Electricity Transmission Revised Proposal

2008/09 – 2013/14

Appendix I

Service Target Performance Incentives Scheme

SP AusNet™
A member of Singapore Power Group

Appendix I: Service Standards Support Material

Allocation of forecast outages to peak, intermediate and off peak periods

The STPIS states that the proposed performance targets must be equal to the TNSP's average performance history of the most recent five years. Due to an error in SP AusNet's calculations, the original Proposal did not meet this criterion. However, SP AusNet believes, that in trying to correct for this error PB have also miscalculated the correct values.

Original SP AusNet calculation

As identified by PB, the identified error was limited to the SP AusNet initiated capex.

In allocating outage hours associated with SP AusNet initiated capex to peak intermediate and off-peak periods, SP AusNet relied on historical data including opex and capex outages to calculate the percentage split. For example, the calculation of the percentage of peak outage hours used the formula set out below:

$$\text{\% of Peak Outage Hours} = \frac{\text{Historical Peak Outages (all reasons)} \times 100}{\text{Historical Total Outages (all reasons)}}$$

The break down between categories of outages in the original Proposal by percentage is shown in Table I.1.

Table I.1: SP AusNet Proposal % allocations

SPA Proposed %				
Outage Type	**Peak C**	**Peak NC**	**Inter C**	**Inter NC**
Forced and Fault	5.09%		5.65%	
SPA Capex	4.00%		13.00%	
	74%	26%	74%	26%
SPA Opex	1.75%	1.36%	5.40%	3.74%
Customer Augmentation	11.00%	1.48%	14.49%	1.43%

Source: SP AusNet

PB calculation

PB considered that this allocation should be based only on the SP AusNet initiated capex outages and recalculated the percentage split accordingly. The AER accepted the PB recommendation. SP AusNet also accepts the PB recommendation is correct, however, it does not believe that PB has performed the calculation correctly. PB has removed opex and forced and fault outages from the peak and intermediate hours but not the total outages as set out below:

$$\text{\% of Peak Outage Hours} = \frac{\text{Historical Peak Outages (capex)} \times 100}{\text{Historical Total Outages (all reasons)}}$$

The break down between categories of outages in the PB recommendation by percentage is shown in Table I.2.

NOTE: NUMBERS IN TABLES MAY NOT ADD TO TOTAL DUE TO ROUNDING.

Table I.2: PB recommendation % allocations

PB Recommended %				
Outage Type	**Peak C**	**Peak NC**	**Inter C**	**Inter NC**
Forced and Fault	5.09%		5.65%	
SPA Capex	1.89%		6.02%	
	75%	25%	74%	26%
SPA Opex	1.75%	1.36%	5.40%	3.74%
Customer Augmentation	11.00%	1.48%	14.49%	1.43%

Source: SP AusNet

SP AusNet Revised Proposal

However, if capex outages alone are to be used to calculate these percentage splits, other outages must be consistently removed from both the numerator and denominator as set out below:

$$\text{\% of Peak Outage Hours} = \frac{\text{Historical Peak Outages (capex) x 100}}{\text{Historical Total Outages (capex)}}$$

Therefore, SP AusNet has recalculated the percentage split between peak, intermediate and off-peak outages for its revised proposal using the PB methodology but consistently and correctly using only the distribution of capex outages.

The break down between categories of outages in the Revised Proposal by percentage is shown in Table I.3.

Table I.3: SP AusNet Revised Proposal % allocations

SPA Revised Proposed %				
Outage Type	**Peak C**	**Peak NC**	**Inter C**	**Inter NC**
Forced and Fault	8.32%		5.96%	
SPA Capex	3.78%		12.04%	
	73%	27%	73%	27%
SPA Opex	1.75%	1.36%	1.75%	1.36%
Customer Augmentation	11.00%	1.48%	11.00%	1.48%

Source: SP AusNet

Exclusions

Brunswick to Richmond cable exclusion

In the AER's consideration, they state "the impact on circuit availability parameters is likely to be minimal." SP AusNet disagrees with this statement based on the following historical information contained in Table I.4.

Table I.4: Historical outages for BTS-RTS Cable joint replacement

Joint Bay	Location	Program	Outage Duration
8	Hoddle Median Strip, Grey	Completed 2006	672 hrs
4	Hoddle Street south bound lane	Completed 2006	888 hrs
9	Punt Median, south of Bridge Road	Completed 2007	840 hrs

Source: SP AusNet

NOTE: NUMBERS IN TABLES MAY NOT ADD TO TOTAL DUE TO ROUNDING.

Based on the past outages, to replace a joint bay requires an average of 800 hours. A work program of replacement has been formed to replace two joint bays per annum, or an annual outage of 1600hrs.

Interconnector exclusion

Based on VENCorp's forecast works, it is anticipated that an average annual outage requirement of approximately 48 hours will be required for interconnector upgrade works. Given that the proposed outage hours (with exclusions) for customer augmentation is 2,256 hrs per annum, the fault level mitigation work program represents a minimal increase (2%) in outage hours required to conduct the work. The effect of these works on the availability measures are shown in Table I.7. These outages would cost SP AusNet 0.31% of its revenue at risk per annum (less than $100k during the regulatory control period).

Table I.7: Forecast outages for Interconnector

Availability Measure	Target shift %	Revenue lost %
Total circuit	0.003	0.19
Peak critical	0.004	0.10
Peak non-critical	0.001	0.01
Intermediate critical	0.005	0.01
Intermediate non-critical	0.001	0.00
Total revenue at risk		**0.31**

Source: SP AusNet

However, the inclusion of these works still exposes SP AusNet to high levels of risk as changes to a final interconnector project can cause very large changes in the actual outages required. For example, The SNOVIC interconnector upgrade in 2002 had 3,115 hours of outages. This would have represented an even greater increase (138%) over the forecast customer outage hours. The effect of these works on the availability measures are shown in Table I.8. For the upcoming period, these outages would have cost SP AusNet 19.8% of its revenue at risk per annum (almost $5M during the regulatory control period).

Table I.8: Actual outages for SNOVIC Interconnector project

Availability Measure	Target shift %	Revenue lost %
Total circuit	0.048	11.25
Peak critical	0.073	7.01
Peak non-critical	0.024	0.78
Intermediate critical	0.086	0.58
Intermediate non-critical	0.021	0.17
Total revenue at risk		**19.79**

Source: SP AusNet

Line up-rating exclusion

Based on VENCorp's forecast works, it is anticipated that an annual outage requirement of approximately 520 hours will be required for line up-rating works.

Given that the proposed outage hours (with exclusions) for customer augmentation is 2256 hrs per annum, the fault level mitigation work program represents a significant increase (19%) in outage hours required to conduct the work. The effect of these works on the availability measures are shown in Table I.9. These outages would cost SP AusNet 3.5% of its revenue at risk per annum (almost $1M during the regulatory control period).

Table I.9: Forecast outages for line up-ratings

Availability Measure	Target shift %	Revenue lost %
Total circuit	0.029	1.88
Peak critical	0.044	1.30
Peak non-critical	0.015	0.17
Intermediate critical	0.052	0.11
Intermediate non-critical	0.013	0.04
Total revenue at risk		**3.50**

Source: SP AusNet

However, the inclusion of these works still exposes SP AusNet to high levels of risk as changes to the customer plans for line up-ratings customer plans can cause very large changes in the actual outages required. For every unforecast line re-conductoring, where a line needs to be up-rated though the replacement of the conductor, the outages will be significant,

For example, re-conductoring DDTS-SMTS No1 and No2 lines, where a line needs to be up-rated though the replacement of the conductor, would require 7,200 hours of outage per line or a 14,400 hour total outage. This example has a realistic chance of eventuating during the period as it could be brought forward into this reset period from 2015 in VENCorp's current forecasts.

This project represents an increase of 638% over the total proposed customer augmentation hours. The effect of these works on the availability measures are shown in Table I.10. These outages would cost SP AusNet 46.8% of its revenue at risk per annum (over $11M during the regulatory control period).

Table I.10: Forecast outages for DDTS-SMTS line up-ratings

Availability Measure	Target shift %	Revenue lost %
Total circuit	0.798	20.00
Peak critical	1.210	20.00
Peak non-critical	0.405	3.53
Intermediate critical	1.433	2.50
Intermediate non-critical	0.351	0.78
Total revenue at risk		**46.81**

Source: SP AusNet

Busbar up-rating exclusions

Based on VENCorp's forecast works, there is no outage requirement for busbar up-rating work. However, SP AusNet has received pricing requests for the up-rating of the Keilor Terminal Station 220kV busbar and Hazelwood Terminal Station 220kV busbar. If either project proceeds during the period it will have a significant effect on the required outages during the period.

For example, it is estimated that for the up-rating of the busbar at KTS, 2,500 outage hours are required. This represents an increase of 110% over the proposed customer augmentation hours. The effect of these works on the availability measures are shown in Table I.11. These outages would cost SP AusNet 15.5% of its revenue at risk per annum (over $3M during the regulatory control period).

Table I.11: Forecast outages for busbar up-ratings at KTS

Availability Measure	Target shift %	Revenue lost %
Total circuit	0.125	8.75
Peak critical	0.189	5.45
Peak non-critical	0.063	0.69
Intermediate critical	0.224	0.45
Intermediate non-critical	0.055	0.15
Total revenue at risk %		**15.49**

Source: SP AusNet

NOTE: NUMBERS IN TABLES MAY NOT ADD TO TOTAL DUE TO ROUNDING.