

**TRANSMISSION NETWORK PERFORMANCE REPORT TO
AUSTRALIAN ENERGY REGULATOR 2005**

TRANSEND



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Produced by Transend Networks Pty Ltd

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1. Introduction

Transend Networks Pty Ltd (Transend) is required to report on its transmission network performance against the following four measures under the Australian Energy Regulator (AER) service standards guideline, (now incorporated in the "Compendium of electricity transmission regulatory guidelines" issued in August 2005):

1. Loss of Supply (LOS) events greater than 0.1 system minutes.
2. LOS events greater than 2.0 system minutes.
3. Transmission line circuit availability.
4. Transformer circuit availability.

Performance is monitored over a calendar year period. Service standards are described in the ACCC document "Decision - Tasmanian Transmission Network Revenue Cap 2004-2008/09". The measures, and their associated terms, are defined in the Transend document "TNM-GS-809-0099 ACCC Service Standards Scheme -Terms and Measures".

2. Results for Calendar Year 2005 (January – December)

Transend's performance against the four measures for 1 January – 31 December 2005 period is shown in Table 1. This performance takes into account the specific exclusions as discussed in Section 3 of this document. Performance without specific exclusions is shown in Table 2.

More information is provided on LOS events in Section 2.1.

Table 1 - Performance against ACCC service standards for 2005 (with specific exclusions)

| Maximum Revenue at risk | Maximum Penalty Performance | Penalty Trigger | Bonus Trigger | Maximum Bonus Performance | Actual Performance | |
|---|-----------------------------|-----------------|---------------|---------------------------|--------------------|------------------|
| | | | | | Result | %AR ¹ |
| S1 - Transmission line circuit availability – % availability | | | | | | |
| 0.25% | 98.9% | <99.1% | >99.2% | 99.4% | 98.67% | -0.2500% |
| S2 - Transformer circuit availability – % availability | | | | | | |
| 0.15% | 98.8% | <99.0% | >99.1% | 99.5% | 99.20% | 0.0375% |
| S3 - Loss of Supply Event Frequency Index (a) Number of events where loss of supply exceeds 0.1 system minutes | | | | | | |
| 0.2% | 20 events | >16 events | <13 events | 9 events | 13 events | 0.0000% |
| S4 - Loss of Supply Event Frequency Index (b) Number of events where loss of supply exceeds 2.0 system minutes | | | | | | |
| 0.4% | 5 events | >3 events | <2 events | 0 events | 0 events | 0.4000% |
| OVERALL PERFORMANCE INCENTIVE SCHEME PERFORMANCE (WITH EXCLUSIONS) | | | | | | |
| | | | | | | 0.1875% |

¹ AR – Allowable Revenue

Table 2 - Performance against ACCC service standards for 2005 (without specific exclusions)

| Maximum Revenue at risk | Maximum Penalty Performance | Penalty Trigger | Bonus Trigger | Maximum Bonus Performance | Actual Performance | |
|---|-----------------------------|-----------------|---------------|---------------------------|--------------------|------------------|
| | | | | | Result | %AR ¹ |
| S1 - Transmission line circuit availability – % availability | | | | | | |
| 0.25% | 98.9% | <99.1% | >99.2% | 99.4% | 98.63% | -0.2500% |
| S2 - Transformer circuit availability – % availability | | | | | | |
| 0.15% | 98.8% | <99.0% | >99.1% | 99.5% | 99.20% | 0.0375% |
| S3 - Loss of Supply Event Frequency Index (a) Number of events where loss of supply exceeds 0.1 system minutes | | | | | | |
| 0.2% | 20 events | >16 events | <13 events | 9 events | 16 events | 0.0000% |
| S4 - Loss of Supply Event Frequency Index (b) Number of events where loss of supply exceeds 2.0 system minutes | | | | | | |
| 0.4% | 5 events | >3 events | <2 events | 0 events | 3 events | 0.0000% |
| OVERALL PERFORMANCE INCENTIVE SCHEME PERFORMANCE (WITHOUT EXCLUSIONS) | | | | | | |
| | | | | | | -0.2125% |

2.1. Loss of Supply (LOS) events greater than 0.1 system minutes

The LOS events greater than 0.1 system minutes are shown in Table 3.

Table 3 - LOS events greater than 0.1 system minutes

| Date | Station/ Circuit | Remarks | System Minutes |
|---|---|---|----------------|
| LOS events > 2.0 system minutes | | | |
| 28-Jan-05 | Gordon-Chapel St No 1 & No 2 transmission line circuits | Lightning caused a double circuit outage of the Gordon-Chapel St 220 kV transmission circuits. The loss of Gordon Power Station led to a drop in system frequency and operation of the UFLS scheme, with loss of supply at a number of substations. | 4.19 |
| 3-Feb-05 | Norwood-Scottsdale-Derby transmission line circuit | Norwood-Scottsdale-Derby 88 kV transmission line circuit tripped due to a tree falling through the transmission line. There was loss of supply to Scottsdale and Derby substations. | 3.65 |

¹ AR – Allowable Revenue

| Date | Station/ Circuit | Remarks | System Minutes |
|--|---|--|----------------|
| 10-Sep-05 | Sheffield-Burnie No 1 & No 2 transmission line circuits | Lightning caused the outage of both the Sheffield-Burnie No 1 220 kV and Sheffield-Burnie No 2 110 kV transmission line circuits and isolated Port Latta, Burnie, Emu Bay, Smithton and Hampshire substations. | 4.08 |
| LOS events > 0.1 system minutes and ≤ 2.0 system minutes | | | |
| 31-Jan-05 | Risdon Substation | Inadvertent tripping of the under frequency load shedding scheme (UFLS) resulted in a loss of supply at Risdon Substation. | 0.61 |
| 1-Feb-05 | Lindisfarne Substation | Inadvertent tripping of 33 kV feeder circuits resulted in a loss of supply at Lindisfarne Substation. | 0.32 |
| 9-Feb-05 | Knights Rd-Kermandie transmission line circuit | The Knights Road-Kermandie 110 kV transmission line circuit tripped due to unknown cause resulting in loss of supply to Kermandie Substation. | 0.12 |
| 19-Feb-05 | Sheffield Substation | Inadvertent tripping of Sheffield 110 kV 'A' Bus resulted in a loss of supply to Ulverstone, Wesley Vale, Devonport and Railton substations. | 1.93 |
| 11-May-05 | Que Substation | Que 110/22 kV T1 transformer circuit tripped due to unknown cause. There was loss of supply to Que Substation. | 0.17 |
| 31-Aug-05 | Norwood-Scottsdale-Derby transmission line circuit | Norwood-Scottsdale-Derby 88 kV transmission line circuit tripped due to a protection coordination error. There was loss of supply to Scottsdale and Derby substations. | 0.36 |
| 10-Sep-05 | Palmerston-Arthurs Lake transmission line circuit | Palmerston-Arthurs Lake 110 kV transmission line circuit tripped due to lightning. There was loss of supply at Arthurs Lake Substation. | 0.36 |
| 2-Nov-05 | Kingston Substation | Kingston 11 kV 'B' Bus tripped due to unknown cause. There was loss of supply at Kingston Substation. | 0.18 |
| 4-Nov-05 | Lindisfarne-Sorell-Triabunna transmission line circuit | Lindisfarne-Sorell-Triabunna 110 kV transmission line circuit tripped during strong winds due to unknown cause resulting in loss of supply at Sorell and Triabunna substations. | 0.20 |
| 19-Nov-05 | Palmerston-Avoca transmission line circuit | Palmerston-Avoca 110 kV transmission line circuit tripped due to lightning. There was loss of supply to Avoca and St Marys substations. | 1.25 |
| 8-Dec-05 | Port Latta feeder circuit | Port Latta Feeder 22kV feeder circuit breaker failed to reclose after a feeder fault due to a "limit switch" failure. There was loss of supply to Australian Bulk Minerals. | 0.13 |
| 24-Dec-05 | Farrell-Rosebery-Queenstown transmission line circuit | Farrell-Rosebery-Queenstown 110 kV transmission line circuit and Queenstown 110/22 kV T2 transformer circuit tripped due to lightning. There was loss of supply at Queenstown Substation. | 0.24 |
| 27-Dec-05 | Farrell-Rosebery-Queenstown transmission line circuit | Farrell-Rosebery-Queenstown 110 kV transmission line circuit tripped due to an earth conductor failure resulting in loss of supply to Queenstown and Newton substations. | 1.78 |

3. Exclusions

The type of events that qualify for exclusion from the performance incentive scheme are detailed in the Transend document "TNM-GS-809-0099 ACCC Service Standards Scheme -Terms and Measures".

Specific exclusions in 2005 that meet the exclusion criteria are discussed in Section 3.1.

3.1. Specific Exclusions in 2005

3.1.1. Wholesale Metering Project

The wholesale metering project continued in 2005, to meet the impending National Electricity Code compliance obligations of the electricity entities within Tasmania. The transmission line circuit and transformer circuit outages undertaken for installing wholesale metering within the transmission system have been excluded from Transend's performance for 2005. Excluding these outages has a very minimal impact on the transmission line circuit availability and nearly no impact on the transformer circuit availability.

In Transend's Revenue Cap Application for the period 1 January 2004 to 30 June 2009, the outages to install wholesale energy market metering were defined as excluded events (see Transend's Revenue Cap Application, Appendix 4, Page 5, Table A3). The wholesale metering installation project was a prerequisite for Tasmania to enter National Electricity Market (NEM). Transend as a Transmission Network Service Provider (TNSP) has no control over the requirements of the project and/or implementation timing and methodology, as the project was non-negotiable and driven by the requirement for compliant metering.

The performance impact of installing wholesale metering is excluded on the grounds that:

- the project was extraordinary;
- it is a one-off project;
- Transend could not have prevented the impact of the project; and
- Transend could not have effectively reduced the impact of the project by adopting better practices.

Note: The impact of the Wholesale Metering Project on circuit availability performance was accepted as an exclusion in 2004 (see ACCC letter 28 April 2005 Application of the performance incentive scheme for 2004).

The affect of this exclusion on the performance incentive scheme is as follows:

| Measure | Affect (%) |
|--|------------|
| Transmission Line Circuit Availability | 0.03 |
| Transformer Circuit Availability | ~0.00 |

3.1.2. Network Control System Protection System

Transend undertook the Network Control System Protection Scheme (NCSPS) project in 2005 in preparation for Basslink and entering the national electricity market. Basslink will have an export transfer capability of 630 MW from Tasmania and an import transfer capacity of 480 MW into Tasmania. This load flow represents a substantial increment to the Tasmanian power system and introduces new requirements to manage high loadings on Transend's assets and enable NEMMCO to meet power system security obligations under the National Electricity Rules (NER). To meet these challenges, installation of the NCSPS was a NEMMCO prerequisite for Basslink commissioning. The NCSPS will

take pre-determined actions to ensure system stability following either the loss of Basslink or one of Transend's transmission circuits that are critical to Basslink transfers. The installation of NCSPS had an impact on circuit availability.

The performance impact of installing the NCSPS is excluded on the grounds that:

- the project was extraordinary;
- it is a one-off project;
- Transend could not have prevented the impact of the project; and
- Transend could not have effectively reduced the impact of the project by adopting better practices.

The affect of this exclusion on the performance incentive scheme is as follows:

| Measure | Affect (%) |
|--|------------|
| Transmission Line Circuit Availability | 0.01 |
| Transformer Circuit Availability | 0.00 |

3.1.3. Loss of Supply Events

The performance impacts of the following Loss of Supply events have been excluded.

On 28 January 2005, a double circuit outage occurred on the Gordon-Chapel St 220 kV transmission line due to lightning. The incident caused a loss of generation from Gordon Power Station and resulted in operation of under frequency load shedding (UFLS) schemes with a total loss of supply of 4.19 system minutes. A description of the outage and the reasons for exclusion is available as Transend Incident Report IR-113.

On 3 February 2005, an outage occurred on the Norwood-Scottsdale-Derby 88 kV transmission circuit. This was the result of a tree falling on the transmission line during a storm. The incident caused the breakage of two conductors and a transmission tower and resulted in a total loss of supply of 3.65 system minutes. A description of the incident and the reasons for exclusion is available as Transend Incident Report IR-116.

On 10 September 2005, a double circuit outage occurred on the Sheffield-Burnie 220 kV and 110 kV transmission line circuits due to lightning. The incident was exacerbated by a concurrent outage of the Ulverstone-Emu Bay 110 kV transmission circuit and the failure of associated telecommunication services due to lightning. The incident caused a loss of supply to a number of North West substations of 4.08 system minutes. A description of the incident and the reasons for exclusion is available as Transend Incident Report IR-163.

The above loss of supply incidents were investigated thoroughly by applying Transend's internal investigation process that follows the SCAT (Systematic Cause Analysis Technique). The investigations identified some opportunities for improvement, including changes to operating practices and/ or future capital expenditure considerations. However, even with such improvements introduced, each of these events would have had a significant loss of supply impact. This reflects the underlying nature of each event. The performance impact of the three losses of supply events is therefore excluded on the grounds that:

- each event was extraordinary, uncontrollable and not manageable by Transend;
- each was a one-off event;
- Transend could not have prevented the impact of the event; and
- Transend could not have effectively reduced the impact of the event by adopting better practices.

The affect of this exclusion on the performance incentive scheme is as follows:

| Measure | Without exclusions | With exclusions |
|---------------------------------|--------------------|-----------------|
| LOS events > 0.1 system minutes | 16 | 13 |
| LOS events > 2.0 system minutes | 3 | 0 |

4. References

- TNM-GS-809-0099 ACCC Service Standards Scheme -Terms and Measures
- ACCC Decision - Tasmanian Transmission Network Revenue Cap 2004-2008/09
- Incident Report IR113 Gordon-Chapel St 220 kV No 1 and No 2 Transmission Circuits
- Incident Report IR116 North East Supply Interruption
- Incident Report IR163 Sheffield-Burnie 220 kV No 1 and Sheffield-Burnie 110 kV No 2 Transmission Circuits
- ACCC letter 28 April 2005 Application of the performance incentive scheme for 2004
- AER's Compendium of electricity transmission regulatory guidelines (August 2005)