



Draft decision
TasNetworks transmission determination

2015-16 to 2018-19

**Attachment 11: Service target performance
incentive scheme (STPIS)**

November 2014

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Inquiries about this document should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001
Tel: (03) 9290 1444
Fax: (03) 9290 1457
Email: AERInquiry@aer.gov.au

AER reference: 53445

Note

This attachment forms part of the AER's draft decision on the transmission determination for TasNetworks' 2015–19 regulatory control period. It should be read in conjunction with other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 – maximum allowed revenue

Attachment 2 – regulatory asset base

Attachment 3 – rate of return

Attachment 4 – value of imputation credits

Attachment 5 – regulatory depreciation

Attachment 6 – capital expenditure

Attachment 7 – operating expenditure

Attachment 8 – corporate income tax

Attachment 9 – efficiency benefit sharing scheme

Attachment 10 – capital expenditure sharing scheme

Attachment 11 – service target performance incentive scheme

Attachment 12 – pricing methodology

Attachment 13 – pass through events

Attachment 14 – negotiated services

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Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AASB	Australian Accounting Standards Board
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ASRR	aggregate service revenue requirement
augex	augmentation expenditure
capex	capital expenditure
capex incentive guideline	AER, <i>Capital Expenditure Incentive Guideline for Electricity Network Service Providers</i> , November 2013
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
DRP	debt risk premium
EBSS	efficiency benefit sharing scheme
EMCa	Energy Market Consulting associates
ERP	equity risk premium
EUAA	Energy Users Association of Australia
MAR	maximum allowed revenue
MEU	Major Energy Users
MJA	Marsden Jacob Associates
MRP	market risk premium

Shortened form	Extended form
NCC	network capability component
NCIPAP	network capability incentive parameter action plan
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 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
version one of the EBSS	AER, <i>Electricity transmission network service providers: Efficiency benefit sharing scheme</i> , September 2007

Shortened form	Extended form
version two of the EBSS	AER, <i>Efficiency benefit sharing scheme for electricity network service providers</i> , November 2013
WACC	weighted average cost of capital

11 Service target performance incentive scheme (STPIS)

The STPIS provides a financial incentive to service providers to maintain and improve service performance. The STPIS aims to safeguard service quality for customers that may otherwise be affected as service providers seek out cost efficiencies at the expense of service quality.

The current version of the STPIS is version 4.1 which we published in September 2014.¹ This version replaces the previous version 4 which we had intended to apply to TasNetworks in this draft decision.² Version 4.1 includes three components: a service component, market impact component and network capability component.

The service component provides a financial incentive for service providers to improve and maintain their service performance. This balances the incentive in the regulatory framework for service providers to reduce costs at the expense of service performance. A service provider's performance is compared against the performance target for each parameter under the service component during the regulatory control period. The service provider may receive a financial bonus for service improvements, or a financial penalty for declines in service performance. The financial bonus (or penalty) is limited to 1 per cent of the service provider's MAR for the relevant calendar year.

The market impact component provides financial rewards to service providers for improvements in their performance measured against a performance target. A service provider may earn up to 2 per cent of its MAR for the relevant calendar year. Unlike the service and network capability components, the market impact component has no financial penalty. The market impact component provides an incentive to service providers to minimise the impact of transmission outages that can affect the NEM spot price. The market impact parameter measures the number of dispatch intervals when an outage of a TNSP's network results in a network outage constraint with a marginal value greater than \$10/MWh.³ The market impact parameter performance target is an average of the previous three years of performance data. Performance will be measured as a rolling average of the most recent two years of performance data.⁴ These targets will be published annually after we have conducted the annual review of a TNSP's STPIS performance.

The network capability component funds and incentivises service providers to identify and implement incremental changes that would improve the capability of the network at times when it is most needed. Except for the final year of the next regulatory control period, a TNSP will receive payment equal to 1.5 per cent of its MAR for each year of its next regulatory control period to fund the priority projects. If a TNSP achieves its priority project improvement target for each priority project, then it will receive an incentive payment of 1.5 per cent of its MAR in the final year. If it does not achieve each priority project target, then we may reduce the incentive payment in the final year. We can reduce the final payment to a maximum of – 2 per cent of MAR if the TNSP does not achieve any of its proposed priority project improvement targets.⁵

¹ AER, *Final – Service Target Performance Incentive Scheme*, September 2014. For TasNetworks, there is no difference between the application of version 4 of the STPIS which was published in December 2012 and the most recent version 4.1. The recent amendment wholly relates to Directlink.

² AER, *Framework and Approach Paper, Transend (now TasNetworks)*, January 2014, pp 5-13.

³ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, Appendix C.

⁴ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 4.2(d) and Appendix F.

⁵ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 5.3(c)

We note that our transitional decision set out how the STPIS applies during the 2014–15 transitional year.⁶ According to the transitional rules, we are required to make a corresponding adjustment in the application of the STPIS as a result of any change in maximum allowed revenue (MAR) determined for the 2015–19 regulatory control period as compared to the MAR determined in our transitional decision.⁷

11.1 Draft decision

We will apply all components of version 4.1 of the STPIS to TasNetworks for the 2015–19 regulatory control period. We propose to apply the STPIS to TasNetworks in accordance with the details set out below.

Service component

We accept TasNetworks' proposed performance targets for the service component because they comply with the requirements in clause 3.2 of the STPIS.⁸ However, we do not accept TasNetworks' proposed caps and collars⁹ as the values of the parameters are not based on a sound methodology and thus do not satisfy clause 3.2(e) of the STPIS. We consider the caps and collars calculated using our principle based approach as discussed in section 11.4 will result in a materially stronger incentive to improve and maintain service performance. Table 11.1 sets out our draft decision on TasNetworks' service component parameter values.

Table 11.1 AER's draft decision on TasNetworks' parameter values and weightings for the service component of the STPIS

	Collar	Target	Cap	Weighting (% of MAR)
Average circuit outage rate				
Line outage – fault	64.59%	31.17%	13.39%	0.2
Transformer outage – fault	17.28%	11.60%	7.03%	0.2
Reactive plant – fault	9.99%	3.33%	0.17%	0.1
Line outage – forced outage	17.62%	9.99%	2.67%	0.0
Transformer outage – forced outage	4.37%	2.82%	1.28%	0.0
Reactive plant – forced outage	32.82%	14.00%	1.07%	0.0
Loss of supply event frequency				

⁶ For the 2014–15 transitional regulatory control period, we applied version 2 of the Service Component, version 4 of the Market Impact Component (MIC) and version 4 of the Network Capability Component (NCC) to TasNetworks.

⁷ Clauses 11.56.4 (c), (h) and (i) of the NER.

⁸ TasNetworks noted its Reset RIN templates submitted on 2 June 2014 included incorrect data for the Material failure of SCADA parameter, which had impact on the proposed target, cap and collar. It submitted revised data on 17 July 2014. We accepted the revised data and set the performance targets, caps and collars based on the revised data.

⁹ The cap specifies the level of performance that results in a TNSP receiving the maximum financial reward attributed to a parameter; the collar specifies the level for receiving the maximum financial penalty.

	Collar	Target	Cap	Weighting (% of MAR)
>0.1 system minutes	11	10	8	0.15
>1.0 system minutes	5	3	0	0.15
Average outage duration				
Average outage duration	169.76	111.52	63.99	0.2
Proper operation of equipment				
Failure of protection system	14	9	5	0.0
Material failure of SCADA	25	8	0	0.0
Incorrect operational isolation of primary or secondary equipment	8	4	1	0.0

Sources: TasNetworks, *Revenue proposal regulatory control period 1 July 2014 – 30 June 2019*, p. 123; TasNetworks, *Further changes to TasNetworks (TasNetworks) Reset RIN templates*, 17 July 2014; AER analysis.

Market impact component

As foreshadowed in our transitional transmission determination for TasNetworks¹⁰, we have validated and confirmed the 2011, 2012 and 2013 market impact performance data which was included within TasNetworks' 2015–19 revenue proposal. The validation of this performance data allows us to calculate TasNetworks' market impact parameter performance target for 2014, being the average of its 2011, 2012 and 2013 annual performance. TasNetworks' market impact parameter performance targets that will apply within the 2015–19 regulatory control period will be published annually as part of our service standards compliance reporting process.¹¹

As a result of our audit, we made adjustments to the market impact performance values submitted by TasNetworks. TasNetworks' 2011 performance remained at 729 dispatch intervals, however, we adjusted its 2012 performance from 1406 to 1429 dispatch intervals and its 2013 performance from 1787 to 1795 dispatch intervals. Consequently, TasNetworks' market impact parameter performance target for 2014 is 1318 dispatch intervals.¹²

Network capability component

We do not accept TasNetworks' proposed priority projects and improvement targets set out in its NCIPAP because the plan does not comply with the requirements in clause 5.2 of the STPIS. Specifically, TasNetworks' proposed total expenditure of the priority projects is greater than 1 per cent of its maximum allowed revenue proposed in its regulatory proposal, which is not consistent with clause 5.2(b) of the STPIS which only allows for up to 1 per cent of proposed MAR.

¹⁰ AER, *Transitional transmission determination 2014–15*, March 2014, pg. 33.

¹¹ Our annual service standards compliance reports are available at <http://www.aer.gov.au/node/484>.

¹² Regarding the target for the last half of 2014, we pro-rate the performance by measuring the average 2013/2014 performance against the average 2011/2012/2013 target and then multiply by 0.5.

We have removed two projects that do not improve network capability and these were already reflected in TasNetworks' base year operating expenditure. We have also removed an additional five projects according to AEMO's project ranking. Those projects have the lowest project ranking and the longest payback period, and therefore the lowest value for money provided for electricity customers.¹³ As such, we accept a total of 18 priority projects proposed by TasNetworks, which equate to 1 per cent of TasNetworks' proposed MAR. Table 11.2 sets out our draft decision on TasNetworks' proposed priority projects, total costs and project ranking.

Table 11.2 AER's draft decision on TasNetworks' network capability priority projects (\$ 000s, 2013–14)

Ranking	Project	Description	Improvement target	Capex	Opex	Total
1	All transmission lines that are currently controlled through AEMO's generation dispatch	Fifteen Minutes Transient Rating for Transmission Lines	<p>a) An additional line capacity of 5 to 20 % can be achieved depending upon the conductor properties, transmission line construction (stringing) and the ambient conditions.</p> <p>b) The scheme is found to provide an additional capacity of 10 to 20 % levels during low wind conditions. This will provide boost to transmission capacity during adverse high temperature and low wind conditions.</p> <p>c) The scheme requires no additional control mechanisms to regulate the line flow and can use AEMO's existing generation dispatch engine to reduce the overload.</p> <p>d) The same computation methodology can be extended to provide two minute dynamic ratings that are required for future NCSPS schemes.</p>	40	0	40
2	Knights Road Substation	Dynamic rating of Knights Road Substation supply transformers	<p>Defer need to expend substantial capital to augment transformers for several years until station load exceeds dynamic rating.</p> <p>Ratings of transformers are made using weighted ambient of 20degC. Possibility of using DRMCC at sites such as Knights Road, where load is over firm name plate rating, and utilise actual winter peak ambient (about 10DegC) which would increase load rating of transformers.</p>	150	16	166
3	██████████ Substation ¹⁴	Dynamic rating of substation supply	Enable a customer to continue plant production for longer time in the event of loss of a transformer. ¹⁵	180	20	200

¹³ AEMO, *AEMO endorsement of Transend Network Capability Incentive Parameter Action Plan (NCIPAP) for 1 July 2014 – 30 June 2019*, 4 February 2014.

¹⁴ Substation location may reveal confidential customer information. This information is included in confidential appendix.

¹⁵ Confidential information regarding TasNetworks' customer's information is included in confidential appendix.

Ranking	Project	Description	Improvement target	Capex	Opex	Total
		transformers				
4	Farrell-Que-Savage River-Hampshire, Farrell-Rosebery-Queenstown, Norwood-Scottsdale-Derby and Lindisfarne-Sorell-Triabunna 110 kV transmission circuits	Installation of new line fault indicators	Reduced fault outage restoration times for customers supplied from the 110 kV transmission circuits listed above.	230	19	249
5	All transmission circuits whose flow is controlled by AEMO constraint equations	Review and optimisation of Operational Margins for TasNetworks limit equations	The deliverable from this project will be the submission of an updated TasNetworks operational margins paper to AEMO for implementation.	0	35	35
6	Palmerston-Avoca and Knights Road-Huon River-Kermantie 110kV transmission circuits	Line fault indicator (LFI) remote communications	Reduced fault outage durations for customers supplied from Avoca, St Marys, Kermantie and Huon River substations	60	0	60
7	Basslink Tasmania-Victoria interconnector	George Town automatic voltage control scheme (GTAVCS) 2.0	Improved, automated voltage control at George Town 220 kV bus at times of low fault level and Basslink export levels 300 MW or higher.	480	0	480
8	All 220/110kV network transformers	Dynamic rating of all 220/110 kV network transformers	Dynamic ratings (and life expectancy) of network transformers will be continuously monitored and reported.	900	58	958
9	Sheffield – Devonport transmission circuit	Substandard spans verification and rectification	Completion of LIDAR survey for circuits of interest. Rectification of substandard clearances. Increase in line design temperature where possible.	279	0	279
10	Waddamana-Palmerston No 2 110kV transmission circuit	Restrung P1 bay conductor at Palmerston Substation	Increase winter rating limit of Waddamana-Palmerston No.2 110 kV transmission circuit to 800 A and summer rating to 725 A	50	0	50
11	Sheffield-George Town 220 kV transmission line	Replace disconnectors, CT and bay conductor to achieve line rating increase and reduce market constraints	Replace present limiting terminal equipment at Sheffield Substation on the SH-GT 1 and 2 220 kV transmission circuits to increase their circuit terminal ratings to 2000A to reduce market constraints.	1,120	0	1120
12	Weather stations at Creek Road, Chapel Street, Devonport, Trevallyn, Hadspen,	Weather station telemetry	Relocation and/or upgrade of weather station assets at seven sites.	1050	0	1050

Ranking	Project	Description	Improvement target	Capex	Opex	Total
	Sheffield, and Farrell substations	renewal				
13	Liapootah-Waddamana-Palmerston No 1, Liapootah-Cluny-Repulse-Chapel Street No 1, Liapootah-Chapel Street No 2 and George Town-Comalco No 4 & 5 220 kV transmission circuits. Hadspen-Norwood No 1 & 2 110 kV transmission circuits.	Upgrade of dead end fittings on selected transmission lines	Increased power transfer capability.	840	0	840
14	Farrell Substation	Installation of second 220 kV bus coupler circuit breaker at Farrell Substation	Improve security of supply to all 220 kV connections at Farrell Substation	665	120	785
15	Palmerston-Avoca transmission circuit	Substandard spans verification and rectification	Completion of LIDAR survey for circuits of interest. Rectification of substandard clearances. Increase in line design temperature where possible.	926	0	926
16	Castle Forbes Bay Tee Switching Station	Castle Forbes Bay Tee Switching Station disconnecter upgrade	<p>Reduce the number of planned outages unnecessarily affecting customers supplied from Kermandie Substation. It is estimated that this could prevent at least one planned outage per year from impacting on customers supplied from Kermandie Substation.</p> <p>Reduce the duration of unplanned outages for customers supplied from Kermandie and Huon River substations, where the cause of the outage is on the Huon River Spur. In the event of wind borne debris causing a sustained fault outage on the Huon River Spur, it is reasonable to expect that the supply restoration time for customers supplied from Kermandie Substation could be reduced by up to 90 minutes.</p>	250	0	250
17	Sheffield-Farrell 1 & 2, Farrell-Reece 1 & 2, Farrell-John Butters 220kV and Farrell-Rosebery-Queenstown 110 kV transmission circuits	Transmission line surge diverter installation and tower footing earthing improvements	Reduced unplanned outage frequency due to lightning.	550	0	550
18	Savage River Spur transmission circuit	Substandard spans	Completion of LIDAR survey for circuits of interest. Rectification of	1,389	0	1,389

Ranking	Project	Description	Improvement target	Capex	Opex	Total
		verification and rectification	substandard clearances. Increase in line design temperature where possible.			
Total				9,159	268	9,427

Source: TasNetworks, *Appendix 1 – Network capability incentive parameter action plan*, 2 June 2014. AEMO, *AEMO endorsement of TasNetworks Network Capability Incentive Parameter Action Plan (NCIPAP) for 1 July 2014 – 30 June 2019*, 4 February 2014. TasNetworks, *NCIPAP Overview Sheet – Low spans breakdown*, 31 July 2014.

11.2 TasNetworks' proposal

TasNetworks proposed to apply version 4 of the STPIS in its entirety for the 2015–19 regulatory control period.¹⁶

Service component

TasNetworks proposed to set the target as the historical average performance for each sub-parameter according to the method specified in the STPIS. It calculated caps and collars using 1.5 standard deviations as it found the caps and collars derived from two standard deviations resulted in some collars with a negative value.¹⁷

Table 11.3 sets out TasNetworks' proposed performance targets, caps and collars for each parameter under the service component of the STPIS.

Table 11.3 TasNetworks' proposed parameter values for the service component of the STPIS

	Collar	Target	Cap	Weighting (% of MAR)
Average circuit outage rate				
Line outage – fault	53%	31%	10%	0.2
Transformer outage – fault	17%	12%	6%	0.2
Reactive plant – fault	15%	3%	0%	0.1
Line outage – forced	18%	10%	2%	0.0
Transformer outage – forced	5%	3%	1%	0.0
Reactive plant – forced	33%	14%	0%	0.0
Loss of supply event frequency				
>0.1 system minutes	12	10	8	0.15
>1.0 system minutes	6	3	0	0.15
Average outage duration				
Average outage duration	165	112	58	0.2

¹⁶ TasNetworks, *Revenue proposal 2014–19*, p.122.

¹⁷ TasNetworks, *Revenue proposal 2014–19*, p.123.

	Collar	Target	Cap	Weighting (% of MAR)
Proper operation of equipment				
Failure of protection system	15	9	4	0.0
Material failure of SCADA	16	8	0	0.0
Incorrect operational isolation of primary or secondary equipment	6	4	2	0.0

Sources: TasNetworks, *Revenue proposal regulatory control period 1 July 2014 – 30 June 2019*, p. 123; TasNetworks, *Further changes to TasNetworks (TasNetworks) Reset RIN templates*, 17 July 2014

Market impact component

TasNetworks submitted 2011, 2012 and 2013 market impact performance data within its 2015–19 revenue proposal for validation. TasNetworks' proposed performance values for 2011, 2012 and 2013 are 729, 1406 and 1787 dispatch intervals respectively.¹⁸

TasNetworks acknowledged that the market impact parameter performance targets that will apply within the 2015–19 regulatory control period will be published by us as part of our annual service standards compliance reporting process.¹⁹

Network capability component

TasNetworks proposed 21 projects totalling \$15.39 million over the 2014–19 period to improve the capability of its network.²⁰ TasNetworks has worked collaboratively with AEMO in the development of this project plan before submitting its revenue proposal. Based on its assessment, AEMO endorses 19 of the 21 projects proposed by TasNetworks under the NCIPAP. The two projects not endorsed by AEMO currently operate across TasNetworks' network and do not provide new capability.²¹

We issued an information request to TasNetworks on 18 July 2014 asking it to disaggregate the total expenditure for priority project 18 (project number 33) into individual projects and prioritise them. This allows us to remove lower priority projects and reduce the total expenditure of NCC projects to 1 per cent of TasNetworks' proposed MAR as required by the STPIS. TasNetworks subsequently disaggregated priority project 18 (project number 33) into 5 separate projects. The revised proposed projects are summarised in Table 11.4 below.

Table 11.4 TasNetworks' proposed network capability priority projects (\$ 000s, 2013–14)

Project Ranking	Project number	Project circuit / injection point	Total cost
1	6	Continued operation & maintenance of existing transmission line dynamic rating systems – whole network	800
2	7	Maintenance of prescribed special protection schemes – Various circuits and connection sites across the network	150

¹⁸ TasNetworks, *Revenue proposal 2014–19*, Regulatory Information Notice Templates - STPIS MIC Workbook 2011, 2012 & 2013.

¹⁹ TasNetworks, *Revenue proposal 2014–19*, p. 124.

²⁰ TasNetworks, *NCIPAP Overview Sheet – Final – AEMO copy*, 31 January 2014

²¹ AEMO, *AEMO Endorsement of Transend Network Capability Incentive Parameter Action Plan for 1 July 2014 – 30 June 2019*, 4 February 2014.

Project Ranking	Project number	Project circuit / injection point	Total cost
3	24	Fifteen minute transient ratings for transmission lines - All transmission lines that are currently controlled through AEMO's generation dispatch	40
4	26	Dynamic rating of Knights Road supply transformers - Knights Road Substation	166
5	18	Dynamic rating of [REDACTED] Substation supply transformers - [REDACTED] Substation ²²	200
6	12	Installation of new line fault indicators - Farrell-Que-Savage River-Hampshire, Farrell-Rosebery-Queenstown, Norwood-Scottsdale-Derby and Lindisfarne-Sorell-Triabunna 110 kV transmission circuits	249
7	14	Review and optimisation of Operational Margins for TasNetworks limit equations - All transmission circuits whose flow is controlled by AEMO constraint equations	35
8	2	Line fault indicator (LFI) remote communications - Palmerston-Avooca and Knights Road-Huon River-Kermadie 110kV transmission circuits	60
9	31	George Town automatic voltage control scheme (GTAVCS) 2.0 - Basslink Tasmania-Victoria interconnector	480
10	19	Dynamic rating of all 220/110 kV network transformers - All 220/110kV network transformers	958
11	33.1	Substandard spans verification and rectification – Sheffield – Devonport transmission circuit	279
12	28	Restraining P1 bay conductor at Palmerston Substation - Waddamana-Palmerston No 2 110kV transmission circuit	50
13	34	Replace disconnectors, CT and bay conductor to achieve line rating increase and reduce market constraints - Sheffield-George Town 220 kV transmission line	1120
14	32	Weather station telemetry renewal - Weather stations at Creek Road, Chapel Street, Devonport, Trevallyn, Hadspen, Sheffield, and Farrell substations	1050
15	11	Upgrade of dead end fittings on selected transmission lines - Liapootah-Waddamana-Palmerston No 1, Liapootah-Cluny-Repulse-Chapel Street No 1, Liapootah-Chapel Street No 2 and George Town-Comalco No 4 & 5 220 kV transmission circuits. Hadspen-Norwood No 1 & 2 110 kV transmission circuits.	840
16	16	Installation of second 220 kV bus coupler circuit breaker at Farrell Substation - Farrell Substation	785
17	33.2	Substandard spans verification and rectification – Palmerston-Avooca transmission circuit	926
18	1	Castle Forbes Bay Tee Switching Station disconnector upgrade - Castle Forbes Bay Tee Switching Station	250
19	3	Transmission line surge diverter installation and tower footing earthing improvements - Sheffield-Farrell 1 & 2, Farrell-Reece 1 & 2, Farrell-John Butters 220kV and Farrell-Rosebery-Queenstown 110 kV transmission circuits	550

²² Refer to footnote 14. Substation location may reveal confidential customer information. This information is included in confidential appendix.

Project Ranking	Project number	Project circuit / injection point	Total cost
20	33.3	Substandard spans verification and rectification – Savage River Spur transmission circuit	1389
21	33.4	Substandard spans verification and rectification – Knights Road-Kermandie transmission circuit	291
22	21	Installation of modern fault location functionality for more accurate fault location on the identified circuits – Palmerston-Hadspen No.1 & 2, Palmerston-Sheffield and Sheffield-Burnie No 1 220 kV transmission circuits	134
23	17	Install a second 110 kV bus coupler dead tank circuit breaker in series with the existing bus coupler circuit breaker – Chapel Street Substation	450
24	9	George Town Substation replacement of 220 kV disconnectors with remotely operable disconnectors – George Town Substation	3300
25	33.5	Substandard spans verification and rectification – Wesley Vale Spur transmission circuit	270
Total			14,822

Source: TasNetworks, *Appendix 1 – Network capability incentive parameter action plan*, 2 June 2014; TasNetworks, *NCIPAP Overview Sheet – Low spans breakdown*, 31 July 2014.

11.3 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.²³ 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).²⁴ As set out above, we have assessed TasNetwork's proposal against the requirements of the STPIS version 4.1.

Service component

We assessed whether TasNetworks' proposed performance targets, caps and collars comply with the STPIS requirements for:²⁵

- average circuit outage rate, with six sub parameters²⁶
- loss of supply event frequency, with two loss of supply event sub-parameters²⁷
- average outage duration

²³ NER, clause 6A.4.2(a)(2).

²⁴ NER, clauses 6A.5.4(a)(5), 6A.5.4(b)(5) and 6A.7.4.

²⁵ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 3.2.

²⁶ Six parameters include line outage – fault; transformer outage – fault; reactive plant – fault; line outage – forced outage; transformer outage – forced outage; and reactive plant – forced outage.

²⁷ They are frequency of events when loss of supply exceeds 0.10 system minutes and frequency of events when loss of supply exceeds 1.00 system minutes.

- proper operation of equipment, with three sub-parameters²⁸:

We must accept TasNetworks' 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.²⁹ We measure actual performance for the 'average circuit outage rate' and 'average outage duration' parameters on a two year rolling average basis in accordance with appendix E of the STPIS.

We assessed TasNetworks' service component proposal against the requirements of the STPIS — that is, whether:

- TasNetworks' data recording systems and processes produce accurate and reliable data and whether the data is recorded consistently based on the parameter definitions under the STPIS³⁰
- the proposed performance targets were equal to the average of the most recent five years of performance data³¹
- any adjustments to the proposed targets are warranted and reasonable³²
- TasNetworks used a sound methodology, with reference to the performance target, to calculate the proposed caps and collars,³³ and
- any adjustment to a performance target was applied to the cap and collar of that parameter.³⁴

We assessed the distributions used by TasNetworks to calculate caps and collars to determine whether a sound methodology was used.

Market impact component

We have audited TasNetworks' 2011, 2012 and 2013 market impact performance data using the following approach:

- independently calculating (using AEMO data) the number of dispatch intervals related to binding outage constraints and validating that the outages were attributable to the TNSP
- searching AEMO Market Notices to confirm the validity of TNSP's classification of constraints as outage related, and
- cross-checking network outage request information provided by AEMO to confirm the classification of constraints as outage related.

Network capability component

As part of its revenue proposal, TasNetworks submitted a NCIPAP.³⁵ This plan must identify the reason for limits on each transmission circuit and injection points in the network. It must also list proposed priority projects and project improvement targets that TasNetworks will undertake in the 2014–19 period (including the 2014–15 transitional year) to improve the capability of the transmission

²⁸ They are failure of protection system, material failure of SCADA system and incorrect operational isolation of primary or secondary equipment.

²⁹ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 3.2.

³⁰ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 3.2(d).

³¹ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 3.2(g).

³² AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 3.2(k).

³³ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 3.2(e).

³⁴ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 3.2(e).

³⁵ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 5.2(b).

circuits and injection points. We must approve a priority project if it is consistent with the requirements of the STPIS.³⁶

We assessed TasNetworks' network capability component proposal against the requirements under clause 5.2 of the STPIS — that is, whether TasNetworks' NCIPAP has identified:

- for every transmission circuit or injection point on its network, the reason for the limit for each transmission circuit or injection point
- the total operational and capital cost of each priority project
- the proposed value of the priority project improvement target of each priority project
- the current value of the limit for the transmission circuits and/or injection points which the priority project improvement target is seeking to improve, and
- the ranking of the priority projects in descending order based on the likely benefit of the priority project on customers or wholesale market outcomes
- Clause 5.2(b) of the STPIS also requires the average total expenditure of the priority projects outlined in each regulatory year must not be greater than 1 per cent of the service provider's average maximum allowed revenue proposed in its revenue proposal for the regulatory control period.
- The priority project improvement target must result in a material benefit and the proposed priority project capital expenditure needs to meet the definition of minor capital expenditure for the purposes of the NCIPAP. The cost of the proposed priority projects must not be included in the total forecast operating or capital expenditure by the service provider in its revenue proposal. The service providers must consult with the AEMO prior to submitting its NCIPAP.
- We also considered information provided by AEMO in determining the benefits of the proposed priority project improvement targets and whether the net benefit of each project resulted in a material benefit.³⁷

11.3.1 Interrelationships

The NER requires the STPIS to take into account any other incentives provided for in the NER that Service providers have to minimise capital or operating expenditure.³⁸ 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.³⁹

The STPIS allows us to adjust the performance targets of the service component for the expected effects on the service provider's performance from any increases or decreases in the volume of capital works planned during the regulatory control period.⁴⁰ We consider planned reliability improvement works in setting the performance targets of the service component.

³⁶ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 5.2.

³⁷ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 5.2(c).

³⁸ Clause 6A.7.4(b)(5) of the NER.

³⁹ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 1.4.

⁴⁰ Clause 3.2(k) of the STPIS

11.4 Reasons for draft decision

The following section sets out our considerations in applying the STPIS to TasNetworks for the 2015–19 regulatory control period.

Service component

TasNetworks is subject to version 4.1 of the STPIS for the 2015-2019 regulatory control period. The new version includes a parameter called 'average circuit outage rate' introduced in version 4 of the STPIS. This parameter replaced the 'transmission circuit availability' parameter under previous versions of the STPIS.

Performance targets

Performance targets must equal the service provider'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.⁴¹ We generally approve performance targets that are the arithmetic mean of the past five years' performance data. TasNetworks followed this approach for its proposed performance targets.

The performance targets, caps and collars proposed by TasNetworks were rounded to the nearest integer. We consider average circuit outage rate sub-parameters and average outage duration should not be rounded to the nearest integer as they are measured in outage rate and minutes respectively, which does not require the rounding to the whole number.⁴² These are different to the loss of supply event frequency and proper operation of equipment sub-parameters, which are measured in number of events and cannot take decimal values. We have expressed our draft decision for average circuit outage rate sub-parameters and average outage duration to two decimal points, consistent with our draft decisions for TransGrid and Directlink.⁴³

The MEU submitted that the historical performance was based on a period of high replacement and TasNetworks is likely to achieve better service performance through the NCIPAP process. The MEU suggested that there must be a balancing of the impact of the increased replacement capital expenditure and the NCIPAP on the service performance targets.⁴⁴ Hydro Tasmania noted TasNetworks' recent capital upgrade works would improve service reliability and therefore the targets should not be simply based on historical averages.⁴⁵

Clause 3.2(h) or (k) of the STPIS allow us to set performance targets based on different period and make reasonable adjustment to the performance targets. As we are funding TasNetworks to maintain its current reliability performance and have removed expenditure that is associated with performance improvement. Further, the STPIS is an incentive scheme, TasNetworks can only retain rewards for sustained and continuous improvements. Once improvements are made, the performance targets will be tightened in future years. Therefore, we consider it reasonable to set TasNetworks' performance targets based on its average performance history over the past five years without adjustment.

⁴¹ AER, *Final – Service Target Performance Incentive Scheme, September 2014*, clause 3.2(g).

⁴² AER, *Final – Service Target Performance Incentive Scheme, September 2014*, Appendix A, Service component - performance incentive scheme parameters - standard definitions, Parameter 1 to 4

⁴³ AER, *Draft transmission decision TransGrid 2015–16 to 2017–18*, November 2014, attachment 13; AER, *Draft transmission decision Directlink 2015–16 to 2019–20*, November 2014, attachment 13.

⁴⁴ MEU, *Submission on Transend's Revenue Proposal*, August 2014, p. 64.

⁴⁵ Hydro Tasmania, *Submission to Tasmanian Transmission Revenue Proposal*, 8 August 2014, p.3.

Caps and collars

Proposed caps and collars must be calculated with reference to the proposed performance targets using a sound methodology.⁴⁶ In the past, we have generally accepted approaches that use five years of performance data to derive a statistical distribution, with the caps and collars 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).

The distribution selected to calculate the caps and collars for a particular parameter must be conceptually sound. The following principles should be applied when selecting a distribution to calculate caps and collars:

- 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 collars for loss of supply sub-parameters. Continuous distributions should not be used.

Using standard deviations to set caps and collars 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.⁴⁷

TasNetworks has not attempted to fit a statistical distribution to five years of performance data. It calculated standard deviation from the five data points and derived caps and collars using 1.5 standard deviations as it found 2 standard deviations resulted in some collars with negative values.⁴⁸ The MEU supported TasNetworks' approach of using 1.5 standard deviations to set the caps and collars.⁴⁹

We do not consider the caps and collars calculated based on this approach is sound. We have applied the 5th and 95th percentiles rather than 2 standard deviations from the mean as the derived distributions are not normal distributions. If the collar was set at a level that is closer to the performance target, the service provider would receive the maximum penalty once performance degraded to that level. There would then be no incentive for the service provider to prevent or mitigate events that would further affect service performance. A collar set at the 95th percentile (or two standard deviations for a normal distribution) provides an incentive to prevent or mitigate events when performance has degraded below the 1.5 stand deviation level, as the service provider may still be able to avoid the maximum penalty. This logic similarly applies for a cap. As such, we consider it reasonable to set the collars and caps at the 5th and 95th percentile for asymmetric distributions or 2 standard deviations for normal distributions.

Table 11.5 sets out the caps and collars derived from our preferred approach as discussed above. We consider our approach is conceptually sound and our calculated caps and collars provide a materially stronger incentive for TasNetworks to improve and maintain its service performance.

⁴⁶ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 3.2(e).

⁴⁷ EMCa, *SP AusNet technical review*, August 2013, p. 107, paragraph 396–8.

⁴⁸ TasNetworks, *Revenue Proposal 2014–19*, May 2014, p.123.

⁴⁹ MEU, *Submission on Transend's Revenue Proposal*, August 2014, p.63.

Table 11.5 Caps and collars derived from our preferred method

Parameter	Distribution	Cap (5th percentile)	Collar (95th percentile)
Average circuit outage rate			
Line outage – fault	LogLogistic	13.39%	64.59%
Transformer – fault	Pearson6	7.03%	17.28%
Reactive plant – fault	Exponential	0.17%	9.99%
Line outage – forced	Triangular	2.67%	17.62%
Transformer outage – forced	Weibull ⁵⁰	1.28%	4.37%
Reactive plant – forced	Triangular	1.07%	32.82%
Loss of supply events			
> 0.1 system minutes	IntUniform	8	11
>1.0 system minutes	Poisson	0	5
Average outage duration			
Average outage duration	Gamma	63.99	169.76
Proper operation of equipment			
Failure of protection system	Poisson	5	14
Material failure of SCADA	Geometric	0	25
Incorrect operational isolation of primary or secondary equipment	Poisson	1	8

Source: AER analysis

Market impact component

Our audit of TasNetworks' 2011, 2012 and 2013 market impact performance data resulted in a number of adjustments. These adjustments are show in Table 11.6.

Table 11.6 AER adjustments to TasNetworks' market impact component performance data

Calendar year	Constraint	Adjustment	Reasons for adjustment
2012	T>T-X_TUTA	+23	Include these in count under version 4/4.1 (as they related to planned outage). Line outage due to HydroTas transformer circuit breaker work (to energise new 110kV CB). NB. Tarra to Tunga 2 lines are prescribed assets.

⁵⁰ Although BetaGeneral distribution provides the lowest K-S distance statistic, it lacks A-D convergence as it requires 4 parameters and we only have 5 observations. We used Weibull distribution instead as it provides the second lowest K-S distance statistic.

Calendar year	Constraint	Adjustment	Reasons for adjustment
2013	F_T++CSGO_TG_R6	+8	Marked by TasNetworks as a generator request, this was related to meter testing (the actual meters are at the substation – Tas distribution network). The testing was done by a HydroTas subsidiary, who requested TasNetwork for the outage. The responsibility is on the TNSP to schedule the time of the outage, so the proposed times are to be included in the final count.

Source: TasNetworks, Response to AER, 10 October 2014.

Given the above adjustments, TasNetworks' 2011 performance remained at 729 dispatch intervals, however, we adjusted its 2012 performance from 1406 to 1429 dispatch intervals and its 2013 performance from 1787 to 1795 dispatch intervals. In arriving at this revision, we continuously engaged with TasNetworks.⁵¹ Consequently, TasNetworks' market impact performance target for 2014 is 1318 dispatch intervals.

Network capability component

We do not accept TasNetworks' proposed priority projects and improvement targets set out in its NCIPAP because they do not comply with the requirements in clause 5.2 of the STPIS. Specifically, TasNetworks' proposed total expenditure of the priority projects is greater than 1 per cent of its maximum allowed revenue proposed in its regulatory proposal. This is not consistent with clause 5.2(b) of the STPIS which only allows for up to 1 per cent of proposed MAR.

In the transitional decision, TasNetworks proposed 21 priority projects. We have removed 5 projects and accepted a total of 16 priority projects proposed by TasNetworks, such that the total expenditure of the accepted priority projects is 1 per cent of the proposed MAR.⁵² TasNetworks proposed lower MAR in its 2015–19 regulatory proposal and as such, we need to remove further NCIPAP projects to satisfy clause 5.2(b) of the STPIS. TasNetworks disaggregated priority project 18 (project number 33) into 5 separate projects in order for us to remove additional lower priority projects and reduce the total expenditure of NCC projects to 1 per cent of TasNetworks' proposed MAR. As a result, our draft decision is to remove 7 projects from TasNetworks' amended 25 projects and accept the remaining 18 priority projects. This is discussed in detail below.

Consistent with our transitional decision, we have removed two proposed projects (the continued operation and maintenance of existing transmission line dynamic rating systems - the whole network, and maintenance of prescribed special protection schemes – various circuits and connection sites across the network) from TasNetworks' proposed NCIPAP.⁵³ While this expenditure to improve the network capability represents good industry practice, the scheme only allows for NCC projects that improve network capability. The two proposed projects that we have removed instead relate to the continued operation and maintenance of existing network capability. Those projects do not improve, through operational and/or minor capital expenditure, the network capability for some of the circuits or injection points, as required under the scheme. Those projects also have not been endorsed by the AEMO.

⁵¹ AER emails to TasNetworks dated 29 August 2014 and 22 September 2014, TasNetworks email to AER dated 10 October 2014 and AER letter to TasNetworks dated 17 October 2014.

⁵² AER, *TransGrid, Transend transitional transmission determinations 2014–15*, March 2014, pp.35-37.

⁵³ AER, *TransGrid, Transend transitional transmission determinations 2014–15*, March 2014, pp.35-36.

Excluding the above-mentioned two projects from the NCIPAP reduces the total expenditure to around 1.5 per cent of TasNetworks' proposed MAR in the regulatory proposal, which is still above the 1 per cent of its proposed MAR as required by the STPIS. As a result we have also removed three additional projects, consistent with our transitional decision, as detailed below:⁵⁴

- Installation of modern fault location functionality for more accurate fault location on the identified circuits - Palmerston-Hadspen No 1 & 2, Palmerston-Sheffield and Sheffield-Burnie No 1 220 kV transmission circuits),
- Install a second 110 kV bus coupler dead tank circuit breaker in series with the existing bus coupler circuit breaker - Chapel Street Substation),
- George Town Substation replacement of 220 kV disconnectors with remotely operable disconnectors).

We have removed those projects according to AEMO's project ranking. Those projects have the lowest project ranking and the longest payback period, and therefore the lowest value for money provided for electricity customers.⁵⁵

The proposed priority project 18 (project number 33, substandard spans verification and rectification) has a total expenditure of \$3.72 million and involves programs for multiple transmission circuits. We issued an information request to TasNetworks on 18 July 2014 asking it to disaggregate the total expenditure for this project into individual projects and prioritise them. This allows us to remove additional lower priority projects and reduce the total expenditure of NCC projects to 1 per cent of TasNetworks' proposed MAR as required by the STPIS.

TasNetworks amended the previously submitted NCIPAP Overview sheet to disaggregate priority project 18 (project number 33) into five separate projects. It also prioritised those projects relative to other projects on the basis of the annualised net market benefit. Upon reviewing the amended NCIPAP Overview sheet, we removed two additional projects that were disaggregated from the priority project 18 (project number 33) as they have the lowest project ranking and lowest annualised net market benefit.⁵⁶

- Substandard spans verification and rectification – Knights Road-Kermandie transmission circuit
- Substandard spans verification and rectification – Wesley Vale Spur transmission circuit

We accept the remaining 18 proposed priority projects and priority project improvement targets, as submitted on 31 July 2014. The total cost of those 18 projects equates to 1 per cent of TasNetworks' proposed MAR, which satisfies the STPIS requirement. We consider that TasNetworks in consultation with AEMO, undertook a robust process to identify network constraints. Based on AEMO's assessment and our review of TasNetworks' proposal, we accept those 18 proposed priority projects and priority project improvement targets are consistent with the STPIS as they will lead to a material benefit.⁵⁷ The accepted priority project rankings and targets are set out in Table 11.2.

⁵⁴ AER, *TransGrid, Transend transitional transmission determinations 2014–15*, March 2014, p. 36.

⁵⁵ AEMO, *AEMO endorsement of Transend Network Capability Incentive Parameter Action Plan (NCIPAP) for 1 July 2014 – 30 June 2019*, 4 February 2014.

⁵⁶ TasNetworks, *NCIPAP Overview Sheet - Low spans breakdown*, 31 July 2014

⁵⁷ AER, *Final – Service Target Performance Incentive Scheme*, September 2014, clause 5.2.

TasNetworks submitted that any projects not funded under NCC due to lower MAR should be considered for ex ante expenditure allowance as they all provide a customer benefit.⁵⁸ We note the cost of the proposed NCC projects must not be included in the total forecast operating or capital expenditure proposed by the TNSP in its revenue proposal to meet the operating and capital expenditure objectives under clause 6A.6.6 or 6A.6.7 of the NER.⁵⁹ As such, we do not need to assess them as a part of operating expenditure allowance. Nor do we need to assess them for capital expenditure allowance.

The MEU submitted that NCIPAP projects are no different to normal capital expenditure projects and there is no reason to incentivise such projects.⁶⁰ However, we consider that given the information asymmetry, we consider these projects would not be identified in the absence of the NCC. They have only been identified as a result of examination of network limits required by the NCC, and have been endorsed by AEMO as having substantial benefits for consumers. In addition, unlike the capital expenditure provided in the revenue proposal, identified NCIPAP projects must be completed in the regulatory control period or penalties will apply.

We further considered the concerns expressed by the MEU and the EUAA with the long payback period of some of TasNetworks' proposed priority projects and their queries as to the benefit to consumers from these projects.⁶¹

In developing version 4 of the STPIS, we noted there are a range of factors that may limit the capability of assets and therefore the ability of those assets to deliver peak load and facilitate the efficient dispatch of generation in the market. We considered service providers are best placed to identify limitations in their networks and implement low cost solutions to address those limitations for the benefit of consumers. However, we recognised that the existing regulatory framework did not incentivise this behaviour.⁶² The NCC is aimed to incentivise increased capability of existing assets in the network when needed most. It does this by requiring Service providers to reveal the existing capability of their networks and to identify low cost projects to increase network capability that would provide greater value to generators and consumers. Generators benefit from improved capability because there is a lower risk of their generation dispatch being constrained, which is ultimately passed onto consumers through lower wholesale electricity prices. The NCC incentivises service providers to improve ability of their networks to meet peak demand without additional major augmentation capital expenditure, which also translates to lower prices for consumers.

The purpose of the annual NCC incentive payment is to fund the implementation of NCIPAP projects. If the approved NCIPAP is comprised of projects totalling approximately 1 per cent of the MAR, the TNSP will receive an incentive of around 0.5 per cent of its MAR. We note some of TasNetworks' proposed priority projects have estimated payback period in excess of 4 years. We have removed five projects, which have the lowest project ranking and the longest payback period, and therefore the lowest value for money provided for electricity customers. However, we accept the other proposed projects based on AEMO's assessment and our review as we consider those proposed priority projects result in material benefits in accordance with clause 5.2(l) of the STPIS. Given the design of the current STPIS, the inclusion of such projects in the NCIPAP (up to a maximum of 1 per cent of the proposed MAR) will benefit consumers, provided they result in a net benefit. This is because the

⁵⁸ TasNetworks, *Revenue Proposal 2014–19*, May 2014, p.125

⁵⁹ Clause 5.2(q) of the STPIS

⁶⁰ MEU, *Submission on Transend's Revenue Proposal*, August 2014, p.65.

⁶¹ MEU, *Submission on Transend's Revenue Proposal*, August 2014, pp.66-68; EUAA, *Submission on Transend's Revenue Proposal 2014 - 2019*, 8 August 2014, p.12.

⁶² AER, *Explanatory statement – Electricity transmission network service providers, Draft service target performance incentive scheme, September 2012*, p.35.

incentive payment under the NCC is set at 1.5 per cent of MAR each year irrespective of the total cost of the approved NCIPAP projects.