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**Electricity Network Safety  
Management System**

Audit Report

**TransGrid**

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## Glossary

Abbreviation	Description
AS 5577	Australian Standard AS 5577:2013 <i>Electricity network safety management systems</i>
AS/NZS ISO 19011	Australian / New Zealand ISO Standard 19011:2014 <i>Guidelines for auditing management systems</i>
AS/NZS ISO 31000	Australian / New Zealand ISO Standard 31000:2009 <i>Risk management – Principles and guidelines</i>
ENSMS	Electricity Network Safety Management System
Regulation	Electricity Supply (Safety and Network Management) Regulation 2014
TRIM	TransGrid's corporate document and record management system
Wire	TransGrid's intranet portal



## Executive Summary

TransGrid owns, operates and maintains one of the largest electricity transmission networks in Australia spanning across New South Wales and the Australian Capital Territory. TransGrid's network includes over 12,900km of high voltage overhead transmission lines and underground cables, 98 substations including switching points, over 40 connection points to generators and over 300 electricity distributor and direct-customer connection points.

Aurecon was engaged by TransGrid to undertake an external audit of their electricity network safety management system in accordance with the requirements of the Electricity Supply (Safety and Network Management) Regulation 2014 (Regulation) and Australian Standard 5577:2013 *Electricity network safety management systems (AS 5577)*. This audit has been conducted following the guidelines of ISO 19011:2014 *Guidelines for auditing management systems*.

This audit report outlines the approach, findings, results and conclusions of the audit undertaken by Aurecon of TransGrid's electricity network safety management system.

Overall, TransGrid's safety management system was found to be complying with the requirements of the Regulation. The audit found three (3) items which are considered to be areas of concern where the system is generally compliant but requires some modification to achieve the full intent of the Regulation. In addition, sixteen (16) opportunities for improvement have been identified that TransGrid can use as a basis for continual improvement.

Based on the evidence obtained through a review of documented systems, interviews and a site inspection, Aurecon as auditor is able to conclude that in regards to TransGrid's safety management system:

- the safety management system achieves the primary objective of safety management systems identified in the Regulation, namely to support:
  - the safety of members of the public
  - the safety of persons working on networks
  - the protection of property (whether or not belonging to a network operator)
  - the management of safety risks arising from the protection of the environment (for example, preventing bush fires that may be ignited by network assets)
  - the management of safety risks arising from loss of electricity supply
- the safety management system is in accordance with AS 5577:2013 and deals with items 7(b)(i-iv) of the Regulation, namely:
  - the safety and reliability of the network operator's network
  - the safety of electrical installations of customers connected to the network operator's network
  - advice to the public about the hazards associated with electricity in relation to the network operator's network
  - management of bush fire risk relating to electricity lines and other assets of the network operator's network that are capable of initiating bush fire
- the safety management system is appropriate, having regard to the nature, size and complexity of the TransGrid's network as described in the ENSMS Description document
- the safety management system is being properly implemented

# 1 Introduction

## 1.1 Background

TransGrid owns, operates and maintains one of the largest electricity transmission networks in Australia spanning across New South Wales and the Australian Capital Territory. TransGrid's network includes over 12,900km of high voltage overhead transmission lines and underground cables, 98 substations including switching points, over 40 connection points to generators and over 300 electricity distributor and direct-customer connection points.

Australian Standard AS 5577:2013 *Electricity network safety management systems (AS 5577)* was published on 12 April 2013 and provides nationally consistent requirements for the development of an electricity network safety management system (ENSMS) by an electricity network operator.

The Electricity Supply (Safety and Network Management) Regulation ('Regulation') was amended in 2014 with commencement on 1 September 2014. Part 2 of the Regulation outlines the requirements for safety management systems.

A written report of the results of the first audit of a network operator's safety management system is to be provided to the NSW government by no later than 1 June 2015. TransGrid has engaged Aurecon to undertake this audit.

## 1.2 Purpose of report

This audit report outlines the approach, findings, results and conclusions of the audit undertaken by Aurecon of TransGrid's electricity network safety management system.

## 1.3 Definitions

Table 1 below defines the terminology used in the audit and identifies the action required with respect to audit findings.

Table 1 Definitions and action required

Audit Finding	Definition and Actions
Compliant	Addresses the requirements of AS 5577. No corrective actions required.
Non-compliant	Based on objective evidence, the absence of, or a significant failure to implement and/or maintain compliance to the requirements of AS 5577. Corrective actions will be required to address non-compliances.
Area of concern	Area of the system for which the client is generally compliant but requires some modification to achieve the full intent of the Regulation.
Opportunity for improvement	A documented statement to identify opportunities for improvement for the ENSMS. These items can be used as a basis for continual improvement of the system.



## 2 Audit Plan

### 2.1 Overview

Aurecon's approach to conducting the audit of TransGrid's ENSMS is based upon the guidelines provided in AS/NZS ISO 19011:2014 *Guidelines for auditing management systems (ISO 19011)*. A table outlining how Aurecon has applied these guidelines is included in Appendix D.

### 2.2 Audit objectives

The objective of Aurecon's audit of the TransGrid ENSMS is to address whether or not the safety management system:

- achieves the primary objective of safety management systems
- is in accordance with AS 5577 and deals with matters identified in Part 2, Division 1, Items 7(b)(i-iv) of the Regulation
- is appropriate, having regard to the nature, size and complexity of the network operator's network
- is being properly implemented

### 2.3 Audit scope

The scope of the audit is TransGrid's ENSMS and includes the safety related aspects of the design, construction, commissioning, operation, maintenance and decommissioning of TransGrid's network (or any part thereof).

### 2.4 Audit criteria

The criteria for the audit is the requirements of the Electricity Supply (Safety and Network Management) Regulation 2014 which nominates the requirements of Australian Standard AS 5577:2013 *Electricity network safety management systems*. Audit results and conclusions are based on the requirements of the Electricity Supply (Safety and Network Management) Regulation 2014, Part 2, Division 2, Items 11(4)(b-e).

### 2.5 Aurecon audit team

The audit team was comprised of the following consultants from Aurecon:

- Carl Badenhorst (Verifier)
- David Hughes (Lead Auditor)
- Michael Wicks (Auditor)
- Andrew North (Specialist Safety Advisor)

### 2.6 TransGrid participants in audit

The TransGrid staff who participated in audit activities are outlined in Section 3 and Appendix C.

### 2.7 Sampling approach

For auditing the implementation of TransGrid's ENSMS, it is neither practical nor cost effective to examine all available records. As such, sampling has been undertaken to obtain and evaluate



evidence about characteristics of the population, in order to form a conclusion concerning the population.

In the areas of design, construction, commissioning, maintenance, operation and decommissioning, Aurecon requested that TransGrid provide a list of three active projects for consideration. From this list of three, Aurecon selected one project for consideration in the site inspection audit activity.

## 3 Audit Activities

### 3.1 Opening meeting

An audit opening meeting was held from 8.30am – 9am on Tuesday 14 April 2015 at TransGrid's head office building in Ultimo, Sydney. The meeting was attended by:

- [REDACTED] (Group Manager – Asset Strategies | TransGrid)
- [REDACTED] (Asset Performance and Systems Manager | TransGrid)
- [REDACTED] (Engineer – Asset Strategy | TransGrid)
- [REDACTED] (Technical Director | Aurecon) on behalf of Carl Badenhorst
- [REDACTED] Lead Auditor | Aurecon)
- [REDACTED] (Auditor | Aurecon)

### 3.2 Documentation review

A list of the plans, policies, procedures and other management documents contained in TransGrid's safety management system which have been considered during this audit is included in Appendix A.

### 3.3 Interviews

For the purpose of auditing the implementation of TransGrid's ENSMS, a series of interviews were conducted by the Aurecon audit team on Tuesday 14 April 2015 and Friday 17 April 2015. An overview of each of these interviews including topic, attendees, dates/time, focus areas and relevant documentation/processes are outlined in Appendix C.

### 3.4 Site inspection

A site inspection was held from 7.00am - 9.30am on Friday 17 April 2015 at TransGrid's Sydney South 330/132kV substation site in Picnic Point, NSW. At this site, the following activities were being undertaken by TransGrid:

- 330kV circuit breaker maintenance

The meeting was attended by:

- [REDACTED] (Team Leader – Substations | TransGrid)
- [REDACTED] Senior Grid Officer | TransGrid)
- [REDACTED] (Engineer – Asset Strategies | TransGrid)
- [REDACTED] (Lead Auditor | Aurecon)

### 3.5 Closing meeting

An audit closing meeting was held from 4.30pm – 5.00pm on Friday 17 April 2015 at TransGrid's Wallgrove office in Eastern Creek, NSW. The meeting was attended by:

- [REDACTED] (Asset Performance and Systems Manager | TransGrid)
- [REDACTED] (Engineer – Asset Strategy | TransGrid)
- [REDACTED] (Lead Auditor | Aurecon)

## 4 Audit Findings

### 4.1 Summary of audit findings

This section of the audit report provides a summary of the key audit findings. A detailed assessment of TransGrid's documentation and implementation of the ENSMS is provided in Appendix B.

TransGrid's safety management system was found to be complying with the requirements of the Regulation. The audit did find three (3) items which are considered to be areas of concern where the system is generally compliant but requires some modification to achieve the full intent of the Regulation. In addition, a number of opportunities for improvement have been identified that TransGrid can use as a basis for continual improvement.

When considering TransGrid's ENSMS, it is important to note that the system has been developed to integrate with TransGrid's other existing and certified management systems including:

- Quality Management System, certified to ISO 9001:2008
- Health and Safety Management System, certified to AS 4801:2001
- Environmental Management System, certified to ISO 14001:2004
- Asset Management System, certified to ISO 55001

#### 4.1.1 Non-compliances

No non-compliances, as defined in Section 1.3, were identified during the audit.

#### 4.1.2 Areas of concern

Table 2 Audit findings – Areas of concern

Item	AS 5577:2013 Clause Reference	Area of Concern
AOC 1	1.2, 4.3.2, Appendix B	In Formal Safety Assessments, the demonstration of 'So Far As Is Reasonably Practicable' (SFAIRP) and 'As Low As Reasonably Practicable' (ALARP) requires documentation that the cost to deliver further risk reduction is considered grossly disproportionate to the benefit gained. A field to document these decisions is not currently available in TransGrid's formal safety assessment risk registers.
AOC 2	4.4.4	The responsibilities, accountabilities and authorities of the EGM/Project Services are not currently specified in the ENSMS Description Section 4.7. Although these are included in Appendix 1 of the ENSMS Description, this role is considered to be of sufficient importance to include a detailed description in Section 4.7 of the ENSMS Description.
AOC 3	4.5.4	The ENSMS Description document does not specify the frequency of audits (internal and/or external) of the ENSMS as a system for conformance against the requirements of AS 5577 (internal and/or external).

### 4.1.3 Opportunities for improvement

Table 3 Audit findings – Opportunities for improvement

Item	AS 5577:2013 Clause Reference	Opportunity for Improvement
OFI 1	1.3	Include statements about the management of changes to relevant standards in Section 4.4 of the ENSMS Description document.
OFI 2	4.1	ENSMS Description Appendix 3 - recommend deleting row dividers for sites with multiple voltage levels.
OFI 3	4.1 (Notes)	ENSMS Description should identify which sections of the existing management systems (ISO 9001, 14001, 4801 and 55001) are referred to in each section of the ENSMS as it leverages off these systems for the majority of the document.  The use of hyperlinks within the ENSMS Document could direct the reader to the locations of relevant documentation on the 'Wire'.
OFI 4	4.3.2	Safety in Design Procedure should make specific reference to TransGrid's Risk Management Framework and likelihood and consequences definitions should align with this framework.
OFI 5	4.3.2	The traffic lights colour scheme implemented in the Formal Safety Assessments undertaken at the Project Scoping stage (PSS) could not be traced to defined criteria. Recommend making reference to the risk matrix categories and likelihood and consequences descriptions contained in the Risk Management Framework.
OFI 6	4.3.2	Process described in ENSMS Description Section 4.2.5 follows the principles of ALARP. Recommend clarifying in this document that "where reasonably practicable the elimination of the source of risk and where elimination is not reasonably practicable, the identification of treatments or controls so that residual risks are reduced to as low as reasonably practicable (ALARP)."
OFI 7	4.3.4.1, 4.3.4.2	Recommend investigating the benefits of developing a standard design manual for transmission line assets, similar to the standard design manuals for substation assets.
OFI 8	4.3.4.1, 4.3.4.2	The ENSMS Description Section 4.4.1 identifies that construction is carried out in accordance with designs. Recommend also making reference to TransGrid's 'Standard Construction Manual' for relevant standards for material selection, workmanship and testing.
OFI 9	4.3.4.1, 4.3.4.2	Inclusion of justification statements for any non-use or non-compliance with standards for design, construction, commissioning, installation, operation, maintenance and decommissioning of network assets within the Standard Design Manuals or for project specific cases, the Safe Design Report.
OFI 10	4.4.2, 4.6.1	A revision to the Charter of the Asset Management System Review Committee is currently in a draft form. This draft revision incorporates the items relating to the ENSMS. This revision should be finalised, approved and issued in a timely manner. It is noted that this is an agenda item for the June 2015 Committee meeting.
OFI 11	4.4.3	Asset Owner – Asset Manager – Service Provider Business Model Description to be updated to reflect recent management structure changes. Noted that responsibilities identified in the ENSMS Description document capture the reassigned responsibilities under the new management structure.
OFI 12	4.4.5	Through interviews, it was apparent that staff were adequately trained in the obligations of the ENSMS applicable to their position, however staff were not generally familiar with the term 'ENSMS' and the existence of the overall system. There is an opportunity to improve broader communications to build awareness of the ENSMS as a system within TransGrid and the relation to existing health and safety, environmental management and asset management systems.

Item	AS 5577:2013 Clause Reference	Opportunity for Improvement
OFI 13	4.5.1.2	Include TransGrid's reliability indicators in the list in ENSMS Description Section 4.11 (asset availability and outage statistics)
OFI 14	4.5.3	ENSMS Section 4.13.1 refers to the 'Records Management' and 'Control of Quality Documents' documents on the Wire. These documents have been superseded by the recent 'Document and Record Management' document and as such these references should be corrected.
OFI 15	4.6.1	Recommend that the ENSMS should be reviewed 12 months after the initial external audit to confirm that organisational changes and procedural updates are still in alignment with the system requirements and are being implemented. Technical experts from Quality, Safety and Asset Management areas should have input at the review of the document at the Asset Management System Review Committee.
OFI 16	4.6.2	Recommend updating the Asset Management System Management of Change procedure to incorporate ENSMS elements within the scope of this procedure.

## 4.2 Policy and commitment

TransGrid has identified two existing policies upon which they base their ENSMS:

- Asset Management Policy – with a commitment to ensure that its electricity transmission network assets are effectively managed across the complete asset lifecycle in a safe, efficient, co-ordinated, and environmentally sensitive way that sustainably serves the needs of its stakeholders, customers and electricity end-use consumers, and optimises the long-term return on investment for its shareholder.
- Health and Safety Policy – with a commitment to protecting the health and safety of employees, contractors, visitors and the public.

Through interviews with representatives from the executive management level through to field maintenance crews, it was apparent that TransGrid demonstrates an active commitment to both the asset management and health and safety policies.

## 4.3 Planning

TransGrid has mature, established processes and procedures for ensuring network safety for normal operations and foreseeable abnormal operations including emergencies. These processes and procedures include Formal Safety Assessments guided by TransGrid's Risk Management Framework which is based on the principles of AS/NZS ISO 31000. These assessments are undertaken to consider the planning, design, construction, commissioning, installation, operation, maintenance and decommissioning phases of the network lifecycle.

These procedures and processes are made available to all staff through the company intranet, the 'Wire'. It was evident through interviews, site inspection and sampled document records that these procedures and processes are implemented in relation to activities on TransGrid's network.

Of particular note is TransGrid's 'Bush Fire Risk Management Plan' and 'Bush Fire Preparedness Report' which outline TransGrid's commitment to the management of bush fire risk relating to electricity lines and other assets of the network that are capable of initiating bush fire.

Additionally, TransGrid's 'Public Safety Electrical Awareness Plan' and associated action plan outline the initiatives undertaken to provide advice to the public about the hazards associated with electricity in relation to TransGrid's network.

#### **Area of Concern:**

- **Demonstration of SFAIRP and ALARP –**

AS 5577 mentions eliminating safety risks 'so far as is reasonably practicable' (SFAIRP) and where elimination is not reasonably practicable, the reduction of residual risk to 'as low as reasonably practicable' (ALARP). When applied, both SFAIRP and ALARP require demonstration that the cost to deliver further risk reduction is considered to be grossly disproportionate to the benefit gained. These 'reasonably practicable' decisions need to be documented according to Appendix B of AS 5577. To strengthen compliance, a column could be added to the formal safety assessment risk registers entitled 'Comments/Justification of Reasonably Practicable'. Records in this column can be used to demonstrate that the costs associated with additional measures are considered grossly disproportionate to the benefits gained.

#### **4.4 Implementation**

TransGrid has issued an ENSMS Description document which outlines the key attributes and defines the approach for implementing the ENSMS. TransGrid's ENSMS has been developed to integrate with existing management systems to address specific assets that are particular to a network complying with AS 5577. The ENSMS Description document defines the boundaries and interfaces of the ENSMS with TransGrid's existing management systems. This approach is considered to be appropriate for TransGrid's ENSMS.

TransGrid has recently undertaken a management restructure which has achieved further alignment with an Asset Owner – Asset Manager – Service Provider model. The responsibilities, accountabilities and authorities to the Executive General Management level are reflected in the ENSMS Description document and cascaded within individual management procedures and processes. This management structure is considered appropriate having regard to the nature, size and complexity of TransGrid's network.

TransGrid undertakes strategic resource planning across the business and it was evident through interviews with management that sufficient resources are deployed throughout the network area and available to manage planned and unplanned operations and maintenance activities including emergency response. There are appropriate measures in place to accommodate leave and training requirements in resource planning.

Of particular note regarding training and competency, authorisations under TransGrid's Power System Safety Rules and mandatory compliance training modules are recorded in the 'Authorisation and Training' (AAT) system and expiry dates for refresher training are used to trigger substation access card expiry.

Through interviews, it was apparent that staff were adequately trained in the obligations of the ENSMS applicable to their position, however staff were not generally familiar with the term 'ENSMS' and the existence of the overall system. There is an opportunity to improve broader communications to build awareness of the ENSMS as a system within TransGrid and the relation to existing health and safety, environmental management and asset management systems.

#### **Area of Concern:**

- The responsibilities, accountabilities and authorities of the EGM/Project Services are not currently specified in the ENSMS Description Section 4.7. Although these are included in Appendix 1 of the ENSMS Description, this role is considered to be of sufficient importance to include a detailed description in Section 4.7 of the ENSMS Description.



#### 4.5 Measurement and evaluation

TransGrid measures operational, maintenance and reliability data which is used to monitor and measure the safety and performance of the network. Trends identified in these indicators are considered by the Asset Management System Review Committee as part of the management review of the ENSMS. The indicators used to monitor performance are considered to be aligned with the primary objectives of the ENSMS.

For corrective and preventative actions, TransGrid has recently implemented the Action and Risk Management System for managing and monitoring management actions from risk assessments (strategic and operational), audit findings and management improvement initiatives.

For incident investigation, TransGrid currently implements an Incident Notification System for recording and tracking health, safety and environmental incidents. It was noted that a new module of the Action and Risk Management System is currently in development and is intended to replace the function of the current Incident Notification System in the coming months. It is recommended that this new module of the Action and Risk Management System be considered in future audits of the ENSMS.

The processes and procedures leveraged by the ENSMS, including Formal Safety Assessments, are subject to audits in accordance with TransGrid's Corporate Audit and Risk Framework to maintain compliance with existing certifications. Audit results for the ENSMS are reviewed and actioned by the Asset Management System Review Committee.

##### **Area of Concern:**

- The ENSMS Description document does not specify the frequency of audits (internal and/or external) of the ENSMS as a system for conformance against the requirements of AS 5577 (internal and/or external).

#### 4.6 Management review and change management

Monitoring, evaluation and management review of the ENSMS is undertaken by TransGrid's Asset Management Review Committee. The charter of this committee is currently being updated to reflect this new responsibility and management review of the ENSMS has been identified as an agenda item for discussion at the June 2015 Committee meeting. It is recommended that meeting minutes from this committee be considered in future audits of the ENSMS.

Given the recent restructuring activity and the development of the Action and Risk Management System, it is recommended that the ENSMS be reviewed 12 months after the initial external audit to confirm that organisational changes and procedural updates are still in alignment with the system requirements and are being implemented.

TransGrid has nominated that changes to the ENSMS will be managed by applying the Asset Management Systems Management of Change procedure. This procedure is considered to be appropriate as it identifies that risk assessments are to be undertaken for any planned changes and that these changes will be implemented through structured transitions. It is recommended that the implementation of the change management procedure be considered in future audits of the ENSMS.



## 5 Audit Conclusion

Based on the evidence obtained through a review of documented systems, interviews and a site inspection, Aurecon as auditor is able to conclude that in regards to TransGrid's safety management system:

- the safety management system achieves the primary objective of safety management systems identified in the Regulation, namely to support:
  - the safety of members of the public
  - the safety of persons working on networks
  - the protection of property (whether or not belonging to a network operator)
  - the management of safety risks arising from the protection of the environment (for example, preventing bush fires that may be ignited by network assets)
  - the management of safety risks arising from loss of electricity supply
- the safety management system is in accordance with AS 5577:2013 and deals with items 7(b)(i-iv) of the Regulation, namely:
  - the safety and reliability of the network operator's network
  - the safety of electrical installations of customers connected to the network operator's network
  - advice to the public about the hazards associated with electricity in relation to the network operator's network
  - management of bush fire risk relating to electricity lines and other assets of the network operator's network that are capable of initiating bush fire
- the safety management system is appropriate, having regard to the nature, size and complexity of the TransGrid's network as described in the ENSMS Description document
- the safety management system is being properly implemented

# Appendix A

## TransGrid ENSMS – Register of management system documents considered under audit

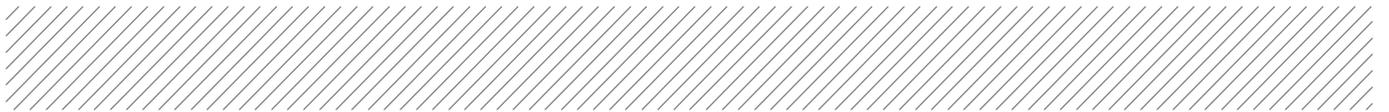
Item	Management System Document Title
001	16 Maintenance Plan - Cables 12-05-14.docx
002	21 RMS - Cables 20141015 APPROVED.pdf
003	23 RMS - T-Ls - 20141016 APPROVED.pdf
004	3 Maintenance Plan - Transmission Lines 12-05-14.docx
005	32 RMS - Substation Assets - 20141016 APPROVED.pdf
006	340 Maintenance Handover.pdf
007	4 Maintenance Plan - Security Assets 20140521.docx
008	6 Renewal Plan - Security Assets_MI 13-05-14 APPROVED.pdf
009	Action and Risk Management System.pdf
010	AEI 33 kV Circuit Breaker Type LGIC 44 - GM AS S3 026.pdf
011	Aerial Surveillance of Transmission Lines - Policy - GM AS L1 006.docx
012	AMS Triennial Audit Plan_2014-17 APPROVED.pdf
013	Ancillary Maintenance SER No 900 - GM AS S3 030.pdf
014	AO-AM-SP Business Model Description.pdf
015	ARTEMIS - project resource management.docx
016	ASEA 132 kV Circuit Breaker Type HLD and Type HKEY - GM AS S3 014.pdf
017	Asset Information Strategy.pdf
018	Asset Management Policy Poster.pdf
019	Asset Management Policy.pdf
020	Asset management strategy and objectives.pdf
021	Asset Management System Audit Framework.pdf
022	Asset Management System Communication Strategy.pptx
023	Asset Management System Competency Framework.pdf
024	Asset Management System Continual Improvement Process.pdf
025	Asset Management System Description.pdf
026	Asset Management System Enabler Strategy.pdf
027	Asset Management System Management of Change Procedure.pdf
028	Asset Management System Review Committee Procedure.pdf
029	Asset Management System Review Procedure.pdf
030	Asset Management System Working Groups Procedure.pdf
031	Asset Mgt Ctee Charter - Update v5.docx
032	Cable Assets Condition Monitoring Manual - GM AS S1 016.pdf
033	Commissioning of High Voltage Plant and Equipment - Checksheet Requirements.pdf
034	Commissioning of Protection Equipment - Check Sheet.pdf
035	Commissioning of Revenue and Check Metering Installations.doc
036	Commissioning.docx

  
**Item Management System Document Title**

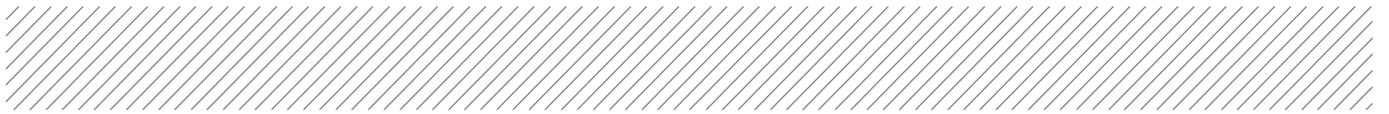
037	Construction Risk Management.pdf
038	Continuity of Transmission Supply Plan.doc
039	Contractor Health and Safety Management.pdf
040	Corporate and Regional Emergency Management Plan (CREMP).docx
041	Corporate Audit and Risk Framework.pdf
042	Corporate Governance Framework.pdf
043	D2011_03755_ASM Artemis_20130507.docx
044	D2013 16295 Design Std Review.docx
045	D2015 02900 Handover and Commissioning Sheets - DPT .pdf
046	Design Management - Contract.pdf
047	Design Management - Internal.pdf
048	Design Review Committee Procedure.pdf
049	Disposal Procedures.docx
050	Document and Records Management.pdf
051	Ellipse Work Planning Scheduling.docx
052	Email Communication Framework.pdf
053	ENSMS Description.pdf
054	Environmental Management System Framework.pdf
055	Executive Health and Safety Committee Charter.pdf
056	Fire Protection Manual Operations and Maintenance.docx
057	First Aid Services.docx
058	Handover Advice Memo.docx
059	Handover of assets to NS&O.docx
060	Hazardous Chemicals Storage and Transport.docx
061	Health and Safety Management System Framework.pdf
062	Health and Safety Policy - Revision 3 - 18 March 2015.docx
063	Health and Safety Policy.pdf
064	Health and Safety Risk Assessment.pdf
065	Health and Safety, Environment and Fire Audit Process.pdf
066	Health, Safety and Wellbeing Policy - DRAFT.docx
067	High Voltage Network Alterations - Operational Requirements.docx
068	HS (Health and Safety) Incident Management.pdf
069	HSE Communication and Reporting - Draft.docx
070	ICT Disaster Recovery Procedure.pdf
071	Induction Procedure.pdf
072	Internal Audit Reporting Guide.pdf
073	Internal Communications Framework.docx
074	Issues Management Process.pdf
075	Line Handover Form.docx
076	Lines Competencies Framework v0 5.docx
077	M7 Subs Maintenance Plan 30-5-14.docx
078	Maintenance of Easements and Access Tracks Policy - GM AS L1 002.docx
079	Management Structure.pdf
080	Network Development Strategy.pdf
081	Network Investment Process.pdf
082	Network Investment Risk Assessment Methodology.pdf
083	Network management plan.pdf
084	Network Performance Review Committee Procedure.pdf
085	Network Renewal and Maintenance Strategy - Substation Security Assets.pdf

  
**Item Management System Document Title**

086	OM554 - Outage Statistics and Reporting.docx
087	OM556 - Logging at System Operations control centres.docx
088	Operating Manual 250 - Planning Transmission Equipment Outages.docx
089	Operating Manual 666 - Restart of New South Wales system.docx
090	Operating Manual 680 - Planned outages.docx
091	Operating Manual 681 - Contingency Planning.doc
092	Operating Manual 686 - Automatic and manual reclosure of transmission lines.doc
093	Operating Manual 695 - Bushfire and weather hazards.doc
094	Operating Manual 821 - Bomb Threats.docx
095	Operating Manual 861 - SCADA equipment failure alarms.doc
096	Operations and Maintenance Steering Committee Procedure.pdf
097	Performance Management Process Brochure.pdf
098	Performance Management Process.pdf
099	Portable Earthing of High Voltage Conductors.docx
100	Power System Safety Rules Authorisation.docx
101	Power System Safety Rules.pdf
102	Procurement Procedure.docx
103	Project Delivery Manual- Extract.docx
104	Project Delivery Manual.docx
105	Project Risk Management.docx
106	Project Risk Register - ING 330kV CB 78A Replacement.xlsx
107	Proving High Voltage Conductors De-Energised.docx
108	R2 Renewal Plan - Substations 23-05-14 reviewed by KW v2 APPROVED.pdf
109	R4 Renewal Plan - TLines 12-05-14 APPROVED.pdf
110	R5 Renewal Plan - Cable Assets 12-05-14 APPROVED.pdf
111	Return to Work Program.pdf
112	Risk Management Framework.pdf
113	Safe Work Method Statement - Use of Medium Rigid Truck for Routine Substation Maintenance Work - SUBS 7.pdf
114	Safe Work Method Statement - Circuit Breaker Maintenance SF6.doc
115	Safe Work Method Statement - Ground Level Maintenance of Steel Structures TL 33.pdf
116	Safe Work Method Statement - Work Involving Panther Conductor TL 8.pdf
117	Safe Work Practices on High Voltage Overhead Lines.pdf
118	Safe Work Practices on High Voltage Substation Apparatus.docx
119	Safe Working Practices Equipment and Tools.doc
120	Safety in Design Procedure.pdf
121	Significant Electricity Network Incidents (SENI) Process.doc
122	SSA - Plan - Maintenance - Control Systems (2).pdf
123	SSA - Plan - Maintenance - Metering.pdf
124	SSA - Plan - Maintenance - Protection (2).pdf
125	SSA - Plan - Maintenance -Telecommunications (2).pdf
126	Stakeholder Management Framework.pdf
127	Standard Construction Manual.pdf
128	Standard Design Manual - Automation.pdf
129	Standard Design Manual - Civil and Structures.pdf
130	Standard Design Manual - Communications.pdf
131	Standard Design Manual - Control.pdf
132	Standard Design Manual - High Voltage.pdf
133	Standard Design Manual - Protection.pdf



<b>Item</b>	<b>Management System Document Title</b>
134	Standard SiD Risk Register - Primary Civil.xlsx
135	Strategic Workforce Planning Report 2013-18.pdf
136	Subs Handover Form.docx
137	Substation Automation Systems v4.docx
138	Substation Competencies Framework V0.5.docx
139	Substation Oil Containment.pdf
140	Substations Condition Monitoring Manual - GM AS S1 008.pdf
141	Succession Planning Procedure.docx
142	Succession Planning.pdf
143	Surplus Substation Equipment and Assets Disposal form.doc
144	Sydney Office Health and Safety Committee Consultation Statement.pdf
145	Technical Performance Assessment Procedure.docx
146	Telecommunications Infrastructure v4.docx
147	Telecommunications Terminal Equipment v4.docx
148	Testing of High Voltage Equipment Prior to Energisation - GM AS S1 002.pdf
149	Training Procedure.pdf
150	Transformer Maintenance SER No 600 - GM AS S3 029.pdf
151	Transmission Annual Planning Report.pdf
152	Transmission Line Maintenance Policy - GM AS L1 001.docx
153	Transmission Lines - Standard Safety in Design Risk Register.xlsx
154	Transportation, Storage and Disposal of Polychlorinated Biphenyls.pdf
155	Wallgrove Office Health and Safety Committee Consultation Statement.pdf
156	Work Instruction - Disposal of Batteries.pdf
157	Work Instruction - Disposal of Redundant Timber Poles.pdf
158	Work Instruction - Project Induction when TransGrid is Principal Contrac....pdf
159	Workers Compensation.pdf
160	Workforce Planning - BAU Procedure.docx



# Appendix B

## TransGrid ENSMS – Detailed AS 5577 compliance assessment

Definitions		
<b>Compliant</b>	Addresses the requirements of AS 5577. No corrective actions required.	
<b>Non-compliant</b>	Based on objective evidence, the absence of, or a significant failure to implement and/or maintain compliance to the requirements of AS 5577. Corrective actions will be required to address non-compliances.	
<b>Area of concern (AOC)</b>	Area of the system for which the client is generally compliant but requires some modification to achieve the full intent of the Regulation.	
<b>Opportunity for improvement (OFI)</b>	A documented statement to identify opportunities for improvement for the ENSMS. These items can be used as a basis for continual improvement of the system.	

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
<b>1</b>	.	<b>SCOPE AND GENERAL</b>	-	-		
<b>1.2</b>	.	<b>FUNDAMENTAL PRINCIPLES</b>	-	-		
<b>1.2</b>	.	The fundamental principles on which this Standard is based are as follows:	-	-		
<b>1.2</b>	(a)	The Standard exists for the support of—	-	-		
<b>1.2</b>	.	(i) the safety of the public, and persons near or working on the network; (ii) the protection of property and network assets; (iii) safety aspects arising from the protection of the environment, including protection from ignition of fires by electricity networks; and (iv) safety aspects arising from the loss of electricity supply.	Information	-		
<b>1.2</b>	(b)	This Standard exists in the context of and is complementary to National Work Health and Safety regulations. Nothing in this Standard relieves any persons designing or working on or near electricity networks of any safety obligations imposed under jurisdictional or national work health and safety legislation.	Information	-		
<b>1.2</b>	(c)	The Network Operator is responsible for the safe design, construction, commissioning, operation, maintenance and decommissioning of an electricity network.	Compliant		- ENSMS Description and Asset Management System Description provide an overview of how these responsibilities are managed.	- ENSMS Description - Asset Management System Description
	(d)	The Network Operator is responsible for the electrical safety of the network and for ensuring management of electricity network safety risks.				
<b>1.2</b>	(e)	Hazards associated with the design, construction, commissioning, operation, maintenance and decommissioning of electrical networks are identified, recorded, assessed and managed by eliminating safety risks so far as is reasonably practicable, and if it is not reasonably practicable to do so, by reducing those risks to as low as reasonably practicable.	Compliant	AOC	- AOC: Refer compliance statement / recommendation for Clause 4.3.2 (e) below	
<b>1.2</b>	(f)	The design of the electricity network is to be reviewed, assessed and approved by the Network Operator.	Compliant		- ENSMS Description Section 4.2.3.1 describes Design Management, with reference to the Design Management processes for design review, assessment and approval requirements. - Implementation of design management process evident through interview	- ENSMS Description - Design management - Internal / Contract - Safety in Design Procedure
<b>1.2</b>	(g)	Before any part of the electricity network is placed into operation for the first time or when returned to operation after fault or maintenance, appropriate measures for inspection, commissioning and testing are to be conducted to ensure it is safe to operate.	Compliant		- ENSMS Description identifies that commissioning procedures support the ENSMS. Reference documents for commissioning and testing outline minimum requirements for commissioning, inspections and testing of equipment prior to connection or reconnection to the network and placement in service. Policies and procedures for commissioning and testing are provided. - Sighted example of completed commissioning and handover report during interview with Construction Manager.	- ENSMS Description - Commissioning - Commissioning of HV Plant Equipment - Commissioning of Protection Systems - Testing of High Voltage Equipment Prior to Energisation - 340 Maintenance Handover - Example: D2015 02900 Handover and Commissioning Sheets - DPT - Power System Safety Rules

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
1.2	(h)	The structural and functional integrity and safe operation of the electricity network is to be maintained in accordance with the Network Operator's ENSMS throughout the whole operating life of the network.	Compliant		<ul style="list-style-type: none"> <li>- ENSMS Description document and Asset Management System Description document outline the lifecycle management of the electricity network</li> <li>- Network planning undertaken to consider the structural and functional integrity of the network in accordance with the National Electricity Rules.</li> <li>- Operating manuals implemented for safe operation of the electricity network.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Asset Management System Description</li> <li>- Annual Planning Report</li> <li>- Design Management - Internal/Contract</li> <li>- Safety in Design</li> <li>- Project Delivery Manual</li> <li>- Contractor Health and Safety Management</li> <li>- Construction Risk Management</li> <li>- Commissioning</li> <li>- Grid Maintenance Standards</li> <li>- Maintenance plans: cables, lines, control, protection, communications, substations, security</li> <li>- Handover of assets to NS&amp;O</li> <li>- Grid Operating Manuals (multiple)</li> <li>- Disposal procedures</li> </ul>
1.2	(i)	Where material changes occur in or to an electricity network or its surroundings, which alter the design basis or affect the existing safe operation, appropriate steps are to be taken to assess the changes and where necessary implement modifications to maintain safe operation of the electricity network.	Compliant		<ul style="list-style-type: none"> <li>- ENSMS Description Section 4.2.3. Design management and safety in design processes address compliance.</li> <li>- Implementation: interviews sighted examples where Safety in Design is implemented for material changes to the electricity network and relevant stakeholders are consulted in the safety in design process.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Design Management - Internal / Contract</li> <li>- Safety in Design</li> </ul>
1.2	(j)	Before any part of the electricity network is decommissioned the Network Operator is to ensure that any decommissioned network assets are safe and the integrity of any remaining network assets not compromised.	Compliant		<ul style="list-style-type: none"> <li>- ENSMS Description Section 4.2.7.11 describes the responsibilities of the project manager in managing the safety aspects related to the decommissioning of network assets. This is planned and managed as a work activity as part of project delivery.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Disposal Procedures</li> </ul>
1.2	(k)	The Network Operator is to consult with all relevant stakeholders in the preparation and implementation of the ENSMS.	Compliant		<ul style="list-style-type: none"> <li>- ENSMS Section 4.9 identifies stakeholder engagement internally through committees / working groups and also externally.</li> <li>- Stakeholder Management Framework outlines the basic approach, actions and responsibilities for external stakeholder management. Appendix 1A of this document includes a list of TransGrid's external stakeholders.</li> <li>- Sighted examples of committee meeting minutes and agenda items related to the ENSMS.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Stakeholder Management Framework</li> </ul>
1.3	.	<b>RETROSPECTIVE APPLICATION</b>	-	-		
1.3	.	When a relevant Standard is updated and revised, the revision shall be reviewed by the Network Operator to identify opportunities for improvement of existing systems in accordance with the ENSMS.	Compliant	OFI	<ul style="list-style-type: none"> <li>- ENSMS Description Section 4.9 describes the various internal committees and working groups that consider changes to standards and opportunities for improvement of existing systems. The Design Review Committee charter considers technical standards and proposed changes.</li> <li>- OFI: Include statements about the management of changes to relevant standards in Section 4.4 of the ENSMS Description document.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Design Review Committee Procedure</li> <li>- D2013 16295 Design Std Review</li> </ul>
1.3	.	Publication of a new or revised Standard or part of a Standard does not, of itself, require modification of existing physical assets constructed to a previous Standard, edition or part of a Standard.	Information	-		
1.3	.	Operation and maintenance procedures and practices for networks should comply with the most recent edition of a relevant Standard to the extent that is reasonably practicable.	Compliant	OFI	<ul style="list-style-type: none"> <li>- ENSMS Description Section 4.4 describe the operation and maintenance standards.</li> <li>- Asset Management Continual Improvement process applied.</li> <li>- OFI: Include statements about the management of changes to relevant standards in Section 4.4 of the ENSMS Description document.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Asset Management System Continual Improvement Process</li> </ul>

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
4.1	.	<b>BASIS OF SECTION</b>	-	-		
4.1	.	The ENSMS shall contain the Network Operator's safety arrangements for the following:	-	-		
4.1	(a)	...ENSMS policy.	-	-	Detailed in sections below	
4.1	(b)	...Planning.	-	-	Detailed in sections below	
4.1	(c)	...Implementation.	-	-	Detailed in sections below	
4.1	(d)	...Measurement and evaluation.	-	-	Detailed in sections below	
4.1	(e)	...Management review and change management.	-	-	Detailed in sections below	
4.1	.	The ENSMS shall include or refer to a description of the network(s), including or referencing suitable maps showing all network assets and the location of associated facilities such as substations and switching stations.	Compliant	OFI	- A suitable description of the network including maps showing the location of substations and switching stations and tables of key assets is included in Section 3.4 and Appendix 3 of ENSMS Description document. - OFI: ENSMS Description Appendix 3 - recommend deleting row dividers for sites with multiple voltage levels.	- ENSMS Description
4.1	.	NOTES: 1) Existing documents may continue to be used as part of the ENSMS subject to review for adequacy. 2) For networks that are owned or operated by organizations that have an appropriate management system (such as for Asset Management, Environmental Health and Safety, Health Safety and the Environment, Work Health and Safety or a Safety Management System), the ENSMS may be developed to integrate with that management system to address specific assets that are particular to a network complying with this standard.  How the Network Operator chooses to structure an ENSMS is flexible but the Network Operator shall address the requirements of this Standard. 3) See Appendix C for guidance on the description of the network.	Information	OFI	- These notes are considered relevant to TransGrid's ENSMS. TransGrid's ENSMS Description document refers to existing management systems and documentation as appropriate to the ENSMS. - OFI: ENSMS Description should identify which sections of the existing management systems (ISO 9001, 14001, 4801 and 55001) are referred to in each section of the ENSMS as it leverages off these systems for the majority of the document. - OFI: The use of hyperlinks within the ENSMS Document could direct the reader to the locations of relevant documentation on the 'Wire'.	- ENSMS Description
4.2	.	<b>POLICY AND COMMITMENT</b>	-	-		
4.2	.	The Network Operator shall define its policy and commitment towards the various aspects of operating the network safely.  A clear commitment by the Network Operator towards specific outcomes shall form the basis of the ENSMS.	Compliant		- The ENSMS Description document is approved by TransGrid's Managing Director. - Section 4.1 of the ENSMS Description document refers to the operation of the Health & Safety Policy in conjunction with the Asset Management Policy to manage the safe design, construction, commissioning, operation, maintenance and decommissioning of its electricity network. - The Health & Safety Policy and Asset Management Policy contain a commitment towards specific safety outcomes which are aligned with the principles of the ENSMS. - The Asset Management Policy considers the safe planning, design, building, operating, maintaining, renewing and disposing of network assets. - The Health and Safety Policy demonstrates commitment to protecting the health and safety of employees, contractors, visitors and the public. A draft revision to this policy is currently being reviewed to further align and highlight the principles of the ENSMS. - Interviews confirmed company commitment to these policies.	- ENSMS Description - Health and Safety Policy - Asset Management Policy

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
<b>4.3</b>	.	<b>PLANNING</b>	-	-		
<b>4.3.1</b>	.	<b>General</b>	-	-		
<b>4.3.1</b>	.	The Network Operator shall have appropriate planning processes and procedures for ensuring network safety in any situations that may result from normal and foreseeable abnormal operations including emergencies.	<b>Compliant</b>		- ENSMS Description Section 4.2 addresses planning processes and procedures for normal operations. - ENSMS Description Section 4.3 addresses foreseeable abnormal operations including emergencies. - Reference documents include: the network investment process, transmission annual planning report, operating manuals (including those for planning outages and contingency plans) and the Corporate and Regional Emergency Management Plan (CREMP).	- ENSMS Description - Network Investment Process - Transmission Annual Planning Report - OM250 Planning Transmission Equipment Outages - OM680 Planned Outages - OM681 Contingency Planning - Corporate and Regional Emergency Management Plan (CREMP)
<b>4.3.2</b>	.	<b>Planning for safe operation</b>	-	-		
<b>4.3.2</b>	.	When developing the ENSMS, the Network Operator shall utilize a Formal Safety Assessment undertaken in compliance with this Standard (see Appendix A).  The ENSMS shall have appropriate processes and procedures for the production of Formal Safety Assessments. The Formal Safety Assessment shall comply with the principles of AS/NZS ISO 31000 and shall include methodologies appropriate to the network under consideration for the following:  (a) Establishing the context of the specific assessment being undertaken and including the setting of risk acceptance criteria.  (b) Risk identification—recognizing sources of risk external to the electricity network as well as those arising from the electricity network itself.  (c) Risk analysis, including consideration of the consequences of the risks and the likelihood of the consequences occurring.  (d) Risk evaluation by comparison of the level of risk with risk acceptance criteria.	<b>Compliant</b>	<b>OFI</b>	- The approach to Formal Safety Assessments is described in the ENSMS Description Section 4.2.5. - The Risk Management Framework outlines the formal risk management process that is applied to decisions at TransGrid. This framework applies the principles of AS/NZS ISO 31000 to activities associated with TransGrid's network. - Formal Safety Assessments undertaken are further outlined in the reference documents listed and samples from implementation observed during interviews. - <b>OFI: Safety in Design Procedure should make specific reference to TransGrid's Risk Management Framework and likelihood and consequences definitions should align with this framework.</b> - <b>OFI: The traffic lights colour scheme implemented in the Formal Safety Assessments undertaken at the Project Scoping stage (PSS) could not be traced to defined criteria. Recommend making reference to the risk matrix categories and likelihood and consequences descriptions contained in the Risk Management Framework.</b>	- ENSMS Description - Risk Management Framework - Health and Safety Risk Assessment - Asset Management Strategy and Objectives - Network Investment Risk Assessment - Project Risk Management - Safety in Design Procedure - Standard Safety in Design Risk Register - Primary & Civil - Procurement Procedure - Construction Risk Management - Corporate Risk Register - Project Registers System Example - Business Unit Operational Risk Registers (Example NPP)

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
4.3.2	(e)	...Risk treatment, including where reasonably practicable the elimination of the source of risk and where elimination is not reasonably practicable, the identification of treatments or controls so that residual risks are reduced to as low as reasonably practicable (ALARP).	Compliant	AOC	<ul style="list-style-type: none"> <li>- The approach to Formal Safety Assessments is described in the ENSMS Description Section 4.2.5, including consideration of risk treatments.</li> <li>- The Network Investment Governance Framework considers both network and non-network options to address network needs and justification is formed for network investments.</li> <li>- AOC: In Formal Safety Assessments, the demonstration of 'So Far As Is Reasonably Practicable' (SFAIRP) and 'As Low As Reasonably Practicable' (ALARP) requires documentation that the cost to deliver further risk reduction is considered grossly disproportionate to the benefit gained. A field to document these decisions is not currently available in TransGrid's formal safety assessment risk registers.</li> <li>- OFI: Process described in ENSMS Description Section 4.2.5 follows the principles of ALARP. Recommend clarifying in this document that "where reasonably practicable the elimination of the source of risk and where elimination is not reasonably practicable, the identification of treatments or controls so that residual risks are reduced to as low as reasonably practicable (ALARP)."</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Corporate Risk Register</li> <li>- Project Risk Register Example</li> <li>- Standard Safety in Design Risk Register - Primary &amp; Civil</li> <li>- Transmission Lines - Standard Safety in Design Risk Register</li> <li>- Corporate Risk Register</li> <li>- Business Unit Operational Risk Registers (Example NPP)</li> <li>- Project Registers System Example</li> </ul>
4.3.2	.	Control measures required to reduce safety risks to the public, property, the environment and network personnel to an acceptable level shall be incorporated into the appropriate procedures.	Compliant		<ul style="list-style-type: none"> <li>- The ENSMS Description Section 4.2.5 identifies a list of key controls at the network and asset level and the work site and procedure level. These control measures are aimed to reduce safety risks to the public, property, the environment and network personnel to an acceptable level.</li> <li>- Specific controls are outlined in the Formal Safety Assessments outlined in the identified reference documents with implementations observed during the interviews and site inspection audit activities.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Safety in Design Procedure</li> <li>- Asset Maintenance and Renewal Strategies</li> <li>- Project Risk Management</li> <li>- Substation Standard Design Manuals</li> <li>- Operating Manuals</li> <li>- Procurement Process</li> <li>- Power System Safety Rules</li> <li>- Contractor Health and Safety Management Procedure</li> <li>- Commissioning of HV Plant Equipment</li> <li>- Commissioning of Protection Equipment</li> <li>- Health and Safety Risk Assessment</li> <li>- Safe Work Method Statements</li> <li>- Induction Procedure</li> <li>- 340 Maintenance Handover</li> <li>- Internal Communications Framework</li> <li>- Bushfire Risk Management Plan</li> <li>- Bushfire Preparedness Report 2014-15</li> <li>- Health and Safety Incident Management</li> <li>- Health and Safety, Environmental and Fire Audit Process</li> <li>- Disposal procedures</li> </ul>

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
4.3.2	.	The Network Operator shall ensure that any Formal Safety Assessment carried out considers activities related to the following:	-	-		
4.3.2	(i)	...Network planning.	Compliant		<ul style="list-style-type: none"> <li>- Outlined in ENSMS Description Section 4.2.5.</li> <li>- The Transmission Annual Planning Report outlines the network planning approach (Appendix 1) in accordance with the National Electricity Rules.</li> <li>- The Network Investment Process and Network Investment Risk Management Process consider options, assessment and risk treatments. ENSMS Description Section 4.2.6 also describes the network investment risk assessment methodology.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Transmission Annual Planning Report</li> <li>- Network Investment Process</li> <li>- Network Investment Risk Management Process</li> </ul>
4.3.2	(ii)	...Site safety management.	Compliant		<ul style="list-style-type: none"> <li>- Outlined in ENSMS Description Section 4.2.5.</li> <li>- Formal safety assessments for site safety management is outlined in the identified reference documents.</li> <li>- Formal safety assessments were undertaken and observed during the site inspection audit activity, including risks considered in the Safe Work Methods Statements, Work Activity Risk Assessment and Pre-work Risk Assessment.</li> </ul>	<ul style="list-style-type: none"> <li>- Construction Risk Management</li> <li>- Contractor Health and Safety Management</li> <li>- Health and Safety Risk Assessment</li> <li>- Induction Procedure</li> <li>- Risk assessment form: Pre-work</li> <li>- Risk assessment in the office and at site</li> <li>- Safe Work Method Statements</li> <li>- Wallgrove Site Emergency and Evacuation Procedures (example)</li> <li>- Sydney West Substation Emergency Response Manual (example)</li> <li>- Power System Safety Rules</li> </ul>
4.3.2	(iii)	...Network safety management incorporating— (A) network structural integrity; (B) external interference management; (C) fault condition monitoring and response; and (D) change of operating conditions and remaining asset life review.	Compliant		<ul style="list-style-type: none"> <li>- Structural integrity: Transmission Annual Planning Report, Network Investment Process and Network Investment Risk Assessment Process</li> <li>- External interface management - ENSMS Description 4.2.7.13, Network Alterations - Operational Requirements and Connection Agreements, including operational and maintenance arrangements.</li> <li>- Fault Condition Monitoring for substation assets and cables for example</li> <li>- Change of operating conditions: Outage management (THEOS) and contingency planning operating manuals</li> <li>- Remaining asset life review: Asset Management Strategy &amp; Objectives</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Transmission Annual Planning Report</li> <li>- Network Investment Process</li> <li>- Network Investment Risk Management Process</li> <li>- High Voltage Network Alterations - Operational Requirements</li> <li>- Connection Agreement (example)</li> <li>- Substation Condition Monitoring Manual (example)</li> <li>- Cable Assets Condition Monitoring Manual (example)</li> <li>- OM681 - Contingency Planning</li> <li>- Asset Management Strategy &amp; Objectives</li> </ul>
4.3.2	(v)	...Substation's operations and maintenance.	Compliant		<ul style="list-style-type: none"> <li>- Asset Management Strategy &amp; Objectives outlines the formal risk assessment undertaken for asset management. Specifically considered in Maintenance and Renewal Strategies.</li> <li>- Health and Safety Risk Assessments undertaken as part of pre-work planning procedures for substation operations and maintenance activities.</li> <li>- Operation and maintenance lifecycle considered in safe design and HAZOP processes. Meeting minutes observed during interviews identified that appropriate stakeholders were consulted in these processes.</li> <li>- Risk assessment considered in the development of operating manuals and maintenance procedures.</li> </ul>	<ul style="list-style-type: none"> <li>- Asset Management Strategy &amp; Objectives</li> <li>- Asset Management Maintenance and Renewal Strategies</li> <li>- Health and Safety Risk Assessment</li> <li>- Risk Assessment in the Office and at Site</li> <li>- Risk Assessment Form: Pre Work</li> <li>- Safety in Design</li> <li>- Grid Operating Manuals (multiple)</li> <li>- Grid Maintenance Standards</li> </ul>
4.3.2	(vi)	...Emergency response.	Compliant		<ul style="list-style-type: none"> <li>- Outlined in the ENSMS Description Section 4.3.</li> <li>- The Corporate and Regional Emergency Management Plan (CREMP) outlines response actions based on risk management.</li> <li>- TransGrid Corporate Risk Register captures these emergency type risks.</li> <li>- Site emergency and evacuation procedures and substation emergency response manuals (examples provided) consider specific risks and procedures for emergency response at each site. These procedures and manuals were positively identified on site</li> </ul>	<ul style="list-style-type: none"> <li>- Corporate and Regional Emergency Management Plan (CREMP)</li> <li>- Corporate Risk Register</li> <li>- Operating Manuals</li> <li>- Wallgrove Site Emergency and Evacuation Procedures (example)</li> <li>- Sydney West Substation Emergency Response Manual (example)</li> </ul>

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
4.3.3	.	<b>Planning and preparation for abnormal operations</b>	-	-		
4.3.3	.	The Network Operator shall plan and prepare for operation of the network in foreseeable abnormal circumstances or during significant disruption to normal operations. These circumstances may include the following: (a) Operating connected to emergency power sources. (b) Operating without normal supply assets such as powerlines or transformers. (c) Operating at other than normal voltage levels. (d) Operating under communication outages. (e) Operating under changed conditions to avoid further damage to the network.	<b>Compliant</b>		- Outlined in ENSMS Description Section 4.3. - Transmission Annual Planning Report Appendix 1 outlines the network planning approach, including planning for credible contingency events in accordance with the National Electricity Rules. - Operating manuals for various abnormal operating conditions. Contingency scenario analysis carried out by network operations using recent network data. - Corporate and Regional Emergency Management Plan (CREMP) outlines the process for managing emergencies that impact on safety, reliability of supply or the environment. - Site emergency and evacuation procedures and substation emergency response manuals consider plans for emergency response at each site. These procedures and manuals were positively identified on site during the site inspection audit activity. - Information Technology disaster recovery outlined in ENSMS Description Section 4.3.6 and ICT Disaster Recovery Procedure	- ENSMS Description - Transmission Annual Planning Report - OM250 - Planning Transmission Equipment Outages - OM666 - Restart of New South Wales system - OM680 - Planned outages - OM681 - Contingency Planning - OM686 - Automatic and manual reclosure of transmission lines - OM695 - Bushfire and weather hazards - OM821 - Bomb Threats - OM861 - SCADA equipment failure alarms - Corporate and Regional Emergency Management Plan (CREMP) - Wallgrove Site Emergency and Evacuation Procedures (example) - Sydney West Substation Emergency Response Manual (example) - ICT Disaster Recovery Procedure
4.3.4	.	<b>Standards and codes</b>	-	-		
4.3.4.1	.	<i>Published national or international technical standards</i>	-	-		
4.3.4.1	.	A Network Operator shall identify the published national or international technical standards used by it in—	-	-		
4.3.4.1	(a)	...the design and construction of existing network assets;	<b>Compliant</b>		- ENSMS Description Sections 4.4, 4.4.1 & Appendix 2 outline the relevant design and construction standards. Also outlined in Network Management Plan Chapter 1 Section 2.1.6.1, which identifies that existing designs are in accordance with Engineering Design Instructions numbers 1/A/1 to 6/C/1. - Substation Standard Design Manuals outline the specific standards relevant to designs.	- ENSMS Description - Network Management Plan - Substation Standard Design Manuals

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
4.3.4.1	(b)	...design and construction of new network assets; and	Compliant	OFI	<ul style="list-style-type: none"> <li>- ENSMS Description Sections 4.4, 4.4.1 &amp; Appendix 2 outline the relevant design and construction standards.</li> <li>- Substation Standard Design Manuals outline the specific standards relevant to designs.</li> <li>- Construction carried out in accordance with designs.</li> <li>- OFI: Recommend investigating the benefits of developing a standard design manual for transmission line assets, similar to the standard design manuals for substation assets.</li> <li>- OFI: The ENSMS Description Section 4.4.1 identifies that construction is carried out in accordance with designs. Recommend also making reference to TransGrid's 'Standard Construction Manual' for relevant standards for material selection, workmanship and testing.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Substation Standard Design Manuals</li> <li>- Standard Construction Manual</li> <li>- Safety in Design</li> </ul>
4.3.4.1	(c)	...the commissioning, installation, operation, maintenance and decommissioning of network assets.	Compliant	OFI	<ul style="list-style-type: none"> <li>- ENSMS Description Sections 4.4.2 and 4.4.3 for Maintenance and Operations.</li> <li>Limited direct references to standards. Generally internal TransGrid documents, including Maintenance Plans or Grid Standards. Some standards identified in specific maintenance plans, e.g. Security Assets.</li> <li>- OFI: Recommend also making reference to TransGrid's 'Standard Construction Manual' for relevant standards for material selection, workmanship and testing.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Maintenance Plans</li> <li>- Grid Standards</li> <li>- Standard Construction Manual</li> </ul>
4.3.4.1	.	<p>If the Network Operator chooses not to use an applicable relevant standard or chooses not to comply with particular provisions of that standard, the Network Operator shall document—</p> <p>(i) the reason for the non-use of or non-compliance with the standard; and</p> <p>(ii) the alternative provisions for the design, construction, commissioning, installation, operation, maintenance and decommissioning of network assets that will ensure a level of safety in relation to those activities that is at least equal to or greater than the level of safety that would ensue from compliance with that standard.</p>	Compliant	OFI	<ul style="list-style-type: none"> <li>- Such descriptions provided in the standard design manuals, e.g. Notes to Table 3.4.1.1 of Substation Design Manual for High Voltage Design.</li> <li>- OFI: Inclusion of justification statements for any non-use or non-compliance with standards for design, construction, commissioning, installation, operation, maintenance and decommissioning of network assets within the Standard Design Manuals or for project specific cases, the Safe Design Report.</li> </ul>	<ul style="list-style-type: none"> <li>- Substation Standard Design Manuals</li> <li>- Maintenance Plan: Security Assets</li> <li>- Safety in Design</li> </ul>

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
4.3.4.2	.	<i>Industry/company codes</i>	-	-		
4.3.4.2	.	A Network Operator shall identify the industry or company codes used by it in—	-	-		
4.3.4.2	(a)	...the design and construction of existing network assets;	Compliant		<ul style="list-style-type: none"> <li>- ENSMS Description Sections 4.4, 4.4.1 &amp; Appendix 2 outline the relevant design and construction standards. Also outlined in Network Management Plan Chapter 1 Section 2.1.6.1, which identifies that existing designs are in accordance with Engineering Design Instructions numbers 1/A/1 to 6/C/1.</li> <li>- Substation Standard Design Manuals outline the specific standards relevant to designs.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Network Management Plan</li> <li>- Substation Standard Design Manuals</li> </ul>
4.3.4.2	(b)	...design and construction of new network assets; and	Compliant	OFI	<ul style="list-style-type: none"> <li>- ENSMS Description Sections 4.4, 4.4.1 &amp; Appendix 2 outline the relevant design and construction industry and company codes.</li> <li>- National Electricity Rules for customer connections to network (Network Management Plan - Chapter 2).</li> <li>- Substation Standard Design Manuals outline the specific industry or company codes relevant to designs.</li> <li>- Construction carried out in accordance with designs.</li> <li>- OFI: Recommend investigating the benefits of developing a standard design manual for transmission line assets, similar to the standard design manuals for substation assets.</li> <li>- OFI: The ENSMS Description Section 4.4.1 identifies that construction is carried out in accordance with designs. Recommend also making reference to TransGrid's 'Standard Construction Manual' for relevant standards for material selection, workmanship and testing.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Network Management Plan</li> <li>- Substation Standard Design Manuals</li> <li>- Standard Construction Manual</li> <li>- Safety in Design</li> </ul>
4.3.4.2	(c)	...the commissioning, installation, operation, maintenance and decommissioning of network assets.	Compliant	OFI	<ul style="list-style-type: none"> <li>- ENSMS Description Sections 4.4, 4.4.2, 4.4.3 and Appendix 2 outline the relevant operating and maintenance industry and company codes / procedures.</li> <li>- Work Health and Safety Management System Framework demonstrates compliance with the relevant health and safety legislation, codes of practice and industry standards.</li> <li>- Operating manuals, grid standards, maintenance plans and Power System Safety Rules are the company codes that apply the industry codes, design and construction standards.</li> <li>- Commissioning and installation industry and company codes identified in commissioning procedures and checklists.</li> <li>- Disposal and waste management procedures relevant to decommissioning.</li> <li>- OFI: Recommend also making reference to TransGrid's 'Standard Construction Manual' for relevant standards for material selection, workmanship and testing.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Work Health and Safety Management System Framework</li> <li>- Operating Manuals</li> <li>- Grid Standards</li> <li>- Maintenance plans: cables, lines, control, protection, communications, substations</li> <li>- Power System Safety Rules</li> <li>- Commissioning</li> <li>- Commissioning of High Voltage Plant and Equipment - Checksheet Requirements</li> <li>- Commissioning of Revenue and Check Metering Installations</li> <li>- Disposal procedures</li> <li>- Standard Construction Manual</li> <li>- 340 Maintenance Handover</li> </ul>
4.3.4.2	.	If the Network Operator chooses not to comply with particular provisions of an industry or company code, the Network Operator shall document— (i) the reason for the non-compliance with the code; and (ii) the alternative provisions for the design, construction, commissioning, operating, maintenance and decommissioning of network assets that will ensure a level of safety in relation to those activities that is at least equal to or greater than the level of safety that would ensue from compliance with that code.	Compliant	OFI	<ul style="list-style-type: none"> <li>- ENSMS Description Section 4.4 outline the relevant industry and company codes.</li> <li>- Substation standard design manuals include statements related to deviations from provisions of industry or company codes., e.g. Notes to Table 3.4.1.1 of Substation Design Manual for High Voltage Design.</li> <li>- OFI: Inclusion of justification statements for any non-use or non-compliance with standards for design, construction, commissioning, installation, operation, maintenance and decommissioning of network assets within the Standard Design Manuals or for project specific cases, the Safe Design Report.</li> </ul>	<ul style="list-style-type: none"> <li>- Substation Standard Design Manuals</li> <li>- Maintenance Plan: Security Assets</li> <li>- Safety in Design</li> </ul>

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
<b>4.4</b>	.	<b>IMPLEMENTATION</b>	-	-		
<b>4.4.1</b>	.	<b>General</b>	-	-		
<b>4.4.1</b>	.	The Network Operator shall define how it will implement the ENSMS.	Compliant		ENSMS Description document defines the implementation of the ENSMS. Interviews and a site visit audit activity were undertaken to demonstrate implementation of the ENSMS.	- ENSMS Description
<b>4.4.2</b>	.	<b>Resourcing</b>	-	-		
<b>4.4.2</b>	.	The Network Operator shall identify the resourcing, equipment and material requirements for the network's safe operation and maintenance, including carrying out of hazard controls and mitigation identified in the Formal Safety Assessment.	Compliant		- ENSMS Description Section 4.5 describes TransGrid's approach to resourcing for the implementation of the ENSMS elements. - Formal safety assessment documents outline responsibility for carrying out hazard controls and mitigations (Refer Clause 4.3.2 for reference documents). - Additionally, resourcing requirements are outlined in the strategic workforce planning report, asset management competency framework and AO-AM-SP Business Model description. - Ellipse system used for resource planning and ARTEMIS in project planning.	- ENSMS Description - Strategic Workforce Planning Report 2013-18 - Asset Management System Competency Framework - AO-AM-SP Business Model Description - Ellipse Work Planning Scheduling - ARTEMIS - Power System Safety Rules Authorisation
<b>4.4.2</b>	.	Appropriate resources shall also be identified to ensure the appropriate development, implementation, monitoring and review of the ENSMS.	Compliant	OFI	- ENSMS Description Section 4.5 identifies the Asset Management System Review Committee as the resources for the monitoring and review of the ENSMS to ensure its appropriateness and effectiveness in managing network safety. This has been demonstrated through the charter of the committee, upcoming agenda and meeting schedules. - OFI: A revision to the Charter of the Asset Management System Review Committee is currently in a draft form. This draft revision incorporates the items relating to the ENSMS. This revision should be finalised, approved and issued in a timely manner. It is noted that this is an agenda item for the June 2015 Committee meeting.	- ENSMS Description - Asset Management System Competency Framework - AO-AM-SP Business Model Description - Asset Mgt Ctee Charter - AMC Agenda v4 - AMC - meeting schedule
<b>4.4.2</b>	.	Sufficient personnel should be available for undertaking planned and unplanned operations and maintenance, taking into account the requirements for leave and training.	Compliant		- ENSMS Description Section 4.5 describes TransGrid's approach to resource planning. In addition, the Strategic workforce planning to meet business needs and the workforce planning Business As Usual processes are in place. - The Ellipse system is used for enterprise resource planning. - ARTEMIS system used for project resource planning and scheduling - Succession planning is in place for critical resources - Field resources based at regional centres to undertake planned and unplanned operations and maintenance. Resourcing for maintenance tasks managed through the TRAC system in conjunction with Ellipse, described during interview activities.	- ENSMS Description - Strategic Workforce Planning Report 2013-18 - Workforce Planning: BAU Process - Ellipse Work Planning Scheduling - ARTEMIS - Succession Planning Procedure
<b>4.4.3</b>	.	<b>Management structure</b>	-	-		
<b>4.4.3</b>	.	A defined management structure for the Network Operator shall be established to identify key positions and/or personnel. The management structure shall be appropriate to the size and complexity of the network.	Compliant	OFI	- ENSMS Section 4.6 - Level 1 Management & Wire interactive system for further depth - Corporate Governance Framework and AO-AM-SP Business Model describe management structure - Management structure considered to be appropriate to the size and complexity of the network. - OFI: Asset Owner – Asset Manager – Service Provider Business Model Description to be updated to reflect recent management structure changes. Noted that responsibilities identified in the ENSMS Description document capture the reassigned responsibilities under the new management structure.	- ENSMS Description - Corporate Governance Framework - AO-AM-SP Business Model Description

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
4.4.4	.	<b>Responsibilities, accountabilities and authorities</b>	-	-		
4.4.4	.	<p>The responsibilities, accountabilities and authority levels of personnel and/or contractors, with respect to the various aspects of the design, construction, commissioning, operation, maintenance and decommissioning of the network, shall be detailed in the ENSMS. In particular, personnel shall be identified and documented with the responsibility and authority to—</p> <p>(a) approve policies and procedures;</p> <p>(b) initiate action to, so far as reasonably practicable,—</p> <p>(i) prevent safety issues arising from a loss of supply;</p> <p>(ii) prevent environmental impact;</p> <p>(iii) mitigate the impact of such events to the public; and</p> <p>(iv) correct electricity network safety issues;</p> <p>(c) identify, record and report on any existing or potential deficiencies within the ENSMS or the network's design, construction, commissioning, operation, maintenance and decommissioning;</p> <p>(d) initiate, recommend, approve and monitor corrective and preventive actions in relation to identified existing or potential deficiencies within the ENSMS or the network's design, construction, commissioning, operation, maintenance and decommissioning;</p> <p>(e) evaluate and verify the effectiveness of any corrective or preventive action implemented;</p> <p>(f) satisfy the mandatory approval requirements of this Standard for specific items to be approved.</p>	Compliant	AOC	<p>- ENSMS Description Section 4.7 and Appendix 1</p> <p>(a) Managing Director</p> <p>(b)(i) EGM/AM</p> <p>(b)(ii) EGM/FS</p> <p>(b)(iii) EGM/PS&amp;S</p> <p>(b)(iv) EGM/AM, EGM/FS</p> <p>(c) EGM/FS, Committees</p> <p>(d) EGM/AM</p> <p>(d) EGM/AM, EGM/FS, Committees</p> <p>(e) EGM/AM</p> <p>(f) Refer to document management (Clause 4.13)</p> <p>- Responsibilities, accountabilities and authorities are outlined in the Corporate Governance Framework and within specific management system documents. Risk and control measure owners captured in risk registers.</p> <p>- AOC: The responsibilities, accountabilities and authorities of the EGM/Project Services are not currently specified in the ENSMS Description Section 4.7. Although these are included in Appendix 1 of the ENSMS Description, this role is considered to be of sufficient importance to include a detailed description in Section 4.7 of the ENSMS Description.</p>	<p>- ENSMS Description</p> <p>- Corporate Governance Framework</p> <p>- AO-AM-SP Business Model Description</p> <p>- Asset Management System Competency Framework</p> <p>- Risk Management Framework</p> <p>- Power System Safety Rules Authorisation</p> <p>- Design Management - Internal / Contract</p> <p>- Environmental Management System Framework</p> <p>- Corporate and Regional Emergency Management Plan (CREMP)</p> <p>- Issues Management Process</p> <p>- Corporate Risk Register</p>
4.4.5	.	<b>Training and competency</b>	-	-		
4.4.5	.	<p>The Network Operator shall ensure that all persons involved with the design, construction, commissioning, operation, maintenance and decommissioning of the network are suitably competent and adequately trained to carry out their duties.</p> <p>The Network Operator shall establish and maintain procedures for identifying, facilitating and/or providing the training needs of all personnel operating the network covered by the ENSMS.</p> <p>As a minimum, personnel responsible for the operation and maintenance of the network shall, as applicable to their position, be adequately trained in the obligations of the ENSMS and briefed in the requirements of the controls and actions identified during the Formal Safety Assessment (see Appendix A).</p>	Compliant	OFI	<p>- ENSMS Description Section 4.8 describes training and competency aspects of the ENSMS.</p> <p>- Power systems safety rules authorisation outlines the training and authorisations required in order to undertake work on the network. Induction training identifies base requirements for new employees and contractors working on the network. Asset management competency framework and employee performance management process (PMP) integrate training requirements and position descriptions outline specific health and safety requirements for roles as appropriate.</p> <p>- Training Procedure outlines the requirements for how formal training is to be administered including requirements for qualified trainers and assessors for compliance, non-accredited and accredited training topics.</p> <p>- Through interviews, management were able to demonstrate how they access the online training records through the 'Authorisation and Training' (AAT) system and requirements for ongoing competency assessments.</p> <p>- OFI: Through interviews, it was apparent that staff were adequately trained in the obligations of the ENSMS applicable to their position, however staff were not generally familiar with the term 'ENSMS' and the existence of the overall system. There is an opportunity to improve broader communications to build awareness of the ENSMS as a system within TransGrid and the relation to existing health and safety, environmental management and asset management systems.</p>	<p>- Power System Safety Rules Authorisation</p> <p>- Induction Training</p> <p>- Training Procedure</p> <p>- Asset Management System Competency Framework</p> <p>- Performance Management Process (PMP)</p>

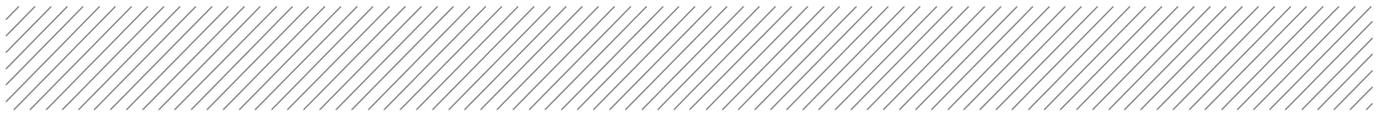
Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
<b>4.4.6</b>	.	<b>Consultation, communication and reporting</b>	-	-		
4.4.6.1	.	<i>Consultation</i>	-	-		
4.4.6.1	.	The Network Operator shall identify individuals, stakeholder groups and organizations that have a relevant interest in the safety aspects of the design, construction, commissioning, operation, maintenance and decommissioning of the network. These may include, but are not limited to, landowners, employees, employee representative organizations, contractors, utilities, accredited service providers, local and emergency authorities, regulatory authorities and government agencies.	<b>Compliant</b>		- ENSMS Section 4.9 identifies stakeholder engagement internally through committees / working groups and also externally. - Stakeholder Management Framework outlines the basic approach, actions and responsibilities for external stakeholder management. Appendix 1A of this document includes a list of TransGrid's external stakeholders.	- ENSMS Description - Stakeholder Management Framework
4.4.6.2	.	<i>Communication and reporting</i>	-	-		
4.4.6.2	.	The Network Operator shall establish procedures for regular consultation and communication with, and reporting to, these identified stakeholders during the development, implementation and review of the ENSMS. These procedures need to include statutory reporting obligations in line with jurisdictional regulatory requirements.	<b>Compliant</b>		- ENSMS Description Section 4.9 outlines stakeholder consultation, communication and reporting. Internal committees are the primary form of internal stakeholder engagement forums. Internal communication procedures are included in ENSMS Section 4.9.8. - Stakeholder Management Framework outlines the basic approach, actions and responsibilities for external stakeholder management. - Reporting - described in ENSMS Description Sections 4.2.7.3, 4.2.7.4 and 4.9.8.4. Sample of reporting includes the Safety Statistics monthly reporting.	- ENSMS Description - Stakeholder Engagement Framework - Internal Communications Framework - Safety Statistics - February 2015 - Safety Alert (examples) - Health and Safety Committee Meeting Minutes (examples)
<b>4.4.7</b>	.	<b>Emergency preparedness and response</b>	-	-		
4.4.7	.	The Network Operator shall plan and prepare for emergency events resulting from the network's operation and maintenance and also from external events that may affect the safe operation of the network.  In the event of an emergency, the Network Operator shall ensure that any response is performed in a safe manner.	<b>Compliant</b>		- ENSMS Description Section 4.10 outlines TransGrid's emergency preparedness and response procedures. - Corporate and Regional Emergency Management Plan (CREMP) describes emergency response for incidents on the network. - Example site emergency response plans and local evacuation plans sighted during site inspection activity. These describe planning and response for incidents at a local level. - Operating Manuals also plan and prepare for emergency events resulting from the network's operation and maintenance and also from external events.	- ENSMS Description - Corporate and Regional Emergency Management Plan (CREMP) - Wallgrove Site Emergency and Evacuation Procedures (example) - Sydney West Substation Emergency Response Manual (example) - OM666 - Restart of New South Wales system - OM681 - Contingency Planning - Bushfire Preparedness Report 2014-15 - OM695 - Bushfire and weather hazards - OM821 - Bomb Threats - OM861 - SCADA equipment failure alarms - ICT Disaster Recovery Procedure

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
<b>4.5</b>	.	<b>MEASUREMENT AND EVALUATION</b>	-	-		
<b>4.5.1</b>	.	<b>Monitoring and measurement</b>	-	-		
4.5.1.1	.	<i>General</i>	-	-		
4.5.1.1	.	The ENSMS shall incorporate procedures for the appropriate measurement and evaluation of the performance of the ENSMS elements. The results of audit, review and monitoring processes shall be utilized for the purpose of management review of the ENSMS.	Compliant		- ENSMS Description Section 4.11 outlines the items measured and evaluated for the performance of the ENSMS elements. This section also identifies the Asset Management System Review Committee as being responsible for the management review of the ENSMS utilising the results of audits and reviews, as well as trends in the measured data to improve network safety.	- ENSMS Description - Asset Management System Review Committee Procedure - Asset Mgt Ctee Charter - AMC - meeting schedule - Network Performance Review Committee Procedure - Technical Performance Assessments - Health and Safety Management System Framework - Executive Health and Safety Committee Charter Internal Review: - Corporate Governance Framework - Corporate Audit and Risk Framework - Internal audit reporting guide - AMS Triennial Audit Plan_2014-17 - Asset Management System Audit Framework
4.5.1.2	.	<i>Data acquisition and analysis</i>	-	-		
4.5.1.2	.	The Network Operator shall establish procedures for identifying, recording and analysing network operational, maintenance and reliability data to identify trends in the network's operation and performance that may affect the safe operation of the electricity network.  Analysis of this data should support operation of the network to continue as planned. It should also identify any negative trend that may result in an event adversely impacting the safe operation of the network.	Compliant	OFI	- ENSMS Description Section 4.11 outlines items measured and evaluated for the performance of the ENSMS elements. The indicators leverage from the asset management forum (Network Performance Review forum) and health and safety management forum. Asset Information Strategy describes the information and systems used to record information for the asset management system. Network performance review procedure outlines the procedure for analysing network performance. <b>- OFI: Include TransGrid's reliability indicators in the list in ENSMS Description Section 4.11 (asset availability and outage statistics)</b>	- ENSMS Description - Network Performance Review Committee Procedure - Asset Information Strategy - OM554: outage stats and reporting - Example: Safety Statistics - February 2015 - Example: Annual Performance Reviews: Protection & Metering
<b>4.5.2</b>	.	<b>Incident investigation and corrective and preventative action</b>	-	-		
4.5.2.1	.	<i>Accident/incident investigation and reporting</i>	-	-		
4.5.2.1	.	The Network Operator shall establish procedures for identifying, notifying, recording, investigating and reporting accidents and incidents. This shall cover any event associated with the network that either causes or has the potential to cause any one or combination of the following: (a) Death or significant injury to network personnel or the public. (b) Significant damage to property. (c) Significant impact on the safe operation of the network.	Compliant		- ENSMS Description Section 4.12 describes incident investigation and reporting. - Significant Electricity Network Incident (SENI) procedure and the Corporate and Regional Emergency Management Plan (CREMP) outline emergency responses. - Health and Safety and Environmental Management systems outline procedures for incident management including reporting and monitoring through the incident notification system and planned transition to the new Action and Risk System (ARMS).	- ENSMS Description - Significant Electricity Network Incident (SENI) - Corporate and Regional Emergency Management Plan (CREMP) - Health and Safety Management System Framework - Health & Safety Incident Management - Environmental Management System Framework - Action and Risk System (ARMS) including example entry - OM554 Outage statistics and reporting - OM556: Log_System Operations - QNPR System Incident Investigations Register 2013Q4
4.5.2.2	.	<i>Corrective and preventive action</i>	-	-		
4.5.2.2	.	The Network Operator shall develop and implement procedures for determining, approving and implementing corrective and preventative actions.  The agreed actions shall, as far as reasonably practicable, eliminate or mitigate the identified hazard and shall be appropriate and commensurate to the risk identified. The agreed actions shall be documented and their implementation monitored and confirmed.  The basis for any action shall be documented. The outcomes of corrective or preventative actions taken, along with their effectiveness, shall be subjected to independent internal review.	Compliant		- ENSMS Description Section 4.12 describes the management of corrective and preventative actions. - The Action and Risk Management System is used for managing and monitoring actions from: risk assessments, audit findings, NEM compliance reviews and incident investigations. - The Health and Safety Incident Notification describe the investigation process and management of corrective and preventative actions. - Internal review carried out through audits described in Section 4.5.4.	Procedures for determining, approving and implementing corrective and preventative actions: - ENSMS Description - Action and Risk Management System - Health & Safety Incident Notification System - Issues Management Process - Risk Management Framework

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
4.5.3	.	<b>Records</b>	-	-		
4.5.3	.	The Network Operator shall implement relevant records management arrangements for the following:	-	-		
4.5.3	(a)	Control of documents, legislation, standards, codes, guidelines and procedures required for the safe design, construction, commissioning, operation, maintenance and decommissioning of the network.	Compliant	OFI	<ul style="list-style-type: none"> <li>- ENSMS Description Section 4.13.1 describes the document management system, including the use of TRIM as the corporate document management system.</li> <li>- Document and Records Management describes the business rules and processes for managing documents and records to ensure compliance with the State Records Act and requirements of ISO9001 certification.</li> <li>- TRIM record numbers identified on documents and records.</li> <li>- OFI: ENSMS Section 4.13.1 refers to the 'Records Management' and 'Control of Quality Documents' documents on the Wire. These documents have been superseded by the recent 'Document and Record Management' document and as such these references should be corrected.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Document and Records Management</li> </ul>
4.5.3	(b) (c)	Maintenance of asset records including, but not limited to, maps, databases, designs and as-built drawings. Maintenance of commissioning, operation, maintenance and audit records.	Compliant		<ul style="list-style-type: none"> <li>- ENSMS Description Section 4.13.2 &amp; 4.13.3 describes the systems used for asset records, commissioning, operation, maintenance and audit records.</li> <li>- Record management also described in Appendix 3 of the Asset Management System Description.</li> <li>- Asset Information Strategy details the initiatives for continual improvement of asset data and asset information management systems.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Asset Management System Description</li> <li>- Asset Information Strategy</li> <li>- Asset Management Information System Overview</li> </ul>
4.5.3	(d)	Maintenance of records relating to the ENSMS and revisions to it.	Compliant		<ul style="list-style-type: none"> <li>- The suite of documents comprising the ENSMS are covered by existing document control and records management processes and procedures.</li> <li>- Revisions to the ENSMS Description documents are recorded in Section 5 of the ENSMS Description document.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Document and Records Management</li> </ul>
4.5.3	(e)	Systems for storage and retrieval of records.	Compliant		<ul style="list-style-type: none"> <li>- ENSMS Description Section 4.13 identifies TRIM as the corporate document and records management system.</li> <li>- Physical records archived using TRIM and the Grace repository in accordance with the Retention and Disposal Authorities issued by State Records.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Document and Records Management</li> </ul>
4.5.3	(f)	Accident/incident records.	Compliant		<ul style="list-style-type: none"> <li>- ENSMS Description Section 4.13.1 describes the management of records from accidents/incidents with reference to the incident and emergency response procedures, together with relevant management systems.</li> </ul>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Significant Electricity Network Incident (SENI)</li> <li>- Corporate and Regional Emergency Management Plan (CREMP)</li> <li>- Health and safety management system framework</li> <li>- Health &amp; Safety Incident Management</li> <li>- Return to Work Program</li> <li>- Workers Compensation</li> <li>- Environmental Management System Framework</li> </ul>

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
4.5.4	.	<b>System audits</b>	-	-		
4.5.4	.	<p>The Network Operator shall establish procedures for planning and implementing audits to determine the Network Operator's compliance with, and the effectiveness of, the ENSMS's plans and procedures. System audits should also assess compliance with regulatory requirements and ensure the ENSMS adequately addresses these issues.</p> <p>The Network Operator shall consider the hazards identified and risks evaluated in the Formal Safety Assessment to ensure that audits evaluate— (a) the effectiveness of the ENSMS in controlling the risks identified; and (b) the effectiveness of the monitoring procedures in place to identify new or changed hazards and risks.</p> <p>Audits shall be performed by competent personnel who are independent of the section of the ENSMS being audited. The audit procedures shall cover the timing of audits, including the conduct of external independent audits where chosen or where required by regulatory authorities.</p> <p>Audit procedures shall cover arrangements for verifying the implementation and effectiveness of corrective and preventive actions designed to address any Non-conformances identified during the audit.</p> <p>The outcomes of audits shall be subject to management review.</p>	Compliant	AOC	<p>- ENSMS Description Section 4.14 describes the audit activities undertaken on the ENSMS, including an independent external audit and existing internal audit procedures for individual elements of the ENSMS.</p> <p>-The Asset Management System Review Committee carries out the management reviews of audit outcomes. Non compliances and improvement opportunities are incorporated into the asset management systems continual improvement register.</p> <p>- AOC: The ENSMS Description document does not specify the frequency of audits (internal and/or external) of the ENSMS as a system for conformance against the requirements of AS 5577 (internal and/or external).</p>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Asset Management System Review Procedure</li> <li>- Asset Management System Continual Improvement Process</li> <li>- Asset Management System Audit Framework</li> <li>- Technical Performance Assessment Procedure</li> <li>- Health and Safety, Environment and Fire Audit Process</li> <li>- Action and Risk Management System</li> <li>- Issues Management Process</li> </ul>
4.6	.	<b>MANAGEMENT REVIEW AND CHANGE MANAGEMENT</b>	-	-		
4.6.1	.	<b>Management review</b>	-	-		
4.6.1	.	<p>The Network Operator shall establish procedures for regular management review of the effectiveness and appropriateness of the ENSMS. (NOTE: This should include review by the Network Operator of those elements of the ENSMS considered high risk, and take into account the outcomes from the various procedures covering the measurement and evaluation of elements of the ENSMS.)</p> <p>The ENSMS shall be reviewed and, if necessary, updated at least every five years or in the event of any change to the ENSMS. This includes, for example, changes to legislative requirements, organizational structure and operational experience.</p>	Compliant	OFI	<p>- ENSMS Description Section 4.15 describes management review of the ENSMS, including the role of the Asset Management System Review Committee in carrying out the management review activities.</p> <p>- OFI: Recommend that the ENSMS should be reviewed 12 months after the initial external audit to confirm that organisational changes and procedural updates are still in alignment with the system requirements and are being implemented. Technical experts from Quality, Safety and Asset Management areas should have input at the review of the document at the Asset Management System Review Committee.</p> <p>- OFI: A revision to the Charter of the Asset Management System Review Committee is currently in a draft form. This draft revision incorporates the items relating to the ENSMS. This revision should be finalised, approved and issued in a timely manner. It is noted that this is an agenda item for the June 2015 Committee meeting.</p>	<ul style="list-style-type: none"> <li>- ENSMS Description</li> <li>- Asset Management System Review Procedure</li> <li>- Asset Mgt Ctee Charter</li> <li>- AMC - meeting schedule</li> <li>- Minutes of Asset Management Review Committee</li> <li>- Network Performance Review Procedure</li> </ul>

Clause	Sub-clause	Requirement	TransGrid Compliance	AOC / OFI	Compliance Statement / Recommendation	Reference documents
4.6.2	.	<b>Change management</b>	-	-		
4.6.2	.	The Network Operator shall establish procedures for managing changes to the ENSMS, procedures, network design, construction, operation, maintenance and decommissioning so that they are made in a controlled manner, reviewed, recorded and approved by the Network Operator.	Compliant	OFI	- ENSMS Description Section 4.16 describes the management of change related to the ENSMS, with reference to the Asset Management System Management of Change Procedure. - OFI: Recommend updating the Asset Management System Management of Change procedure to incorporate ENSMS elements within the scope of this procedure.	- ENSMS Description - Asset Management System Management of Change Procedure
4.6.2	.	Any change to the network or its operating context shall be reviewed and approved by the Network Operator. Change shall be considered to have taken place if the engineering design has been upgraded or modified. Change shall be considered to have taken place if any event or newly identified hazard initiates an operational, technical or procedural change in the measures to (as a minimum)— (a) protect the network and associated components; (b) promote public safety awareness of the network; (c) operate and maintain the network safely; (d) implement emergency response arrangements; (e) prevent or minimize loss of supply; (f) carry out required inspections; and (g) ensure that the plans and procedures continue to comply with the network's engineering and design standards.	Compliant		- ENSMS Description Section 4.16 describes the management of changes to the network through the design management process, including design change requests and safety in design considerations. - Interviews with management identified that changes to the network are managed through the design management process.	- ENSMS Description - Asset Management System Management of Change Procedure - Design Management - Internal / Contract - Safety in Design Procedure
4.6.2	.	The change management procedures shall address implementation of any resulting ENSMS changes, including notification and training of staff impacted by the change and the allocation of responsibilities for any identified actions. The change management procedures shall also include communication of changes to relevant stakeholders.	Compliant		- ENSMS Description Section 4.16 describes the management of change related to the ENSMS, with reference to the Asset Management System Management of Change Procedure. Risk assessments are to be undertaken for any planned changes and these changes will be implemented through structured transitions.	- ENSMS Description - Asset Management System Management of Change Procedure



# Appendix C

## Overview of audit interviews and site inspection activities

Topic TransGrid Representative	Meeting Date and Time	ENSMS Meeting Focus Areas	Documents and Processes
Construction Management / Commissioning [REDACTED] <i>Manager – Construction Services</i>	Tuesday 14/4/15 9.00am to 10.00am	<ul style="list-style-type: none"> <li>■ Formal safety assessments – site safety management</li> <li>■ Contractor health and safety management</li> <li>■ Construction standards/codes</li> <li>■ Resourcing (labour, skills, material and tools)</li> <li>■ Testing and commissioning activities</li> <li>■ Training</li> <li>■ Environmental management</li> <li>■ Safety in Design and HAZCON</li> <li>■ Outage planning (requests)</li> </ul>	<ul style="list-style-type: none"> <li>■ Pre-work risk assessments</li> <li>■ Environmental management</li> <li>■ Contractor health and safety management procedure</li> <li>■ Training system and records</li> <li>■ Testing and commissioning procedures / check sheets</li> </ul>
Portfolio Management [REDACTED] <i>Manager – Portfolio Management (Acting)</i>	Tuesday 14/4/15 10.00am to 10.30am	<ul style="list-style-type: none"> <li>■ Network investment process</li> </ul>	<ul style="list-style-type: none"> <li>■ Network investment process</li> <li>■ Options evaluation reports</li> <li>■ Project scoping studies</li> </ul>
EGM/Asset Management [REDACTED] <i>Executive General Manager / Asset Management</i>	Tuesday 14/4/15 10.30am to 11.00am	<ul style="list-style-type: none"> <li>■ Policy commitment</li> <li>■ Management structure</li> <li>■ Formal safety assessment</li> <li>■ Resourcing and resource planning (staff training and competency)</li> <li>■ Corporate and Regional Emergency Management Plan (CREMP) implementation</li> <li>■ Public electrical safety awareness</li> </ul>	<ul style="list-style-type: none"> <li>■ Asset management policy</li> <li>■ Health and safety policy</li> <li>■ Risk management framework</li> <li>■ Corporate risk register</li> <li>■ Corporate and Regional Emergency Management Plan (CREMP)</li> <li>■ Public electrical safety awareness plan</li> </ul>

Topic	Meeting	ENSMS Meeting Focus Areas	Documents and Processes
TransGrid Representative	Date and Time		
Health & Safety Management, Environmental Management [REDACTED] <i>Manager – Health, Safety and Environment</i> [REDACTED] <i>HSE Systems Manager</i> [REDACTED] <i>Environment Manager</i>	Tuesday 14/4/15 11.15am to 12.15pm	<ul style="list-style-type: none"> <li>■ Health and Safety Management System</li> <li>■ Incident investigation and reporting</li> <li>■ Audit records management</li> <li>■ Environmental management system</li> <li>■ Formal safety assessments</li> <li>■ Waste management</li> <li>■ Other environmental aspects that affect safety</li> <li>■ Resourcing (staff training and competency)</li> </ul>	<ul style="list-style-type: none"> <li>■ Health and safety policy</li> <li>■ Health and safety reporting</li> <li>■ H&amp;S incident management</li> <li>■ Audit records and actions</li> <li>■ Health &amp; safety committee meeting minutes</li> <li>■ Environmental management system framework</li> <li>■ Waste management</li> </ul>
Project Management [REDACTED] <i>Manager – Project Delivery</i>	Tuesday 14/4/15 1.00pm to 2.00pm	<ul style="list-style-type: none"> <li>■ Formal safety assessment – safety aspects of projects</li> <li>■ Project planning – health and safety considerations,</li> <li>■ Project HAZOP / HAZCON / CHAIR implementations</li> <li>■ Safety considerations in contractor engagement</li> <li>■ Decommissioning</li> <li>■ Resourcing (labour, skills, material and tools)</li> </ul>	<ul style="list-style-type: none"> <li>■ Project plans in TRIM</li> <li>■ HAZOP / HAZCON / CHAIR meeting minutes</li> <li>■ Performance management system and training records</li> <li>■ Project Delivery Manual</li> </ul>
Design [REDACTED] <i>Manager – Engineering</i>	Tuesday 14/4/15 2.00pm to 3.00pm	<ul style="list-style-type: none"> <li>■ Design management processes (internal and external)</li> <li>■ Formal safety assessments – Safety in design</li> <li>■ Design standards</li> <li>■ Design change management</li> <li>■ Design review committee</li> <li>■ Resourcing (labour, training and competency)</li> </ul>	<ul style="list-style-type: none"> <li>■ Design management – Internal</li> <li>■ Design management – Contract</li> <li>■ Safety in design reports</li> <li>■ Standard design manuals</li> <li>■ Design change requests</li> <li>■ Performance management system and training records</li> </ul>

Topic TransGrid Representative	Meeting Date and Time	ENSMS Meeting Focus Areas	Documents and Processes
ENSMS Management [REDACTED] <i>Asset Performance and Systems Manager</i> [REDACTED] <i>Transmission Lines and Cables Asset Manager</i>	Tuesday 14/4/15 3.00pm to 4.00pm	<ul style="list-style-type: none"> <li>■ Formal safety assessment – asset strategies and remaining asset life review</li> <li>■ Communication related to the ENSMS</li> <li>■ Resourcing planning (staff training and competency)</li> <li>■ Management structure</li> <li>■ Stakeholder engagement</li> <li>■ Asset management review committee</li> <li>■ Change management process</li> <li>■ Network investment risk assessment</li> <li>■ Significant Electricity Network Incident (SENI)</li> <li>■ Bushfire risk management</li> <li>■ Public electrical safety awareness</li> </ul>	<ul style="list-style-type: none"> <li>■ Asset management policy</li> <li>■ ENSMS description</li> <li>■ Asset management strategies</li> <li>■ Asset maintenance and renewal plans</li> <li>■ Performance management system and training records</li> <li>■ Significant Electricity Network Incident (SENI) process and reporting</li> <li>■ Network investment risk assessments</li> <li>■ Bushfire risk management plan</li> <li>■ Public electrical safety awareness plan</li> </ul>
Network Planning [REDACTED] <i>Manager – Power System Analysis</i>	Tuesday 14/4/15 4.30pm to 5.00pm	<ul style="list-style-type: none"> <li>■ Connection planning</li> <li>■ Main system planning</li> <li>■ Connection agreements with distribution networks or direct customers</li> </ul>	<ul style="list-style-type: none"> <li>■ Transmission annual planning report</li> <li>■ Network development strategy</li> </ul>
Site Inspection – Sydney South 330/132kV Substation [REDACTED] <i>Team Leader – Substations</i>	Friday 17/4/15 7.00am to 9.30	<ul style="list-style-type: none"> <li>■ Site safety management</li> <li>■ Formal safety assessment and pre-work planning</li> <li>■ Resourcing for tasks (labour, skills, material and tools)</li> <li>■ Adherence to SWMS and work procedures</li> </ul>	<ul style="list-style-type: none"> <li>■ Substation emergency response plan</li> <li>■ Local fire procedure manual</li> <li>■ Pre-work risk assessments</li> <li>■ Safe work method statements</li> <li>■ Work procedures</li> </ul>

Topic	Meeting	ENSMS Meeting Focus Areas	Documents and Processes
TransGrid Representative	Date and Time		
Network Operators [REDACTED] <i>Operations Planning Manager            (on behalf of Manager –            Network Operations)</i>	Friday 17/4/15 1.00pm to 3.00pm	<ul style="list-style-type: none"> <li>■ Formal safety assessments</li> <li>■ Fault condition monitoring</li> <li>■ Outage planning</li> <li>■ Power system safety rules authorisation</li> <li>■ Corporate and Regional Emergency Management Plan (CREMP) implementation – network operation</li> <li>■ Operating manuals</li> <li>■ Resourcing (staff training and competency)</li> <li>■ Outage and operations management – interfaces with external customers</li> <li>■ Continuity of transmission supply plan</li> <li>■ HAZOP / project consultation</li> </ul>	<ul style="list-style-type: none"> <li>■ The Outage System (THEOS) – example of system use</li> <li>■ HVPRI application (outage planning package) – examples</li> <li>■ Operating records and logs</li> <li>■ Operating manuals</li> <li>■ Power system safety rules (PSSR) authorisation competency system</li> <li>■ Corporate and Regional Emergency Management Plan (CREMP) – network operation</li> <li>■ Job descriptions (including health and safety aspects if required)</li> <li>■ Continuity of transmission supply plan</li> </ul>
Maintenance – Delivery [REDACTED] <i>Manager – Maintenance</i>	Friday 17/4/15 3.00pm to 4.00pm	<ul style="list-style-type: none"> <li>■ Maintenance plans – Ellipse works schedule</li> <li>■ Maintenance programs</li> <li>■ Formal safety assessments – pre-work planning</li> <li>■ Bushfire risk management</li> <li>■ Waste management</li> <li>■ HAZOP processes and involvement</li> <li>■ Maintenance record keeping</li> <li>■ Resourcing (labour, skills, material and tools)</li> <li>■ Training of staff</li> </ul>	<ul style="list-style-type: none"> <li>■ Maintenance plans – Ellipse works schedule</li> <li>■ Grid standards</li> <li>■ Job descriptions (including health and safety aspects if required)</li> <li>■ Training system and records</li> </ul>

# Appendix D

## AS/NZS ISO 19011:2014 Guidelines

Section of AS/NZS ISO 19011:2014	Comment	Report Section
<b>6.2 Initiating the audit</b>		
6.2.1 <i>General</i>	ISO19011:2014 Section 6 ' <i>Performing an Audit</i> ' was followed.	-
6.2.2 <i>Establish initial contact with the auditee</i>	<p>TransGrid engaged Aurecon to conduct the audit of their ENSMS in accordance with the requirements of the Regulation.</p> <p>Aurecon was engaged as the auditor via email from TransGrid dated 5/3/2015.</p> <p>An initial meeting between TransGrid and Aurecon was held on 18/03/2015 at TransGrid's Ultimo office.</p>	1.1
6.2.3 <i>Determining the feasibility of the audit</i>	<p>Methodology.</p> <p>Audit plan outline emailed to TransGrid on 24/03/2015.</p>	3
<b>6.3 Preparing audit activities</b>		
6.3.1 <i>Performing document review in preparation for the audit</i>	TransGrid's ENSMS documentation was considered in preparing audit activities and work documents.	3.2 Appendix A
6.3.2 <i>Preparing the audit plan</i>	Documented in report.	2
6.3.3 <i>Assigning work to the audit team</i>	<p>Audit team outlined in report.</p> <p>As the Audit team consisted predominantly of two members work was assigned as required. Specialist advisors engaged as required.</p>	2.5
6.3.4 <i>Preparing work documents</i>	<p>Detailed assessment – base template used to compile compliance review and assessment.</p> <p>Interview and site inspection guides used as basis for assessing implementation.</p>	Appendix B Appendix C

Section of AS/NZS ISO 19011:2014	Comment	Report Section
<b>6.4 Conducting the audit activities</b>		
6.4.1 <i>General</i>	-	-
6.4.2 <i>Conducting the opening meeting</i>	The opening meeting was held at 8.30am on 14/04/2015 at TransGrid's Ultimo office, Sydney.	3.1
6.4.3 <i>Performing document review while conducting the audit</i>	Documentation conformance review.	Appendix B
6.4.4 <i>Communicating during the audit</i>	TransGrid staff provided face-to-face communication throughout the audit. Any additional information required was emailed to the audit team for review (refer Appendix A). The audit team stored email correspondence on a secure file server.	3
6.4.5 <i>Assigning roles and responsibilities of guides and observers</i>	No guides or observers external to the Aurecon team attended this audit.	2.5
6.4.6 <i>Collecting and verifying information</i>	Methods include review of: <ul style="list-style-type: none"> <li>• Documents and records</li> <li>• Interviews</li> <li>• Site inspection</li> </ul>	3.2 3.3 3.4
6.4.7 <i>Generating audit findings</i>	Report – Audit Findings section	4
6.4.8 <i>Preparing audit conclusions</i>	Report – Conclusions section	5
6.4.9 <i>Conducting the closing meeting</i>	The closing meeting was held at 4.30pm on 17/04/2015 at TransGrid's Wallgrove office.	3.5
<b>6.5 Preparing and distributing the audit report</b>		
6.6.1 <i>preparing the audit report</i>	This document followed guidelines under AS/NZS ISO 19011:2014 for preparing the audit report.	Report
6.6.2 <i>approving and distributing the audit report</i>	At the closing meeting it was agreed that the final Audit Report should be submitted to TransGrid by 15/05/2015.	-
<b>6.6 Completing the audit</b>		
6.6 <i>Completing the audit</i>	Date of Final Audit Report.	Refer Page i Document Control Table
<b>6.7 Conducting audit follow-up</b>		
6.7 <i>Conducting audit follow up</i>	The audit findings have not identified any non-compliant aspects of TransGrid's ENSMS. As such, no formal audit follow up is required prior to the next scheduled audit.	-



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