

# Audit of EnergyAustralia Service Standards Performance Reporting 2005

## PERFORMANCE RESULTS FOR 2005

- Final Report
- 27/04/2006



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- Final Report
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## 1. Introduction

Sinclair Knight Merz (SKM) has been appointed by the Australian Energy Regulator (AER) (part of the ACCC) to conduct an audit of the January to December 2005 performance report of EnergyAustralia transmission assets under the AER Performance Incentive (PI) Scheme.

This review has included an examination of the accuracy and adequacy of the recording system for EnergyAustralia, together with an assessment of the application of force majeure and other exclusions.

Other issues that have been investigated and reported on include:

- whether the reporting complies with the requirements of the EnergyAustralia Revenue cap decision and the AER Service Standards Guidelines;
- adequacy of recording systems and a review of any changes since previous audits;
- comparison of the actual results achieved relative to the targets set in the revenue cap decisions;
- an independent validation, or otherwise, of the calculations and the S-factors.

Due to EnergyAustralia's 2005 Transmission Service Standards Report being re-submitted in two parts (actual performance measure and proposed performance measure), SKM has been unable to review the accuracy of the proposed performance measures submitted in the second report. Therefore, this report contains the values that have not been checked.

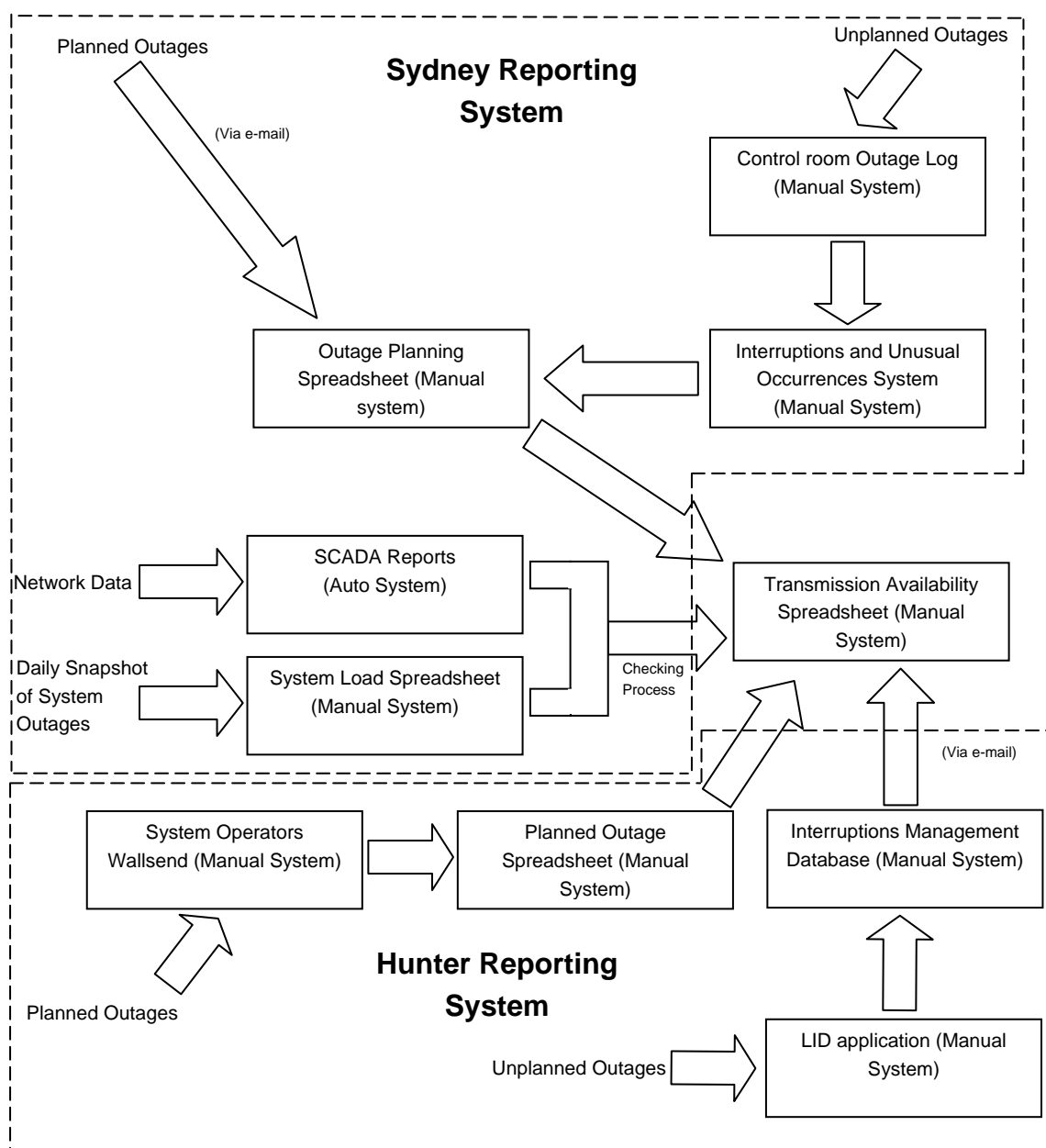


## 2. Recording System

Over the last few years, EnergyAustralia has implemented a manual outage data collection system. The system records two types of outages (planned and unplanned) using a series of existing EnergyAustralia systems.

Figure 1 illustrates SKM's understanding of the existing outage recording system.

■ **Figure 1 EnergyAustralia Recording System**





Historically, EnergyAustralia's Sydney and Hunter systems were operated totally independent of each other, but the two systems were merged into one network recording system during the mid 1990's. With reference to Figure 1, two separate components are currently used to report performance results:

- The Sydney system is based around two existing recording processes. The outage planning spreadsheet and the Control room logs, both of which are populated manually. The information is transferred to the "Transmission Availability" spreadsheet and checked using the SCADA system reports and the "System Load" spreadsheet that is a daily snapshot of all the outages on the Sydney network.
- The Hunter system is also based on two existing recording systems - the "System Operator Wallsend" Lotus notes calendar and the "Line Impedance Data" (LID) application. Similarly to the Sydney system, both are populated using a manual process. Planned outages are then transferred to a "Planned Outage" Spreadsheet, and unplanned outages to an "Interruption Management Database. The relevant system data is then compiled by the Control Room Manager and sent by e-mail to Sydney to be entered into the "Transmission Availability" Spreadsheet.

SKM highlighted in a previous audit that the existing recording system was predominately a manual process and subject to human error because of the lack of proper quality assurance processes. EnergyAustralia now have in place Network management system procedures that detail the processes to be used to retrieve the required data.

SKM reviewed the PI spreadsheets, carried out spot checks and undertook a walk-through of the reporting process for both Sydney and the Hunter systems. During this process, errors and unaccounted outages were discovered in the data supporting the original submission to the AER. EnergyAustralia has subsequently undertaken an internal review of the Sydney and Hunter system data and provided amended performance results and S-factors for 2005.

As a result of these audit findings, SKM considers that the existing EnergyAustralia system still needs to be significantly improved to remove the potential for manual errors. SKM recommends that the existing procedure be revisited to ensure that all outages can be correctly identified and recorded, with internal auditing to ensure outages are accurately and comprehensively captured and reported.

Given the manual nature of the reporting system and multiple paths the data travels through before final collation, the task of auditing the reported figures was inherently difficult. Overall, SKM has only a moderate degree of confidence in the current recording system due to the complex and manual processes. This conclusion is supported by the significant number of omissions that were



identified in the original data submission during the audit. Whilst acknowledging the amended data provided appears to be more accurate, SKM remains concerned that the nature of the current recording system potentially compromises the integrity of the outage data.

SKM understands that EnergyAustralia is in the process of developing a new Distribution Network Management System (DNMS) that will replace the existing aging SCADA system. EnergyAustralia have highlighted their intention to develop this system to collect the transmission circuit availability data automatically. EnergyAustralia is unclear on when the transmission circuit availability collection system will be in place, but the first phase of DNMS is expected to be commissioned during 2006. SKM recommends serious consideration is given to replacing the existing manual system with an integrated automatic system as soon as is practical.





### 3. Performance Measure

As set out in Appendix D of the *NSW and ACT transmission network revenue cap EnergyAustralia 2004/05 to 2008/09*, EnergyAustralia has to report on the following measures:

- **Measure 1a** Transmission Circuit availability (Measure)
  - Transmission feeders
  - Transmission transformers
  - Transmission reactive
- **Measure 1b** Circuit availability (Proposed measure)
  - MVA days of feeder availability
  - MVA days of transmission bulk supply transformer non-availability
  - MVAr days of reactive plant non-availability
- **Measure 2** Loss of supply event frequency index (Proposed measure)
- **Measure 3** Hours that planned outage plans were in place (Proposed measure)

As set out in Section 7.7 of the *NSW and ACT transmission network revenue cap EnergyAustralia 2004/05 to 2008/09*, “feeder availability” should be the only measure used to determine an annual financial incentive. Therefore the EnergyAustralia’s S-factor has been calculated based on feeder availability only.

Sinclair Knight Merz considers EnergyAustralia interpretation of Section 7.7 to be reasonable given the existing guidelines and the available historic data. However, it should be noted that throughout Section 7 of the document, the performance measure is referred to as “Transmission Circuit availability”. This can lead to some confusion as Transmission Circuit Availability has been defined in Appendix D to include the three sub-measures listed above in measure 1a. Therefore SKM considers the document and associated guidelines would benefit from review and updating to define and remove any inconsistencies and ambiguity.

#### 3.1 Inclusions

As discussed previously, EnergyAustralia has only included transmission feeders in the Transmission Circuit availability measure, and therefore the following equipment classes have been excluded from the S-factor calculation:

- Power Transformers;
- Phase Shift transformers;
- Static var compensators;
- Capacitor banks; and



- Other primary transmission transformer or transmission reactive assets within EnergyAustralia's transmission network.

### **3.2 Exclusions**

Appendix D of the *NSW and ACT transmission network revenue cap EnergyAustralia 2004/05 to 2008/09* and the *Service Standard Guidelines* contains provisions for certain defined events to be excluded from the S-factor calculation, on the basis that they are out of the control of Transmission Network Service Providers (TNSPs) or consistent with historical reporting of outages. These exclusions are as follows:

- Unregulated transmission assets;
- Any outage shown to be caused by a fault or other event on a "3<sup>rd</sup> party system" e.g. intertrip signal, generator outage, customer installation; and
- Force majeure event.

In its submission EnergyAustralia's has not applied for any exclusions under the guidelines set out above.



## 4. Calculation of S Factor and EnergyAustralia's proposed measures

### 4.1 Calculation of S Factor

Under the existing Service Standards, feeder outages are the only sub-measure used to calculate EnergyAustralia's S-Factor. SKM has checked EnergyAustralia's calculation of S-Factor and considers the calculation to be accurate and in accordance with the guidelines. Assuming that all the relevant outages have now been captured in the amended outage data, SKM can confirm a **bonus payment of 98.3% of the agreed Annual Revenue for 2005**. The S-factor results are shown in Table 1.

■ **Table 1 S-factor assessment**

No	Performance Measure	Target	EA Without Exclusions	EA With All Requested Exclusions	SKM Without Exclusions	SKM With Recommended Exclusions
1a	Transmission Circuit availability	96.96	98.3	98.3	98.3	98.3
	Transmission feeders		98.3	98.3	98.3	98.3
	Transmission transformers	None Incentive Measure	None Incentive Measure	None Incentive Measure	None Incentive Measure	None Incentive Measure
	Transmission reactive	None Incentive Measure	None Incentive Measure	None Incentive Measure	None Incentive Measure	None Incentive Measure

The profile of the applicable measure is shown in Appendix A to illustrate the performance in graphical terms.

### 4.2 EnergyAustralia's proposed measures

Due to the resubmission of the EnergyAustralia Service Standards report, SKM has been unable to validate the figures supplied within the second report (2005 Transmission Non-Incentive Service Standards – Report). The EnergyAustralia figures are shown in the Table 2.



■ **Table 2 Proposed Measures**

No	Performance Measure	EA Without Exclusions	EA With All Requested Exclusions	SKM Without Exclusions	SKM With Recommended Exclusions
1a	Transmission Circuit availability	n/a	n/a	n/a	n/a
	Transmission feeders	n/a	n/a	n/a	n/a
	Transmission transformers	98.81%	98.81%	Not reviewed	Not reviewed
	Transmission reactive	99.18%	99.18%	Not reviewed	Not reviewed
1b	Circuit availability				
	MVA days of feeder availability	99.30%	99.30%	Not reviewed	Not reviewed
	MVA days of transmission bulk supply transformer availability	99.47%	99.47%	Not reviewed	Not reviewed
	MVAr days of reactive plant non-availability	99.23%	99.23%	Not reviewed	Not reviewed
2	Loss of supply event frequency index	2 outages –total 28MVA	2 outages –total 28MVA	Not reviewed	Not reviewed
3	Hours that planned outage plans were in place	12 Hrs 1 event	12 Hrs 1 event	Not reviewed	Not reviewed



## Appendix A 2005 Performance Measure Profile

