

 DRAFT DECISION

AusNet Services transmission determination

2017–18 to 2021–22

Attachment 11 – Service target performance incentive scheme

July 2016

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1. Note
2. This attachment forms part of the AER's draft decision on AusNet Services’ revenue proposal 2017–22. It should be read with other parts of the draft decision.
3. The draft decision includes the following documents:
4. Overview
5. Attachment 1 – maximum allowed revenue
6. Attachment 2 – regulatory asset base
7. Attachment 3 – rate of return
8. Attachment 4 – value of imputation credits
9. Attachment 5 – regulatory depreciation
10. Attachment 6 – capital expenditure
11. Attachment 7 – operating expenditure
12. Attachment 8 – corporate income tax
13. Attachment 9 – efficiency benefit sharing scheme
14. Attachment 10 – capital expenditure sharing scheme
15. Attachment 11 – service target performance incentive scheme
16. Attachment 12 – pricing methodology
17. Attachment 13 – pass through events

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1. Shortened forms

| Shortened form | Extended form |
| --- | --- |
| AARR | aggregate annual revenue requirement |
| AEMC | Australian Energy Market Commission |
| AEMO | Australian Energy Market Operator |
| AER | Australian Energy Regulator |
| ASRR | annual service revenue requirement |
| augex | augmentation expenditure |
| capex | capital expenditure |
| CCP | Consumer Challenge Panel |
| CESS | capital expenditure sharing scheme |
| CPI | consumer price index |
| DRP | debt risk premium |
| EBSS | efficiency benefit sharing scheme |
| ERP | equity risk premium |
| MAR | maximum allowed revenue |
| MRP | market risk premium |
| NEL | national electricity law |
| NEM | national electricity market |
| NEO | national electricity objective |
| NER | national electricity rules |
| NSP | network service provider |
| NTSC | negotiated transmission service criteria |
| opex | operating expenditure |
| PPI | partial performance indicators |
| PTRM | post-tax revenue model |
| RAB | regulatory asset base |
| RBA | Reserve Bank of Australia |
| repex | replacement expenditure |
| RFM | roll forward model |
| RIN | regulatory information notice |
| RPP | revenue and pricing principles |
| SLCAPM | Sharpe-Lintner capital asset pricing model |
| STPIS | service target performance incentive scheme |
| TNSP | transmission network service provider |
| TUoS | transmission use of system |
| WACC | weighted average cost of capital |

# Service target performance incentive scheme

1. The service target performance incentive scheme (STPIS) provides a financial incentive to transmission network services providers (TNSPs) to maintain and improve service performance. The current version of the STPIS, version 5, includes three components: a service component, market impact component and network capability component.[[1]](#footnote-2)
2. The Service Component provides a reward/penalty of +/- 1.25 per cent of MAR to improve network reliability, by focussing on unplanned outages. The Service component is designed to encourage TNSPs to seek to reduce the number of unplanned network outages and to promptly restore the network in the event of unplanned outages that result in supply interruptions. This component is also designed to indicate potential reliability issues.
3. The market impact component (MIC) provides an incentive to TNSPs to minimise the impact of transmission outages that can affect wholesale market outcomes. The MIC measures performance against the market impact parameter which is the number of dispatch intervals where an outage on the TNSP's network results in a network outage constraint with a marginal value greater than $10/MWh.[[2]](#footnote-3) TNSPs will receive a reward or penalty of up to 1 per cent of MAR for the relevant calendar year. Under clause 4.2(a), a TNSP must submit seven calendar years of data. The target is set in the revenue determination based on the median five of the seven years of historical performance.
4. The network capability component is designed to encourage TNSPs to develop projects (up to a total of one per cent of the proposed MAR per year) in return for a pro-rata incentive payment of up to 1.5 per cent of MAR depending on the successful completion of proposed projects. This component encourages TNSPs to examine their networks to identify suitable low cost one-off operational and capital expenditure projects that improve the capability of the transmission network at times when it is most needed.

## DRAFT decision

We will apply all components of version 5 of the STPIS to AusNet Services for the 2017–22 regulatory control period. We propose to apply the STPIS to AusNet Services in accordance with the details set out below.

Our draft decision is based on the 2008–2014 audited data. We require AusNet Services to submit its 2015 data under version 5 of the STPIS with its revised regulatory proposal.

Table 11‑1 Draft decision — Caps, floors and targets for 2017–2022

| Parameter | Cap (5th percentile) | Targets | Floor (95th percentile) |
| --- | --- | --- | --- |
| Average circuit outage rate |  |  |  |
| Lines event rate – fault  | 0.1406 | 24.98% | 0.3525 |
| Transformer event rate – fault  | 0.0073 | 19.06% | 0.3160 |
| Reactive plant event rate – fault  | 0.2196 | 36.00% | 0.5089 |
| Lines event rate – forced  | 0.1192 | 14.67% | 0.1742 |
| Transformer event rate – forced  | 0.0621 | 10.92% | 0.1456 |
| Reactive plant event rate – forced  | 0.1004 | 26.86% | 0.4282 |
| Loss of supply events |  |  |  |
| Number of events greater than 0.05 system minutes per annum  | 0 | 2 | 5 |
| Number of events greater than 0.30 system minutes per annum  | 0 | 0 | 2 |
| Average outage duration | 3.8981 | 74.0311 | 302.3258 |

1. Source: AER analysis
2. Table 11‑2 Draft decision —MIC parameter values for 2017–2022

|  |  |
| --- | --- |
| Parameter values - MIC | Indicative (2008–2014) |
| Performance target | 1603 DIs |
| Unplanned outage event limit | 272 DIs |
| Dollar per dispatch interval | $3274/DI |

1. Source: AER analysis

Table 11‑3 Draft decision — 11.1 Network capability component for 2017–2022 ($ real 2016-17)

|  |  |
| --- | --- |
| Project | Indicative value |
| Replace the existing interplant connections of the Hazelwood to Jeeralang 220kV No.4 line at Hazelwood power station | $107,000 |
| Increase the operating temperature of the South East to Heywood 275kV lines from 90 to 100 degrees celsius  | $18,000 |

1. Source: AER analysis

## AusNet Services’ proposal

AusNet Services proposed to apply version 5 of the STPIS as follows:[[3]](#footnote-4)

* The service component parameter targets are set equal to average historic performance, except for the Loss of Supply Event Frequency sub-parameters, which have been adjusted to account for the lower VCR’s impact on future reliability levels. The service component caps and floors are set at the 5th and 95th percentiles of historic performance.
* The Market Impact Component (MIC) performance data from 2009–14 is included to enable calculation of the parameter values set out in clause 4.2 (b) (1)–(3), being the annual performance target, the unplanned outage event limit and the dollar per dispatch interval incentive.
* The NCIPAP proposes two priority projects to improve network capability. The total proposed cost of the plan is $126,000, which may lead to an incentive payment of 1.5 x cost, being a total incentive payment of $189,000 over the 2017–2022 regulatory control period if the relevant conditions are met.

## AER’s assessment approach

A revenue determination for a TNSP is to specify, amongst other things, the annual building block revenue requirement for each regulatory year of the regulatory control period.[[4]](#footnote-5) In turn, the annual building block revenue requirement must be determined using a building blocks approach, under which one of the building blocks is the revenue increments or decrements (if any) for that year arising from the application of any STPIS (and other schemes).[[5]](#footnote-6) We have assessed AusNet Services' regulatory proposal against the requirements of the STPIS version 5.

### Service component

1. We assessed whether AusNet Services' proposed performance targets, caps and floors comply with the STPIS requirements for:[[6]](#footnote-7)
* average circuit outage rate, with six sub parameters[[7]](#footnote-8)
* loss of supply event frequency, with two loss of supply event sub-parameters[[8]](#footnote-9)
* average outage duration
* proper operation of equipment, with three sub-parameters.[[9]](#footnote-10)
1. We must accept AusNet Services' proposed parameter values if they comply with the requirements of the STPIS. We may reject them if they are inconsistent with the objectives of the STPIS.[[10]](#footnote-11) We measure actual performance for the 'average circuit outage rate' and 'average outage duration' parameters on a two calendar year rolling average in accordance with appendix E of the STPIS.
2. We assessed AusNet Services' service component proposal against the requirements of the STPIS — that is, whether:
* AusNet Services' data recording systems and processes produce accurate and reliable data and whether the data is recorded consistently based on the parameter definitions under the STPIS[[11]](#footnote-12)
* the proposed performance targets were equal to the average of the most recent five years of performance data[[12]](#footnote-13)
* any adjustments to the proposed targets are warranted and reasonable[[13]](#footnote-14)
* AusNet Services applied a sound methodology, with reference to the performance targets, to calculate the proposed caps and floors[[14]](#footnote-15)
* any adjustment to a performance target was applied to the cap and floor of that parameter.[[15]](#footnote-16)
1. We assessed the probability distributions applied by AusNet Services to calculate caps and floors to determine whether a sound methodology was used.

### Network capability component

1. We assessed AusNet Service's network capability component against the STPIS.[[16]](#footnote-17)

### Interrelationships

The STPIS takes into account any other incentives provided for in the NER that TNSPs have to minimise capital or operating expenditure.[[17]](#footnote-18) One of the objectives of the STPIS is to assist in the setting of efficient capital and operating expenditure allowances by balancing the incentive to reduce actual expenditure with the need to maintain and improve reliability for customers and reduce the market impact of transmission congestion.[[18]](#footnote-19)

1. The STPIS will interact with the Capital Expenditure Sharing Scheme (CESS) and the opex Expenditure Benefit Sharing Scheme (EBSS). The STPIS allows us to adjust the performance targets of the service component for the expected effects on the TNSP’s performance from any increases or decreases in the volume of capital works planned during the regulatory control period.[[19]](#footnote-20) In conjunction with CESS and EBSS, the STPIS will ensure that:
* any additional investments to improve service quality are based on prudent economic decisions
* reductions in capex and opex are achieved efficiently, rather than at the expense of service levels to the network users.

## Reasons for draft decision

1. We will apply version 5 of the STPIS to AusNet Services in the next regulatory control period without varying the Loss of Supply Event Frequency sub-parameters..
2. At the time of submitting its regulatory proposal, AusNet Services did not have the 2015 performance data. Hence, only the 2008-14 data were provided. Our draft decision is based on the 2008–2014 audited data.
3. However, we consider that the final decision should be based on the most recent 2015 data, which will be available when AusNet Services submits its revised proposal.

### Service component

1. Performance targets must equal the TNSP's average performance history over the past five years unless they are subject to adjustment under clause 3.2(h) or (k) of the STPIS.[[20]](#footnote-21) We generally approve performance targets that are the arithmetic mean of the past five years' performance data. Except for the loss of supply event frequency sub-parameters[[21]](#footnote-22), AusNet Services followed this approach for its proposed performance targets. Sub-clauses 3.2(h) and (j) of the STPIS, however, do allow us to set performance targets based on a different period and to make reasonable adjustments to the performance targets respectively.

AusNet Services submitted that applying a lower VCR to capex has implications on reliability; and as such the STPIS targets (Loss of Supply Event Frequency sub-parameters) should be weakened to reflect this change.

AusNet Services' outlined that a lower VCR will result in the deferrals of asset replacement and therefore network reliability to gradually decline over the forthcoming and subsequent periods.[[22]](#footnote-23)

AusNet Services calculated the impact of the VCR by entering the VCR parameter into its Transformer Dependability Model to assess how the reliability of its fleet of transformers will be impacted by the reduced VCR. It submitted that the model showed that by economically deferring transformer replacements, the lower VCR will result in deterioration in the condition of the transformer fleet, such that the probability of failure, and therefore the cost of failure, increases by 39 per cent over 10 years. It considered that this result will be reflective across its entire network and applied a 39 per cent increase to its average 2010–14 performance so that the performance targets for the 2017–22 may reflect the potential outcomes.[[23]](#footnote-24)

It sought to adjust the performance targets for the loss of supply event frequency for lower value of customer reliability to be adjusted by a full 39 per cent over the next five-year regulatory period.

We determine AusNet Services' loss of supply event frequency sub-parameters will be based on its 5 years historical average performance. We will not adjust the loss of supply event frequency sub-parameters to account for a lower VCR because AusNet Services has not made the case to justify such an adjustment. We consider that our decision on the performance targets will incentivise AusNet Services to improve and maintain its loss of supply performance. Further, we consider that this target is reasonably achievable as AusNet Services incurred between zero and three events on the loss of supply event frequency sub-parameters in three of the last five years.

The STPIS permits proposed performance targets to be adjusted for, amongst other things, the expected effects on performance of any increases or decreases in the volume of planned capital works.

However, we are not persuaded by AusNet Services' submission to vary the loss of supply event frequency sub-parameter because:

* It has not demonstrated that there is a clear link between the VCR/Capex and loss of supply event frequency.
* Its method for calculating the impact of VCR to loss of supply event frequency is inappropriate or not supported by evidence.

****Link between VCR and loss of supply frequency****

AusNet Services' submitted that a lower VCR will result in the deferrals of asset replacement and therefore, cause network reliability to gradually decline over time.[[24]](#footnote-25) It proposed to make adjustments to the loss of supply event parameter performance targets based on the estimated impact of a lower VCR on the reliability of its power transformers.[[25]](#footnote-26)

We disagree with the contention that changes in replacement capex, if any, because of a lower VCR will have a material impact on equipment failure rate as claimed by AusNet Services. We consider that the prime driver for asset replacement is the physical condition of the asset, and to a lesser extent, the trade-off between capex and opex. A lower VCR may result in some transformers being retained in service for a longer period, accepting that the replacement capex may be justified by the increase in opex (the capex opex trade-off). However, if a specific transformer’s physical condition - “its health” - is at risk of an impending failure, the safety and reliability concerns would be the key factor for the decision on when to replace the transformer. There are well developed, and internationally recognised, conditioning monitoring techniques to monitor the physical conditions (health) of power transformers.

As there are well established asset management tools to manage the risk due to deferrals of transformer replacement, we do not accept that the change in VCR value will result in a material increase in transformer failure rate.

Further power transformers are only a part of AusNet Services’ transmission network. It has not provided evidence that the failure rate of transformers will be same as that for other network elements, such as pylons.

Hence, we consider that AusNet Services has not demonstrated a change of VCR value would have a material impact on its transformers’ reliability outcome, nor the overall outcomes of all other network elements under this service component’s performance measures.

****The VCR value is back to the 2010 level****

The movement in VCR value was reviewed as a part of our recent Victorian Distribution Determination. We found that, for the case of AusNet Services ditribution determination, the VCR value in 2010 is almost identical to that in 2016.[[26]](#footnote-27)

Even if AusNet Services’ reasoning were proven correct, since the VCR is now back to the historical average, such adjustment to loss of supply frequency sub parameters is not required––as there should have been a previous equal and opposite adjustment for the increase in the VCR. No adjustments were made in the 2014–17 period. Hence, AusNet Services will be financially neutral for the purposes of the STPIS.

Further, most network assets have an expected life in excess of 50 years, therefore, by discounting for uncontrollable external impacts, AusNet Services' reliability level should not change abruptly with a lower VCR for planning purposes.[[27]](#footnote-28)

### Caps and floors

1. Proposed caps and floors must be calculated with reference to the proposed performance targets using a sound methodology.[[28]](#footnote-29) In the past, we have generally accepted approaches that use five years of performance data to determine a statistical distribution that best fits the data, with the caps and floors set at two standard deviations either side of the mean (if using a normal distribution), or at the 5th and 95th percentiles (if using a distribution other than the normal distribution).
2. The distribution selected to calculate the caps and floors for a particular parameter must be conceptually sound. We have established the following principles for selecting a distribution to calculate caps and floors:[[29]](#footnote-30)
* the chosen distribution should reflect any inherent skewness of the performance data.
* the distribution should not imply that impossible values are reasonably likely. For example, the distribution for an average circuit outage rate sub-parameter should not imply that values below zero per cent are reasonably likely.
* discrete distributions should be used to represent discrete data. For example, a discrete distribution such as the Poisson distribution should be used when calculating caps and floors for loss of supply sub-parameters. Continuous distributions should not be used.

Using standard deviations to set caps and floors is appropriate when a normal distribution is selected. However, when a normal distribution is not selected, the better measure to use is the percentiles. This is consistent with the EMCa's advice for the 2013 SP AusNet transmission decision.[[30]](#footnote-31)

AusNet Services chose between the Kolmogorov-Smirnov (K-S)[[31]](#footnote-32) distance statistics test or Anderson-Daring (A-D) fit statistics test[[32]](#endnote-1) to determine the best-fit distribution applied to calculate the caps and collars. In some cases, AusNet Services chose the second best-fit distribution to determine the caps and collars because it had a smaller standard deviation. Table 11‑4 shows the distributions proposed by AusNet Services for setting the caps and collars. Historically we have applied the K-S distance statistic in our regulatory determinations to calculate the caps and floors.[[33]](#footnote-33)

Table 11‑4 Caps and floors derived from our preferred method

| Parameter | Distribution | Cap (5th percentile) | CollarFloor (95th percentile) |
| --- | --- | --- | --- |
| Average circuit outage rate |  |  |  |
| Lines event rate – fault  | Erlang  | 15.9% | 35.7% |
| Transformer event rate – fault  | Rayleigh  | 4.7% | 35.8% |
| Reactive plant event rate – fault  | LogLogistic  | 21.7% | 55.7% |
| Lines event rate – forced  | Lognorm  | 12.3% | 17.3% |
| Transformer event rate – forced  | Weibull  | 6.2% | 15.4% |
| Reactive plant event rate – forced  | Erlang  | 13.4% | 44.1% |
| Loss of supply events |  |  |  |
| Number of events > than  |  |  |  |
| 0.05 system minutes per annum  | Hypergeometric  | 0 | 5 |
| Number of events > than  |  |  |  |
| 0.30 system minutes per annum  | Poisson  | 0 | 2 |

Source: AusNet Services.

We do not consider the A-D approach to be a sound methodology for calculating caps and floors. We determine that we will apply the Kolmogorov-Smirnov (K-S) fit statistic to the selection of best-fit distribution to calculate AusNet Services' caps and floors. This is consistent with our historical approach to calculating the caps and floors. The K-S distance statistic is based on the maximum difference between the sample distribution and the test distribution. As a refinement, the A-D statistic gives more weight to the tails of the distribution than the K-S test does. We consider the K-S fit statistic is to be preferred due to its simplicity, especially when there is no evidence to suggest the A-D fit statistic is more appropriate in this particular case. Further, with only 5 data points being available, we consider placing more weight at the tail end by using the A-D statistical fit to be unsound.[[34]](#footnote-34)

1. Table 11‑5 sets out the caps and floors derived from our preferred approach as discussed above.
2. Table 11‑5 Draft decision — Caps and floors and targets for 2017–2022

| Parameter | Distribution | Cap (5th percentile) | Targets | Floor (95th percentile) |
| --- | --- | --- | --- | --- |
| Average circuit outage rate |  |  |  |  |
| Lines event rate – fault  | Uniform | 0.1406 | 24.98% | 0.3525 |
| Transformer event rate – fault  | ExtValueMin | 0.0073 | 19.06% | 0.3160 |
| Reactive plant event rate – fault  | Uniform | 0.2196 | 36.00% | 0.5089 |
| Lines event rate – forced  | Normal | 0.1192 | 14.67% | 0.1742 |
| Transformer event rate – forced  | ExtValueMin | 0.0621 | 10.92% | 0.1456 |
| Reactive plant event rate – forced  | Uniform | 0.1004 | 26.86% | 0.4282 |
| Loss of supply events |  |  |  |  |
| Number of events greater than 0.05 system minutes per annum  | Poisson | 0 | 2 | 5 |
| Number of events greater than 0.30 system minutes per annum  | Poisson | 0 | 0 | 2 |
| Average outage duration | InvGauss | 3.8981 | 74.0311 | 302.3258 |

1. Source: AER analysis

## Market impact component

AusNet Services regulatory proposal submitted that the performance target to apply from April 2017 for the MIC will be based on average performance of the median five years from 2009–15.[[35]](#footnote-35)

Treatment of FCAS constraints arising from AEMO operational changes

AusNet Services wrote to the AER on 4 February 2016 to raise a material matter that had arisen since the submission of its Revenue Proposal on 31 October 2015.

This matter relates to the Australian Energy Market Operator's (AEMO) recent operational policy changes regarding frequency control ancillary services (FCAS) constraints for network outages on the Heywood interconnector and the associated impact on AusNet Services’ MIC performance. AEMO’s approach to managing system security in South Australia (SA) during outages on the Heywood interconnector changed during 2015. Previously, regulation FCAS services were locally sourced only after SA separated from the market. Now, AEMO require 35 MW of regulation FCAS to be sourced locally whenever a single contingency could result in SA becoming an island as a result of a separation event. That is, the regulation FCAS constraints will be invoked for all circumstances where a single contingency would island SA.[[36]](#footnote-36)

AusNet Services raised concerns that the new operating conditions will not be accounted for in the target for 2017–22, because the target will be based on its performance prior to AEMO’s change in FCAS policy.

There is significant uncertainty about the magnitude and the likely duration of this issue. While our estimates differ from what AusNet Services submitted–we do agree that it may be a material issue for the TNSP in the short term.

Under the STPIS (version 5) the AER has the discretion to exclude the impact of certain events from the performance measure if they fall within one of the exclusions. For the present purposes of applying the MIC, we have excluded these events under the force majeure clause on the basis that AusNet Services must comply with the new requirement and there is no evidence at this point in time to indicate that it is in a position to control the impact of those requirements upon its performance.

TNSP’s are bound by the directions of AEMO as the market operator. AEMO’s policy appears to have been implemented to address a system security situation that was previously unforeseen. This is in line with its statutory functions, relevantly “to maintain and improve system security” (s 49(1) of the NEL).

AEMO’s policy could impact materially upon a TNSP. In the short term, it may be that the TNSP cannot prevent the impact nor can it reduce the impact of the event by adopting better practices.

Given these factors, in the present circumstances it is appropriate to exclude F\_S+LREG\_0035 and F\_S+RREG\_0035) at this stage. We will review AusNet Services' ability to mitigate the impact of the policy in the annual compliance review process and may further reassess the setting of AusNet Services' targets at the end of 2017–22 regulatory control period.[[37]](#footnote-37) AusNet Services should continue to investigate practical approaches to mitigate the impact of the operational change.

The performance target to apply from April 2017 will be based on average performance of the median five years from 2009–15 are at Table 11‑6.

Table 11‑6 draft decision on AusNet Services MIC for 2017–22

| Calendar year | adj performance count |
| --- | --- |
| 2008 | 3087 |
| 2009 | 1417 |
| 2010 | 2134 |
| 2011 | 2687 |
| 2012 | 909 |
| 2013 | 745 |
| 2014 | 871 |
|  |  |
| Target (draft decision, place holder) | 1603 |
| Cap for unplanned outages | 272 |
| Dollar per dispatch interval  | $3274/DI |

Source: AER analysis

## Network capability component

We accept AusNet Services' proposed priority projects and priority project improvement targets because it is consistent with the STPIS. The total expenditure of $125,000 ($ real 2016/17) for the priority projects in 2017–22 is not greater than 1 per cent of AusNet Services' proposed average maximum allowed revenue as required by clause 5.2(b) of the STPIS. These projects were also endorsed by the transmission network planner in Victoria— the Australian Energy Market Operator.[[38]](#footnote-38)

1. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 2.2(a)(1–3). [↑](#footnote-ref-2)
2. AER, Final – Service Target Performance Incentive Scheme, October 2015, Appendix C. [↑](#footnote-ref-3)
3. AusNet Services (transmission), Regulatory proposal 2017–22, October 2015, p. 160, Hazelwood to Jeeralang 220 kV No. 4 line and South East to Heywood 275 kV No.1 and No. 2 lines. [↑](#footnote-ref-4)
4. NER, cl. 6A.4.2(a)(2). [↑](#footnote-ref-5)
5. NER, cll. 6A.5.4(a)(5), 6A.5.4(b)(5) and 6A.7.4. [↑](#footnote-ref-6)
6. AER, Final – Service Target Performance Incentive Scheme, October 2015, clause 3.2. [↑](#footnote-ref-7)
7. Six parameters include Line event rate–fault, Reactive plant event rate – fault, Lines event rate – forced, Transformer event rate –forced and Reactive plant event rate – forced. [↑](#footnote-ref-8)
8. They are the number of events greater than 0.05 system minutes per annum and the number of events greater than 0.30 system minutes per annum. [↑](#footnote-ref-9)
9. They are failure of protection system, material failure of SCADA system and incorrect operational isolation of primary or secondary equipment. [↑](#footnote-ref-10)
10. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 3.2. [↑](#footnote-ref-11)
11. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 3.2(d). [↑](#footnote-ref-12)
12. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 3.2(j). [↑](#footnote-ref-13)
13. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 3.2(k). [↑](#footnote-ref-14)
14. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 3.2(e). [↑](#footnote-ref-15)
15. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 3.2(e). [↑](#footnote-ref-16)
16. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 1.4. [↑](#footnote-ref-17)
17. NER, cl. 6A.7.4(b)(5) of the NER. [↑](#footnote-ref-18)
18. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 1.4. [↑](#footnote-ref-19)
19. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 3.2(j). [↑](#footnote-ref-20)
20. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 3.2(g). [↑](#footnote-ref-21)
21. The Loss of Supply Event Frequency sub-parameters targets were adjusted in accordance with clauses 3.2 (j) and (k) of the STPIS. [↑](#footnote-ref-22)
22. AusNet Services, Transmission Revenue Review 2017–2022, 30 October 2015, p.162. [↑](#footnote-ref-23)
23. AusNet Services, Transmission Revenue Review 2017–2022, 30 October 2015, pp.161–164. [↑](#footnote-ref-24)
24. AusNet Services, Transmission Revenue Review 2017–2022, 30 October 2015, p.162. [↑](#footnote-ref-25)
25. AusNet Services, Transmission Revenue Review 2017–2022, 30 October 2015, pp.161–164. [↑](#footnote-ref-26)
26. AER, Final Decision, AusNet Services distribution determination, 2016 to 2020, Attachment 11 – Service target performance incentive scheme, May 2016, p. 11–16. [↑](#footnote-ref-27)
27. AER, Final Decision, AusNet Services distribution determination, 2016 to 2020, Attachment 11 – Service target performance incentive scheme, May 2016, p. 11-19 [↑](#footnote-ref-28)
28. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 3.2(e). [↑](#footnote-ref-29)
29. AER, Draft decision, SP AusNet Transmission determination 2014–15 to 2016–17, August 2013, pp. 184-185. [↑](#footnote-ref-30)
30. EMCa, SP AusNet technical review, August 2013, p. 107, paragraphs 396–398. [↑](#footnote-ref-31)
31. The Kolmogorov-Smirnov test (KS-test) tries to determine if two datasets differ significantly. The Anderson-Darling (A - D) test is used to test if a sample of data came from a population with a specific distribution. It is a modification of the Kolmogorov-Smirnov (K-S) test and gives more weight to the tails than does the K-S test. [↑](#footnote-ref-32)
32. [↑](#endnote-ref-1)
33. AER, Draft decision TransGrid transmission determination 2015–16 to 2017–18, Attachment 11: Service target performance incentive scheme, November 2014, pp. 19–21. [↑](#footnote-ref-33)
34. AER, Final – Service Target Performance Incentive Scheme, October 2015, cl. 3.2(e). [↑](#footnote-ref-34)
35. Accordingly, targets, caps and floors will be determined once these data are available. [↑](#footnote-ref-35)
36. These constraints are: F\_S+LREG\_0035 and F\_S+RREG\_0035. [↑](#footnote-ref-36)
37. If AEMO’s 35 MW FCAS policy for South Australia remains in place beyond 2017–22, then it may be appropriate to establish AusNet Service's 2023–28 targets to reflect the sustained step-change in policy that had occurred. Further, the target for 2023-28 would be able to be established on actual historical information. [↑](#footnote-ref-37)
38. AEMO, Appendix 7C - AEMO's NCIPAP endorsement letter, 22 October 2015, pp. 1–2, AusNet Services, Transmission Revenue Review 2017-2022, Appendix 7B: Network Capability Incentive Parameter Action Plan (2017-22), October 2015, pp. 3–8.. [↑](#footnote-ref-38)