Australian Competition and Consumer Commission (ACCC)

Audit of TransGrid Service Standards Performance Reporting

PERFORMANCE RESULTS FOR 2004

- Final Report
- 28 April 2005

Australian Competition
and Consumer Commission

Audit of TransGrid Service Standards Performance Reporting

PERFORMANCE RESULTS FOR 2004

- Final Report
- 28 April 2005

Sinclair Knight Merz
ABN 37 001 024 095
369 Ann Street, Brisbane 4000
PO Box 246
Spring Hill QLD 4004 Australia
Tel: +61 7 3244 7100
Fax: +61 7 3244 7301
Web: www.skmconsulting.com

COPYRIGHT: The concepts and information contained in this document are the property of Sinclair Knight Merz Pty Ltd. Use or copying of this document in whole or in part without the written permission of Sinclair Knight Merz constitutes an infringement of copyright.

Contents

Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
A	04.04.2005	Ben Kearney	Jeff Butler	08.04.2005	For comment
B	15.04.2005	Ben Kearney	Jeff Butler	15.04.2005	Incorporate feedback on A
C	22.04.2005	Jeff Butler	Cliff Jones	22.04.2005	Half year performance
					Amended exclusion assess
D	27.04.2005	Jeff Butler	Ben Kearney	27.04.2005	Amended results
1.0	28.04.2005	Jeff Butler	Ben Kearney	28.04.2005	For issue

Distribution of copies

Revision	Copy no	Quantity	Issued to
A	Electronic	1	ACCC
	Electronic	1	TransGrid
B	Electronic	1	ACCC
	Electronic	1	TransGrid
C	Electronic	1	ACCC
	Electronic	1	TransGrid
D	Electronic	1	ACCC
1.0	Electronic	1	ACCC
	Bound	1	Library

Printed:	
Last saved:	28 April 2005 11:00 AM
File name:	I:\QHIN\Projects\QH43504\Deliverables\Reports\TransGrid\QH43504-000-RE-UZ-005.doc
Author:	Ben Kearney
Project manager:	Jeff Butler
Name of organisation:	Australian Competition and Consumer Commission (ACCC)
Name of project:	Audit of TransGrid Service Standards Performance Reporting
Name of document:	Final Report
Document version:	1.0
Project number:	QH43504

1. Executive Summary

Sinclair Knight Merz (SKM) was engaged by the Australian Competition and Consumer Commission (ACCC) to conduct an audit of the July - December 2004 performance report of TransGrid under the ACCC Performance Incentive (PI) Scheme.

The audit concentrated on a review of the performance results submitted by TransGrid, in particular:

- the adequacy and accuracy of the recording system used to measure performance
- the accuracy of the calculations of the final performance; and
- the force majeure events and other exclusions to ensure compliance with the revenue caps and ACCC service standards guidelines.

As the auditor, SKM met with TransGrid Network Performance staff in Sydney on Monday 7 March 2005, to review their data, systems and processes for gathering and processing outage information. A further site visit to TransGrid's Central Region operations centre was made on Thursday 10 March 2005 to review the processes and integrity of primary data entry into TransGrid's outage reporting system by control room personnel. The integrity of the system established by TransGrid for both entering and retrieving data from the TOS outage system for reporting under the ACCC PI Scheme was audited. In addition, specific events were reviewed to examine any particular issues associated with the claim for exclusions.

As a result of audit activities undertaken, Sinclair Knight Merz has formed an opinion that:

- the performance reporting by TransGrid was free from material errors and in accordance with the requirements of the ACCC service standards guidelines;
- TransGrid has correctly applied the PI Scheme formulas and coefficients to calculate the potential performance bonus / penalty amounts using the S-factor equations contained in the revenue determination;
- the recording system used by TransGrid to capture the relevant details for outages is accurate and reliable;
- the audit of the interface TOS and PI reporting systems found the transfer of data to be accurate and complete, though manual in nature and hence at risk of errors. SKM has recommended further development and refinement of PI Scheme reporting systems;
- the application of exclusions was generally in accordance with historical calculation of performance and with the definitions historically applied. Auditing exclusions was made more difficult due to excluded events not being transferred to the PI Scheme reporting system, and

hence difficult to identify and review. SKM recommends the reporting system be refined to capture excluded events with appropriate categorisation to facilitate auditing and review; and

- TransGrid claimed two exclusions outside the standard definitions for the PI Scheme, for a transformer outage at Vineyard, and Static Var Compensator (SVC) at Kemps Creek, but did not note these exclusions in their report to ACCC. SKM recommends that the exclusion for the Vineyard event only is accepted, but future PI Scheme annual reports should specifically note and document any unusual[1] exclusion.

SKM recommends:

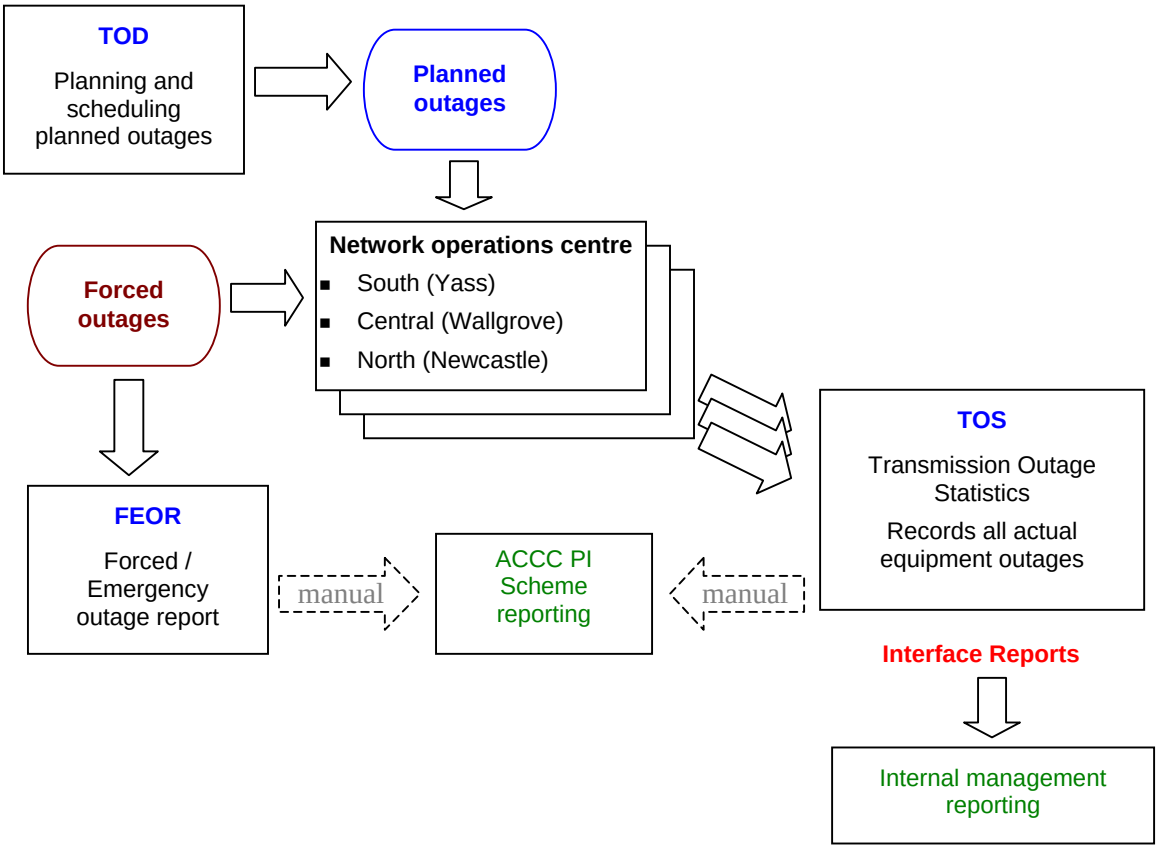
- TransGrid's calculation of its S factor and performance incentive be accepted as free from material errors;
- The Commission accept TransGrid's exclusion of Vineyard transformer outage, on the basis that the network augmentation undertaken effectively decommissioned the asset and therefore its unavailability was not subject to the PI Scheme; and
- The bonus for TransGrid under the ACCC PI Scheme for 2004 is +**0.9023% of the agreed Annual Revenue for the period July – December 2004**.

[1] Unusual exclusions would typically include capping of outages at 168 hours, force majeure events, or events not specifically covered by the PI Scheme defined exclusions.

2. Recording System

An overview of the TransGrid PI reporting systems is shown in Figure 2-1.

Figure 2-1 TransGrid PI reporting systems



TransGrid's PI Scheme reporting is based around its Transmission Outage Statistics (TOS) database that records all planned and unplanned outages. Operators in the three TransGrid control rooms enter outage details at the end of each shift into a central database. TOS started as a VAX based system in 1992, and was migrated onto a PC platform in 2000.

Planned outages are scheduled in a Transmission Outage Diary (TOD) system, but there is no link between the two systems. That is, operators enter the details into TOS as it actually occurs.

Forced outages are also entered by operators into TOS. Forced outages also trigger a Forced and Emergency Outage Report, that explains the reason for each outage.

PI scheme reporting is done in a separate system to TOS. Details of outages are manually transferred from TOS reports each month into a "Monthly outage summary" spreadsheet by staff in

the Network Performance section. Filtering of excluded events takes place at this time, with excluded events omitted from the monthly outage summary spreadsheets, from which performance statistics and S Factors are derived. Forced / Emergency Outage Report (FEOR) reports are consulted to determine whether events are to be excluded, as are details on TOS, system diagrams, and knowledge of ownership of various pieces of equipment.

Some manual intervention is required to derive PI Scheme reports from TOS, as TOS only records outages on the equipment that has actually been switched. Thus, if an outage on a circuit breaker is recorded in TOS, it is necessary to review system diagrams to determine whether a transmission circuit or transformer will also be taken out of service as a consequence. Network Performance staff assess each outage recorded in TOS to determine which items relevant to PI Scheme reporting are affected.

PI reporting is derived from a series of spreadsheets linked to the 12 monthly outage summary spreadsheets. These are mostly automatic following the manual input of the TOS data, with manual adjustment for capping outages at 168 hours and numbers of plant items.

Overall, the system appears to be accurate, however as with any manual system, the knowledge and experience of the particular staff carrying out this function become important links in the process. The system is being progressively developed and streamlined, and has been documented to some extent.

SKM also conducted a site visit at the Wallgrove network control centre, to review the integrity of data entered into TOS by system operations staff. Operators fill out an electronic log of every occurrence during a shift, and transfer this data into TOS at the end of each shift, or within a few days where additional information is required (eg details from a FEOR). There are well documented processes which SKM found are being followed, and SKM is satisfied the data in TOS is reliable.

2.1 Outage Details

Planned outages are scheduled in the TOD system, and when switching actually takes place are entered into TOS. Forced and emergency[2] outages are recorded in TOS as they occur. The actual switching times are recorded directly in TOS, with reference to the daily operators log.

[2] TransGrid defines a forced outage as an automatic protection operation, and emergency outages as forced switching under control of operators.

2.2 Categorisation and Exclusions

Outages entered into TOS are categorised as "TransGrid reason" or "non-TransGrid reason" by the operators. Network performance staff check these categorisations when they manually enter the data into the PI Scheme reporting spreadsheets, and make adjustments as required. This sometimes requires reference to FEOR reports to identify the cause and responsible party.

Outages on equipment not owned by TransGrid are excluded. These are generally distribution network lines, where TransGrid owns the circuit breaker[3], and a Distribution Network Service Provider (DNSP) owns the line. There were also instances identified where EnergyAustralia transmission lines were taken out of service due to TransGrid maintenance or outages on circuit breakers. TransGrid exclude such events as they do not own the line and EnergyAustralia exclude them as a third party (TransGrid) caused it. This effectively means a number of transmission line outages are not captured by the scheme.[4]

Auditing exclusions was made more difficult due to the structure of the PI Reporting system, whereby excluded events are not transferred to the monthly outage summary spreadsheets. In order to identify excluded events, it was necessary to go back to raw TOS reports for a given month, and compare each event line by line to see which ones were in TOS but not in the PI Reporting spreadsheets, and then check whether the event was properly categorised as excluded. It is recommended that all events be included in the PI Reporting system in the future, with an "excluded" flag and reason.

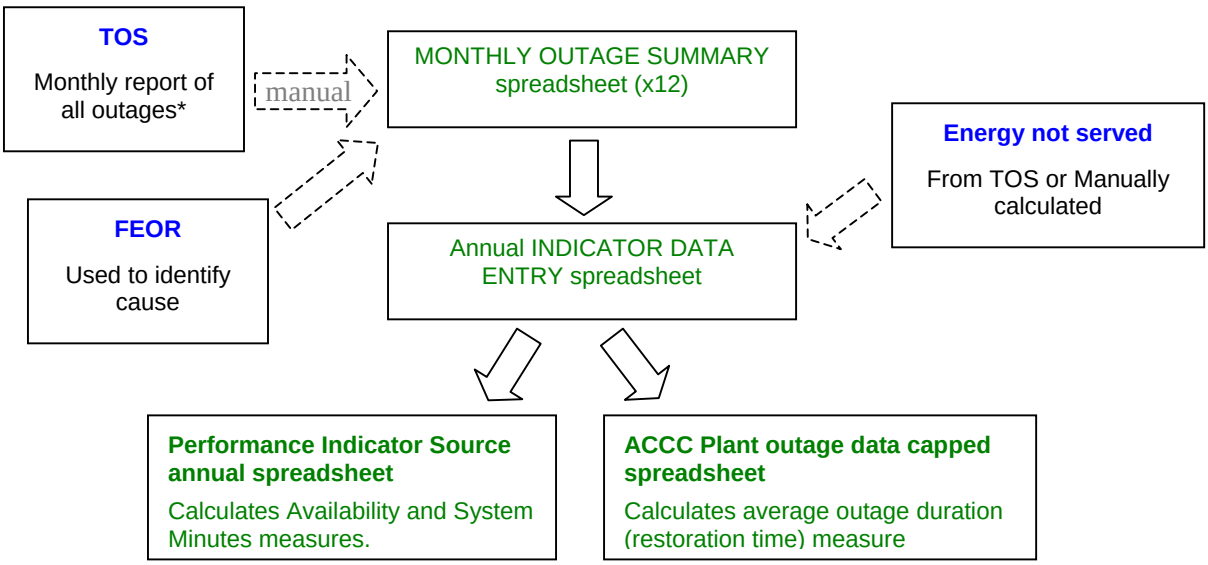
[3] Circuit breaker outages are not covered by the PI Scheme, even when they are owned by TransGrid.

[4] This situation appears to be relatively unique to TransGrid and EnergyAustralia, where TNSP boundaries occur within substations. With other TNSPs interconnectors will generally be partially owned by the TNSP at either end, and hence both will have a line outage captured by the scheme, so whoever caused the outage will have an event to report.

2.3 Processing of Outage Data

The PI Reporting system used by TransGrid is shown in Figure 2-2.

- **Figure 2-2 TransGrid PI reporting systems**



TransGrid also noted that the previous month's OUTAGE SUMMARY spreadsheet is checked as part of the monthly transfer process, to ensure any late entries into TOS are captured.

2.4 Calculation of Performance Measure Results

The performance measure results are calculated using the S-factor equations defined in the ACCC revenue determination. The final stage is a collation of the results into a graph illustrating the annual performance against the pre-agreed target for each measure and sub-measure.

TransGrid performs monthly progressive reporting of each PI Scheme measure, for management reporting and tracking.

2.5 System Audit Findings

SKM Conducted the following checks of the end-to-end PI Scheme reporting:

- ***Entry of planned outages into TOS.*** 5 random control sheets (switching instructions generated by the TOD system, with actual switching times noted by system operators) were selected from paper archives in the control room, and checked to ensure they had been entered into TOS.

- One event was not correctly recorded, relating to 7hr43min planned maintenance on equipment at Mt Piper on 17/3/04. During the works there was an unplanned protection operation triggered by the works, that was restored within 2 minutes. TOS recorded this unplanned event, and then would not allow the planned event to be entered, as TOS will not allow concurrent outages on the same equipment. The correct procedure should have been to create two planned outage events, from the start time up to the trip, and from the trip restoration to the planned restoration. This is considered an isolated event, and not likely to result in material reporting errors.
- One event had planned switching times recorded in TOS, instead of actual switching times. The differences were minimal, and not considered to result in material reporting errors.
- In general, it was found events were captured, outage and restoration times were accurate, and the reasons were correctly recorded. Categorisation as "non TransGrid reason" was correct.

- ***Entry of forced outages into TOS.*** Operators logs were sourced for random days where unplanned outages had occurred. These were found to have been correctly transferred into TOS.
- ***Transfer of TOS data into Monthly Outage Summary spreadsheets.*** SKM randomly selected October 2004, and audited all entries in TOS and the October Monthly Outage Summary (MOS) spreadsheet.
  - 9 forced outages were correctly transferred. 54 forced outages were excluded (generally non-TransGrid assets or cause), with the categorisation found to be appropriate.
  - 132 out of 132 planned outages of transmission lines and plant listed in TOS were included in the MOS spreadsheet.
  - One event relating to an outage on the 973 line on 28 October was found to be incorrectly excluded. This was due to a "work in other area" comment in TOS (that related to one TG region switching for another) incorrectly interpreted as relating to a 3rd party. This is considered an isolated incident.
  - In general, only 1 error in 300 items was identified, and the manual transfer of TOS data into the MOS spreadsheets is considered accurate, if somewhat cumbersome.
- ***Calculation of Energy Not Served (ENS).*** ENS is calculated by control room staff and recorded in TOS. For complex outages, detailed calculations are performed by Network Performance staff. SKM reviewed a large complex outage (at Newcastle on 30 June 2004) and a number of simple outages recorded in TOS, and found the ENS figures to be reasonable and accurate.
- ***Calculation of PI Indicators.*** SKM traced the data through from the MOS spreadsheets into the annual consolidated INDICATOR DATA ENTRY spreadsheet, and found the data

integrity and calculations used in these spreadsheets to be accurate. S factor targets and calculations were traced and found to be accurate.

- This spreadsheet also records the number of TransGrid lines and plant, with weighted averages used where items are commissioned or decommissioned during the year. These calculations were found to be correct, though questioning of some of the comments identified two events which are discussed separately in section 3.2.

Auditing the TransGrid PI Scheme reporting was a relatively cumbersome process, due to:

- Excluded events missing from PI Reporting system spreadsheets, which meant they had to be identified by comparison line-by-line with monthly TOS reports.
- The large number (~17) of interlinked spreadsheets
- The structure of the PI Reporting system spreadsheets, which also served for internal reporting purposes, with separate inputs by voltage level and region in accordance with internal TransGrid structure and management.

SKM recommends TransGrid consider refinements to the reporting system, to further automate inputs from TOS, include excluded events in PI reporting with categorisation of the reason for the exclusion, and simplification of the reporting spreadsheets. Ideally, future development of the TOS system would ultimately include refinements to allow PI Scheme reports to be derived directly from TOS.

During the audit, TransGrid also questioned the length of time their paper control room records should be retained. SKM uses the paper records as part of the audit of the integrity of data in the TOS system, by randomly selecting paper logs and confirming the details were correctly entered in the electronic TOS system. TransGrid advises it normally disposes of such records every 12 months, and that most of the 2004 records were due to be culled prior to the audit being conducted.

SKM recommends that no more than 6 months historical paper records need to be retained for the purpose of PI Scheme audits. In the event that the audit takes place in March of the following year, this would mean that only 3 – 6 months of the calendar year in question would have supporting paper records. SKM considers this is reasonable, on the basis that the integrity of the system has now been audited (and arguably does not require in-depth auditing in subsequent years), and that paper records relating to only part of the year (or even a period outside the year in question) are sufficient to carry out any checks on the integrity of TOS data[5].

[5] This is in effect a “process audit” rather than an audit relating to a specific period.

3. Exclusions

The ACCC PI Scheme contains provisions for certain defined events to be excluded from calculated outage figures, on the basis that they are beyond the control of Transmission Network Service Providers (TNSPs) or consistent with historical reporting of outages.

3.1 Exclusions defined under the ACCC PI Scheme

In the case of TransGrid, the defined exclusions are:

- Any outage caused by a fault, outage request or other event on a 3rd party system connected to the TNSP's Network.
- Transient outages less than one minute
- Unregulated transmission assets
- Switching to control voltages or fault levels within required limits, as directed by NEMMCO or where NEMMCO does not have direct oversight of the network, and where the equipment is available for immediate energisation if required
- Opening of one end of a circuit where the circuit is available for immediate restoration
- Opening of one or both sides of a transformer for operational purposes where the transformer is available for immediate restoration
- Auxiliary transformers
- The period where an item is made available for service, but not switched in, at the end of each day of a multi-day planned outage
- Force majeure events
- Capacitors and reactors operating at less than 66kV
- Reactive plant switched out for operational purposes, but available for immediate restoration
- Pumping station supply interruptions excluded from historical data
- Customer's protection operations causes by transient or voltage fluctuation events, whether caused by TransGrid or not.
- The portion of an ENS event caused by another party (such as an electricity distribution company's delays in restoring supply after TransGrid has made supply available).
- The portion of a forced or emergency outage duration longer than 7 days (168 hours) for the purpose of calculating the average outage restoration time measure.
- Static Var Compensator transformers (counted as part of the SVC)

3.2 Excluded events not specifically defined

SKM identified two exclusions claimed by TransGrid that are not categorised under any of the exclusions defined in the PI Scheme definitions. In addition, these events were not noted in TransGrid's *Performance Against ACCC Service Standards 2004* report.

SKM considers events not covered by the defined exclusions should be specifically noted, explained, the relevant hours of the outage and S factor impact documented, and leave sought to claim the exclusion based on an argument as to why it should be allowed. These instances were identified by SKM through comments in the plant numbers list, otherwise it would have required comparing each line of the 3800+ events listed in TOS for the year with the items listed in the PI Scheme reporting.

3.2.1 Vineyard Substation No. 2 Transformer

As part of a scheduled project to replace no. 2 transformer at Vineyard substation with one of a higher rating, no. 2 transformer was relocated to Yass in September 2004 to be used in the new Yass 330kV substation.

Prior to the removal of the Vineyard transformer, temporary overhead jumpers were installed at Sydney West to a spare 132kV line to Vineyard, and connected to the bus at the Vineyard end of the line to provide equivalent capacity to the missing transformer. These were removed in October when a new transformer was installed at Vineyard to replace the unit transferred to Yass.

TransGrid excluded the period the transformer was unavailable at Vineyard from its PI Scheme reporting, on the basis that it has provided equivalent capacity by energising an otherwise out-of-service line from Sydney West.

Whilst this instance is not specifically covered by the definitions of exclusions in section 3.1, SKM is of the view that the Vineyard transformer was effectively decommissioned by the network augmentation, as it was bypassed and no longer supported the network. Its "unavailability" should be excluded from the performance calculation as the transformer was not effectively part of the network and therefore not subject to the PI Scheme.

SKM does not consider this exclusion to establish any precedent related to installations within the network with redundancy or back-up transformer capacity, as any unavailability of such assets would still constitute an outage of an asset supporting the network, and therefore subject to performance reporting under the PI Scheme.

3.2.2 Static Var Compensator at Kemps Creek.

In October 2004 TransGrid installed a new Static Var Compensator (SVC) at Sydney West, to replace two ageing synchronous condensers at Sydney South. The synchronous condensers were switched out of service and due to be decommissioned in early November 2004 as part of the planned works.

On 2 November 2004, SVC no. 2 at Kemps Creek failed in service. In order to provide equivalent reactive capacity on the system, TransGrid put the Sydney south synchronous condensers back into service until the Kemps Creek SVC was repaired. This unit had not been returned to service as of 31 December 2004, resulting in an outage of 1,429 hours for the period July to December 2004.

In its PI Scheme reporting, TransGrid excluded the Kemps Creek SVC outage, reasoning it had provided equivalent reactive capacity on the system from the due-to-be-decommissioned synchronous condensers at Sydney South. This exclusion is not included under the defined exclusions in the PI Scheme guidelines.

SKM does not consider this exclusion should be allowed, as it is not in compliance with the defined exclusions for TransGrid outlined in section 3.1. Although TransGrid took specific action to maintain the reactive capacity on the system, by retaining aged equipment that was due to be permanently decommissioned as part of a documented program of works, SVC no. 2 at Kemps Creek remained part of the transmission network and was unavailable for service. Whilst there was no effect on the operation of the network, this failure represents an outage of reactive plant, which would effect the performance result under *Measure 1c - Reactive Plant Availability*.

Within the draft determination for TransGrid, the ACCC accepted the application of a 7-day cap to Average Outage Restoration Time events[6] in accordance with recommendations from an independent review. Reference to this 7-day cap was limited to average outage restoration events, and was not directly addressed in discussion regarding the calculation of availability percentages. SKM notes that a 14-day cap has been considered appropriate in the case-by-case treatment of extended outage events for other TNSPs, such as EnergyAustralia.

The effect of the disallowance of this exclusion under these different calculation scenarios is shown in Table 3-1.

[6] pp 114, section 8.5.4, NSW and ACT Transmission Network Revenue Cap - TransGrid: Draft Decision, ACCC, 28 April 2004

Table 3-1 Revised Reactive Plant Availability performance[7]

Calculation basis	Availability %	S-factor
Reported performance excluding SVC event at Kemps Creek	99.545%	0.001
Performance based on 7 day cap applied to event	99.507%	0.001
Performance based on 14 day cap applied to event	99.469%	0.001
Performance based on uncapped event of 1,429 hours	99.222%	0.000889

SKM is of the view that to be consistent with the performance calculations for other TNSPs, the effect of the Kemps Creek SVC event should be capped to 14 days, with the revised performance of 99.469%. This performance result does not change the S-factor for this measure, as the result is still capped at the maximum value of 0.001.

3.3 Categorisation of 2004 events

It has not been possible to categorise 2004 events into "included" and "excluded" events, nor analyse the reasons for exclusions, due to the nature of the TransGrid PI Scheme reporting system.

SKM recommends that *all* events be included in future reporting under the PI Scheme, with a status listing each event as "included" or "excluded", and noting a reason / responsible 3rd party for excluded events.

3.4 Event Based Exclusions Sought by TransGrid

In its *Performance against ACCC Service Standards 2004* report, TransGrid has identified a number of excluded events. These include 4 events excluded from the *Reliability (loss of supply event frequency)* measure, due to 3rd party causes or restoration within 1 minute, in accordance with the defined exclusions, and are considered reasonable and in accordance with the guidelines.

[7] Based on a 6 month total of 441,942 available hours for reactive plant

4. Force Majeure

In the Service Standards Guidelines published by the Commission[8], there are four (4) considerations listed for determining what force majeure events should be "excluded force majeure events". These are:

- Was the event unforeseeable and its impact extraordinary, uncontrollable and not manageable;
- Does the event occur frequently – if so, how did the impact of the particular event differ;
- Could the TNSP, in practice, have prevented the impact (not necessarily the event itself); and
- Could the TNSP have effectively reduced the impact of the event by adopting better practices?

4.1 Definition

In the draft TransGrid revenue decision, the Commission stated that "… *the ACCC will apply the force majeure definition from its Service Standards Guidelines to TransGrid's Revenue Cap. The ACCC will consider excluding any event that TransGrid believes to be a force majeure event on a case by case basis. The factors that the ACCC would take into account are set out in the Service Standards Guidelines.*" [9]

This definition is outlined in Appendix B.

4.2 Events

There were no events during 2004 for which TransGrid sought an exclusion as force majeure events.

---

[8] Schedule 2, Statement of Principles for the Regulation of Transmission Revenues – Service Standards Guidelines (file no. C2000/1180), ACCC, 12 November 2003

[9] pp 114, section 8.5.2, NSW and ACT Transmission Network Revenue Cap - TransGrid: Draft Decision, ACCC, 28 April 2004

5. Calculation of Bonus / Penalty

The results provided by TransGrid were entered into the PI Scheme model provided to the ACCC. The bonus calculated using the S-factors was based on six monthly (July – December 2004) revenue of $216,375,000. The differences between the two calculations are shown in Table 5-1.

Table 5-1 Calculated Bonus

No	Performance Measure	Calculated bonus / (penalty)		% variation to SKM values
		ACCC S-factors	SKM	
1a	Circuit Availability (transmission circuits)	$ 432,750	$ 432,750	0.00%
1b	Transformer Availability	$ 137,768	$ 137,707	0.04%
1c	Reactive Plant Availability	$ 216,375	$ 216,375	0.00%
2a	Loss of Supply Event Frequency Index > 0.05 mins	$ 540,938	$ 540,938	0.00%
2b	Loss of Supply Event Frequency Index > 0.40 mins	$ 432,750	$ 432,750	0.00%
3	Average Outage Duration	$ 191,701	$ 191,701	0.00%
	TOTAL	**$ 1,952,282**	**$ 1,952,221**	0.00%

These calculations have been done for comparative purposes only, as the final calculation of the bonus or penalty is based on the S-factor equations defined in the ACCC determination.[10]

The minor variation in the *Transformer Availability* result is due to the rounding off of coefficients in the equation for the S-factor in the TransGrid determination. The profile for each of the applicable measures is shown in Appendix A.

The service standards S-factors are summarised in Table 5-2, and are based on the equations contained in Appendix 5 to the TransGrid draft revenue cap decision.[11]

[10] Appendix 5

[11] pp 150

Table 5-3 Service Standards S-factors

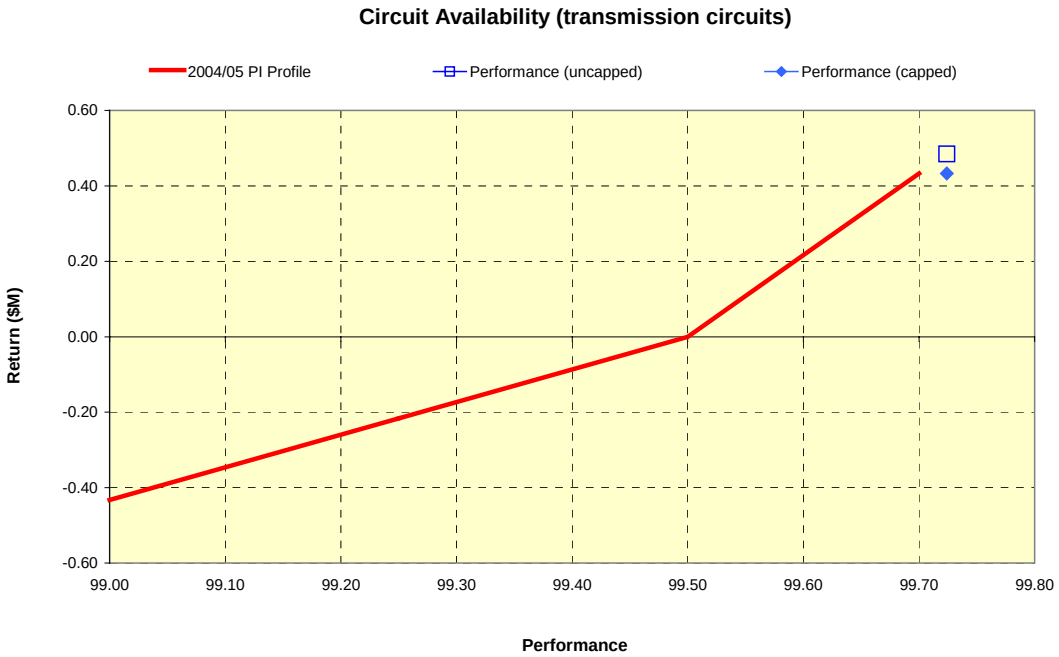
Measure	Performance	S-factor
Circuit Availability (transmission circuits)	99.724%	0.002
Transformer Availability	99.297%	0.000637
Reactive Plant Availability	99.469%	0.001
Loss of Supply Event Frequency Index > 0.05 mins	0 events	0.0025
Loss of Supply Event Frequency Index > 0.40 mins	0 events	0.002
Average Outage Duration	936.84 mins	0.000886
Total		**0.009023**

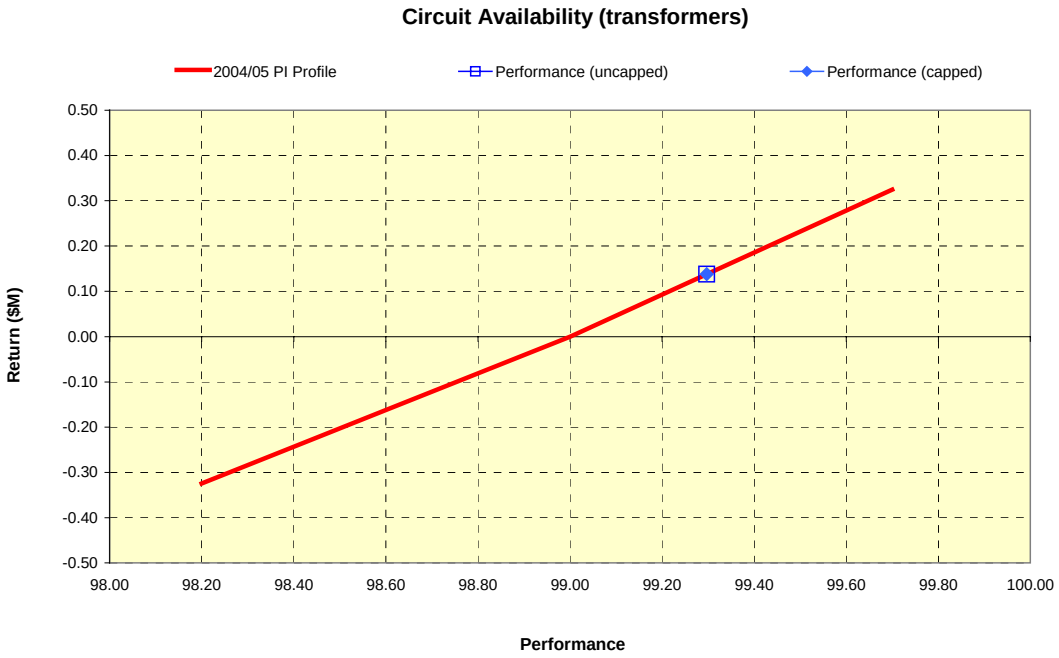
Based on the comparative calculation results, SKM considers the calculation of TransGrid's S-factor to be free of material errors. The bonus recommended for TransGrid under the ACCC PI Scheme for 2004 is +**0.9023% of the agreed Annual Revenue for the period July – December 2004**.

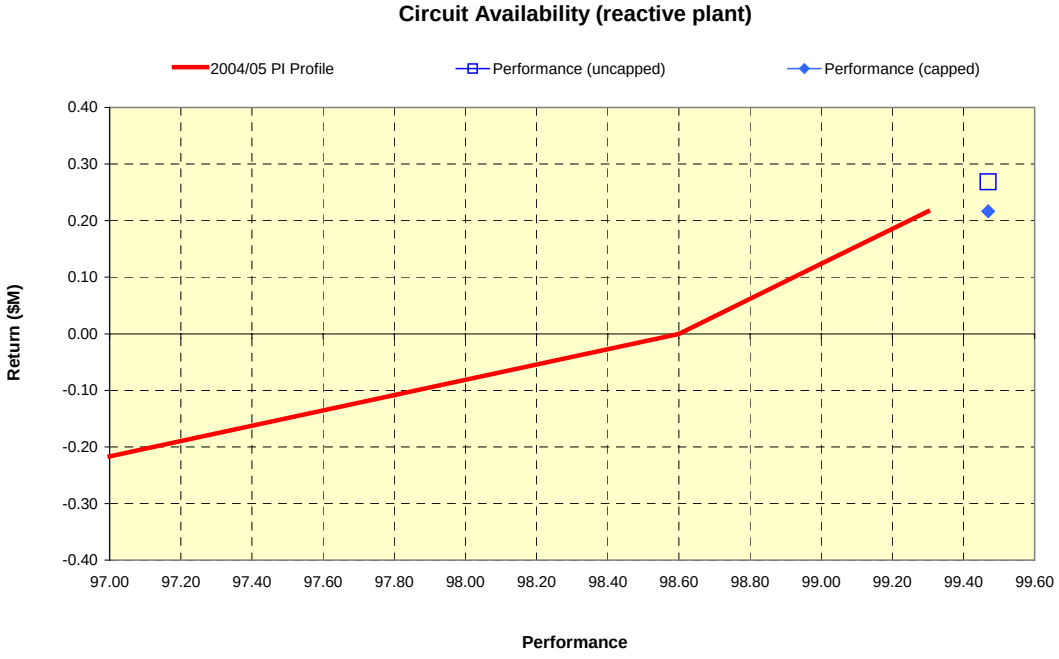
Appendix A Performance Measure Profiles

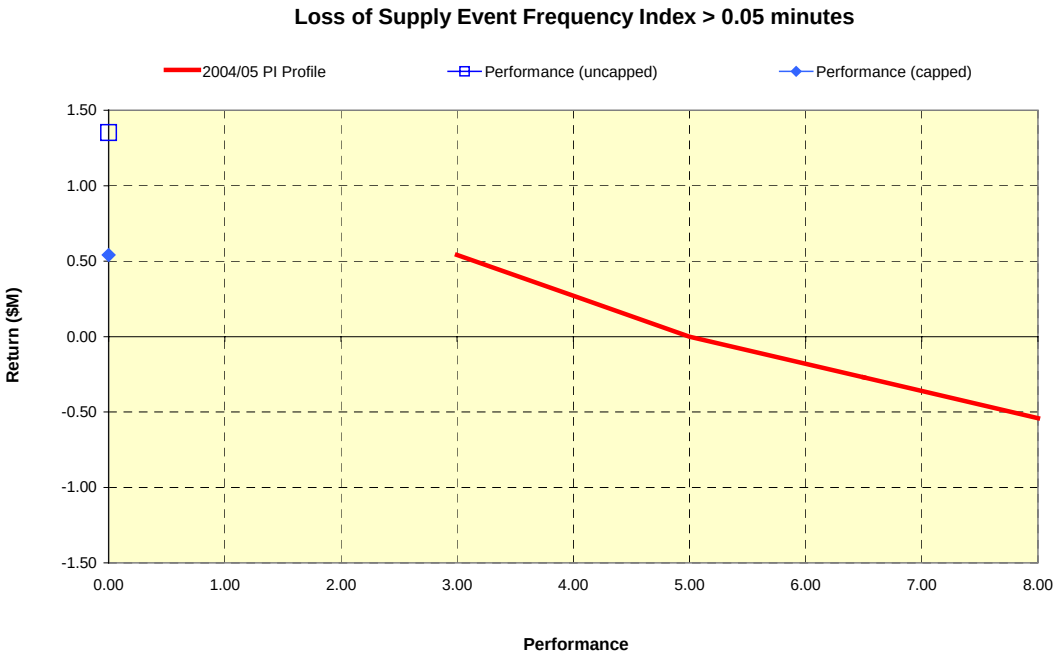
The Performance Measure profiles graphically illustrate the 2004 performance against the targets for the following measures :

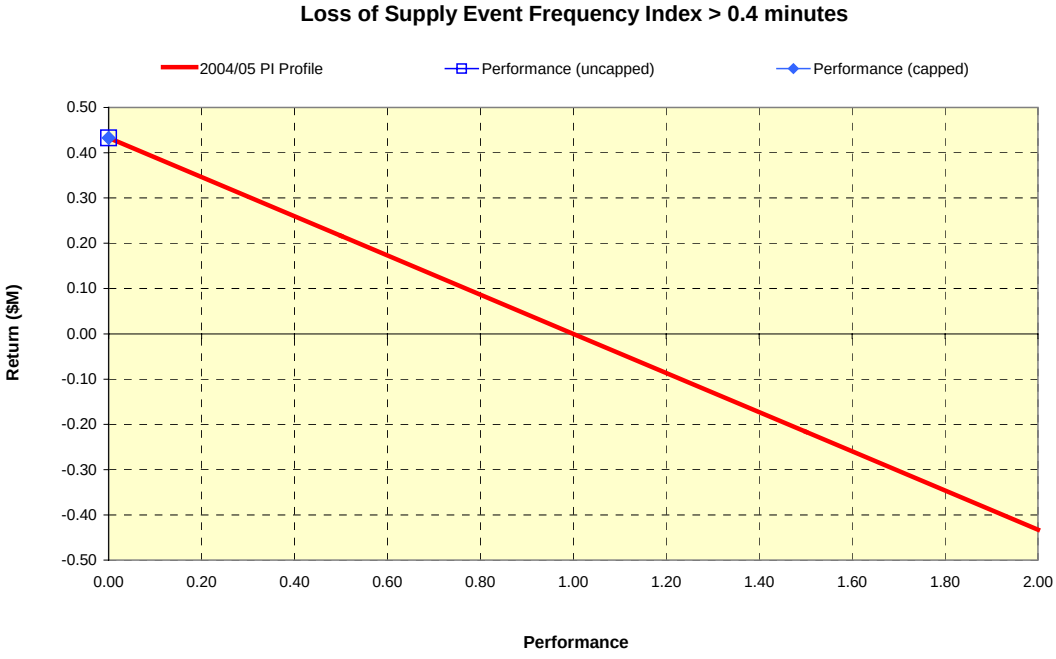
- Measure 1a Circuit Availability (transmission circuits)
- Measure 1b Transformer Availability
- Measure 1c Reactive Plant Availability
- Measure 2a Loss of Supply Event Frequency Index > 0.05 mins
- Measure 2b Loss of Supply Event Frequency Index > 0.40 mins
- Measure 3 Average Outage Duration

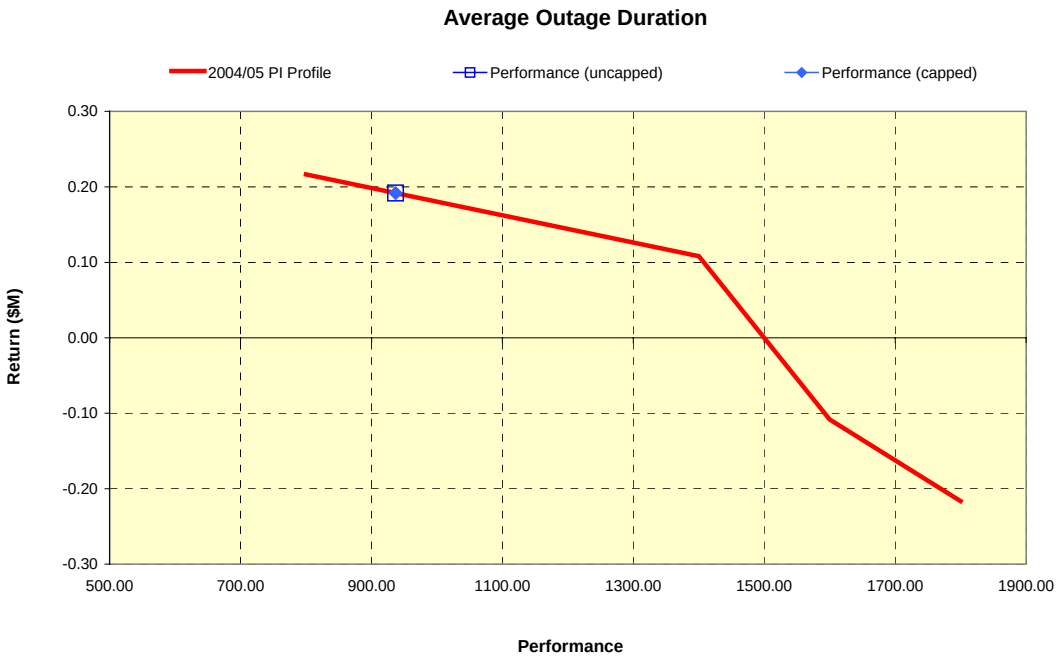



Circuit Availability (transformers)
2004/05 PI Profile
Performance (uncapped)
Performance (capped)
Return ($M)
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
98.00
98.20
98.40
98.60
98.80
99.00
99.20
99.40
99.60
99.80
100.00
Performance


Circuit Availability (reactive plant)
2004/05 PI Profile
Performance (uncapped)
Performance (capped)
Return ($M)
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
97.00
97.20
97.40
97.60
97.80
98.00
98.20
98.40
98.60
98.80
99.00
99.20
99.40
99.60
Performance


Loss of Supply Event Frequency Index > 0.05 minutes
2004/05 PI Profile
Performance (uncapped)
Performance (capped)
Return ($M)
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
Performance


Loss of Supply Event Frequency Index > 0.4 minutes
2004/05 PI Profile
Performance (uncapped)
Performance (capped)
Return ($M)
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
Performance


Average Outage Duration
2004/05 PI Profile
Performance (uncapped)
Performance (capped)
0.30
0.20
0.10
0.00
-0.10
-0.20
-0.30
Return ($M)
500.00
700.00
900.00
1100.00
1300.00
1500.00
1700.00
1900.00
Performance

Appendix B Definition of Force Majeure

The following is an extract from the ACCC Service Standards Guidelines[12]:

"For the purpose of applying the service standards performance-incentive scheme, 'force majeure events' means any event, act or circumstance or combination of events, acts and circumstances which (despite the observance of good electricity industry practice) is beyond the reasonable control of the party affected by any such event, which may include, without limitation, the following:

- fire, lightning, explosion, flood, earthquake, storm, cyclone, action of the elements, riots, civil commotion, malicious damage, natural disaster, sabotage, act of a public enemy, act of God, war (declared or undeclared), blockage, revolution, radioactive contamination, toxic or dangerous chemical contamination or force of nature
- action or inaction by a court, government agency (including denial, refusal or failure to grant any authorisation, despite timely best endeavour to obtain same)
- strikes, lockouts, industrial and/or labour disputes and/or difficulties, work bans, blockades or picketing
- acts or omissions (other than a failure to pay money) of a party other than the TNSP which party either is connected to or uses the high voltage grid or is directly connected to or uses a system for the supply of electricity which in turn is connected to the high voltage grid
- where those acts or omissions affect the ability of the TNSP to perform its obligations under the service standard by virtue of that direct or indirect connection to or use of the high voltage grid.

In determining what force majeure events should be 'Excluded force majeure events' the ACCC will consider the following:

- Was the event unforeseeable and its impact extraordinary, uncontrollable and not manageable?
- Does the event occur frequently? If so how did the impact of the particular event differ?
- Could the TNSP, in practice, have prevented the impact (not necessarily the event itself)?
- Could the TNSP have effectively reduced the impact of the event by adopting better practices?"

[12] Schedule 2, Statement of Principles for the Regulation of Transmission Revenue - Service Standards Guidelines (file no. C2000/1180), ACCC, 12 November 2003