurate means to determine the exact number of customers affected, 33% of all downstream customers for a single phase outage are taken to be affected.

Illustration of how to measure supply interruptions

Figure 1 shows an example of a sustained interruption, where two unsuccessful attempts to reclose are made. In this case, the duration of the interruption is greater than the momentary interruption threshold of 3 minutes.

Figure 1 Sustained interruption, unsuccessful auto-reclose

Illustration:

- **Supply On**
- **Supply Off**
- **t = 0**
- **t = 3 min**
- **t = 80 min**
- **Supply restored**

- **SAIDI** = 80 minutes
- **SAIFI** = 1
- **MAIFIe** = 0
- **MAIFI** = 0
Figure 2 demonstrates the difference between MAIFI and MAIFIe. It shows an example of a momentary interruption event, where the affected customers experience two momentary interruptions before the supply is successfully restored. In this case, the duration of the interruption is less than the momentary interruption threshold of 3 minutes.

**Network type** | **Definition**
---|---
CBD feeder | a feeder in the central business district (CBD) area of a State or Territory capital; and other equivalent areas that are applicable in the relevant participating jurisdiction as supplying predominantly commercial, high-rise buildings, supplied by a predominantly underground distribution network containing significant interconnection and redundancy when compared to urban areas.

urban feeder | a feeder, which is not a CBD feeder, has a 3-year average maximum demand over the 3-year average feeder route length greater than 0.3 MVA/km.

short rural feeder | a feeder which is not a CBD or urban feeder with a total feeder route length less than 200 km.

long rural feeder | a feeder which is not a CBD feeder, urban feeder or short rural feeder.

**Quality component**

No parameters are defined.
## Customer and GSL components

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Definition</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of interruptions</td>
<td>The duration of an unplanned interruption experienced by a customer.</td>
<td>minutes</td>
</tr>
<tr>
<td>Frequency of interruptions</td>
<td>The number of unplanned sustained interruptions experienced by a customer in a regulatory year.</td>
<td>number</td>
</tr>
</tbody>
</table>
| New connections            | The connection of electricity supply to a new customer’s premises on or before the date agreed to with the customer. For the ‘customer service’ component, this is expressed as a percentage of the total number of new connections.  
Note: Does not include re-energisation of existing premises.                                            | number or percentage of total new connections |
| Notice of planned interruptions | The delivery of notice to customers of a planned interruption on or before the threshold.                                                                                                               | number                                    |
| Response to written enquiries | The provision of a written response to a written enquiry on or before the defined threshold. Written enquiries and responses include email. For the ‘customer service’ component, this is expressed as a percentage of the total number of written enquiries. | percentage of total written enquiries     |
| Streetlight repair         | For the ‘GSL’ component, the repair of a public light within ‘x’ business days of each fault report or a period otherwise agreed between the distributor and the person, if that person is the occupier of an immediately neighbouring residence or is the proprietor of an immediately neighbouring business.  
For the ‘customer service’ component, the repair of a public light within ‘x’ business days of each fault, expressed as a percentage of the total number of public light faults. | number or percentage of total faults      |
| Telephone answering        | Calls to the fault line answered in 30 seconds where the time to answer a call is measured from when the call enters the telephone system of the call centre (including that time when it may be ringing unanswered by any response) and the caller speaks with a human operator, but excluding the time that the caller is connected to an automated interactive service that provides substantive information. This measure does not apply to:  
- calls to payment lines and automated interactive services;  
- calls abandoned by the customer within 30 seconds of the call being queued for response by a human operator. Where the time in which a telephone call is abandoned is not measured, then an estimate of the number of calls abandoned within 30 seconds will be determined by taking 20 per cent of all calls abandoned.  
Note: Being placed in a queuing system (automated | percentage of total calls       |
or otherwise) does not constitute a response.

<table>
<thead>
<tr>
<th>Total duration of interruptions</th>
<th>The sum of the durations of all unplanned interruptions experienced by a customer in a regulatory year.</th>
<th>minutes</th>
</tr>
</thead>
</table>

Appendix B: Calculating incentive rates

Clauses 3.2.2 and 5.3.2 set out how incentive rates are to be determined for the reliability of supply and customer service components of the scheme.

The incentive rate formulae for the unplanned SAIDI and unplanned SAIFI parameters are shown below:

\[
ir_{SAIDIurban} = \left( \frac{VCR_n \left( 1 + CPI \right) \left( 1 + \frac{1}{1 + w_n} \right) C_n}{R} \right) \frac{SAIDI_n}{SAIFI_n} \times 100 \quad \text{.................................. (1)}
\]

\[
ir_{SAIFIurban} = \left( \frac{VCR_n \left( 1 + CPI \right) \left( 1 - \frac{1}{1 + w_n} \right) C_n}{R} \right) \frac{SAIDI_n}{SAIFI_n} \times 100 \quad \text{.................................. (2)}
\]

where:

- \( ir \) is the incentive rate (expressed in a percentage per unit of the parameter)
- \( n \) is the network type
- \( VCR_n \) is the VCR for network type \( n \) escalated to the start of the relevant regulatory control period
- \( CPI \) is the consumer price index used to adjust VCR from the September quarter 2008 to the start of the relevant regulatory control period, calculated in accordance with clause 3.2.2(b) and the relevant distribution determination
- \( w_n \) is the network type weighting for the unplanned SAIDI or unplanned SAIFI parameter from table 1 in the scheme
- \( C_n \) is the average annual energy consumption for network type \( n \)
- \( R \) is the average of the smoothed annual revenue requirement for the relevant regulatory control period
- \( SAIDI_n \) is the average of the unplanned SAIDI targets in the regulatory control period for network type \( n \)
- \( SAIFI_n \) is the average of the unplanned SAIFI targets in the regulatory control period for network type \( n \).

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**Worked example**

For the *unplanned SAIFI parameter*, assume that a DNSP has the attributes set out in the following table.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of the regulatory control period</td>
<td>2010</td>
</tr>
<tr>
<td>Network type</td>
<td>Urban feeders</td>
</tr>
<tr>
<td>VCR</td>
<td>$47 850 per MWh ($2008)</td>
</tr>
<tr>
<td>Average annual energy consumption by network type</td>
<td>2 000 000 MWh</td>
</tr>
<tr>
<td>Average smoothed revenue requirement</td>
<td>$300 000 000</td>
</tr>
<tr>
<td>Average unplanned SAIFI target – urban feeders</td>
<td>1.150</td>
</tr>
<tr>
<td>Average unplanned SAIDI target – urban feeders</td>
<td>70.0</td>
</tr>
</tbody>
</table>

The *incentive rate* is determined in accordance with clause 3.2.2(i) as follows:

1. Determine the VCR at 2010:
   \[
   47 850 \times (1 + CPI) = (\text{e.g.})$52 000 / MWh
   \]

2. Determine the portion of VCR assigned to the *unplanned SAIFI parameter* for the urban feeders *network type* from table 1:
   \[
   \frac{52 000}{(1 + 1.5)} = 20 800
   \]

3. Multiply the portion of the VCR assigned to *unplanned SAIFI* (in $/MWh) by the average annual energy consumption for the network type (urban feeders) (in MWh) expected for the regulatory control period. Divide by the average of the smoothed annual revenue requirement for each regulatory year of the regulatory control period (in $, real referenced to the first regulatory year of the regulatory control period) as determined by the AER in the relevant distribution determination:
   \[
   \frac{(20 800 \times 2 000 000)}{300 000 000} = 138.67
   \]

4. Divide by the average number of minutes in a regulatory year:
   \[
   \frac{138.67}{(365.25 \times 24 \times 60)} = 0.0002636
   \]

5. Multiply by the average of the annual performance targets for *unplanned SAIDI* and divide by the average of the annual performance targets for *unplanned SAIFI* in the regulatory control period.
expressed as a percentage for each 0.01 interruption away from the performance target, the incentive rate is:

$$0.01605 \times 100 = 1.605\% \text{ per unit of unplanned SAIFI}$$ (where unplanned SAIFI is measured in 0.01 interruptions away from the indexed target)

where:

$$ir_{SAIFI_{urban}} = \left( \frac{47 \, 850 \times \left(1 + 0.0867\right)}{1 + 1.5} \right) \times \frac{2 \, 000 \, 000}{300 \, 000 \, 000} \times \frac{70.0}{1.150} \times 100 = 1.605\%$$

per unit of unplanned SAIFI

Similarly, the incentive rate for the unplanned SAIDI urban network type in this example is:

$$ir_{SAIDI_{urban}} = \left( \frac{47 \, 850 \times \left(1 + 0.0867\right) \times \left(1 - \frac{1}{1 + 1.5}\right)}{300 \, 000 \, 000} \right) \times 2 \, 000 \, 000 \times \left(365.25 \times 24 \times 60\right) \times 100 = 0.01605\% \text{ per unit of unplanned SAIDI}.$$
Appendix C: Adjustments to allowed revenue

Calculating allowed revenue

Under the reliability of supply, quality of supply and customer service components of the scheme, a DNSP’s annual revenue (through average tariffs for all customers) is increased (or decreased) based on changes in service performance from regulatory year to regulatory year. The s-factor applies only to standard control services.

Clause 6.2.6 of the NER requires that the control mechanism for standard control services must be of the prospective CPI minus X form, or some incentive-based variant of the prospective CPI minus X form. The s-factor amount, expressed as a nominal dollar change in revenue for each regulatory year, is incorporated into the control mechanism in accordance with the NER and the DNSP’s distribution determination.

The value of the s-factor for each regulatory year of a regulatory control period is calculated in accordance with this appendix.

Below is the formula to apply to standard control services revenues.

Figure C.1 Calculation of revenue adjustment for the STPIS results

1. \( TAR_t \geq \sum_{i=1}^{n} \sum_{j=1}^{m} p_{t}^{ij} q_{t}^{ij} \)  \( i = 1, ..., n \) and \( j = 1, ..., m \) and \( t = 1, 2 \ldots, 5 \)
2. \( TAR_t = AAR_t + I_t + B_t + C_t \)  \( t = 1, 2 \ldots, 5 \)
3. \( AAR_t = AR_t \)  \( t = 1 \)
4. \( AAR_t = AAR_{t-1} \times (1 + \Delta CPI_t) \times (1 - X_t) \)  \( t = 2, \ldots, 5 \)

where:

- \( TAR_t \) is the total allowable revenue in year \( t \).
- \( p_t^{ij} \) is the price of component \( 'j' \) of tariff \( 'i' \) in year \( t \).
- \( q_t^{ij} \) is the forecast quantity of component \( 'j' \) of tariff \( 'i' \) in year \( t \).
- \( t \) is the regulatory year.
- \( AR_t \) is the annual smoothed revenue requirement in the Post Tax Revenue Model (PTRM) for year \( t \).
- \( AAR_t \) is the adjusted annual smoothed revenue requirement for year \( t \).
- \( I_t \) is the sum of incentive scheme adjustments in year \( t \). Likely to incorporate but not limited to revenue adjustments for f-factor, Demand management innovation allowance (DMIA), Demand management innovation allowance mechanism (DMIAM), Demand management incentive scheme (DMIS) and s-factor \( S_t^S \) as applicable. To be decided in the distribution determination.
- \( S_t^S \) is the s-factor for regulatory year \( t \), expressed as real dollars amounts. As it currently
stands, the s-factor will incorporate any adjustments required due to the application of the AER’s STPIS.

\[ B_t \] is the sum of annual adjustment factors in year \( t \). Likely to incorporate but not limited to adjustments for the unders and overs account. To be decided in the distribution determination.

\[ C_t \] is the sum of approved cost pass through amounts (positive or negative) with respect to regulatory year \( t \), as determined by the AER. It will also include any end-of-period adjustments in year \( t \). To be decided in the distribution determination.

\[ \Delta CPI_t \] is the CPI for year \( t \), as determined in the relevant distribution determination.

\[ X_t \] is the X-factor in year \( t \), incorporating annual adjustments to the PTRM for the trailing cost of debt where necessary. To be decided in the distribution determination.
Figure C.2  S-factor calculation formula

5. \[ S_t^S = AR_{t-2} S_{t-2}^\% \times \frac{CPI_{t-1}}{CPI_{t-3}} - S_{t}^S + S_{t-1}^S \times \frac{CPI_{t-1}}{CPI_{t-2}} \quad t = 1, ..., 5 \]

\( S_t^S \) is the s-factor amount for regulatory year \( t \). As it currently stands, the s-factor will incorporate any adjustments required due to the application of the AER’s STPIS.\(^2\)

\( AR_{t-2} \) For \( t=1 \) and \( 2 \), \( AR_{t-2} \) represents the annual smoothed revenue requirement in the Post Tax Revenue Model (PTRM) for year 4 and 5 of the previous regulatory control period, respectively.

\( CPI_t \) is the CPI index for year \( t \), as determined in the relevant distribution determination.

\( S_{t-2}^\% \) is the sum of the raw s-factors for all parameters for regulatory year \( t-2 \), before banking, expressed as a percentage of revenue (or prices) calculated annually through the compliance assessment. For \( t=1 \) and \( 2 \), \( S_{t-2}^\% \) represents the sum of the raw s-factors for year 4 and 5 of the previous regulatory control period, respectively.

\( S_{t}^S \) is the s-bank for the current regulatory year \( t \), expressed as real dollars amounts.

\( S_{t-1}^S \) is the s-bank for the previous regulatory year \( t-1 \), expressed as real dollar amounts. For \( t =1 \), it represents the s-bank for year 5 of the previous regulatory control period.

The operation of the s-bank mechanism

The s-factor may cause volatility in prices when service performance varies about the performance target from regulatory year to regulatory year. In accordance with clauses 2.5(d) and 2.5(e) a DNSP may delay the action of a revenue increment or decrement or a portion of the revenue increment or decrement for one regulatory year using the s-bank mechanism.

The s-bank-mechanism, expressed in nominal dollar terms for each regulatory year, is incorporated into the calculation as in Equation 5.

Revenue at risk

The sum of the s-factors for all parameters \( (S_t^\%) \) is not to exceed or fall below, respectively, the upper or lower limits of the revenue at risk as specified in clause 2.5(a) or as varied in accordance with clause 2.5(b) and specified in the relevant distribution determination.

Equation 6 below places limits on the sum of the raw s factors for all parameters \( (S_t^\%) \) to achieves this. If the sum of the raw s-factors for all parameters is equal to either the upper or lower limit or within the revenue at risk (that is equal to or between \( \pm 5 \) per cent) then \( S_t^\% = S_t^\prime \).

6. \[ S_{t-2}^\% = \min(\max(S_{t-2}^{ROS} + S_{t-2}^{CS}, S_t^S), S_t^\prime) \]

\(^2\) AER, Electricity distribution network service providers - service target performance incentive scheme, 1 November 2009.
where:

$S$ is the lower limit of the overall revenue at risk in accordance with clause 2.5

$\bar{S}$ is the upper limit of the overall revenue at risk in accordance with clause 2.5

$S^{ROS}_{t-2}$ is the sum of the raw s-factors for all reliability of supply (ROS) parameters, as determined in equation 8.

$S^{CS}_{t-2}$ is the sum of the s-factors for all customer service (CS) parameters, as determined in equation 7.

The sum of the s-factors for all customer service parameters ($S^{CS}_{t-2}$) is not to exceed or fall below, respectively, the upper or lower limits of the revenue at risk as specified in clause 5.2(a). Equation (7) below places limits on the sum of the raw s-factors for all customer service parameters to achieve this.

7. $S^{CS}_{t-2} = \min(\max(S^{CS}_{t-2}, S^{CS}), S)$
   
   where:

   $S^{CS}_{t-2}$ is the lower limit of the revenue at risk for all customer service (CS) parameters in accordance with clause 5.2(a)

   $\bar{S}^{CS}_{t-2}$ is the upper limit of the revenue at risk for all customer service (CS) parameters in accordance with clause 5.2(a)

   $S^{CS}_{t-2}$ is the sum of the raw s-factors for customer service (CS) parameters, as determined in equation (9).

The service standards s-factor

The s-factor for each parameter is calculated by comparing a DNSP’s performance against its parameters and the performance targets and incentive rates included in the DNSP’s distribution determination for a regulatory year during the regulatory control period.

The raw s-factor is the sum of the s-factors for each parameter. Equation (6) ensures that the raw s-factor result cannot exceed the percentage of revenue at risk specified in clause 2.5 or the relevant distribution determination.

The sum of the raw s-factors for all reliability of supply parameters ($S^{ROS}_{t-2}$) is calculated as follows:

8. $S^{ROS}_{t-2} = \sum p \cdot \text{ir}_p \cdot [\text{Tar}_{p,t-2} - \text{Act}_{p,t-2}]$
   
   where:

   $S^{ROS}_{t-2}$ is the sum of the raw s-factors for all reliability of supply (ROS) parameters
\( p \) is a reliability of supply performance parameter

\( ir_p \) is the incentive rate for parameter \( p \) calculated in accordance with clause 3.2.2

\( Act_{p,t-2} \) is the actual performance for parameter \( p \)

\( Tar_{p,t-2} \) is the target performance for parameter \( p \)

\( t \) is the regulatory year \( t \), and \( t-2 \) is the regulatory year in which the performance parameter is measured.

The \( s \)-factor for an individual customer service parameter \( (S^CS_t) \) is not to exceed or fall below, respectively, the upper or lower percentage limits of the revenue at risk as specified in clause 5.2(b). Equation (9) below places limits on the \( s \)-factor for each individual customer service parameters to achieve this.

\[
S^CS_t = \sum_p \min \left( \max \left( ir_p \times [Tar_{p,t-2} - Act_{p,t-2}], S^ICS \right), S^ICS \right)
\]

where:

\( S^CS_t \) is the sum of the \( s \)-factors for all customer service (CS) parameters

\( p \) is a customer service performance parameter

\( ir_p \) is the incentive rate for parameter \( p \) calculated in accordance with clause 5.3.2

\( Act_{p,t-2} \) is the actual performance for parameter \( p \)

\( Tar_{p,t-2} \) is the target performance for parameter \( p \)

\( S^ICS \) is the lower limit of the revenue at risk for an individual customer service (ICS) parameter as set out in clause 5.2(b)

\( S^ICS \) is the upper limit of the revenue at risk for an individual customer service (ICS) parameter as set out in clause 5.2(b)

Equations (8) and (9) provide for a 12-month gap between the regulatory year of service performance and the application of the \( s \)-factor.
Appendix D: Major event days

A major event day is defined in the Institute of Electrical and Electronics Engineers (IEEE) standard 1366-2003, IEEE Guide for Electric Power Distribution Reliability Indices. This standard was published in May 2004. The IEEE standard excludes natural events which are more than 2.5 standard deviations greater than the mean of the log normal distribution of five regulatory years’ SAIDI data (the ‘2.5 beta method’).

The 2.5 beta method is the AER’s minimum or ‘safe harbour’ approach to setting the major event day boundary that a DNSP may propose. However, in accordance with clause 2.2 of this scheme, a DNSP can propose a major event day boundary that is greater than 2.5 standard deviations from the mean. Provided the AER agrees to a DNSP’s proposal for a ‘greater’ boundary, natural events that are more than the agreed multiple of standard deviations from the mean of the log normal distribution of five regulatory years’ SAIDI data will be excluded.

Any day where unplanned SAIDI exceeds the major event day boundary may be excluded when calculating the values of the parameters for the purpose of calculating the revenue increment or decrement resulting from this scheme.

In calculating daily unplanned SAIDI, any interruption that spans multiple days is accrued to the day on which the interruption begins. Where an interruption on a major event day spans multiple days, the entire length of the interruption is excluded when calculating the values of the parameters for the purpose of calculating the revenue increment or decrement resulting from this scheme.

A DNSP may propose in accordance with clause 2.2 of this scheme a major event day boundary that is greater than 2.5 standard deviations from the mean. A DNSP subject to a beta threshold greater than 2.5 during a regulatory control period may also propose to reduce its beta threshold (to a minimum of 2.5 beta) in the subsequent regulatory control period in accordance with clause 2.2 of the scheme.

In calculating daily unplanned SAIDI, any interruption that spans multiple days is accrued to the day on which the interruption begins.

The major event day boundary is calculated at the end of each reporting period (typically one regulatory year) for use during the next reporting period using the 2.5 beta method as follows:

1. Collect values of daily unplanned SAIDI over five sequential regulatory years ending on the last day of the last complete reporting period — these values should reflect any exclusions permitted under clause 3.3 and 5.4 of the scheme. If fewer than five regulatory years of historical data are available, the most recent data should be used.

2. Only those days where an unplanned SAIDI/day value > 0 are considered (do not include days that did not have any interruptions).

3. Calculate the natural logarithm (ln) of each daily unplanned SAIDI value in the data set.
4. Apply a commonly accepted statistical test to the data set and where application of the statistical test indicates:

(a) the logarithms of the data set are not normally distributed:

(1) Propose an alternative data transformation method which results in a more normally distributed data set in accordance with clause 2.2 of this scheme.

(2) Apply the proposed alternative data transformation to calculate each daily unplanned SAIDI value in the transformed data set.

(3) Find $\alpha$ (alpha) as the average of each daily unplanned SAIDI value to which the proposed alternative data transformation method has been applied.

(4) Find $\beta$ (beta) as the standard deviation of each daily unplanned SAIDI value to which the proposed alternative data transformation method has been applied.

(5) The boundary for an extreme event or major event day ($T_{MED}$) is then calculated such that the transformed value is as follows:

$$\text{Transformed}(T_{MED}) = \alpha + 2.5\beta$$

(where the value of $2.5\beta$ is adjusted to reflect any alternative amount permitted to be used in accordance with this scheme.)

(b) the logarithms of the data set are normally distributed, or if the AER agrees with a DNSP that the use of an alternative data transformation method is not appropriate, despite the logarithms of the data set not being normally distributed, or where the AER determines that an alternative transformation method is not appropriate:

(1) Find $\alpha$ (alpha), the average of the logarithms of the data set.

(2) Find $\beta$ (beta), the standard deviation of the logarithms of the data set.

(3) The boundary for an extreme event or major event day ($T_{MED}$) is then calculated as follows:

$$T_{MED} = e^{(\alpha + 2.5\beta)}$$

(where the value of $2.5\beta$ is adjusted to reflect any alternative amount permitted to be used in accordance with this scheme.)
5. Any day in the new reporting period where the total *unplanned SAIDI* exceeds this value of $T_{MED}$ is classified as a *major event day*.

6. Where 4(a) applies a DNSP must, in addition to the requirements of clause 2.2 of this *scheme*:

   (a) Demonstrate that the natural logarithm of the data set of each unplanned SAIDI value is not normally distributed.

   (b) Explain the proposed alternative data transformation method.

   (c) Provide the calculations that demonstrate the application of the alternative data transformation method to the unplanned SAIDI values.

   (d) Provide the data set resulting from applying the proposed alternative transformation method.

   (e) Demonstrate that the resulting data set is normally distributed or that the normality of the data set is improved.
Appendix E: Deleted
Appendix F: Adjustment of performance target where the reward or penalty exceeds the revenue cap

Where a DNSP’s actual performance is much better or worse than the performance targets to the extent that the financial reward or penalty under the STPIS exceeds the revenue at risk cap under the scheme, the following steps are to be applied to make adjustments to the performance targets:

Assumptions

Assuming the calculated total raw s-factor for the regulatory year t is \((P + P_0)\%\), with \(P\%\) being residue above or below the revenue at risk, typically \(\pm 4.5\%\) exclusive of telephone response parameter of \(\pm 0.5\%\), as set during the revenue determination. We also assume the distributor only has CBD and urban networks. We need to make the adjustment according to the SAIDI and SAIFI targets for the forthcoming regulatory period, between CBD and urban networks, based on the incentive rates respectively. The VCR of previous regulatory control period will be adopted for the calculation of SAIFI and SAIDI incentive rates.

First, consistent with our proposed new ratio between SAIDI and SAIFI incentive rates, we allocate 0.6P to SAIDI minutes and 0.4P to SAIFI.

\[
F1. \quad P = P_{SAIDI} + P_{SAIFI}
\]

\[
F2. \quad P_{SAIDI} = 0.6P
\]

\[
F3. \quad P_{SAIDI} = P_{SAIDI,CBD} + P_{SAIDI,urban}
\]

\[
F4. \quad P_{SAIDI,CBD} = P_{SAIDI} \times \frac{ir_{SAIDI,CBD}}{ir_{SAIDI,CBD} + ir_{SAIDI,urban}}
\]

\[
F5. \quad P_{SAIDI,urban} = P_{SAIDI} \times \frac{ir}{ir_{SAIDI,CBD} + ir_{SAIDI,urban}}
\]

\[
F6. \quad SAIDI_{CBD} = \frac{P_{SAIDI,CBD}}{ir_{SAIDI,CBD}} = \frac{P_{SAIDI}}{ir_{SAIDI,CBD} + ir_{SAIDI,urban}}
\]

\[
F7. \quad SAIDI_{Urban} = \frac{P_{Urban}}{ir_{SAIDI,urban}} = \frac{P_{SAIDI}}{ir_{SAIDI,CBD} + ir_{SAIDI,urban}}
\]

\[
F8. \quad SAIDI_{CBD} = SAIDI_{Urban}
\]

Note: \(SAIDI_{CBD}\) and \(SAIDI_{Urban}\) refer to the adjustment amount of the SAIDI targets where the reward or penalty exceeds the revenue cap. \(Y_n\) refers to the number of years covered by the regulatory control period where such adjustments are necessary. Typically this value is 5.

Therefore, SAIDI performance targets for CBD and urban networks require the same adjustments. Dividing this adjustment by the number of years covered by the relevant regulatory control period \(Y_n\), the corresponding number of years within a regulatory period, adjustment to the annual performance target is derived:
Similarly, SAIFI performance targets for CBD and urban networks require same adjustments as below:

\[ F_{17}. \quad \frac{1}{Y_n} \cdot \text{SAIFI}_{CBD} = \frac{1}{Y_n} \cdot \frac{P_{SAIFI}}{ir_{SAIFI,CBD} + ir_{SAIFI,urban}} = \frac{1}{Y_n} \cdot \frac{0.6P}{ir_{SAIDI,CBD} + ir_{SAIDI,urban}} \]

Note: \text{SAIFI}_{CBD} and \text{SAIFI}_{Urban} refer to the adjustment amount of the SAIFI targets where the reward or penalty exceeds the revenue cap.
Glossary

This scheme uses the following definitions.

annual revenue requirement has the meaning set out in the National Electricity Rules.

business day has the meaning set out in the National Electricity Rules.

CAIDI (Customer Average Interruption Duration Index) the sum of the duration of each sustained customer interruption (in minutes), divided by the total number of sustained customer interruptions (SAIDI divided by SAIFI). CAIDI excludes momentary interruptions (three minutes or less duration).

CPI (consumer price index) has the meaning set out in the National Electricity Rules. The CPI used to escalate the value of customer reliability to the start of the relevant regulatory control period should be the same that was used to roll forward the DNSP’s regulatory asset base (using the roll forward model) in the relevant distribution determination.

Customer Base in respect of a relevant period, Customer Base means:

- the number of Distribution Customers as at the start of the relevant period; plus

- the number of Distribution Customers as at the end of the relevant period,

 divided by two.

distribution consultation procedures has the meaning set out in the National Electricity Rules.

DNSP (distribution network service provider) has the meaning set out in the National Electricity Rules.

inactive account a connection to the DNSP’s network that is inactive, that is, does not have an active account with a retailer or is otherwise ineligible to take a supply of electricity.

incentive rate the rate at which a revenue increment or decrement accrues due to a change in service performance.

interruption an interruption is any loss of electricity supply to a customer associated with an outage of any part of the electricity supply network, including generation facilities and transmission networks, of more than 0.5 seconds, including outages affecting a single premises. The customer interruption starts when recorded by
equipment such as SCADA or, where such equipment does not exist, at the time of the first customer call relating to the network outage. An interruption may be planned or unplanned, momentary or sustained.

Does not include subsequent interruptions caused by network switching during fault finding. An interruption ends when supply is again generally available to the customer.

jurisdictional electricity legislation has the meaning set out in the *National Electricity Law*.

load shedding has the meaning set out in the *National Electricity Rules*.

MAIFI has the meaning set out in appendix A.

MAIFIe has the meaning set out in appendix A.

major event day has the meaning set out in appendix D.

NEL (National Electricity Law) the *National Electricity Law* set out in the schedule to the National Electricity (South Australia) Act 1996 (SA) and applied in each of the participating jurisdictions.

national electricity legislation has the meaning set out in the *National Electricity Law*.

national electricity market has the meaning set out in the *National Electricity Law*.

NER (National Electricity Rules) the rules made under Part 7 of the *National Electricity Law*.

network type the type of network supplying customers being either CBD, urban, short rural or long rural feeders as defined in appendix A.

parameters the performance measures defined in appendix A.

performance target the level of performance that results in a DNSP neither receiving a financial penalty nor financial reward in the regulatory year.

regulatory obligation or requirement has the meaning assigned in the *National Electricity Law*.

regulatory control period has the meaning set out in the *National Electricity Rules*.

regulatory information has the meaning set out in the *National Electricity Law*.
instrument \textit{Law.}

regulatory proposal has the meaning set out in the \textit{National Electricity Rules.}

regulatory year has the meaning set out in the \textit{National Electricity Rules.}

revenue at risk as defined in clauses 2.5 and 5.2, the amount by which a DNSP’s revenue may increase or decrease as a result of the application of the scheme.

unplanned SAIDI has the meaning set out in appendix A.

unplanned SAIFI has the meaning set out in appendix A.

s-factor or service standards factor the percentage revenue increment or decrement that applies in each regulatory year.

s-factor amount The financial reward or penalty, expressed as a nominal dollar amount for each regulatory year (t) as a result of a DNSP’s service performance outcome of year t-2, calculated in accordance with Appendix C

scheme \textit{service target performance incentive scheme.}

service target performance incentive scheme defined in the \textit{National Electricity Rules.}

standard control service has the meaning set out in the \textit{National Electricity Rules.}

system operator has the meaning set out in the \textit{National Electricity Rules.}

unplanned event an event that causes an \textit{interruption} where the customer has not been given the required notice of the \textit{interruption} or where the customer has not requested the outage.

unplanned interruption an \textit{interruption} due to an unplanned event.