



ABN 20 009 454 111

Review Report  
Western Power Electricity Licences Asset  
Management System Review

**August 2012**

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## Executive Summary

Western Power holds an electricity transmission licence (ETL2) and an electricity distribution licence (EDL1) issued by the Economic Regulation Authority (the Authority) under Sections 7 and 15(2) of the Electricity Industry Act 2004 (WA) (the Act). The licences enable Western Power to construct and operate transmission and distribution systems in accordance with the licence conditions.

Section 14 of the Act requires Western Power to provide the Authority with a report by an independent expert on the effectiveness of their Asset Management System. In June 2012 Western Power commissioned Qualeng to carry out the Asset Management System review for the period 1 May 2011 to 30 June 2012. The review has been conducted and this report prepared in accordance with the Authority's "Audit Guidelines: Electricity, Gas and Water Licences (August 2010)".

## THE ASSETS

Western Power supplies electricity and electricity services to the South West

Interconnected System (SWIS). Western Power's system includes transmission and distribution networks from Kalbarri in the North to Albany in the South and Kalgoorlie in the East. The networks transport electricity from generators to both residential and commercial customers.

The network is approximately 96,000 km in length, it supplies 965,000 homes and has reached a system peak load of over 4028 MW. The transmission network consists of over 100,000 assets connecting the generators to transmission terminal stations and zone substations at voltages of 66 kV to 330 kV. The distribution network contains over 2,000,000 assets and connects the zone substations to the customers from 240 V to 33 kV.

## THE REVIEW

The review was conducted through meetings at the Wellington St head office, East Perth control centre, Kewdale and Jandakot (Prinsep Rd) offices and through a document review.

The evaluation of the system effectiveness was carried out through an assessment of the control environment, information system, control procedures, supporting documentation and compliance attitude.

The Authority requested that areas of the Asset Management System be investigated in detail and that special tests be applied to aspects of the system and data. This set of investigations has been termed as "Special Areas of Interest" and included:

- Risk Management and Network Risk Register investigation;
- Contingency Plans;
- Wood pole system, inspections and failure assessment.

The final report includes:

- (i) a review of the objectives, the scope of the task, details and progress of actions resulting from the previous review;
- (ii) key findings and recommendations from this review;
- (iii) findings and recommendations from the Special Areas of Interest and
- (iv) a post review implementation plan listing the review recommendations and actions proposed by Western Power. Although this plan does not form part of the report, it is included to complete the documentation.

## LICENSEE'S RESPONSE TO PREVIOUS REVIEW RECOMMENDATIONS

The corrective actions taken by Western Power in order to address the recommendations of the 2011 Asset management review show an appropriate approach and commitment by Western Power. Western Power has split up the nine recommendations where applicable and assigned the tasks to different task owners.

This shows commitment by Western Power for the continuous improvement of the asset management system. In total 26 actions had been identified by Western Power and of these, 17 have been completed in full, three have been completed but give rise to a further recommendation and the following six are in progress:

- Completion of document control activities at System Operations Control Centre (SOCC);
- Completion of delayed reviews of SOCC documentation and confirmation that all key documents are current and relevant;
- Integration between the Financial Asset Registers and the Asset Management systems;
- Publication of key processes for Handover, delivery and reporting against the OPEX/CAPEX works program;
- Lifecycle Status Reporting and Delivery Status Reporting processes are still in progress and due to be published;
- Development of monthly report which tracks the date poles were inspected against the date the pole is due to be replaced for P1 and P2 condemned poles, including:
  - Inclusion of a standard agenda item at meetings between key operational managers to discuss the report.

## **SUMMARY REVIEW OF THE CONTROL ENVIRONMENT**

Western Power has demonstrated that it has an effective plan to manage the different aspects of the asset management systems for both its Transmission and its Distribution licences. Western Power has shown continuous improvement and commitment to regulatory compliance.

The review has found strong commitment to planning, risk analysis, performance monitoring and management reporting. In the review period there has been progress with a number of activities:

- Implementation of the Mobile Workforce Solution to enable immediate entry of inspection data from the field;
- Increase in pole inspection numbers and data entry to reduce both the inspection backlog and the amount of pending data;
- Cleansing of data in asset registers;
- Mapping of processes;
- Strong commitment to improvement in operation and maintenance;
- Progress with the replacement and integration of legacy IT systems.

The review has found that further work is required in some of the areas of the asset management system. Actions are already in progress in some of these areas:

- Actions to address delays in rectification of high priority asset conditions;

- Improvement in the network risk register;
- Review of system documentation, document review and consolidation of various document control systems;
- Reviewing the operational lifecycle costs in business cases;
- Further improvement in the business process;
- Involvement of stakeholders in reviews;
- Contingency plans need consolidation of reviews; further attention is required, from a risk perspective, on revisiting the assessment of risk scenarios and the testing of plans other than the Back Up Control Centre Activation.

In general there was strong commitment by staff to participate in the review and assist with all requests for information. Presentations were professional and demonstrated long term preparation and commitment to the management of compliance.

Overall the review concluded that Western Power asset management system was supported by comprehensive documentation and that there was an effective implementation of the system. Where gaps have been identified there is commitment to review and improvement through corrective actions.

## POST REVIEW ACTION PLAN

The Asset Management System Review has resulted, where applicable, in observations and recommendations that require corrective actions by the Licensee.

The recommendations have been listed in the Post Review Implementation Plan 2012. Responses including actions, responsibilities and dates for completion have been completed by the Licensee. A copy of the plan is attached in Appendix A.

## ASSET MANAGEMENT REVIEW EFFECTIVENESS SUMMARY

The review of the Asset Management System is summarised below in Table 1. Definition of the ratings is given in Tables 2 and 3.

**Table 1: Asset management effectiveness summary**

<b><i>ASSET MANAGEMENT SYSTEM</i></b>	Asset management process and policy definition adequacy ratings	Asset management performance ratings
1. Asset planning	<b>A</b>	<b>1</b>
2. Asset creation/ acquisition	<b>A</b>	<b>1</b>

<b>ASSET MANAGEMENT SYSTEM</b>	Asset management process and policy definition adequacy ratings	Asset management performance ratings
3. Asset disposal	<b>A</b>	<b>1</b>
4. Environmental analysis	<b>A</b>	<b>2</b>
5. Asset operations	<b>B</b>	<b>2</b>
6. Asset maintenance	<b>B</b>	<b>2</b>
7. Asset management information system	<b>B</b>	<b>2</b>
8. Risk management	<b>B</b>	<b>2</b>
9. Contingency planning	<b>C</b>	<b>3</b>
10. Financial planning	<b>A</b>	<b>1</b>
11. Capital expenditure planning	<b>A</b>	<b>1</b>
12. Review of asset management system	<b>B</b>	<b>2</b>

**Table 2: Asset management process and policy definition adequacy ratings**

<b>Rating</b>	<b>Description</b>	<b>Criteria</b>
<b>A</b>	Adequately defined	<ul style="list-style-type: none"> <li>Processes and policies are documented.</li> <li>Processes and policies adequately document the required performance of the assets.</li> <li>Processes and policies are subject to regular reviews, and updated where necessary.</li> <li>The asset management information system(s) are adequate in relation to the assets that are being managed.</li> </ul>
<b>B</b>	Requires some improvement	<ul style="list-style-type: none"> <li>Process and policy documentation requires improvement.</li> <li>Processes and policies do not adequately document the required performance of the assets.</li> <li>Reviews of processes and policies are not conducted regularly enough.</li> <li>The asset management information system(s) require minor improvements (taking into consideration the assets that are being managed).</li> </ul>

Rating	Description	Criteria
C	Requires significant improvements	<ul style="list-style-type: none"> <li>Process and policy documentation is incomplete or requires significant improvement.</li> <li>Processes and policies do not document the required performance of the assets.</li> <li>Processes and policies are significantly out of date.</li> <li>The asset management information system(s) require significant improvements (taking into consideration the assets that are being managed).</li> </ul>
D	Inadequate	<ul style="list-style-type: none"> <li>Processes and policies are not documented.</li> <li>The asset management information system(s) is not fit for purpose (taking into consideration the assets that are being managed).</li> </ul>

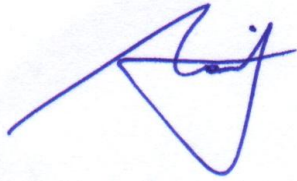
**Table 3: Asset management review performance rating scale**

Rating	Description	Criteria
1	Performing effectively	<ul style="list-style-type: none"> <li>The performance of the process meets or exceeds the required levels of performance.</li> <li>Process effectiveness is regularly assessed, and corrective action taken where necessary.</li> </ul>
2	Opportunity for improvement	<ul style="list-style-type: none"> <li>The performance of the process requires some improvement to meet the required level.</li> <li>Process effectiveness reviews are not performed regularly enough.</li> <li>Process improvement opportunities are not actioned.</li> </ul>
3	Corrective action required	<ul style="list-style-type: none"> <li>The performance of the process requires significant improvement to meet the required level.</li> <li>Process effectiveness reviews are performed irregularly, or not at all.</li> <li>Process improvement opportunities are not actioned.</li> </ul>
4	Serious action required	<ul style="list-style-type: none"> <li>Process is not performed, or the performance is so poor that the process is considered to be ineffective.</li> </ul>

This report is an accurate representation of the findings and opinions of the auditors following the review of the client's conformance to nominated Licence conditions. The review is reliant on evidence provided by other parties and is subject to limitations due to the nature of the evidence available to the auditor, the sampling process inherent in the review process, the limitations of internal controls and the need to use judgement in the assessment of evidence. On this basis Qualeng shall not be liable for loss or damage to other parties due to their reliance on the information contained in this report or in its supporting documentation.

The Post Review Implementation Plan is a document prepared by the licensee in response to the recommendations provided by the review. As it represent the licensee's views and actions it does not form part of the review, however it has been included in Appendix A in order to complete the documentation of the review and in accordance with the Authority's Guidelines.

#### Approvals

Representation	Name	Signature	Position	Date
Auditor:	M Zammit		Lead Auditor / Projects Director, Qualeng	17 January 2012

Ref:	61/1	
Issue Status		
Issue No	Date	Description
A	23 August 2012	Draft issue
B	3 September 2012	Second draft issue
C	17 September 2012	Third draft issue
D	8 October 2012	Fourth draft issue



Ref:	61/1	
Issue Status		
1	8 January 2013	First final issue
2	17 January 2013	Final issue

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## **1 OBJECTIVES AND SCOPE OF REVIEW**

### **1.1 BACKGROUND**

Western Power holds an electricity transmission licence (ETL2) and an electricity distribution licence (EDL1) issued by the Economic Regulation Authority (the Authority) under Sections 7 and 15(2) of the Electricity Industry Act 2004 (WA) (the Act). The licences enable Western Power to construct and operate transmission and distribution systems in accordance with the licence conditions.

Western Power supplies electricity and electricity services to the South West Interconnected System (SWIS). Western Power's system includes a transmission and distribution network from Kalbarri in the North to Albany in the South and Kalgoorlie in the East known as the Western Power Network. The Western Power Network forms part of the South West Interconnected Network (SWIN), or part of the network component of the SWIS. The network transports electricity from generators to both residential and commercial customers.

The network is approximately 96,000 km in length, it supplies 965,000 homes and has reached a system peak load of over 4028 MW. The transmission network consists of over 100,000 assets connecting the generators to transmission terminal stations and zone substations at voltages of 66 kV to 330 kV. The distribution network contains over 2,000,000 assets and connects the zone substations to the customers from 240 V to 33 kV.

Section 14 of the Act requires Western Power to provide the Authority with a report by an independent expert on the effectiveness of their Asset Management System. In June 2012 Western Power commissioned Qualeng to carry out the Asset Management System review for the period 1 May 2011 to 30 June 2012. The review has been conducted and this report prepared in accordance with the Authority's "Audit Guidelines: Electricity, Gas and Water Licences (August 2010)" (the Guidelines).

## 1.2 REVIEW OBJECTIVES

The purpose of the asset management system review is:

- *Assess the measures taken by the licensee for the proper management of assets used in the provision and operation of services and, where appropriate, for the construction or alteration of relevant assets.*

## 1.3 REVIEW SCOPE

The scope of the asset management system review includes the assessment of the adequacy and effectiveness of the licensee's asset management system by evaluating the key processes of:

- Asset planning
- Asset creation/acquisition
- Asset disposal
- Environmental analysis
- Asset operations
- Asset maintenance
- Asset management information system
- Risk management
- Contingency planning
- Financial planning
- Capital expenditure planning
- Review of the asset management system.

Each of the system processes was evaluated against effectiveness criteria defined in the Guidelines.

The review included the following activities:

- risk and materiality assessment;
- meetings and discussions with key Western Power personnel;
- documentation review (including an update on the corrective actions raised in the 2011 Asset Management Systems Review);

- facility and site visits;
- system testing and
- post review implementation planning.

## **1.4 REVIEW PERIOD**

The review covers the 14 months period from 1 May 2011 to 30 June 2012 and follows the previous review (October 2011) that covered the period from the 1st November 2009 to 30th April 2011. The review was carried out between June and August 2012.

## **1.5 REVIEW METHODOLOGY**

The review followed the methodology defined in the Authority's "Audit Guidelines: Electricity, Gas and Water Licences", August 2010, (the Guidelines) including:

- Review of documentation
- Review of previous review responses and actions;
- Preparation of a review plan, risk assessment and system analysis;
- Fieldwork including the document review and meetings;
- Reporting.

These activities were supported by additional investigations to further clarify aspects of the procedures.

For the asset management review a review plan was prepared which outlined the review objectives, scope, risk assessment, system analysis, fieldwork plan, the report structure, key contacts and reviewing staff.

The review adopted a risk based approach where a preliminary risk and materiality assessment was carried out for each licence condition to evaluate the risks resulting from non-compliance and/or lack of controls.

The existing controls were rated and a review priority assigned based on the risk resulting from lack of controls. Tests were also defined for each licence condition to assess the compliance and effectiveness of the current process.

In regard to the Asset Management Review the review followed the methodology

outlined above and defined in the Guidelines.

### 1.5.1 Assessment of Licensee's Controls

Prior to the start of the review a preliminary assessment was made of the licensee's controls to arrive at priority ratings to determine the depth of the review on each system element, in accordance with the Authority's guidelines. During the review the assessment was revised to reflect new evidence found, as shown below.

The only change was to revise the consequence evaluation upwards for planning. It was assessed that the consequence of lack of controls in planning could result in delays in construction of essential infrastructure that could impact on compliance with licence obligations. Due to the lead times required in the delivery of construction programs both for distribution and transmission the impact may be serious.

In terms of the adequacy of existing controls:

- Elements 1 and 11, Planning and Capital Expenditure Planning were rated higher;
- Elements 7 and 12, Asset Management Information System were rated lower.

**Table 4 Review Priority for Asset Management System Review, ETL2 Licence**

Asset management system components	Consequence (1= minor, 2= Moderate, 3= major)	Likelihood (A= likely, B= probable, C= unlikely)	Inherent Risk (Low, Medium, High)	Adequacy of existing controls (S= Strong, M= Moderate, W= Weak)	Review Priority (Refer to <b>Table 11</b> for review priority ratings)
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Asset management system components	Consequence (1= minor, 2= Moderate, 3= major)	Likelihood (A= likely, B= probable, C= unlikely)	Inherent Risk (Low, Medium, High)	Adequacy of existing controls (S= Strong, M= Moderate, W= Weak)	Review Priority (Refer to Table 11 for review priority ratings)					
					1	2	3	4	5	N/A
1.Asset planning	3	B	High	S		X				
2.Asset creation/acquisition	2	B	Medium	M				X		
3.Asset disposal	1	C	Low	M					X	
4.Environmental analysis	3	B	High	M		X				
5.Asset operations	3	C	High	M		X				
6.Asset maintenance	3	B	High	M		X				
7.Asset management information system	2	A	High	M		X				
8.Risk management	3	B	High	S		X				
9.Contingency planning	3	B	High	M		X				
10.Financial planning	2	B	Medium	S				X		
11.Capital Expenditure Planning	2	B	Medium	S				X		
12.Review of AMS	2	B	Medium	M				X		

**Table 5 Review Priority for Asset Management System Review, EDL1 Licence**

Asset management system components	Consequence (1 = minor, 2 = Moderate, 3 = major)	Likelihood (A = likely, B = probable, C = unlikely)	Inherent Risk (Low, Medium, High)	Adequacy of existing controls (S = Strong, M = Moderate, W = Weak)	Review Priority (Refer to Table 11 for audit priority ratings)					
					1	2	3	4	5	N/A
1.Asset planning	2	B	Medium	M		X				
2.Asset creation/acquisition	2	B	Medium	M				X		
3.Asset disposal	1	C	Low	M					X	
4.Environmental analysis	3	B	High	M		X				
5.Asset operations	3	C	High	M		X				
6.Asset maintenance	3	B	High	M		X				
7.Asset management information system	2	A	High	M		X				
8.Risk management	3	B	High	S		X				
9.Contingency planning	3	B	High	M		X				
10.Financial planning	2	B	Medium	S				X		
11.Capital Expenditure Planning	2	B	Medium	S				X		
12.Review of AMS	2	B	Medium	S				X		

Consequence, Likelihood, Inherent Risk, Adequacy of Existing Controls and Review Priority are defined in accordance with the guidelines, as shown in the following tables.



**Table 6 Consequences Rating Table**

Rating		Examples of non compliance			
		Supply quality	Supply reliability	Consumer protection	Breaches of legislation or other licence conditions
1	Minor	Minor public health or safety issues. Breach of quality standards minor - minimal impact on customers.	System failure or connection delays affecting only a few customers. Some inconvenience to customers.	Customer complaints procedures not followed in a few instances. Nil or minor costs incurred by customers.	Licence conditions not fully complied with but issues have been promptly resolved.
2	Moderate	Event is restricted in both area and time eg, supply of service to one street is affected for up to one day. Some remedial action is required.	Event is restricted in both area and time e.g. supply of service to one street is affected for up to one day. Some remedial action is required.	Lapse in customer service standards is clearly noticeable but manageable. Some additional cost may be incurred by some customers.	Clear evidence of one or more breaches of legislation or other licence conditions and/or sustained period of breaches.
3	Major	Significant system failure. Life-threatening injuries or widespread health risks. Extensive remedial action required.	Significant system failure. Extensive remedial action required.		

**Table 7: Likelihood ratings**

	Level	Criteria
A	Likely	Non-compliance is expected to occur at least once or twice a year
B	Probable	Non-compliance is expected to occur once every three years
C	Unlikely	Non-compliance is expected to occur once every 10 years or longer

**Table 8: Inherent risk rating**

Likelihood	Consequence		
	1. Minor	2. Moderate	3. Major
<b>A. Likely</b>	Medium	High	High
<b>B. Probable</b>	Low	Medium	High
<b>C. Unlikely</b>	Low	Medium	High

**Table 9: Description of inherent risk ratings**

Level	Description
<b>High</b>	Likely to cause major damage, disruption or breach of licence obligations
<b>Medium</b>	Unlikely to cause major damage but may threaten the efficiency and effectiveness of service
<b>Low</b>	Unlikely to occur and consequences are relatively minor

**Table 10: Adequacy ratings for existing controls**

Level	Description
<b>Strong</b>	Strong controls that are sufficient for the identified risks
<b>Moderate</b>	Moderate controls that cover significant risks; improvement possible
<b>Weak</b>	Controls are weak or non-existent and have minimal impact on the risks

**Table 11: Assessment of review priority**

Adequacy of existing controls				
Risk		Weak	Moderate	Strong
	High	Review Priority 1	Review Priority 2	
	Medium	Review Priority 3	Review Priority 4	
	Low	Review Priority 5		

## 1.6 LICENSEE'S REPRESENTATION

Key contacts for the review are:

- Mr Michael Pover, Asset System Analyst, Asset Management Systems Section, Networks Performance;
- Mr Geoff Barnett, Engineering Team Leader, Asset Management Systems Section, Networks Performance;
- Ms Margaret Pyrchla, Manager Risk and Compliance, Legal & Governance;
- Mr Kim McArthur, Engineering Team Leader, Plant, Network Performance.

Other Western Power representatives that participated in the review meetings or were requested to clarify areas of the review are listed in Appendix C.

## 1.7 REVIEW TEAM

The review representatives were:

- Mr Mike Zammit, Project Director and Lead Auditor;
- Mr Stan Foster, Senior Engineer and Reviewer;
- Mr Shaun Campbell, Senior Engineer, Document Reviewer and Verifier.

## 1.8 KEY DOCUMENTS AND INFORMATION

Main documents accessed by the auditors are listed in Appendix B.

## 1.9 LIMITATIONS AND QUALIFICATIONS

The review has been conducted and the report prepared to assess the effectiveness of the licensee's asset management system in accordance with the Authority's Guidelines.

Due to the sampling process inherent in checking the evidence, the nature of the evidence available to the reviewer, the limitations of internal controls and the need to use judgement in the assessment of evidence there are limitations in the level of accuracy that can be obtained in the review and errors and non-compliances may remain undetected.

In addition to the review scope defined in the Guidelines the Authority requested that special areas of the asset management system be examined in more detail including:

- risk management and risk registers
- contingency planning
- wood pole management system, including asset data, inspection, remedial actions, and failure causes.

As part of these special investigations, independent testing has been carried out on some of these elements of the system. For those elements the level of accuracy can be statistically quantified.

The Post Review Implementation Plan (PRIP) is a document prepared by the licensee in response to the recommendations provided by the review. As it represents the licensee's views and actions it does not form part of the review, however it has been included in Appendix A in order to complete the documentation of the review and in accordance with the Guidelines.

## 1.10 OTHER INFORMATION

A summary of the resources utilised in the performance of the review are listed below.

Item	Resource	Description	Hours
1	M Zammit	Project Director and Lead Auditor	272
2	S Foster	Senior Engineer and Reviewer	240
3	S Campbell	Senior Engineer, Document Reviewer and Verifier	24

### 1.11 ACKNOWLEDGEMENT

The review team wish to acknowledge the assistance given by Western Power staff in collecting and providing the documentation and in coordinating the large number of meetings required to conduct the review process and the investigation on the Special Areas of Interest, in particular, Mr Michael Pover and Mr Kim McArthur for the prompt and continuous support provided throughout the review process.

## 2 LICENSEE'S ACTIONS IN RESPONSE TO PREVIOUS REVIEW RECOMMENDATIONS

The actions taken by the Licensee in response to recommendations in previous reviews have been reviewed. Where applicable closure of the actions has been confirmed. Where work is still in progress or further actions are required appropriate recommendations are included in the Status/Recommendation column.

### POST REVIEW IMPLEMENTATION PLAN, ASSET MANAGEMENT SYSTEM REVIEW 2011

Table 12 Post Review Implementation Plan 2011

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
11/01	<ul style="list-style-type: none"> <li>Review the currency of all documents in the control centre instructions file, register all documents in DM and convert older documents to the current Western Power format and style.</li> <li>Systems Management General Manager</li> </ul>	<ol style="list-style-type: none"> <li>Link Document Review to KPI's. <ul style="list-style-type: none"> <li>System Operations and Network Operations work instructions include nominated review dates. This review process and compliance to the review dates has now been reflected as a System Management business KPI.</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>Complete</li> </ul>	<p>SOCC</p> <p>The controlled document registers show the DM number, the revision date and the due review date. A KPI has been implemented to monitor the performance of procedures reviews, the KPI shows the number of reviews completed with a yearly target of 60. The number of "Assigned" reviews could also be a KPI which would highlight times when many procedures are due for review.</p> <p>NOCC</p> <p>NOCC has also a "Network Operations Controlled Document Index" which includes review dates, date of next review, status and comments.</p>	<p>Completed</p> <ul style="list-style-type: none"> <li>[OFI] The number of "Assigned" reviews could also be a KPI. This would highlight periods when many procedures are due for review.</li> </ul>

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		<p>2. Update Document Control Register with enhanced review dates.</p> <p>► The document review register has been updated to show all controlled documents and their expected review dates.</p>	► Complete	<p>SOCC The controlled document registers have been revised to show the DM number, the revision date and the due review date.</p> <p>NOCC The document register shows the controlled documents and the expected review dates.</p>	Completed
		<p>3. Appoint SOCC Document Controller.</p> <p>► The SOCC will be appointing a document controller in May 2012. Business case has been approved. Position will be advertised and selection process undertaken to find a suitable candidate.</p>	► Behind schedule	<p>SOCC ► The SOCC Document Controller has not been engaged at this point. The function has been temporarily performed by contract staff and there are still actions in progress to complete this task. It is noted that the core action is the completion of document control activities.</p>	► In progress
		<p>4. Confirm all key documentation is current, relevant and in DM.</p> <p>► This activity will be completed after the appointment of a document controller. Expected completion date is May 2012.</p>	► Behind schedule	<p>SOCC ► Examined "System Operation Control Room Instruction (CRI) Index" (DM7695336) showing review dates. This action is still in progress as several of the documents require review. Document Controller not yet appointed.</p> <p>NOCC Documents viewed in the NOCC control register</p>	► SOCC Action in progress

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
				showed that document review dates are controlled.	
11/02	<ul style="list-style-type: none"> <li>While the asset registers are up to date and complete, the accounting data (asset valuations) is captured in MIMS Ellipse, but not in the Asset Management systems at an asset level. Valuations are available at a project, network or system level. There is no automated updating function or data communication between the DFMS and Ellipse. The financial asset register is not linked to the Asset Management Systems to provide replacement values of assets. A separate system captures Fair Value of assets. Western Power should evaluate how asset valuation information (fair value) should be integrated between the Financial Asset Registers and the Asset Management systems to ensure that future lifecycle replacement costs can be predicted.</li> </ul>	<ol style="list-style-type: none"> <li>Western Power's Finance Division (Finance) reached an agreement with the Department of Treasury and Finance (DTF) and the Office of the Auditor General (OAG) to use the Depreciated Replacement Cost (DRC) methodology to calculate Fair Value (FV) on the introduction of Whole of Government (WOG) reporting. DRC looks to FV the existing asset solution rather than interpose an asset solution that may be determined to be modern day equivalent (DORC). Finance performs a DRC every six months and supplies this information to the DTF for the purposes of WOG reporting. If the regulator or business decides to adopt a DORC methodology, Finance will substitute the DRC FV data with DORC FV's. Over the last 18 months, Finance has been rebuilding its financial Fixed Asset Register (FAR) to enable it to communicate with the Equipment Register (ER) under the Integrated Strategic Asset Management (ISAM) project. We have now delivered the electronic link and any physical asset changes in ER are automatically updated in the FAR. In the coming months, ISAM will have delivered the ability for data to also travel from the FAR to ER. When this is in place, DRC data will be</li> </ol>	<ul style="list-style-type: none"> <li>December 2012, on schedule</li> </ul>	<ul style="list-style-type: none"> <li>The ISAM project is still ongoing with a planned completion date of 30 October 2012. The project aims to replace the current Geographic information system with an off-the-shelf system and using Ellipse to replace various legacy systems. The project is 87% complete. The initial Fixed Asset Register links were implemented on 30 July 2011, Transmission Primary Plant assets have been managed out of Ellipse. Migration of Distribution assets is still due for completion on 15 September 2012. Training in components of the system is proceeding.</li> </ul>	<ul style="list-style-type: none"> <li>Action in progress</li> </ul>



ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		<p>available to asset management teams to use for decision making purposes.</p> <ul style="list-style-type: none"> <li>Progress has been made on migrating both Transmission Primary Plant and Distribution Assets into the ellipse equipment register. These are both prerequisites to the equipment register. Transmission Primary Plant is expected to be live in Ellipse in early April. Automatic update of the Fixed Asset Register (FAR) from equipment register updates remains in scope of Integrated Strategic Asset Management (ISAM) project and is on schedule for delivery by agreed dates (updated March 2012).</li> </ul>			
11/03	<ul style="list-style-type: none"> <li>Continue with the Data Collection and Quality Program to all areas to achieve the target data KPI of 15 days.</li> <li>Country Operations Branch Manager</li> </ul>	<ol style="list-style-type: none"> <li>Western Power will install three in one scanner/copier/printers in country depots. These will reduce the time required to send data sheets from the depot to the data management team. Governance will also be put in place to ensure that all crews submit their paperwork in a timely manner.</li> <li>Scanners have been delivered, installed &amp; tested, training on the new process for returned paperwork has been rolled out. Data Management have created standard reports and procedure documentation for their</li> </ol>	<ul style="list-style-type: none"> <li>November 2011, complete</li> </ul>	Scanning workflow has been implemented and has resulted in a decrease in the time delay between job completion and provision of data. Western Power demonstrated that the target of 80% of data being scanned within 15 days was achieved.	Completed

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		creation and use. This includes roles and responsibilities for each activity.			
		<p>2. Country Operations Branch will review stakeholders receiving field-to-office as-constructed timeliness reports and ensure all key stakeholders are included in the distribution list.</p> <p>► Data Management team are generating monthly reports which are made available on Western Powers Intranet site for stakeholders to view. All Country managers are provided with access to the reports at monthly management meetings.</p>	<p>► November 2011, complete</p>	Monthly reports are being prepared by Data Management team and uploaded onto the Western Power intranet for access by stakeholders.	Completed
		<p>3. Country Operations Branch will include a standard agenda item at meetings between Country Operations management team to discuss field-to-office as-constructed timeliness. Issues will be highlighted and managed through the minutes of meeting</p> <p>► Discussion on field to office as constructed timeliness is included as an agenda item in all Country Branch management meetings. Reports and document links are made available to all country managers and progress is discussed.</p>	<p>► December 2011, complete</p>	A standard agenda item (DM8086211) has been added to the Country Operations Management team meeting to highlight field-to-office as-constructed timeliness. Reports are made available to all country managers.	Completed
		<p>4. Monthly reports will be reviewed to identify common areas of concern. This report will be</p>	<p>► December 2011,</p>	As constructed timeliness is included as an agenda item in all Country Branch management meetings.	Completed

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		<p>reviewed by the Country Operations Branch management team on a monthly basis</p> <ul style="list-style-type: none"> <li>Discussion on field to office as constructed timeliness is included as an agenda item in all Country Branch management meetings. Reports and document links are made available to all country managers and progress is discussed.</li> </ul>	complete	Reports and document links are made available to all country managers.	
11/04	<ul style="list-style-type: none"> <li>Revise the NOCC and SOCC BCC activation checklists to record that all checks were completed, issues and problems were identified and actioned, and the checklists are signed off. Records of all activation reports should be retained and be available for audit.</li> <li>Systems Management General Manager</li> </ul>	<p>1. Conduct a review of records to combine the best aspects of NOCC &amp; SOCC Backup Control checklists where appropriate.</p> <ul style="list-style-type: none"> <li>Revision of the Network Operations and System Operations Backup Control Centre activation checklists has been completed with the template checklist now including signoff.</li> </ul>	<ul style="list-style-type: none"> <li>December 2011, complete</li> </ul>	A "tick and flick" form template is now in use. Forms for NOCC and SOCC are different due to different operation. Both forms have now actions noted on the form and provision for sign-off.	Completed
		<p>2. Revise procedures for conducting Back Up Control test checks to include a requirement that they are signed off on completion of noted action items and hard copies are filed on site.</p> <ul style="list-style-type: none"> <li>The procedures for conducting Back Up Control test checks has been revised and includes a requirement for keeping auditable records and signoff for noted actions. The checklist template has been updated to reflect</li> </ul>	<ul style="list-style-type: none"> <li>December 2011, complete</li> </ul>	Completed "tick and flick" form containing the applicable checks is now in use. The forms were signed off, actions were recorded and signed off. The actions are also recorded on an issue log.	Completed

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		these changes. Records of inspections are filed.			
11/05	<ul style="list-style-type: none"> <li>Western Power should record in a central system when contingency plans, other than the BCC activation, are exercised by NOCC and SOCC staff in DM.</li> <li>Systems Management General Manager</li> </ul>	<ol style="list-style-type: none"> <li>Identify the appropriate NOCC Work instructions that relate to contingency planning for the unexpected failure of an asset and aimed at minimising any significant disruption to service standards.</li> </ol>	<ul style="list-style-type: none"> <li>December 2011, complete (NOCC)</li> </ul>	<p>NOCC have concluded that none of the work instructions constituted asset contingency planning and that appropriate response mechanisms are in place in NWI-043 "Network Operations Back Up Control Centre Activation".</p> <p>Contingency planning may relate to the failure of an asset or to a threat to an asset or its operation. The reviewer has noted that other emergencies related to the operation of the assets may have to be considered because they relate to the possible disruption of service levels, e.g.:</p> <ul style="list-style-type: none"> <li>Pandemic Contingency Plan, (loss of key staff operating the Control Centre);</li> <li>Pole Top Fires Contingency Plan;</li> <li>Response to Bushfire;</li> <li>Manual Program Load shedding Curtailment Instruction.</li> </ul>	<ul style="list-style-type: none"> <li>This action has been closed and a new recommendation has been raised at asset management system criterion 9.1 (section 3.2 of report).</li> </ul>
		<ol style="list-style-type: none"> <li>Develop a formalised approach for reviewing the effectiveness of processes related to events which could lead to potentially significant disruptions (L3) and maintain records of the reviews.</li> </ol>	<ul style="list-style-type: none"> <li>December 2011, complete (NOCC)</li> </ul>	<p>Viewed records of meetings however from an operational perspective, unless each of the minutes is examined there are:</p> <ul style="list-style-type: none"> <li>no annual list of how many events had to be responded,</li> <li>no rating of the quality of the response</li> <li>no measure of how many actions, how critical</li> </ul>	As above 11/05 - 1
		<ul style="list-style-type: none"> <li>Work instructions for management of Level 3 emergencies that relate to contingency planning for unexpected network failure have been reviewed. The minutes of Level 3 meetings and de brief meetings are available in our Document Management System (DM) for audit purposes.</li> <li>Work instructions for management of Level 3</li> </ul>			

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		emergencies that relate to contingency planning for unexpected network failure have been reviewed. The minutes of Level 3 meetings and de brief meetings are available in our Document Management System (DM) for audit purposes.		and if any open.	
		<p>3. Development of a system of logging tests and events relating to significant disruptions which have occurred.</p> <p>▶ A system has been developed and is in place to record significant transmission disruptions.</p>	<p>▶ December 2011, complete (SOCC)</p>	<p>A system for logging events has been put in place by SOCC using the System Disturbances workflow.</p> <p>The system does not fulfil the need to readily track all activations of contingency plans and resulting outcomes and actions. (please see below).</p>	As above 11/05 - 1
				<p>The recommendation made in the 2011 Review required that <u>activation of contingency plans</u> (other than BCC activation) should be recorded in a central register.</p> <p>▶ SOCC: The use of SDAs does not provide a system for recording activation of contingency plans and tests of contingency plans. The response from SOCC was: "The System Disturbance process is on its own. This process is not part of contingency management. The system disturbance process is only to capture data". On this basis the recommendation of the 2011 Review has not been fully addressed.</p>	As above 11/05 - 1

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
11/06	<ul style="list-style-type: none"> <li>Recommend that a project schedule should be developed to map out which of the processes should be modelled and the target dates for publishing the approved process models.</li> </ul> <p>► Network Performance Branch Manager</p>	<ol style="list-style-type: none"> <li>Western Power will develop a plan to model key processes for Handover, delivery and reporting against the OPEX/CAPEX works program which includes a high level scope, key milestones, resources and timelines for delivery.</li> </ol> <p>► Holocentric Mapping of the Handover and Delivery of OPEX and CAPEX works program has been completed. A Project charter for the holistic mapping of the incorporation status reporting process for Capex and Opex has been completed and approved.</p>	<p>► December 2011, complete</p>	Processes for handover and delivery of OPEX and CAPEX work programs have been mapped and have been published on the appropriate Western Power portal (Modelpedia).	Completed
		<ol style="list-style-type: none"> <li>Western Power will publish the processes within the timelines stated in the plan.</li> </ol> <p>► Delegates for Distribution and Transmission have completed training in holocentric. Distribution plan to complete status report mapping by planned due date. Transmission status report process flowcharts are ready for mapping in Holocentric and on target to meet planned due date.</p>	<p>► Scheduled completion October 2012</p>	<p>► Processes for handover and delivery of OPEX and CAPEX work programs have been published on the appropriate Western Power portal (Modelpedia). Lifecycle Status Reporting and Delivery Status Reporting processes are still in progress and due to be published in October 2012.</p>	► Action in progress
	<p>► Compliance &amp; Risk Branch Manager</p>	<ol style="list-style-type: none"> <li>Senior Risk Advisor will have the applicable software installed on her computer and be trained in its use.</li> </ol> <p>► Installation of applicable software for process modelling has been installed on the risk advisors computer.</p>	<p>► December 2011, complete</p>	Completed	Completed

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		<ul style="list-style-type: none"> <li>2. Develop a plan to model key risk management processes which includes a high level scope, key milestones, resources and timelines for delivery.</li> <li>▶ The Holocentric team were engaged to map the risk management processes on behalf of the Risk and Compliance Branch. A plan including resources and timelines was not required. This action is no longer relevant.</li> </ul>	<ul style="list-style-type: none"> <li>▶ December 2011, no longer required</li> </ul>	Risk management process has been mapped and the plan is no longer required.	Completed
		<ul style="list-style-type: none"> <li>3. Complete mapping project by applying the process mapping methodology.</li> <li>▶ Risk and compliance engaged the Holocentric modelling team to map the risk management processes in Holocentric. The risk management processes are available through the Holocentric portal page.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Completed April 2012</li> </ul>	Risk management process has been mapped, endorsed, approved and in operation.	Completed
	▶ Network Investment Branch Manager	<ul style="list-style-type: none"> <li>1. Western Power will develop a plan to model the change control processes for the works program which includes a high level scope, key milestones, resources and timelines for delivery (Chris Gaskell, December 2011).</li> <li>▶ Training has been completed for the Network Investment representatives and the Change Control process has now been mapped in Holocentric. It is being reviewed by the Holocentric team before being releasing through the Holocentric web portal.</li> </ul>	<ul style="list-style-type: none"> <li>▶ December 2011, complete</li> </ul>	Plan has been developed by Network Investment Branch and has now been released. Training will start after the review period (July 2012).	Completed

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		During the roll out of Network Investment Planning Optimisation Project (NIPOP) in the coming months, over 600 people throughout the business will be exposed to the Change Control process in Holocentric.			
		<p>2. Western Power will publish the processes within the timelines stated in the plan.</p> <p>▶ As above at item 1.</p>	<p>▶ February 2012, complete</p>	Change control process model has been published in the Western Power intranet process portal "Our processes" in February 2012.	Completed
11/07	<ul style="list-style-type: none"> <li>Recommend that the Wood Pole Inspection Guidelines section on non-pole asset elements should be expanded to include the non- pole inspection information on what is to be inspected and the assessment measurement protocols within the one document.</li> <li>▶ Network Performance Branch Manager</li> </ul>	<p>1. At the next review of the Wood Pole Inspection Procedure (DM#: 5449945), Section 2.1.1 Basic Inspection Above Ground Line will be revised to enhance the scope, responsibilities with respect to inspection of non-pole asset (e.g. transformers, reclosers, pole top switches, fuses etc). This will include a clearer description of non-pole assets as well as a guideline to assist in identifying common conditions/defects impacting non-pole assets.</p> <p>▶ The inspection procedure has been expanded to incorporate a section that details the pole top equipment to be visually inspected, with examples of the typical defects on each equipment that should be monitored during inspections. This will provide inspectors with more guidance whilst conducting the pole top inspections. Improved defect identification on this equipment should result and allow</p>	<p>▶ February 2012, complete</p>	The inspection procedure DM5449945-11B has been expanded to include additional notes on defects of non-pole assets. The new details are primarily in section 6.5.	Completed



ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		Western Power to better manage defective equipment and improve the condition of the Western Power Network.			
11/08	<ul style="list-style-type: none"> <li>Western Power need to address the differences in the data reporting processes between DFMS and the Alliance Contractor Performance, and maintain monthly records of the pole inspection rates that can be verified from DFMS and contractor's invoice claims.</li> <li>Program &amp; Works Integration Branch Manager</li> </ul>	<ol style="list-style-type: none"> <li>Western Power will develop a monthly report which will compare actual distribution poles inspected against the records of poles inspected in DFMS. <ul style="list-style-type: none"> <li>The loading of data into Distribution Facilities Management System (DFMS) has historically been a manual process which has a lag time from field inspection to data load. The introduction of the Mobile Workforce Solution eliminates the difference between the inspection and loaded numbers in the system as it is an IT solution that sends the inspection record into Western Power directly from the pole and eliminates the need to manually load data. A weekly report has been developed to show both the number of Data Remote Entry (DRE) and Mobile Inspector (MI) packs inspected and loaded in line with the required actions.</li> </ul> </li> <li>Western Power will include a standard agenda item at weekly Program &amp; Works Integration Branch meetings to discuss the report. Issues will be highlighted and managed through these meetings with resulting actions tracked in DM. <ul style="list-style-type: none"> <li>A weekly report has been developed to show</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>December 2011, complete</li> <li>December 2011, complete</li> </ul>	<p>Introduction of the Mobile Workforce Solution between February and March 2012 has removed the gap between invoice claim numbers and reported inspection numbers. Communication from the inspector ensures that the data is available and entered in real time. Invoices are then prepared on the basis of inspections entered in the system, thus invoice numbers are synchronised to data entered.</p> <p>The only issue affecting the data entry is the amount of data that is classified as "exception", where some parameters do not pass a data quality check. Once the entry is "excepted", it has to be manually verified and the process creates a lag in that portion of the data. The data affected is in the order of 10% and the time lag is up to 2 months.</p> <p>Agenda and actions are included in the weekly Program &amp; Works Integration Branch meetings.</p>	<p>Completed</p> <p>Completed</p>

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		both the number of Data Remote Entry (DRE) and Mobile Inspector (MI) packs inspected and loaded in line with the required actions.			
11/09	<ul style="list-style-type: none"> <li>Western Power should develop a standard report to track the condemnation date for P1 and P2 assessments against the new pole installation date to monitor their performance against the pole replacement timeliness targets.</li> <li>Operational Asset Management Branch Manager</li> </ul>	<ol style="list-style-type: none"> <li>Western Power will develop a monthly report which tracks the date poles were inspected against the date the pole is due to be replaced for P1 and P2 condemned poles. This report will track the poles which are not replaced within the replacement target dates.</li> <li>Mobile Workforce solution is now rolled out to all wood pole inspection contractors and the information is flowing into Mobile Inspector. The development of the proposed report is still reliant on the full migration of our asset management system into ellipse and then the subsequent build of the data warehouse package required to develop this report. The warehouse is scheduled to be ready by mid April. The key issue is linking the pole inspection dates with the pole rectification.</li> <li>An Interim Report has been developed which shows number of days elapsed from condition creation to condition rectification. This report contains individual pole records and average days with comparison to target timeframes.</li> <li>Western Power also reports on the field to office timeframes for inspection data – which shows improving trend.</li> <li>In addition there is a "Distribution Wood Pole</li> </ol>	Behind schedule	Action is still in progress.	Action in progress

ASSET MANAGEMENT REVIEW					
No	Recommendations	Actions	Status Reported by WP	Findings	Status / Recommendation
	Sponsor	Progress Reported by WP (March 2012)			
		<p>P1/P2 Condition backlog" report that is reported and monitored from operations management to executive on a weekly and monthly basis.</p> <ul style="list-style-type: none"> <li>Final completion of action is dependent on new Asset Management Systems (ISAM) which provides a link between inspection and rectification date.</li> </ul>			
		<p>2. Western Power will include a standard agenda item at meetings between key operational managers to discuss the report. Issues will be highlighted and managed through the minutes of meeting.</p> <ul style="list-style-type: none"> <li>The report, when developed will form part of the Business Performance report for all distribution management and is also reviewed by the Operations General Manager. This should only take a couple of week after the actual report is developed. Revised due date provided as end of May 2012.</li> </ul>	<p>Behind schedule</p>	<ul style="list-style-type: none"> <li>Action is still in progress, the agenda item will be part of a report that will be reviewed at the Program Performance Committee meeting.</li> </ul>	<ul style="list-style-type: none"> <li>Action in progress</li> </ul>

### **3 KEY FINDINGS AND RECOMMENDATIONS**

#### **3.1 PERFORMANCE SUMMARY**

The findings of the asset management system review are summarised in Table 13.

The summary in Table 1 separately rates Western Power's Asset Management Process and Policy Definition Adequacy and Performance in accordance with the Authority's performance summary requirements. These rating definitions are reproduced in Table 2 and Table 3.

Where the adequacy of the process and policy definition is rated C or D, or the asset management performance is rated 3 or 4, corrective actions have been agreed with Western Power to address the issue(s) that have resulted in those ratings. The corrective actions are included in the Post Review Implementation Plan, a copy of the plan is attached in Appendix A.

## 3.2 OBSERVATIONS AND RECOMMENDATIONS

Key findings and recommendations arising from the Asset Management Review are listed in Table 13.

### LEGEND

Key	Description
►	Findings
1. Text	Recommendations
[OFI]	Opportunity for Improvement
[ ]	References in [ ] are to the auditor's reference to interviews held, documents reviewed or presentations given by Western Power

Table 13 Asset Management System Review

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
1	Asset Planning	Adeq & Perf	Integration of asset strategies into operational or business plans will establish a framework for existing and new assets to be effectively utilised and their service potential optimised.	
1.1	Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning.	B1	<p>The planning process is a comprehensive process that uses the inputs of several departments and combines these into key documents which are part of the annual planning calendar “CAPEX and OPEX Network Investment Annual Planning Cycle”. [Ref 9.5].</p> <p>At a high level high level strategies are defined in the Statement of Corporate Intent (SCI), which looks into the state and prospects of Western Power's environment. Stakeholders' current and future needs are identified and Western Power values are defined in terms of safety, customers, collaborative effort, positivity and innovation, reliable delivery and business commitment.</p> <p>Long term development plans for Transmission and Distribution are defined separately:</p> <ul style="list-style-type: none"> <li>• <u>Transmission (TX) Specific</u> Transmission has 10 year development plan, “10 Year Transmission Network Development Plan”, July 2011.</li> <li>• <u>Distribution (DX) Specific</u> Distribution has not a similar plan, the process to produce a five year development plan is under development and a plan should be available in November 2012, with final approval around January 2013. The Distribution development plan is due to be merged into the Transmission Network Development Plan to create a combined Western Power Network Development Plan.</li> </ul> <p>The current Distribution planning methodology involves the use of the Intelligent Capacity Assessment Tool (ICAT), a spreadsheet which reports on feeder utilisation over 5 years. Spreadsheet for the period 2011-12 to 2016-17 was sighted. The spreadsheet contains directions on use of calculations and is updated yearly. Data</p>	

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			<p>from several planners is input into the tool which is under the responsibility of the Engineering Team Leader Network &amp; Development.</p> <p>Every project is analysed using “Distribution Networks Planning Guidelines: An Interpretation of the Technical Rules”, (Oct 2011). Other documents support the methodology (e.g. “Methodology and Assumptions for the Development of the AA3 Submission for Distribution Capacity Expansion”, October 2011. DM7829867). Other tools are in use to assist in the analysis by looking at voltage constraints and thermal constraints through the Power Factory model.</p> <p>The Access Arrangement documents (AA2 and AA3) specify the main program of expenditure. Identified activities are included in the Annual Work Program (AWP) and sub-sets of those activities are included in the Transmission Annual Production Plan (TAPP, viewed the TAPP 2012-13) and the Distribution equivalent plan. Work drivers are asset replacement, capacity expansion, customer driven, regulatory compliance, reliability, metering, SCADA and communication, generation, gifted assets and special projects such as the State Underground Power Project.</p> <p>Placed between the AAs and the AWP, the Network Management Plan (NMP) is aimed at optimising the investment strategy. It was last issued on 30 August 2011. Western Power intent is for the NMP to be a “guidance document” on when to invest on assets to maximise performance and minimise life-cycle costs. In that respect it does not fulfil all of the requirements of an asset management plan, however other documents are in place to complete its function. By reference an asset management plan, according to PAS55 is a:</p> <p><i>“Document specifying activities and resources, responsibilities and timescales for implementing the asset management strategy and delivering the asset management objectives”.</i></p> <p>► There may be an opportunity to review the framework displayed in the NMP (e.g. Fig 2.1) to show the relationship of documents such as the Production Plans, SCI, AAs etc in the framework.</p>	<p>1. [OFI] There is an opportunity to review the presentation of the Asset Management Document Framework in the NMP to show documents related to the NMP, such as the Production Plans, SCI, AAs, which are not shown in the</p>

No.	Asset Management System Element / Criteria	Rating	Review summary ► Findings	Recommendations
				Asset Management Document Framework.
			<p>The review found that the NMP identifies the conditions and the needs of the assets and the required activities, however it does not provide specific responsibilities, resources or consistently address the timing of deliveries placing the NMP somewhere between a strategy document and a planning document. The implementation of the plan is addressed in the AWP and the Production Plans,</p> <p>► however there is no ready traceability of programs noted in the NMP to tasks committed to in the production plans.</p>	2. There should be more visible means to identify responsibilities and commitment to tasks described in the NMP through referencing to work plan activities.
			<p>The work program is defined into programs which address:</p> <ul style="list-style-type: none"> <li>• Safety, reliability and environmental requirements;</li> <li>• asset replacement and refurbishment;</li> <li>• customer driven activities;</li> <li>• capacity expansion.</li> </ul> <p>The process of managing individual “projects”, from planning to execution has been mapped in the Work Program Governance Model (WPGM) [9.5] which has been in operation for the last two years and guides the planning process through a series of gates. Subsets of procedures and plan templates are linked to each phase of the model and allow the user to easily access the individual templates and procedures applicable to each phase of the process. The planning phases are included in:</p> <ul style="list-style-type: none"> <li>• Gate 1: Initiation, one of the outputs is the Draft Planning Report;</li> <li>• Gate 2: Scoping: Complete Planning report;</li> <li>• Gate 3: Delivery Project Management Plan, Concept and Detailed Design, Scope of Work to be finalised, procurement of long lead items and Business Case approval.</li> </ul>	



No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			<ul style="list-style-type: none"> <li>It may be pertinent to review the WPGM process in the Planning phase leading to Gate 3, where activities like procurement of long lead items and detailed design may take place prior to Business Case finalisation and approval.</li> </ul>	<b>3. [OFI]</b> Review timing of resource expenditure such as purchase of long lead items and detailed design prior to Business Case finalisation and approval. It may be appropriate to incorporate purchase of long lead items and detailed design in preliminary Business Cases or to bring forward Business Cases.
			<ul style="list-style-type: none"> <li>It was noted that interpretations of the WPGM model provided at meetings was not consistent with the WPGM process and showed that Business Cases are created and reviewed after the AWP. It is expected that most of the Business Case approvals would take place before finalisation of work plans and production plans and any further Business Cases would be for changes or response to changing conditions. The reverse would imply that work plans are not consistently implemented.</li> </ul>	<b>4. [OFI]</b> Clarify the process between the Approved Work Program and the WPGM, the process leading to and from the creation of the Approved Work Program and the relationship to Business Cases.
			<p>To support the WPGM the P6 and ProSight tools provide project management facilities. P6 manages project schedules through planning, management and control. The data is stored in a central database so that it is available company wide.</p> <p>ProSight is used to initiate projects and has a high level summary of the WPGM. Both applications share actual and forecast dates, actual costs and budgets project codes (documented in "P6 Basics User Guide for Projects and Programs")</p> <ul style="list-style-type: none"> <li>Note: P6 Basics User Guide claims capabilities such as "prioritising of projects" and linking to "% complete" that ProSight and P6 are not delivering. Correct the "P6 Basics User Guide for Projects and Programs" to show that ProSight does not prioritise projects and that both applications do not share % complete.</li> </ul>	
			<p>A number of committees and focus teams provide monitoring and review of the planning process:</p> <ul style="list-style-type: none"> <li>the Joint Planning Teams look at needs development and at future state planning;</li> </ul>	

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			<ul style="list-style-type: none"> <li>Planning has estimating tools and the Investment Evaluation Model;</li> <li>Asset stakeholders meet in Sponsors' meetings on a monthly basis. The "Sponsor forum" has been created to be an "idea and support group" for the development and progress of measurement for core work programs and lessons learnt from investment optimisation/prioritisation. It has an action log (DIAL) and proposals and issues are sent or escalated to PPC through the Network Investment Branch (NIB) for resolution;</li> <li>The Program Performance Committee (PPC) meets on a monthly basis and oversees the implementation of the AWP in accordance with budgets and the Strategic Development Plan (SDP), it reviews the performance of the project delivery process and considers project changes. The PPC is made up of Branch Managers from Networks, Operations and Finance Divisions and reports and advises the Works Program Committee (WPC);</li> <li>The WPC is a sub-committee of the Executive, made up of General Managers, which is responsible for the delivery of outcomes defined in the Access Arrangements (AA) and incorporated in the AWP.</li> </ul> <p>Decisions, Issues and Action Logs are prepared for each PPC and WPC meeting, listing the actions required, responsibilities and timing.</p> <p>There is a process for consultation with stakeholders in planning [A16]. There was evidence of stakeholder involvement, both in respect of large customers and the public:</p> <ul style="list-style-type: none"> <li>public consultation sought for Subdivision Manual by Standards [18.3];</li> <li>customer surveys including residential, small and medium businesses, Local Government Authorities, contractors and consultants and major customers.</li> </ul>	
1.2	Service levels are defined.	A1	<p>The NMP reports on Service Standard Benchmarks and on performance against these service levels.</p> <p>For Transmission assets the following service levels are identified:</p> <ul style="list-style-type: none"> <li>circuit availability (% time);</li> <li>system minutes interrupted (for meshed and radial networks);</li> <li>loss of supply events (&gt;0.1 system minutes and &gt;1 system minutes);</li> <li>average outage duration.</li> </ul>	

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			<p>For Distribution:</p> <ul style="list-style-type: none"> <li>System Average Interruption Duration Index (SAIDI, for total network, CBD area, urban area, rural short and long);</li> <li>System Average Interruption Frequency Index (SAIFI, in categories as per SAIDI).</li> </ul>	
1.3	Non-asset options (e.g. demand management) are considered.	A1	<p>There was evidence of evaluation of non-asset option within Project Planning Reports and Business Cases.</p> <p>Demand management is generally analysed in terms of cost per deferred kVA. The "Northern Terminal Load Area: Establish New Balcatta 132/22 kV Zone Substation" Business Case considered various option including demand management and load transfer to other substations.</p> <p>The Business Case for "Southern River (SNR) Capacity Improvements" also includes load transfer to Willetton and Gosnells substations, load balancing between the existing SNR transformers and demand management.</p>	
1.4	Lifecycle costs of owning and operating assets are assessed.	B2	<p>The NMP includes Life Cycle Management Plans for each asset class. The planning process includes reference to lifecycle costs in "Scoping" 3-10 Collate and Finalise Business case" in the WPGM.</p> <ul style="list-style-type: none"> <li>► There was evidence of "Ops" (operating) costs being considered in the New Facilities Investment Test (NFIT) however there was no explicit analysis of operating costs of alternatives (e.g. Ops costs for 3 transformer years was the same as 6 transformer years).</li> <li>► No evidence found that lifecycle costs are consistently evaluated over the entire life of the assets.</li> </ul> <p>At present a fixed annual percentage for O&amp;M costs over the evaluation period is used (currently in late 2011, 3.42% of CAPEX).</p>	<p>5. There should be a more explicit and accountable analysis of lifecycle operating costs in alternative evaluations within Business Cases.</p>
1.5	Funding options are evaluated.	A1	<p>There are limited funding options available to Western Power. The funding criteria adopted are:</p> <ul style="list-style-type: none"> <li>recurrent costs are funded by revenue;</li> <li>capital expenditure is funded by customer contributions and borrowings.</li> </ul> <p>Each project Business Case has to review the availability of funds to the project from within the applicable Access Arrangement (AA) period.</p>	

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1.6	Costs are justified and cost drivers identified.	A1	<p>Overall reasons for programs are given in the NMP. The AA3 document provides planned expenditure over 5 years (July 2012 to June 2017) and reasons for it. Similarly the AA2 document was providing the same function for the earlier period. The WPGM process provides 3 gates for project costing and approval:</p> <ul style="list-style-type: none"> <li>• Gate 1 for the initial high level estimates in draft project planning report;</li> <li>• Gate 2 with detailed cost estimates and justification in final Project Planning Reports;</li> <li>• Gate 3 for the Business Case approval.</li> </ul> <p>Both Project Planning Reports and Business Cases identify and compare the costs of the available options and provide recommendations and submissions for the preferred options.</p>	
1.7	Likelihood and consequences of asset failure are predicted.	A1	<p>Risk analysis is applied systematically to identify risks due to asset failure, either in terms of meeting performance criteria or in asset breakdown. Evidence at system level is provided by the corporate risk management system CURA and at division level, by the "Network Risk Issue Register".</p> <p>At planning the NMP identifies the risks for the Non-Run-To-Fail (NRTF) asset classes.</p> <p>At project level, Project Planning Reports and Business Cases evaluate risks of asset failure:</p> <ul style="list-style-type: none"> <li>• Project Planning Reports for metropolitan substations examined load forecasts, residential growth forecasts, compliance with Technical Rules both for Transmission and Distribution and summarised the applicable network risks;</li> <li>• The Business Case for Southern River Capacity Expansion had an evaluation of risks present in the 'business as usual' scenario and in the alternative implementation of expansion works. Risks categories are in terms of safety, customers, legal, reputation, environment and financial;</li> <li>• The Business Case for Distribution Plant and Equipment" analysed modes of failure and effect for a range of assets.</li> </ul> <p>There has been a review of the "Management of Business Cases for Distribution Plant &amp; Equipment" DM8508884, at March 2012, aimed at improving the processing and handling of BC.</p>	
1.8	Plans are regularly reviewed and updated.	B2	NMP is reviewed annually and no intermediate formal reviews are in place. Changes to related plans are ad-hoc responding to issues as they arise.	6. There should be evidence of review / approval in the controlled

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			<p>► There was no clear documented evidence of document review in the 2 versions of the NMP examined in the review. There was a “Prepared by” entry, however no review/approval and no control box. Approval by the Managing Director was provided by a separate document.</p>	version of critical documents such as the NMP.
<b>2</b>	<b>Asset Creation and acquisition</b>	<b>Adeq &amp; Perf</b>	A more economic, efficient and cost-effective asset acquisition framework which will reduce demand for new assets, lower service costs and improve service delivery.	
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions.	A1	<p>A comprehensive process is in place to manage the feasibility and approval of asset creation and acquisition. New projects planning, definition and approval follow the methodology outlines in the WPGM:</p> <ul style="list-style-type: none"> <li>Business sponsors provide the scope and if required, Service Providers provide an estimate) at Gate 1 to Gate 2 of the WPGM; a scope is provided to the Design Team if required;</li> <li>Program Delivery and Business Sponsors manage project approval through Business Cases.</li> </ul> <p>During the Planning Phase (Gate 2 to 3), high level concept design takes place as well as high level risk assessment. Business Cases include the evaluation of alternatives including the case of “business as usual”, demand management, and the assessment of risks and costs for each of the alternatives.</p> <p>The Business Case for “Southern River (SNR) Capacity Improvements” was examined, it included consideration of asset solutions such as load transfer to Willetton and Gosnells substations and non-asset solutions such as load balancing between the existing SNR transformers and demand management.</p>	
2.2	Evaluations include all life-cycle costs.	B2	<p>► All lifecycle costs do not appear to be always evaluated. Full lifecycle costs are expected to be included in Business Cases (BC) such as in Southern River 3<sup>rd</sup> transformer project, “Southern River Capacity Improvements Business Case”, where capital costs are included, as well as associated NFIT benefits, however no operating costs of transformer and feeders were sighted (e.g. the BC stated “additional benefits through improved reliability, slower asset deterioration and lower likelihood of faults, these have not been quantified due to lack of available data”).</p>	As per recommendation 5 above: There should be a more explicit treatment of lifecycle costs including OPEX in project evaluations.

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			<ul style="list-style-type: none"> <li>► In evaluation of transmission line costs OPEX costs of insulator washing and vegetation maintenance were not sighted.</li> <li>► The same OPEX costs were sighted in the options of installing two transformers simultaneously or staggered by two years.</li> </ul>	
2.3	Projects reflect sound engineering and business decisions.	A1	Through the WPGM process and Business Cases, projects are subject to the assessment of engineering and business options, and evaluated in terms of risks, benefits, financial effects and regulatory requirements.	
2.4	Commissioning tests are documented and completed.	A1	<p>Procedures are in place to manage the commissioning process. The operation of the Field Protection Services group was reviewed. The group receives handover from Construction and carries out the final commissioning of the equipment including functional and load tests. A number of projects were reviewed including:</p> <ul style="list-style-type: none"> <li>• “Mungarra MCA/9 Karara Mine Interim Supply”</li> <li>• “University - Replace 708 Current Transformer T0278311”</li> </ul> <p>Tests were performed to a commissioning program, comprehensive test sheets had been completed and signed off. Minor defect lists had also been processed. Files viewed showed consistent recording of tests.</p>	
2.5	Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.	A1	<p>Legal, environmental and safety obligations of the asset owner are addressed at several points in the asset management process.</p> <p>The WPGM process involves several disciplines during the asset planning and design phase:</p> <ul style="list-style-type: none"> <li>• the application of risk analysis in planning and in Business Cases showed evaluation of the asset owner obligations in terms of legal, environmental and safety requirements;</li> <li>• Project Planning Definition documents address project, operational and environmental considerations;</li> <li>• design of assets requires the review of the asset design at 10% and 75% of design completion by a review panel which includes participation of Operational Asset Management (OAM) and other disciplines, for the review of scope, drawings, design, maintainability and operability of asset;</li> <li>• safety and legal obligations had been assigned to the electrical commissioning function.</li> </ul>	

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3	<b>Asset Disposal</b>		Effective management of the disposal process will minimise holdings of surplus and under-performing assets and will lower service costs.	
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process.	A1	<p>The NMP and Life Cycle Management Plans for Non Run-to-Failure (N-RTF) Assets describe strategies and specify where inspection, condition assessment and replacement requirements take place. Examples sighted in the NMP Section 1.13, in "Summary of Key Asset Management Strategies" and Transmission Maintenance, including cases for Run-to-Failure (RTF) assets.</p> <p>Condition assessments through inspection and reports from the field (through Query Trouble (Q/T) reports) provide feedback to the asset owner of the performance of the assets.</p> <ul style="list-style-type: none"> <li>The Business Case "Distribution Plant and Equipment: AA3 (12/13 and 13/14) Requirements" (DM 8649705) recommended option describes replacement of plant based on being or expected to be "unserviceable" over the 5 year AA3 period.</li> <li>Transmission Q/T Reports, DM 9121078 (Q/T's for first half of 2011/12) show priorities for attention due to condition of assets. Criteria for establishing priorities are listed.</li> </ul>	
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken.	A1	<p>Network maintenance programmes and condition reports provide information on asset condition. As above for RTF and NTRF assets. Q/T history and system fault monitoring provides support information for regular condition assessment. The NMP reviews the conditions and needs of the assets and outlines corrective action strategies. Business Cases address the corrective actions on selected assets.</p> <p>In the NMP, "Remaining Life" models using assets age, condition, defects (through Query Trouble maintenance reports and automatically recorded system failures) allow assessment of 'remaining life' via empirical formulae and identify those assets which are approaching the end of their "economic" life.</p>	

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			Historical data is used to predict failure rates which are then used in decision making, e.g. four yearly wood pole condition reports provide data for estimating potential failures based on existing condition. The selection of replacement or reinforcement i.e. life extension, is based on the documented "Pole Serviceability Decision Flowchart", included in "Serviceability Assessment Model (SAM) for Wood Poles" which applies both to hardwood and softwood poles (reference Appendix B <a href="#">of SAM</a> , Species Codes, which list 30 wood species and their strength values which are used in the SAM calculations and includes both hardwood and softwood).	
3.3	Disposal alternatives are evaluated.	A1	<p>Various documents address the disposal process:</p> <ul style="list-style-type: none"> <li>• Primary Plant Replacement Forms (for controlling disposal options).</li> <li>• Unplanned Plant Replacement register DM5356000,</li> <li>• Unplanned Plant Replacement Procedure (Substation Primary Plant) DM7990345,</li> <li>• Work Practice Manual (for Distribution Disposals) DM 6999451,</li> <li>• Asset Disposal Guidelines DM 2802557,</li> <li>• End of Life Management DM7475998</li> </ul> <p>Options/examples considered in the documents reviewed:</p> <ul style="list-style-type: none"> <li>• Recovery: (for re-use) i.e. wood pole reinforcement steel, redundant steel and concrete Transmission poles as at Transmission Lines Maintenance Depot, Jandakot. Distribution transformers as at respective maintenance service groups.</li> <li>• Assets held for potential re-use : Repaired transformers returned to Stores.</li> <li>• Disposal: redundant minor assets declared by maintenance service groups as scrap or for commercial sale through Stores.</li> <li>• Community re-use: i.e. Poles for track access prevention-DEP etc</li> <li>• Contract Sale: As inclusion in major replacement contracts i.e. remove/replace/upgrade wood with steel etc ditto scrapped conductors.</li> <li>• Landfill: Approved waste disposal including contaminated materials i.e. broken pole stubs.</li> <li>• De-engineering: Breakdown and recovery of reusable parts: i.e. Distribution and Transmission Substation Maintenance (Kewdale).</li> </ul>	



No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			<ul style="list-style-type: none"> <li>Non-system assets including furniture, computers, cars, land and property also managed under asset disposal guidelines.</li> </ul>	
3.4	There is a replacement strategy for assets.	A1	<p>The NMP presents strategies based on classification of asset as RTF or NRTF (with Life Cycle Management Plans (LCMP)) for each asset type. Replacement of like-for-like is inherent in RTF. Transmission Substation maintenance have integrated the replacements with regular bundled maintenance programmes.</p> <p>In Business Cases such as “Distribution Plant and Equipment (AA3 12/13 and 13/14) Requirements”, DM 8649705, a residual risk is accepted in the delayed replacement of assets due to resource constraints. For example in regard to distribution transformers, 19,710 transformers have exceeded their service life and the public safety/customer impact risk is extreme for over 600 units and high for over 13,000 units, however the AA3 Business case preferred option is to target 1538 replacements by 2014 and 4839 by the end of the AA3 period. There is a total of 85 transformers with risk ratings of extreme and high included in the five years of the AA3 business case replacement targets. 13 out of 85 are targeted for replacement in the first 2 years of AA3.</p>	
<b>4</b>	<b>Environmental Analysis</b>		The asset management system regularly assesses external opportunities and threats and takes corrective action to maintain requirements.	
4.1	Opportunities and threats in the system environment are assessed.	A1	<p>Opportunities and threats are assessed in the NMP in regard to their effect on Western Power's operation including:</p> <ul style="list-style-type: none"> <li>operational issues</li> <li>aging assets</li> <li>increasing customer demand</li> <li>raising customer expectations</li> <li>safety and environmental consideration, including increased focus on fire risks, climate change leading to more frequent severe weather events.</li> </ul> <p>Risk management identifies corporate and system risks and actions required to address the risks. The WPGM process manages the review of risks and opportunities through step 1-03, “Identify Risks and Opportunities”.</p>	

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			A culture of continuous improvement and analysis was evident in the review and was displayed by the majority of the staff participating in the review meetings.	
4.2	Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved.	A2	<p>Western Power employs a variety of performance standards across the organisation. At corporate level the SCI defines performance in terms of KPIs on safety, reliability, customer service, financial and project delivery. These KPIs are reported in quarterly reports which monitor the trend through the year and in an end of year report.</p> <p>The Corporate Performance Report (viewed DM9359328v1) reports on KPIs:</p> <ul style="list-style-type: none"> <li>• on people (safety/organisation culture),</li> <li>• customer (service standards/customer charter and complaints),</li> <li>• financial (Earnings Before Tax (EBT) and</li> <li>• cost reduction on major projects),</li> <li>• processes (AA2 works delivery: project delivery timing; regulatory, AA3: regulated OPEX efficiency, outcome of draft determination).</li> </ul> <p>Only criteria exceeding target was the financial (EBT) which is \$ 238.2M YTD compared to 249.5M YTD target. For each of the KPI, annual targets and trends are charted. Reasons are given for variations from target. Progressive Profit &amp; Loss (P&amp;L) and Balance Sheet (BS) are also reported.</p> <p>At Divisional level, Transmission Division has performance related quality objectives that line up broadly with corporate objectives, including:</p> <ul style="list-style-type: none"> <li>• safety, (0 fatalities or major harm, LTIFR &lt; 3.5, AMFR &lt; 11)</li> <li>• Works delivery, on budget &gt; 97.5%, on time &gt;95%, drawings requiring rework &lt; 10% etc</li> <li>• Commercial success: TCC controllable costs ≤ 100%, projects meeting regulatory and legislative requirements = 100%, indirect costs % of TX AWP ≤ 8%</li> <li>• Customer and community: TX system minutes &lt; 9 m, TX related public safety incidents &lt; 3, no bushfires, Customer satisfaction &gt; 70 %.</li> </ul> <p>[Presentation 13]</p> <p>KPIs in the NMP are defined in terms of objectives:</p>	

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			<ul style="list-style-type: none"><li>meeting customer requirements for performance and value</li><li>compliance with statutory obligations</li><li>enabling customer flexibility and choice</li><li>competitive electricity market and enabling of energy policy.</li></ul> <p>Outcomes are then identified to line up with objectives and defined in main classes of:</p> <ul style="list-style-type: none"><li>safety</li><li>growth</li><li>service.</li></ul> <p>One of the objectives/outcomes was sampled and is reviewed further below. The NMP notes that the strategy for meeting legislative and customer requirements for safety are to reduce the incidence of:</p> <ul style="list-style-type: none"><li>pole top fires</li><li>number of clashing conductors</li><li>number of unassisted wood pole failures</li><li>number of unassisted conductor failures</li></ul> <p>through improvement plans. Plans are then referenced to the outcome but in the case of safety the plans are part of a set of 41 asset classes.</p> <p>The NMP reports on individual performance indicators for the 22 Non Run-To-Failure (N-RTF) asset classes. Overhead structures are an asset class which includes poles and structures supporting overhead lines and equipment and includes both Transmission and Distribution assets.</p> <p>The only performance indicators noted for this asset are for wood poles, a Pole Integrity Index (PII) which measures unassisted pole failures per 10,000 poles for Transmission (TPII) and Distribution (DPII). Both were trending upwards in 2010-11 and were:</p> <table><tr><th></th><th>Target</th><th>Performance (2010-11)</th></tr><tr><td>TPII</td><td>1.0</td><td>5.69</td></tr><tr><td>DPII</td><td>1.43 (1.0*)</td><td>1.22</td></tr></table> <p>* National industry benchmark</p> <p><b>DPI Data for 2010/11 financial year</b></p>		Target	Performance (2010-11)	TPII	1.0	5.69	DPII	1.43 (1.0*)	1.22	
	Target	Performance (2010-11)											
TPII	1.0	5.69											
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No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations																																																				
			<div>► No analysis or further treatment of this KPI was evident in the section, it would be expected that the deterioration of the transmission KPI would be treated elsewhere however there are no references in the NMP on investigations and causes of the deterioration.</div> <div>Since the review more information has been made available on the increasing trends in the indices. For 2011-12 the figures at the end of the review period were:</div> <table><thead><tr><th>Month</th><th>Unassisted wood pole failures per month</th><th>Rolling 12 month Total</th><th>Rolling 12 month DPII</th></tr></thead><tbody><tr><td>Jul-11</td><td>5</td><td>78</td><td>1.24</td></tr><tr><td>Aug-11</td><td>6</td><td>82</td><td>1.30</td></tr><tr><td>Sep-11</td><td>10</td><td>89</td><td>1.41</td></tr><tr><td>Oct-11</td><td>9</td><td>95</td><td>1.51</td></tr><tr><td>Nov-11</td><td>8</td><td>93</td><td>1.48</td></tr><tr><td>Dec-11</td><td>12</td><td>93</td><td>1.48</td></tr><tr><td>Jan-12</td><td>49</td><td>128</td><td>2.03</td></tr><tr><td>Feb-12</td><td>52</td><td>170</td><td>2.70</td></tr><tr><td>Mar-12</td><td>13</td><td>174</td><td>2.76</td></tr><tr><td>Apr-12</td><td>16</td><td>186</td><td>2.95</td></tr><tr><td>May-12</td><td>5</td><td>187</td><td>2.97</td></tr><tr><td>Jun-12</td><td>42</td><td>227</td><td>3.60</td></tr></tbody></table>	Month	Unassisted wood pole failures per month	Rolling 12 month Total	Rolling 12 month DPII	Jul-11	5	78	1.24	Aug-11	6	82	1.30	Sep-11	10	89	1.41	Oct-11	9	95	1.51	Nov-11	8	93	1.48	Dec-11	12	93	1.48	Jan-12	49	128	2.03	Feb-12	52	170	2.70	Mar-12	13	174	2.76	Apr-12	16	186	2.95	May-12	5	187	2.97	Jun-12	42	227	3.60	<div>7. There should be an improvement in the accountability of KPIs in the NMP and in the referencing and traceability of investigations and actions .</div>
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			<p>and for the TP11:</p> <table><tr><th>Month</th><th>Unassisted wood pole failures per month</th><th>Rolling 12 month Total</th><th>Rolling 12 month DPII</th></tr><tr><td>Jul-11</td><td>1</td><td>19</td><td>6.59</td></tr><tr><td>Aug-11</td><td>0</td><td>19</td><td>6.59</td></tr><tr><td>Sep-11</td><td>1</td><td>20</td><td>6.94</td></tr><tr><td>Oct-11</td><td>0</td><td>20</td><td>6.94</td></tr><tr><td>Nov-11</td><td>0</td><td>20</td><td>6.94</td></tr><tr><td>Dec-11</td><td>1</td><td>21</td><td>7.29</td></tr><tr><td>Jan-12</td><td>19</td><td>33</td><td>11.45</td></tr><tr><td>Feb-12</td><td>0</td><td>24</td><td>8.33</td></tr><tr><td>Mar-12</td><td>0</td><td>23</td><td>7.98</td></tr><tr><td>Apr-12</td><td>0</td><td>22</td><td>7.64</td></tr><tr><td>May-12</td><td>0</td><td>22</td><td>7.64</td></tr><tr><td>Jun-12</td><td>13</td><td>35</td><td>12.15</td></tr></table> <p>In order to analyse further the significance of the index it is noted that as it depends on the number of verified “unassisted wood pole failures” (UPF) and the failures are subject to investigations that may last several months, the index for a specific period will vary from month to month. The DPII for 2011-12 of 3.6 was based on 227 verified UPF, however outside of the review period, as of the 13 December 2012 and based on data verified on the 29 November 2012 the DPI has increased to 6.41 and the number of UPF has increased to 404.</p> <p>► Because of the variability of the index and its sensitivity to time it is concluded that the DPII and the TP11 can only be used with care and are not suited to reporting due to their accuracy lag.</p>	Month	Unassisted wood pole failures per month	Rolling 12 month Total	Rolling 12 month DPII	Jul-11	1	19	6.59	Aug-11	0	19	6.59	Sep-11	1	20	6.94	Oct-11	0	20	6.94	Nov-11	0	20	6.94	Dec-11	1	21	7.29	Jan-12	19	33	11.45	Feb-12	0	24	8.33	Mar-12	0	23	7.98	Apr-12	0	22	7.64	May-12	0	22	7.64	Jun-12	13	35	12.15	
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			<p>Other N-RTF assets were analysed through their individual performance indicators. Power transformers met their performance requirements except for noise and separation requirements, whilst ground mounted high voltage (GM HV) switchgear did not meet any of its performance indicators. Reasons for the discrepancies were provided in the NMP and a number of strategies were provided to rectify the issues.</p>																																																					

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4.3	Compliance with statutory and regulatory requirements.	A2	<p>A Compliance Failure Reporting Policy is in place, last reviewed in May 2010. The corporate risk management process has been mapped to the Western Power Process Portal on the intranet and identifies “legal/compliance” risks as key drivers in risk analysis. Compliance obligations are defined in the compliance framework. A form is used to record legislative and regulatory compliance failures and breaches are reported in quarterly reports.</p> <p>► As of March 2012 there were several contraventions in respect of the EDL1 and ETL2 licences primarily in regard to:</p> <ul style="list-style-type: none"> <li>the Electricity Industry Metering Code</li> <li>the Code of Conduct and</li> <li>the Electricity Industry (Network Quality and Reliability of Supply) Code.</li> </ul> <p>Actions arising from the Asset Management System Review of 2011 were also tracked.</p>	
4.4	Achievement of customer service levels.	A2	<p>Customer service levels were reported in Section 5 of the NMP, they are also reported on monthly performance reports, “Service Standard Performance Reports”:</p> <p><u>Distribution</u></p> <ul style="list-style-type: none"> <li>System Average Interruption Duration Index (SAIDI)</li> <li>System Average Interruption Frequency Index (SAIFI)</li> <li>Circuit availability</li> <li>Loss of supply event frequency.</li> </ul> <p><u>Transmission:</u></p> <ul style="list-style-type: none"> <li>Circuit Availability (% time), benchmark 98%</li> <li>System Minutes Interrupted (9.3 and 1.4 for meshed and radial networks respectively)</li> <li>Loss of supply events</li> <li>Average outage duration.</li> </ul> <p>The criteria are set as per the Access Arrangements and are different from the criteria in the “Electricity Industry (Network Quality and Reliability of Supply) Code 2005”</p>	

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			<p>(NQRS Code).</p> <p>All the Distribution benchmarks were achieved in 2011. For Transmission Circuit Availability was 97.9% against 98% target and System Minutes Interrupted was 4.83 compared to 1.4 benchmark.</p> <p>Reports are now available on Western Power intranet and include reasons for deviations from targets.</p>	
<b>5</b>	<b>Asset Operations</b>		Operations plans adequately document the processes and knowledge of staff in the operation of assets so that service levels can be consistently achieved.	
5.1	Operational policies and procedures are documented and linked to service levels required.	B2	<p>Policies are driven at a high level by the AM Policy which was issued in 2010 and was due for review on 1 June 2012 [10]. Policies focus on compliance with the Authority's asset management requirements, identification, assessment and management of the assets for safe and reliable performance, integration of the asset management system with Western Power suite of systems, prioritisation based on comprehensive risk management, open and transparent communication with stakeholders.</p> <p>Further policies and procedures are in place in Western Power operational centre at East Perth.</p> <p>In the field the policies are expressed through the "Work Practice Manual", which contains the "Operational Work Practice Standards" detailing the field instructions for the network. The WPM reflects Western Power commitment to meet all legislative, regulatory and environmental requirements. The procedures include among others, a suite of procedures on safety and environment.</p> <p>In regard to safety, procedures are contained in the "Electrical System Safety Rules" (ESSR).</p> <p>In most of the meetings there was clear evidence of the application of the policies.</p>	
			<p>► Some of the field procedures do not exist or do not have sufficient visibility: whilst there are procedures for the management of QTs on receipt from the field, no procedure was sighted for the management of QT in the field; no procedure found in the WPM.</p>	<p><b>8.</b> There should be a review to establish that there are appropriate procedures for core field processes. Procedure for the management of Query Trouble</p>

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				Reports (QTs) in the field should be created.
			In the NOCC (Networks Operation Control Centre) operation, DNARs (Distribution Network Access Request) are documented requests for access to the HV and LV distribution networks. The DNARs identify the type of work that is required, including vegetation management, ENMAC related (HV & LV), access permits and the customers affected by outages. This then drives the Networks Access Coordinators to prepare the switching programs and Customer Services to notify customers of planned outages.	
5.2	Risk management is applied to prioritise operations tasks.	A1	There is a process of application of risk analysis and management throughout the performance of the operation tasks. Transmission programs show that each of the OPEX tasks is associated with a risk. Distribution unplanned jobs are prioritised through the application of the ADAPT tool which rates the jobs in terms of location risks, fire risks, conditions risks etc. Work assignments from East Perth Control Centre are also subject to prioritisation, ranging from emergency response to routine maintenance tasks.	
5.3	Assets are documented in an Asset Register including asset type, location, material, plans of components, and an assessment of assets physical/structural condition and accounting data.	C3	Western Power relies on a variety of systems to capture the asset information. Some are legacy systems that have been in operation for around 40 years. At present no single system contains all of the asset data. In Transmission several systems have been in use: <ul style="list-style-type: none"> <li>• TLS (Transmission Line System) database storing location and physical information of transmission lines;</li> <li>• TPMS(Transmission Plant Management System) database storing location, history and technical information of equipment;</li> <li>• TRIS (Transmission Rating Information System) database storing circuit information;</li> <li>• MIMS for entry of assets information which is then updated into TPMS.</li> </ul> Distribution: <ul style="list-style-type: none"> <li>• DFMS (Distribution Facilities Management System) database and reporting system storing equipment location, maintenance and technical data;</li> <li>• DFIS (Distribution Facilities Information System) stores geographical</li> </ul>	9. Continue with the implementation of the Integrated Strategic Asset Management (ISAM) project.



No.	Asset Management System Element / Criteria	Rating	Review summary ► Findings	Recommendations
			<p>information on distribution assets and as constructed drawings;</p> <ul style="list-style-type: none"> <li>DRE (Data Remote Entry or DFMS remote entry) provides for inspections and condition monitoring on all distribution assets apart from bundled pole inspections.</li> <li>Some of the data in the asset registers is not accurate or is missing. Projects have been trialled to address these issues (see section 7.2 below).</li> </ul> <p>The ISAM (Integrated Asset Management) project is ongoing and is aimed at better integrating the asset data. A new Distribution Asset Management Portal is being developed for Western Power's internal portal, the Dashboard, which presents data pertinent to the asset as collected from the AMS databases like DFMS, Ellipse etc. Viewed records of wood pole S268738, portal shows asset type, material, location, it can display both the geographical location and connections and 3D view of the asset. In addition any conditions of the asset are displayed, status of applicable work order for rectification, as well as asset history of work carried out on the asset and other connected assets.</p>	
5.4	Operational costs are measured and monitored.	A1	Operational costs are measured through Western Power work management system, MIMS Ellipse. Monthly reports provide a view of budgets and actuals, variances are subject to review.	
5.5	Staff receive training commensurate with their responsibilities.	A1	<p>There was evidence of the application of training throughout the operation:</p> <ul style="list-style-type: none"> <li>The WPGM and the introduction of change control process has been accompanied by the delivery of training programs and training material including the "Investment in Excellence Training Manual" [9.5]</li> <li>A Network Authority Card has been implemented for personnel working in the vicinity of power assets. Courses are delivered by Western Power's Power Training Services (PTS) and card and certificates are issued on completion of the Induction Training, first aid and construction safety training.</li> <li>Similarly courses are available for Substation Access level 1 and 2.</li> </ul> <p>At SOCC and NOCC the Network Work Instruction (NWI) NWI 128 "Level 0 DNAR Authorisation" (DM9474867) provides the requirements for operators to receive the</p>	

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			<p>appropriate level of training for use of the DNAR process. The "Network Operation Controller Trainee Controller Assessment Guidelines", DM9577988 provides assessment criteria for evaluation of competency of trainee controllers.</p> <p>Training needs are identified by Team Leaders. Annual Performance appraisals are conducted for all employees using the Performance Appraisal and Development Plan [TD QM]. Records of training are managed and stored at section level.</p>	
<b>6</b>	<b>Asset Maintenance</b>		Maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work can be done on time and on cost.	
6.1	Maintenance policies and procedures are documented and linked to service levels required.	A1	<p>Generally maintenance policies aim at maintaining the required service levels by</p> <ul style="list-style-type: none"> <li>corrective maintenance including emergency, deferred repairs post emergency, investigative and incidence triggered</li> <li>preventive routine including items like <ul style="list-style-type: none"> <li><input type="checkbox"/> pole inspections</li> <li><input type="checkbox"/> vegetation inspection</li> <li><input type="checkbox"/> insulator siliconing</li> </ul> </li> <li>preventive condition triggered maintenance, like <ul style="list-style-type: none"> <li><input type="checkbox"/> pole maintenance</li> <li><input type="checkbox"/> vegetation management</li> <li><input type="checkbox"/> overhead lines maintenance.</li> </ul> </li> </ul> <p>For Transmission maintenance policies are documented for each individual plant type and include preventive and condition based maintenance. Procedures are in place reflecting the policies.</p> <p>There has been a review aiming at improving the cost effectiveness of transmission maintenance. Transmission maintenance was analysed through Lean Six Sigma methodology (Define, Measure, Analyse, Improve and Control), in response to figures of 300 outages a month, not always required. The "Combined Maintenance Process Guideline" (DM 8101389, also DM7971724) was established to coordinate the 5 year maintenance plan with the annual plan, combining maintenance at the same location,</p>	

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			<p>streamlining the maintenance interval from 4 and 6 to 5 years, combining maintenance tasks scheduled for transformers and other plant for the same year.</p> <p>“Operation and Maintenance Readiness Procedure – Primary Plant and Lines” DM8554142, was issued September 2011, to address operational requirements at the initial phase of asset life, prior to handover to Operations focusing on “fit for purpose” and “right first time”. For transformers the procedure includes:</p> <ul style="list-style-type: none"> <li>• participation of Operational Asset Management (OAM) in design review, at 10 % and 75% of design completion, for the review of scope, drawings, design, maintainability and operability of asset.</li> <li>• Initial “Post Assembly” inspection following site assembly, performed by OAM Technical Officers. Output is Inspection Report DM6101402 which is then sent to the Project Manager, Standards and Plant, Asset Managers , Construction and other parties.</li> <li>• Final inspection prior to energisation, following the transformer HV testing and final primary connection.</li> </ul>	
6.2	Regular inspections are undertaken of asset performance and condition.	B2	<p><u>Transmission:</u></p> <p>Various inspections are performed on Transmission plant. The maintenance team performs monthly and bimonthly substation inspections to monitor asset performance and condition, in this respect OAM Substations conducts annual reviews of:</p> <ul style="list-style-type: none"> <li>• Asset Condition Assessment (for Instrument TX, DIS, Switchboards and Non SF6 CBs);</li> <li>• Thermal Survey Findings in Substations;</li> <li>• Transformers Condition Assessment on the operation of power transformers across the network, including analysis of part availability, routine maintenance re-scheduling.</li> </ul> <p><u>Distribution:</u></p> <p>Inspection strategies are outlined in the NMP, routine condition monitoring are performed on distribution assets and specifically detailed for items like wood poles.</p> <p>Inspections on wood poles represented a challenge in the past. Find rate from inspections is higher than replacement creating a challenge in maintenance plans [Ref 16.2]. Wood pole inspections are now more efficient, improvements have been</p>	

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			<p>achieved through:</p> <ul style="list-style-type: none"> <li>the introduction of the “Mobile Inspector” software and mobile workforce in February/March 2012;</li> <li>introduction of Western Power staff at contractors offices increasing the overseeing of inspections;</li> <li>quality assurance activities;</li> <li>shortening of time lag between inspection and record entry.</li> </ul>	
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule.	C3	<p>Transmission Key Result Areas include the completion of major programs on schedule and on budget. Targets are “&lt;5% of programs over schedule” and “95% of work program completion” and enable measurement of execution of maintenance plans.</p> <p>Transmission have the Annual Production Plan which documents their maintenance programs.</p> <p>Maintenance Scheduled Tasks (MSTs) register planned maintenance tasks, are stored in Ellipse and include a forecast date against them. MSTs generate prompts for preventive maintenance.</p> <p>Unplanned maintenance tasks, i.e. corrective and emergency maintenance, have provision in budgets and are initiated by Query Trouble reports (QT) which are usually generated in the field.</p> <p>The Distribution Production Plan records the Distribution projects, within the Approved Work Program, that are programmed for the forthcoming financial period. It presents the committed projects and their work drivers, showing responsibilities, timeline for delivery, expenditure and activity details. [26]</p> <p>For wood poles a 4 month Work Plan is prepared at start of year and reviewed and extended monthly to maintain the 4 month plan duration. [Ref 16.2]</p>	
			<p>► There are delays in achieving completion of wood pole replacements for P1 and P2 condition within the required time. The delays have been attributed to:</p> <ul style="list-style-type: none"> <li>Short term obstacles to timely closure of P1/P2 conditions including:</li> </ul>	10. Continue with review of delays and correction of delays in rectification of P1 and P2 wood pole conditions.

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			<ul style="list-style-type: none"> <li>Time lag for inspection data to enter WP asset management system; now improving and meeting overall targets, some exceptions still exist;</li> <li>restrictions of planned outages to ensure Type 1 breaches cannot occur, decreasing opportunities for replacing assets;</li> <li>underlying problem of find rate from inspections being higher than replacement and reinforcement rate. Western Power has formulated an optimised asset strategy for wood pole management for the period 2012 – 2017, however the supporting modelling demonstrates that the find rate of poles requiring remediation will exceed the capacity to replace or reinforce the poles for the next two years.</li> </ul>	
			<p>It is noted that there is an increasing find rate of poles rated as P1/P2 condition due to a number of factors:</p> <ul style="list-style-type: none"> <li>there has been an increase in pole inspections (e.g. 192,161 inspections during the review period compared to required 184,427)</li> <li>the SAM has more conservative factors leading to higher condemnation rate (e.g. introduction of attribute assessment (pole age, species and reinforcement type) in addition to condition assessment.;</li> <li>additional supervision of inspection process.</li> </ul>	
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary.	B2	<p>Incident management follows various streams depending on the source of the incident. Entry point for incident management is through the Trouble Call System (TCS) if it is customer generated or QT reports. White Anted Poles" (AP) or street lights become part of the Special Follow-up Work (SFW) group. Once entered into TCS a Work Request is created or, for street lights and APs an Incident Work Order is created. Work is planned and executed under the control of the SFW group.</p> <p>Reactive tasks can originate from a variety of sources,</p> <ul style="list-style-type: none"> <li>TCS from NOCC's ENMAC translate as a Request for Repair (RFR) which is entered into the work management system Ellipse,</li> <li>faults which are identified as conditions by the fault crew,</li> </ul>	

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			<ul style="list-style-type: none"> <li>• QTs from the field.</li> </ul> <p>The operator can interrogate the operation centre ENMAC system and view the list of incidents to support the data received.</p> <p>Other incidents are picked up by NOCC and by the Incident Response Group (IRG) of TCS. The procedure states that if it is a crisis and storm situation the job becomes a Delegated Incident Response (DIR), the restoration job is sent by NOCC from the DIR screen to Depot Dispatcher who will allocate the job to an Authorised Person who will receive the job, locate the fault, get the materials, repair, restore or if not immediately repairable, switch, earth and isolate.</p> <p>► The current practice is now changing and will need to be reflected in the written procedure.</p> <p>Completed field jobs are closed in TCS.</p> <p>TCS is a software application developed by GE which has been adopted by various utilities around the world.</p> <p>The function of the software is to manage customer trouble calls and allocate the calls to trouble tickets that are assigned to field crews. The customer information is used by the operator to classify the "fault". Similarly when the fault is detected through SCADA. WP have reported that "A number of the data fields in the system are not able to be updated, making it difficult to use as the sole data source for asset fault and failure root cause information. Being a third party built off the self product also makes it difficult/impossible for Western Power to customise it."</p> <p>Western Power has also stated that there are free form fields that can record additional information however they cannot be validated. The application is therefore limited and cannot be used for fault investigation.</p> <p>Output from TCS can be used to populate spreadsheets and that data is used by Western Power to separately investigate, qualify and verify the data This is covered in detail in section 4, "Special Areas of Interest", items 4.1 and 4.2.</p> <p>Item 4.2 has confirmed, as stated by Western Power, that TCS data is not accurate, of 24 pole broken TCS reports only two had been confirmed after investigation. Therefore reliance on TCS data for an accurate representation of failures should be</p>	

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			<p>avoided.</p> <p>Electric shocks result in an Energy Safety process and the responsibility is passed to Network Investigations. A call is sent to a Primary Responder and Work Request/Incident Work Orders/Equipment Work Orders are created to manage the rectification work.</p> <p>In the System Operation Control Centre (SOCC) faults resulting from operational issues such as trips, or faults and hazardous conditions such as “broken eyebolt on stays” are recorded on daily logs, are entered in the “System Disturbance Database and result in “System Disturbance Advice(s)” (SDAs). SDAs describe the event and the assessed cause prior to a formal investigation. In sampling the daily logs cause of disturbances for SDA7572 were “TX Failure” or “High winds” and the explanation of the fault “Line tripped due to toppled poles on structures 31, 72, 73 and 80 caused by strong winds” (#7572, 14 June 2012).</p> <p>SDAs are sent to stakeholders, however there is no prescriptive process for following up and closing issues as the responsibility is passed to the recipient. The Operational Asset Management (OAM) group processes indicate that for SDAs with “... System Minutes &gt; 0 the technical lead should submit a report on short/mid/long term preventive solution to OAM section head”.</p> <p>A “Transmission Fault Investigation Register” (DM8238391) was also in operation within OAM. This Register collects the SDAs and provides a summary of the status of each SDA, including SDA number, the fault date, the fault, the action taken or to be taken, the outcome, investigation report references if applicable and the status of the action.</p> <p>Other Transmission reports address:</p> <ul style="list-style-type: none"> <li>• plant under warranty with QT attached;</li> <li>• substation break-ins.</li> </ul> <p>Safety incidents are treated through an Incident Management Procedure (DM2485883) controlled through the Safety Compliance Engineer. Incidents are assessed and registered in the SC&amp;I (Safety Compliance &amp; Investigation) database.</p>	

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			<p>If significant they are tracked through Legal Counsel, a work request for further investigation is raised in Ellipse and a report is usually prepared within 20 days. Recommendations are then entered into the Risk Tracking System (RTS) for tracking. Safety &amp; Health Faults are analysed through the Guardian system. A Guardian Incident Investigation Report, INC 1005789 (DM 9480936v1) dated 25/6/2012 was viewed, regarding a recloser tripped during a planned outage at Manjimup, 21 June 2012. It included "ICAM Analysis", which is a root cause analysis, it systematically identifies causes in categories such as "Absent or Failed Defences" using identifiers (DF1=Detection System, DF3 Warning System, DF5 Control System etc), "Individual Team Actions", "Test Environment Conditions" and "Organisational Factors" and produces a chart summarising the analysis. Two ongoing actions and four new actions were noted in the report. ENMAC diagram of circuit was also shown in the report.</p> <p>There is a systematic analysis of Query/Trouble reports by Transmission OAM. Viewed "Review of Query/Trouble (QT) Reports for 1<sup>st</sup> Half of 2011/2012 FY" DM9121078v1 for Transmission assets. Reports are itemised by Substation Primary Plant, Transmission Lines, Substation Secondary Plant and Substation General. Substation Plant included 22,781 items of plant at 1 July 2011. 2870 Work requests were investigated in the period. 870 QTs were raised on Primary Plant Equipment followed by 343 for Secondary Plant and 101 for Transmission Line with a total of 1512 QTs raised. 776 QT were closed and 641 were not completed.</p>	
			<p>► The procedure for the "Identification and Investigation of Unassisted Wood Pole Failures" DM7467671 does not indicate who is responsible for verification/validation of data extracted from TCS. This has been found to take place satisfactorily in practice and the procedure should be updated to reflect the current process.</p>	11. Review the "Identification and Investigation of Unassisted Wood Pole Failures" DM7467671 procedure to clarify responsibilities and update content (e.g. filtering).
			<p>► Some of the classification of pole failure such as pole leaning are not identified as unassisted. There may be a need to analyse further the causes and the risk of this type of condition:</p> <ul style="list-style-type: none"> <li>◦ leaning may be caused by faulty foundation, a foundation is an integral part of the pole design and the pole asset and therefore should be incorporated in the definition of pole failure;</li> <li>◦ leaning may result in low clearances and a hazard to the public.</li> </ul>	12. [OFI] Review the classification of pole failures in terms of the whole pole asset and its design so that foundation failures are considered in pole failures. Where the cause of failure is foundation and not other factors such as high winds,



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				pole hit etc, then that should be classified as unassisted pole failure.
6.5	Risk management is applied to prioritise maintenance tasks.	C2	<p>The process for handling QT reports leads to the classification of work in terms of priority (reference “ Review of Query Trouble Reports for 1<sup>st</sup> Half of 2011/12 FY”, DM9121078):</p> <ul style="list-style-type: none"> <li>• Priority 1 for urgent work that represents an unacceptable risk to safety of personnel or the integrity of the network, that needs to be carried out within 24 hours of identification;</li> <li>• Priority 2 for work that presents safety and network integrity concerns but not to an unacceptable level, to be completed within 2 (T3) days to 2 weeks (T5);</li> <li>• Priority 3 for work to be completed within 1 to 3 months;</li> <li>• Priority 4 for non-urgent work that can be completed at the next planned maintenance or outage.</li> </ul> <p>► There is an inconsistency between the priority attached to condition P1, specified in the “Catalogue of Equipment Types and Definitions of Condition Severities for Distribution Overhead Lines” (DM9047586) which provides the P definitions and defects identification, versus the information on Priorities provided in the “ Review of Query Trouble Reports for 1st Half of 2011/12 FY”, DM9121078). For a Priority 1 condition the Catalogue specifies a turnaround of 28 days from identification, whilst the information provided on QT Reports showed a 24 hours completion target.</p> <p>There is a process for prioritisation of work. For transmission work there is a prioritisation criteria for lines with conditions. Conditions information such as Transformer Condition Scorecards or Thermographic Surveys lead to prioritisation of maintenance work.</p> <p>For Distribution a prioritisation application, the ADAPT Tool, has been in use since the start of 2012. It prioritises work tasks on the basis of volume of customers, location (e.g. near schools, fire zone etc) and allows manipulation of the tasks list on</p>	<p>13. Clarify or address the difference between the P1 target of 28 days in the “Catalogue of Equipment Types and Definitions of Condition Severities for Distribution Overhead Lines” versus the 24 hours target for Priority 1 work identified in the QT Reports process.</p> <p>Additional observations are made in Special Areas of Interest.</p>

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			<p>the basis of priority rating, condition, location, or other factors. The Works Manager, Unplanned Work manages the asset list and creates blocks of tasks that are then sent to Planning and Controls where they are packaged into Work Packs that are allocated to Delivery Partners (DVP, Contractors) who then scope the work. Usually at this point work is packaged by zone so that the DVPs can complete work more efficiently by each area.</p> <p>Inspections of the assets results in the raising of conditions P1 and P2 which require to be rectified within set times.</p>	
6.6	Maintenance costs are measured and monitored.	A1	<p>Maintenance costs are budgeted in AWP/AA2-3. Transmission and Distribution costs are entered in the Production Plans. Actual costs are entered in Ellipse from work orders and timesheets and are reviewed against budgets as part of department KPIs</p> <p>Monthly performance reports report on costs against budgets.</p>	
<b>7</b>	<b>Asset Management Information system (MIS)</b>		<p>The asset management information system provides authorised, complete and accurate information for the day-to-date running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards.</p>	
7.1	Adequate system documentation for users and IT operators.	C3	<p>Western Power has extensive documentation to support its asset management systems. User manuals are available for the Transmission systems (TLS, TPMS, TRIS), various procedure support the work management system MIMS (Ellipse), Distribution system such as DFIS and DFMS. There was evidence of training being provided to support users both in the operation of the systems and the process. The introduction of the WPGM has been supported by delivery of training sessions to over 500 staff and by the preparation of manuals.</p> <p>Documents are controlled through the Document Management system (DM) and control register, either companywide for corporate policies or at division level through owners' departments. Control registers viewed showed that authors and review dates are recorded. Some registers were managed well with review dates flagged and most of review performed on time (e.g. "Distribution Operational Asset Management</p>	<p><b>14. [OFI]</b> Document registers need improvement to show consistency between the review frequency and dates of next review and should show more information on the status of the documents and their review (e.g. If a review is not required by that date, update the date of the review to a future date, and clarify reason in comments). The next review dates should be updated if the review is not required.</p>

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			Document Register”). ► Other registers need improvement to show consistency between the review frequency and dates of next review, the next review dates need to be updated and the registers may need to show more information on the status of the documents and their review when there are delays (i.e. If there is a postponement in a review there should be a reason given; e.g. “next review date is 19 November 2005”, review had been assigned but is not yet completed).	
			► Some of the documents display a review frequency, however the review date is not always maintained.	15. Several documents assigned for review in SOCC register have been pending review for a long time
			► Two wood pole inspection procedures were viewed, each with the same electronic name and DM number but with different version number, 8i and 11B, version 11A was noted as having been re-issued with a different DM number. 11B is titled “Bundled Pole Inspection Procedure” on its cover, compared with “Wood Pole Inspection Procedure” for the 8i version. Version 8i and 11B are due to be reviewed in May and June 2014 respectively. There is no information on whether revisions 9 and 10 were ever issued. There are no notices on either of the documents of the existence of the other. Version 11 does not show previous revision history. Some notice should be in place on documents issued under this process to clarify:  ◦ The status of the document, is it current, superseded, to be withdrawn?  ◦ The existence of the other document  ◦ The reason for both documents and directions to the user: which procedure to use for which purpose?  ► Business Continuity Management Framework refers to Emergency Management Manual (DM2072196), Business Continuity Management Policy (DMS4567966 (WORD), 5057127 (PDF)) refers to Western Power Emergency Management Manual (DM3753897) on p 2 and to the Western Power Emergency Management Plan	16. Clarify the existence of two documents with same DM number but documents are different. Determine causes and implement corrective action. 17. If a document has been superseded indicate superseded status on document and historical reference on the new document. Revise applicable procedures.

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			(DM3753897) on p 22.	
7.2	Input controls include appropriate verification and validation of data entered into the system.	B2	<p>Staff updating the data on the systems need to have appropriate authorisation. Data entry validation is managed by:</p> <ul style="list-style-type: none"> <li>• limiting free text entry fields;</li> <li>• use of drop-down menus;</li> <li>• additions to systems are run through a data checker program which, on a weekly basis, assesses data against a set of rules;</li> <li>• time stamping of updates for traceability.</li> </ul> <p>As constructed drawings are scanned on completion of construction; typically 20% of completed jobs are quality checked against as constructed drawings and results are reported on a performance report (SP&amp;DQ General Performance Report).</p> <p>There are also daily checks of network connectivity and de-energised networks.</p> <p>At the EPCC, System Management through the System Operation Control Branch provides reports on:</p> <ul style="list-style-type: none"> <li>• circuit availability</li> <li>• system minutes interrupted</li> <li>• loss of supply events and</li> <li>• average duration of outages.</li> </ul> <p>Data collected from SDAs for forced and fault interruptions are first verified for accuracy using the Events and Alarm browser (XA21) and after classification for event type, results are calculated using MS Excel tools with pre-set functions as defined in the "User manual for Calculating: system minutes interrupted, loss of supply events, average outage duration" DM7229090.</p> <p>Historical issues of wood pole data errors are being addressed systematically through special projects in response to Energy Safety Order 01/2009. Typical errors in the data had to do with:</p> <ul style="list-style-type: none"> <li>• incorrect pole location</li> <li>• missing assets</li> </ul>	

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			<ul style="list-style-type: none"> <li>assets in the field not entered in the system.</li> </ul> <p>The Pilot Project for Picton and Northam has improved the data completeness from 70% to 93%. It has added photographic evidence to assets records, confirmed transformer nameplate information, corrected 53,522 pole locations with an average shift of 40 m, removed 530 missing poles and removed 190 wood poles as well as distribution transformers and HV switches. Further projects have been included in the AA3 submission for Collie, Narrogin and Rockingham.</p>	
7.3	Logical security access controls appear adequate, such as passwords.	A1	Access to the asset management systems is controlled. Not all staff can enter/update data, staff with this permission level are trained and experienced. Control of access is through passwords and user management. A password policy is in place.	
7.4	Physical security access controls appear adequate.	A1	Access to the Western Power sites is controlled through access points and identification of persons entering through photo and swipe cards. Server rooms are accessed through electronic card entry at two successive secure doors.	
7.5	Data backup procedures appear adequate.	A1	Systems are backed up daily and replicated to Bentley site in real time. The back-ups are tested several times a day on requests from customers.	
7.6	Key computations related to licensee performance reporting are materially accurate.	B2	<p>Data included in performance reports is verified by metrics, checking data manually through forms. A "long form" is used for high criticality external reports and a short form for routine reports. The process includes verification of results, inclusions and exclusions, assumptions and constraint checks. [18.6].</p> <p>There have been improvements in the management of wood pole data, with the issue of a controlled document formally defining pole numbers, the initiative for the reduction of data entry lag, mobile inspections and actions on wood pole replacement.</p>	
7.7	Management reports appear adequate for the licensee to monitor licence obligations.	A1	<p>A suite of monthly and corporate reports allow management to monitor the performance of the assets. Licensee's performance report data is available on the "Busbar", the Western Power intranet, displaying a range of performance results. The Corporate Performance Report (e.g. April 2012, DM9359328, May 2012, DM9446476) includes:</p> <ul style="list-style-type: none"> <li>corporate performance indicators, safety (workforce and public), SAID and</li> </ul>	

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			<p>trends, TX system minutes;</p> <ul style="list-style-type: none"> <li>• service standards in detail;</li> <li>• charter responsiveness;</li> <li>• customer complaints;</li> <li>• EBT;</li> <li>• total cost reduction in major projects;</li> <li>• major project delivered over schedule;</li> <li>• outcome via the ERA draft determination;</li> <li>• efficiency;</li> <li>• P&amp;L, BS and cashflow statement.</li> </ul> <p>Viewed Cognos reports on the Dashboard for PWI Program Delivery, showing among others, progress with:</p> <ul style="list-style-type: none"> <li>• wood pole replacement;</li> <li>• transformer upgrade;</li> <li>• recloser replacement;</li> <li>• pole maintenance;</li> <li>• mitigation of HV conductor clashing in Bushfire Zone.</li> </ul> <p>Viewed "Transmission Maintenance Program, 2<sup>nd</sup> Quarterly Performance Review 2011/2012" DM9060366, 13 February 2012. The report included failure analysis, corrective programs, K3 Corrective Deferred and K4 Corrective Emergency reacting to unplanned events. (K4 quick fix, K4 more permanent correction). Preventive Routine Maintenance: includes report on status of program (K1VA is Substation Primary Plant Maintenance program, includes transformers), highlights and lessons learnt including problems and delays, and plans for the next quarter to correct any issues. The report included graphs for costs and schedule for each of the asset categories.</p> <p>Viewed "Distribution Monthly Performance Report" at June 2012 DM9547044, reports by criteria (safety, financial, wood poles, financial, maintenance projects, major projects, and a range of other items) on performance against targets, progress on</p>	

No.	Asset Management System Element / Criteria	Rating	Review summary (► Findings)	Recommendations
			program including OPEX and CAPEX projects. Similarly for Transmission 9547022	
<b>8</b>	<b>Risk Management</b>		An effective risk management framework is applied to manage risks related to the maintenance of service standards.	
8.1	Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system.	A1	<p>A corporate risk management policy is in place (DM3842495), last reviewed in June 2011 and signed by the Managing Director. The policy is aimed at involving the entire organisation in risk management and at providing a systematic approach to risk and compliance with legislation. The policy is supported by a framework (DM3861477) and a process document available on the Western Power process portal.</p> <p>At Divisional level, asset risks are managed through the "Network Risk Management Framework" and the "Network Risk Management Procedure". The "Corporate Risk Criteria" (DM 6242026) is used to analyse risks at Divisional level.</p>	
8.2	Risks are documented in a risk register and treatment plans are actioned and monitored.	B2	<p>Risks are recorded in the CURA system under the following categories:</p> <ul style="list-style-type: none"> <li>• Corporate;</li> <li>• Divisional;</li> <li>• Emerging.</li> </ul> <p>► There are slight discrepancies between the practice and documentation. Western Power has indicated that all corporate risks are reviewed quarterly, however the "Corporate Risk Assessment Criteria Guidelines" DM9201287 (PDF) DM6941414 (Word) states that only Extreme and High corporate risks are reviewed quarterly. Evidence of quarterly reports shows that there are 17 corporate risks reported, all rated Extreme or High in the December 2011 quarter.</p> <p>Extreme and High divisional risks are reviewed quarterly, others annually, and reported quarterly to the Executive Team and the Finance &amp; Risk Committee.</p> <p>Divisional asset risks are held in separate registers. The Networks Division holds the "Network Risk Issue Register" (DM3528771) which arises out of the annual risk workshops. Risk workshops are held with each relevant section of Networks Division. Identified risks may be common for Transmission and Distribution where the risk and the treatment are similar. The risks are identified from studies such as Load Forecasts and Summer Trend reports, the assessment is an input into the risk</p>	

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			<p>register and the NMP. The Business Cases to support the treatment of the identified risks are owned by the asset managers, planners and account managers in Networks Division, who are responsible for the assessment and treatment of the risks.</p> <ul style="list-style-type: none"> <li>► OPEX tasks in the Transmission Production Plan are associated with risks, e.g. Underground (UG) System Inspection required for the early detection of developing faults in the UG cables. Some of the risks do not appear in the Division "Network Risk Issues Register" (e.g. fault development in UG cables)</li> <li>► A field "risk register number" is included in the Transmission Production Plan however the function of this field is not clear as it does not refer to the risk register.</li> </ul>	<p>18. Ensure that risks identified in the Transmission Production Plan are included in the Division "Network Risk Issues Register" and improve their cross-traceability with the register. Clarify use of risk register number.</p>
			<ul style="list-style-type: none"> <li>► The Network Risk Issue Register does not show what actions and treatments are in place on each risk. Whilst that information may be available elsewhere, there is no readily visible traceability or link to the treatment plans, the actions, responsibilities and timing of responses.</li> </ul>	<p>19. There is a need to review the risk management process and the risk register to address:</p> <ul style="list-style-type: none"> <li>19.1. the traceability of treatment plans,</li> <li>19.2. responsibilities,</li> <li>19.3. response times.</li> </ul>
			<p>The "NRR Procedure" states that risk workshops are conducted at least annually and are meant to involve all "people with accountability for, and knowledge of network risk" (sect. 4). This process could be improved as during the review it was noted that some of the stakeholders were not involved in the workshops:</p> <ul style="list-style-type: none"> <li>► Interview with Transmission Operational Asset Management (OAM) section indicated that operational and maintenance staff with in depth knowledge of the asset risks and responsibilities for asset construction and maintenance were not aware of the Network Division "Network Risk Register", which indicates that there may be an opportunity to improve the annual risk analysis by including their contribution.</li> <li>► Discussions highlighted a rising number of early faults in transformers, involvement of operational staff should highlight early any adverse operational trends.</li> </ul>	<p>20. As part of the review of the Network Risk Register there is a need to review the interfaces and the inclusion of stakeholders that have day to day exposure to the asset operation, maintenance and field performance of assets.</p>



No.	Asset Management System Element / Criteria	Rating	Review summary ► Findings)	Recommendations
			<ul style="list-style-type: none"> <li>Delays in rectifying wood pole P1 and P2 conditions are not recorded in risk registers. Similar risks are recorded at a macro level: i.e. "Failure to deliver the Annual Works Program". In view of the risk of late rectification of P1 conditions, it may be opportune to highlight the existence of this risk separately so that sufficient attention and resources are available to mitigate this risk.</li> </ul>	<b>21. [OFI]</b> In view of the risk of late rectification of P1 conditions, it may be opportune to highlight the existence of this risk separately in risk registers so that sufficient attention and resources are available to mitigate this risk.
8.3	The probability and consequences of asset failure are regularly assessed.	B2	Risk assessments are carried out by reference to the "Corporate Risk Criteria" (DM6242026). Likelihood and consequences of asset failures are assessed annually in risk workshops leading to the Network Risk Register update. The register is also updated in response to Business Case submissions and on an as required basis.	
			<ul style="list-style-type: none"> <li>Assets such as the East Perth Control Centre should also be included in risk assessments both in terms of its operation and risks attached to the building. (A risk assessment was originally carried out for the building. The target availability of the building is 99.9%).</li> </ul>	<b>22. [OFI]</b> The East Perth Control Centre and the building asset should also be analysed for risks.
<b>9</b>	<b>Contingency Planning</b>		Contingency plans have been developed and tested to minimise any significant disruptions to service standards.	
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.	C3	Emergency Levels are documented in "Guideline to Emergency Levels", DM 2378661V2, which specifies five levels of response, raising from 0 for Normal, to Alert, Warning/Recovery, Emergency and Crisis. Level 3 is for events impacting on 10,000 customers or for regional community for more than 4 hours, similarly Level 4 is for either transmission failures or impacting on 20,000 customers or regional community for more than 12 hours.  SOCC procedures include: <ul style="list-style-type: none"> <li>Transmission Emergency Management Plan (DM1190337V43) (TEMP). An Emergency Response Team is activated for significant incidents (levels 2 and 3) and an Emergency Management Team for major emergencies (level 3 or greater). Initiation can also be through incidents reported through NOCC Incident Reporting Procedure (DM#1315787).</li> <li>"East Perth Control Centre (EPCC) Emergency Procedures Handbook", DM555191, provides evacuation and response procedures for fire, medical</li> </ul>	

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			emergencies, bomb threats, personal emergencies, and armed hold up. The handbook does not provide a guide on testing of the emergency responses.	
			<ul style="list-style-type: none"> <li>► There is an "Emergency Management Plan for East Perth Control Centre" (DM5551897, last issue October 2011). Plan includes forms for emergency debrief checklist to be filled out post fire drill and post fire incidents. Actual application of the procedure did not have debrief information.</li> <li>► "System Control Room Emergency Procedures" quotes the Emergency Management Plan for East Perth Control Centre" as DM367761 which appears to be a superseded version.</li> <li>► SOCC's TEMP quotes an Emergency Management Plan (DM2072196). Both this plan and the "Emergency Management Plan for East Perth Control Centre" (DM5551897) are not referenced in SOCC and NOCC document index. They are part of the System Management Emergency Warden Committee</li> </ul>	23. (General) The review of Control Centre documentation should continue with the objective of bringing up to date all outstanding reviews and reviewing documents that have not been used or updated for a long time. There should be a reasonable but not unlimited time allowed for completion of a document review.
			<p>NOCC list of procedures includes (Last revision date noted)</p> <ul style="list-style-type: none"> <li>• Emergency/crisis and general paging, 22/12/2010</li> <li>• Network Operations Backup Control Centre (NWI043), 11/1/2012</li> <li>• Pandemic contingency plan, 24/12/2010</li> <li>• Loss of operational phone systems, 19/12/2010</li> <li>• Response to bushfires and DEC burnoffs, 31/1/2012</li> <li>• Pole top fires contingency plan, 17/9/2010</li> <li>• Zone substation transformer overload, 30/12/2010.</li> <li>• Incident Notification Procedure" DM1315787.</li> </ul> <p>The work instruction NWI043 "Backup Control Centre Activation" was viewed, was authorised on 16/8/2011, next review date in document was not filled. Backup Control Centre (BUCC) Activation is to be checked or trialled every six months and date recorded in "NOCC BUCC Trial Form (DM2182759), checks are listed including checks on inventory items not out of date and in BUCC, phone number lists are correct and current, outstanding items identified in last BUCC trial form were resolved and closure date recorded. Inventory was noted. Sighted "BCC Trial Form", for tests carried out on 21 December 2011 and 23 April</p>	

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			<p>2012. Form has provision for noting issues and actions taken and showed closure of all actions.</p> <p>NWI-40 "Emergency/Crisis and general paging": Different level s of management are activated for escalating emergency levels. Emergency Management Team is requested by Manager Network Operations or Networks Control Manager or above in response to a level 3, Crisis Management Team is requested by senior management, System Management General Manager and above in response to a at level 4.</p> <p>Viewed emergency response to fire in the 11 kV switchboard room at West Kalgoorlie Terminal at 21:00 pm on 30 May 2012 (Minutes of meeting (MOM) not showing date), restoration at 2:43 am, approximately 2500 customers impacted. MOMs viewed, first at 9:39, then 16:00 (DM9404290 and 9418643).</p> <p>Viewed emergency response to weather event of Sunday 10 June 2012 affecting over 161,000 customers without power, level was raised to a level 4, continuing to Wednesday 13 June 2012.</p>	
			<p>► Reviewer did not sight any formal:</p> <ul style="list-style-type: none"> <li>◦ lessons learnt and actions arising from emergency testing;</li> <li>◦ systematic scenario test schedule and treatment of test responses.</li> </ul> <p>► Reviewer did not see a severe weather contingency plan for NOCC.</p>	<p><b>24.</b> Test response to various possible scenarios e.g. test of Pandemic contingency plan (leading to a loss of a potential 50% of Control Room staff); loss of operational phone systems etc.</p>
			<p>Viewed a presentation "Review June 2012 Storm" DM9443647, which includes lessons learnt: what worked well, opportunities for improvement, recommendations and actions for follow up following the storm of June 2012 (this review is outside of review period). The review identifies a SOCC/NOCC debrief on 22 June 2012.</p>	

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<b>10</b>	<b>Financial Planning</b>		A financial plan that is reliable and provides for the long-term financial viability of the services.	
10.1	The financial plan states the financial objectives and strategies and actions to achieve the objectives.	A1	<p>A “Strategic Development Plan 2011/12 to 2015/16” (SDP) (DM7568312) was issued in July 2011, incorporating a 5 year financial plan covering the period 2011-12 to 2015-16. The SDP was presented to the Board in March 2011 for submission to the Minister of Energy. The SDP :</p> <ul style="list-style-type: none"> <li>• outlines the strategies</li> <li>• the financial objectives</li> <li>• corporate and operational performance indicators (e.g. service standard benchmarks for 2010 actual to 2012 target)</li> </ul>	
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs.	A1	<p>The SDP approach to funding rests on two premises:</p> <ul style="list-style-type: none"> <li>• recurrent costs are funded by revenue</li> <li>• capital expenditure is funded by customer contributions and borrowings.</li> </ul> <p>The “Monthly Treasury Report” reports cashflow against funding requirements and identifies variations in the financial performance.</p>	
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets).	A1	<p>Planning information is consolidated and used to form proposed expenditure plans, expenditure forecasts are assessed and workshops are arranged to outline the plans and obtain feedback.</p> <p>The SDP includes:</p> <ul style="list-style-type: none"> <li>• operating and capital expenditure plans by regulatory category</li> <li>• expenditure by regulated areas such as Distribution and Transmission and by line such as operations, maintenance, and customer service.</li> </ul> <p>The SDP provides forecasts of profit and loss, balance sheet and cash flow over five years.</p>	
10.4	The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period.	A1	<p>Financial outcomes are modelled through the “Regulatory Revenue Model” and the “Long Term Financial Model” created in 2007/08 and audited twice externally. The analysis provides income forecasts, planned and forecast expenditure up to 2026-27. Profit and loss are provided for a five year period.</p>	
10.5	The financial plan provides for the operations and	A1	The SDP identification of funds and expenditure ensures that there are funds for the	

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	maintenance, administration and capital expenditure requirements of the services.		operation and maintenance, for capital expenditure and overheads such as administration.	
10.6	Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary.	A1	<p>Risk scenarios have been developed and used to test the effect of events on the financial model. Actual financial performance is reported in monthly reports.</p> <ul style="list-style-type: none"> <li>The “Monthly Treasury Report” reports cashflow from operating, investing and financing activities, it compares actuals to forecasts and budgets and allows the identification of revised projections. This report is provided to the Board Finance and Risk Committee.</li> <li>The “Consolidated AWP Monthly Report” presents actual expenditure versus forecasts and budgets and identifies variances.</li> <li>The monthly “Corporate Performance Report” presents the profit and loss, balance sheet and cash flow and reports on the business actual results against forecast. This reports also reviews the performance of the corporate KPIs identified in the SDP. The report is available company wide on the Dashboard (Western Power’s intranet).</li> </ul> <p>Changes in allocation in forecasts are subject to change control process.</p>	
<b>11</b>	<b>Capital Expenditure Planning</b>		A capital expenditure plan that provides reliable forward estimates of capital expenditure and asset disposal income, supported by documentation of the reasons for the decisions and evaluation of alternatives and options.	
11.1	There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates.	A1	<p>A capital expenditure plan is in place, incorporated in the financial plan and reported under the various reports supporting the financial plan operation. In 2011 – 12 financial year the following documents related to capital expenditure:</p> <ul style="list-style-type: none"> <li>10 Year Transmission Network Development Plan was issued in July 2011</li> <li>the SDP 2011-12 was issued in July 2011</li> <li>the Network Management Plan [NMP] was issued on 30 August 2011</li> <li>the Access Arrangement 3 was submitted in September 2011</li> <li>the Annual Work Program [AWP] 2012 – 13 was issued in September 2011 and approved by the Board in October 2011.</li> </ul> <p>The Transmission Division has a “Transmission 2012/2013 Annual Production Plan” (TAPP) (DM9223975v2) which provides the Transmission sub-set of the Annual</p>	

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			Works Program (AWP). The TAPP outlines CAPEX programs and projects included in the 2012-13 AWP. Distribution has a "Distribution Production Plan for 2012-13" DM8800441 which identifies programs, projects, responsibilities and dates for projects identified in the AWP.	
11.2	The plan provides reasons for capital expenditure and timing of expenditure.	A1	Based on the strategies of the SDP the AWP presents a 5 year view on expenditure, including both maintenance and capital expenditure, however in the 2011-12 financial period, due to the ending of the AA2 period and commencement of the AA3, the AWP for 2011 was restricted to one year, similarly for the AWP 2012 which only covers the 2012-13 period. A tool has been added in 2012 to support decision making, the Strategic Investment Framework (SIF). The tool is based on the decision prioritisation drivers of Safety, Customer, Financial and Community, weighted by their strategic significance, which drives the analysis of activities planned to address the network problems. This approach provides the reasons and the urgency in the scheduling of projects, which are scored against the SIF assessment criteria.	
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan.	A1	The Transmission Division has a "Transmission 2012/2013 Annual Production Plan" (TAPP) (DM9223975v2) which provides the Transmission sub-set of the Annual Works Program (AWP) which is part of the planning process. The TAPP outlines projects and programs included in the 2012-13 AWP.  CAPEX for Distribution in 2012-13 Production Plan shows drivers of: <ul style="list-style-type: none"> <li>• Growth, 52% including customer driven, non-discretionary and addressing security risks in the network</li> <li>• Asset replacement and renewal, 32.1%</li> <li>• Compliance, 14.9%</li> <li>• Improvement in service, 1%.</li> </ul> The expenditure plan is consistent with the programs identified in the work plan.	
11.4	There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned.	A1	The "Consolidated AWP Monthly Report" reports on expenditure against internal forecast and budget. Overspent and underspent CAPEX projects are highlighted. Variances are identified in the report. The report is supported by lower level monthly reports that review the progress of projects e.g.: <ul style="list-style-type: none"> <li>• for Transmission procedure "Report Transmission CAPEX Delivery Status"</li> </ul>	

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			<p>(DM9476399) defines the process for capturing data from the project management application (Prosight) into a "Project Portfolio Report" and an "AWP Group Manager Report";</p> <ul style="list-style-type: none"> <li>for Distribution the "Asset Management / Program Management Soft Report" which provides updates on the performance, progress, expenditure, variances and risk areas.</li> </ul> <p>The Corporate Performance Report is produced monthly and is reviewed by the Chief Financial Officer and by the Executive Team and issued on the Dashboard</p> <p>► CAPEX and OPEX Network Investment Annual Planning Calendar does not seem to show the same flow as the diagram presented by NIB (p9 of CPEX presentation). The NMP is shown in November in the Calendar, and the AWP in September to mid October. In the presentation the NMP is shown as preceding the AWP. [Maybe the Calendar should show Y+1 for NMP?]</p>	
<b>12</b>	<b>Review of AMS</b>		Review of the Asset Management System to ensure the effectiveness of the integration of its components and their currency.	
12.1	A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current.	B2	<p>Review of the Asset Management System (AMS) for compliance with the licence requirements is under way. No review information was viewed during this review [Ref17.4]</p> <p>A review framework is described in section 11.1 of the NMP, however the process does not give the directions expected of a procedure such as clear indication of responsibilities, actual schedule of reviews and required output. The NMP document does not show evidence of review leading to its approval, however a separate document shows approval by the CEO. The printed version of the NMP has no control information, the electronic version indicates that the document has been prepared by the Networks Performance Branch but shows no date, no author and has no control information (e.g. no control boxes, stakeholder's list etc).</p> <p>There was no clear evidence that the performance of the NMP is reviewed through the year. Individual plans that arise from the NMP are analysed not the NMP however (based on the available evidence).</p>	<b>25.</b> There is a need to adopt a methodology for document review of the NMP.

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			<p>No Asset Management Plan or System review procedure was available during this review. Discussions have confirmed that there may be a review practice on the elements making the AMS, at this point the review is not fully formalised.</p>	
			<p>► Whist there are documented program for review and update of key documents and several documents showed review, various documents showed that their review cycles had not been maintained and no indication was available of the reasons for the delay. In some cases the due date of the next review was recorded within the document which is a requirement of the Document Management procedures, however this is not consistently applied and may be a cause for inconsistency.</p>	<p>26. There is a need to adopt a methodology defining document review cycles and maintaining them, and to apply the methodology consistently to all documentation across the board, to avoid conflict between documents and registers control information.</p>
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system.	B2	<p>Separate investigations on assets, on problems with assets and elements of the asset management system (AMS) have taken place, however most of these investigations are reactive.</p> <p>There was no evidence of systematic external review of the asset management system initiated by Western Power. There was also no evidence of an internal audit function scheduling audits systematically on the asset management system. However the AMS has been subject to several external reviews as part of its licence compliance regime over a short period of time. AS well as the current review (2012) there have been reviews in 2008, 2009, and 2011.</p> <p>External independent reviews are performed in accordance with the requirements of the Electricity Licenses. The current review was initiated in June 2012 to cover the operating period 1 May 2011 to 30 June 2012. The previous review was completed in October 2011, covering the operating period from 1st November 2009 to 30th April 2011.</p>	



## 4 SPECIAL AREAS OF INTEREST

The Authority had requested that, as part of the Asset Management System Review 2012, a number of areas should be investigated further. The scope of the additional review was identified at a meeting with the Authority which took place on the 7 June 2012. The issues have been listed and relevant findings reported in the following table:

### LEGEND

Key	Description
►	Findings
1. Text	Recommendations
[OFI]	Opportunity for Improvement
[ ]	References in [ ] are to the auditor's reference to interviews held, documents reviewed or presentations given by Western Power

Table 14 Special Areas of Interest

No.	Issue	Summary (► Findings)	Recommendations
1	Network risk management		
1.1	Review of the linkages between the Network Risk Register(s) (Network Investment Branch) and the corporate database CURA. How "Extreme" and "High" network risks are mapped to CURA.	<p>The "Risk Management Framework" (DM3017083 (Word) 3861477 (PDF)) is used to guide the application of risk management at corporate and divisional level. Corporate risks are identified in the enterprise risk database, CURA. The database lists the following risks:</p> <ul style="list-style-type: none"> <li>• Corporate Risks;</li> <li>• Divisional Risks;</li> <li>• Emerging Risks.</li> </ul> <p>Western Power's practice is to hold review workshops at three levels:</p> <ul style="list-style-type: none"> <li>• Corporate workshops facilitated by the Risk &amp; Compliance Branch to identify and review the top level risks. Corporate risks are assigned to General Managers.</li> <li>• Divisional workshops facilitated by the Risk &amp; Compliance Branch to identify divisional risks. Divisional risks are assigned to General Managers or Branch Managers.</li> <li>• Branch level risks are either managed on the branch level or are rolled up to the divisional level.</li> </ul> <p>► The process outlined in the "Risk Management Framework" (DM as above) does not fully correspond to the practice and will have to be revised.</p> <p>Risks, controls and treatments are required to be documented in CURA or risk management spreadsheets.</p> <p>The Network Investment Branch in Networks Division maintains the "Network Risk Issue Register" (DM3528771) (NRIR), a spreadsheet which arises out of the annual risk workshops and input from asset managers. Risk workshops are held with relevant members of Networks Division to identify asset risks. Identified risks may be common for Transmission and Distribution where the risk and the treatment are similar. The NRIR is maintained by a Senior Business Analyst.</p>	

No.	Issue	Summary (► Findings)	Recommendations
		<p>According to the framework, if appropriate, risks that are “extreme” or “high” are escalated from the register to CURA. The procedure leaves the option to the General Manager, the Manager Risk &amp; Compliance and the Branch Manager for the escalation of risks from Branch to Division level and to the General Manager and the Manager Risk &amp; Compliance for escalation to corporate level. The criteria for escalation are left to the discretion of management.</p> <p>The practice with the NRIR maintenance is to escalate network risks into CURA at divisional level if risks are rated “extreme”. In addition, if two or more categories, one of which is Safety, are high the risk is also escalated (the criteria is documented in the header of the NRIR).</p> <p>Due to the different vehicles for escalation some of the risks in CURA and in the register do not fit in with the model:</p> <ul style="list-style-type: none"> <li>► Risk number 25, “Inadequate substation security” had highs in Safety and Reputation, however it did not show that it had been escalated (subsequent version of data showed that one of the ratings had been lowered). [It is noted that the auditor received a register copy that appears to be different from the Western Power version which only shows one high rating]</li> <li>► Risk 99, “Unassisted Transmission Pole failures” did not show escalation notwithstanding it had a rating of extreme in Reputation and high ratings in Safety and Legal.</li> <li>► Risk 115 “Hazardous exposure to asbestos in Transmission substations” was also rated high in two categories but did not show escalation.</li> </ul> <p>Three risks were checked and were found to be in both systems:</p> <ul style="list-style-type: none"> <li>• Risk 1, “Unassisted Distribution Pole failures”</li> <li>• Conductor clashing</li> <li>• Overhead customer service connection hazards (with multiple causes), usually associated with the metallic helical clamp (twisties) failure.</li> </ul>	

No.	Issue	Summary (► Findings)	Recommendations
		<p>There are limitations in the way the register operates and can be managed.</p> <ul style="list-style-type: none"> <li>► The register is reliant on highly skilled staff to maintain it in synchronisation with CURA and to capture all risks that are generated by the asset managers. Because of the manual intensive input the register is prone to gather small errors.</li> <li>► The register does not show the treatment plans and the actions.</li> <li>► Some of the risks may be the result of clearly defined factors (e.g. design, conditions) and the current structure is not optimal for highlighting those aspects of the risks and for following up on solutions.</li> </ul> <p>In discussions with Western Power these limitations were acknowledged. New initiatives are under way to refine each asset risk analysis by looking at all causes and assessing their impact through quantitative methods. This is being done through pilot cases.</p>	<p>1. Further review and development of the network risk register should be continued and its management process should be improved in view of the limitations of the present model.</p>
1.2	<p>Are both registers updated simultaneously? Check update cycles of registers</p>	<p>The Network Risk Management Section of Network Investment Branch is responsible for “alignment of network risk management activities and documentation with the NIS and the Corporate Risk Management Framework” (Sect. 9.1 of procedure).</p> <p>The “Corporate Risk Assessment Criteria Guidelines” prescribes in section 3 the frequency of risk review for corporate, divisional and branch risks. Branch risks are required to be reviewed quarterly. At corporate and divisional level, extreme and high risks are due to be reviewed quarterly, medium and low risks can be reviewed either biannually or annually.</p> <p>Risks are not updated simultaneously on CURA and the NRIR. In general when new entries or updates are required, the asset manager updates CURA and the NRIR owner updates the network register. A quarterly notification to risk champions (nominated point of contact for the branch) from CURA is in place.</p> <p>It was evident that there is a continuous process of review of network asset risks. The review is asset focused so that there is not a single workshop that analyses all the risks, rather a number of reviews, each on specific assets, that take place throughout the year. Consequently the NRIR is updated continuously. Sampling of the NRIR showed that the register had been updated in a four week period since the last issue of 13 June</p>	

No.	Issue	Summary (► Findings)	Recommendations
		<p>2012:</p> <ul style="list-style-type: none"> <li>• risk number 102 had been updated after the 22 June 2012</li> <li>• risk number 88 had been updated after the 28 June 2012.</li> </ul> <p>CURA risks are entered as required, however reviews and updates to corporate and division risks happen quarterly.</p>	
1.3	Review of the Networks Risk Register(s): subjective evaluation of risk ratings in Networks Risk Register(s).	<p>The NRIR collects the risk of the network through an assessment process that appears to be relatively continuous. The NRIR lists the risks identified in the network under the six categories of safety, supply (or customers), legal, reputation, environment, financial. The version of the register examined by the reviewer did not identify risk mitigation actions, timing of actions or responsibilities. Responsibilities and timing of actions were available on the full register.</p> <p>As part of the special area of the review, an independent risk analysis was performed of a random sample of risks within the NRIR. The 15% sample was selected at random, a total of 18 risk entries were analysed.</p> <p>This set included the risk owner, the risk assessment date, and the members of the risk assessment team, which ranged from a single person to five people. The list carried identification for risk assessment meetings through a DM number (for 80% of the entries) and for the related Business Cases which are used to address treatment plans (for 60% of the entries).</p> <p>Each of the risk in the NRIR is analysed under 6 categories for consequences and likelihood of risk. As noted above the six categories are:</p> <ul style="list-style-type: none"> <li>• safety</li> <li>• supply (or customers)</li> <li>• legal</li> <li>• reputation</li> <li>• environmental</li> <li>• financial.</li> </ul> <p>The risk is rated under each category as extreme, high, medium and low. The overall rating is based on the highest rating in the analysis.</p>	A finding and recommendation have been made in section 3.2 Observations and Recommendations, items 8.2, as recommendation number 19.

No.	Issue	Summary (► Findings)	Recommendations
		<p>The review found that the overall risks rating for 15 out of the 18 risks was confirmed. For the remaining three risk, the reviewer rated two risks lower:</p> <ul style="list-style-type: none"> <li>the streetlight metal pole failure (rated moderate against a high rating by Western Power)</li> <li>unassisted transmission pole failures rated as high by the reviewer against extreme by Western Power.</li> </ul> <p>The reviewer had rated one risk higher:</p> <ul style="list-style-type: none"> <li>vegetation encroaching into assets, rated high by the reviewer and moderate by Western Power.</li> </ul> <p>► In general there was reasonable consistency between the reviewer's ratings and Western Power's across the 108 risk categories analysed, however the Network Risk Issue Register does not present mitigating actions, so that the risks evaluations cannot be adjusted for any actions planned or undertaken by Western Power to mitigated the risks.</p>	
1.4	Assessment of the adequacy of risk mitigation programs	<p>A number of the risks mitigation programs were reviewed to assess their adequacy:</p> <ul style="list-style-type: none"> <li>Wood pole failures, there were two main treatment actions: <ul style="list-style-type: none"> <li>□ ensuring funding for corrective actions, started on 30/9/2010 and due to end on 30/11/2012;</li> <li>□ end to end improvement process, this included a total of 50 projects, including testing/ inspection/ replacement etc, started on 4/1/2010 and originally due to be completed on 30/6/2012. Current progress was 85% and due to be completed at the end of August 2012.</li> </ul> </li> <li>Twisties failures, the treatments were: <ul style="list-style-type: none"> <li>□ Access Arrangement 3 (AA3) Business Case, completed on the 15/12/2011;</li> <li>□ inspections, due for completion on the 30/6/2013;</li> <li>□ replacement due for completion on the 30/6/2015.</li> </ul> </li> </ul> <p>All actions sighted had owners and appeared adequate.</p>	
1.5	Check frequency of risk reviews (including robustness of recording mechanism for performing risk reviews).	<p>According to the "Risk Management Framework" "all network risks are routinely reviewed and updated annually, although this can occur more frequently on an ad-hoc basis if required". The "Network Risk Management Procedure" does not prescribe</p>	

No.	Issue	Summary (► Findings)	Recommendations
		<p>review of the asset risk in the NRIR, in practice however all risks in the NIRR are assessed at least annually.</p> <p>The monitoring and review of risks takes place under several processes:</p> <ul style="list-style-type: none"> <li>• in the monthly report on the Annual Work Program (AWP) and at meetings which review the AWP such as the Program Performance Committee (PPC);</li> <li>• following feedback to the asset manager or the risk champion from these meetings;</li> <li>• from the asset manager review of the asset performance, based on QT Reports or other field data;</li> <li>• in quarterly corporate reviews of divisional and corporate risks which result in "Quarterly Risk &amp; Compliance Reports". The review is followed by: <ul style="list-style-type: none"> <li><input type="checkbox"/> the update of corporate risks</li> <li><input type="checkbox"/> the update of divisional risks which are rated extreme or high.</li> </ul> </li> </ul> <p>Mechanisms exist within the CURA system for notifications of risk reviews and for monitoring due actions.</p>	
1.6	Are residual actions from reviews acted in a timely manner, check timeliness of action closure.	<p>Three risks and associated mitigation program were reviewed to assess the timely completion of actions.</p> <p>In all cases the actions were long term and due to be completed either in the second half of 2012 or later, the results of the review have been reported at item 1.4 above.</p>	
<b>2</b>	<b>Contingency planning</b>	Contingency planning (focus on Network Operations Control Centre (NOCC), System Operations Control Centre (SOCC), and on system management contingency/emergency response planning)	
2.1	Check testing of SOCC contingency/emergency response plans (are plans tested? Schedule? Frequency of testing?)	<p><b>SOCC:</b></p> <p>The document Control Room Emergency Backup System (EBS) (DM 8530030) calls for quarterly and annual emergency backup testing. A "Task complete checklist" (DM 6874551) was available to record the completion of tasks.</p> <p>In practice the Control Room EBS is scheduled to be tested on a monthly basis. The schedule of the tests is recorded in a Western Power internal calendar. There was evidence of the tests on a spreadsheet (DM6874551) on the following dates:</p>	<p><b>2.</b> The preparation of Control Centre staff should be tested in a variety of scenarios to ensure that the staff can adequately respond to events and that, if there are shortcomings to response procedures, these are identified under test conditions, not in real life situations.</p>

No.	Issue	Summary (► Findings)	Recommendations
		<ul style="list-style-type: none"> <li>2011: July, August, September, October, November</li> <li>2012: May, July.</li> <li>There was no evidence of tests at other times so it appears that the procedure was generally followed. Due to MEP (Market Evolution Program) commitment and priority in the period Dec 2011 to May 2012 and in Jun 2012 for the MEP go-live, the EBS Test was postponed and the monthly schedules are due to occur again.</li> </ul> <p>The document, "East Perth Control Centre (EPCC) Emergency Procedures Handbook", DM555191, provides evacuation and response procedures for fire, medical emergencies, bomb threats, personal emergencies, and armed hold up. The handbook does not provide a guide on testing of the emergency responses.</p> <p>A further document "System Control Emergency Procedures", DM1190447, provides responses to fire, bomb threats and earthquakes but does not cover testing.</p> <p>A third document "Emergency Management Plan East Perth Control Centre" DM5551897 is addressed to the Emergency Control Organisation which is made up of the EPCC wardens. The procedure covers fire and bomb threat response and related evacuations. A "Drill debrief checklist" and an "Inspection checklist" are included.</p> <ul style="list-style-type: none"> <li>► There was evidence that fire drills are performed however the level of documentation and the management of tests needs to be improved.</li> <li>► No records of other tests were available thus it appears that there is testing for only one type of contingency response.</li> </ul>	<p>There should be a further review of contingency plans which need to be tested to maintain staff competency and reduce the risk of failure when those plans are put into action in response to real events. Trial scenarios/role playing exercises should be enacted on an annual basis. The trials should consider different events so that the Control Centre is tested on many possible eventualities.</p> <p>3. There should be a specific procedure to address:</p> <p>3.1. How to select the annual test scenario</p> <p>3.2. Who will be advised of the test</p> <p>3.3. Debriefing meeting and identification of errors and weaknesses;</p> <p>3.4. Recording of corrective and improvement actions in an action log and monitoring of action completion</p> <p>4. A formal test register should be implemented to record details of the tests and actions arising from the tests.</p>
	Check testing of NOCC contingency/emergency response plans (are plans tested? Schedule? Frequency of testing?)	<p><b>NOCC</b></p> <p>NOCC only tests the Back Up Control Centre (BUCC) Activation contingency plan. The plan is covered by procedure NWI043 "Network Operations Backup Control Centre Activation" DM1994223 which covers the evacuation of the EPCC in response to:</p> <ul style="list-style-type: none"> <li>tests</li> </ul>	



No.	Issue	Summary (► Findings)	Recommendations
		<ul style="list-style-type: none"> <li>precautionary evacuation</li> <li>operational failure of some of the critical systems at EPCC</li> <li>destruction of EPCC.</li> </ul> <p>The procedure calls for six monthly tests.</p> <p>Within the review period tests were carried out on the following dates:</p> <ul style="list-style-type: none"> <li>16 June 2011, with follow up check on the 28 June to verify corrective actions;</li> <li>8 August 2011 with return check on the 13 August;</li> <li>21 December 2011;</li> <li>23 April 2012.</li> </ul> <p>No other contingencies are tested.</p>	
2.2	Are post-test closeout meetings being used to identify improvement opportunities?	<p><b>SOCC</b></p> <p>There is evidence that comments and defects arising from the Control Room EBS tests are recorded, however it is not clear if any post-test closeout meetings are held.</p> <p><b>NOCC</b></p> <p>NOCC uses a "BCC Trial Form" to record the tests and "notes" of shortcomings discovered in the tests. There was evidence to show that defects arising from the BUCC Activation contingency plan tests are recorded through the "notes", however it is not clear if any post-test closeout meetings are held.</p>	
2.3	Closure of actions, are actions arising from post-test closeout meetings being actioned in a timely way?	<p><b>SOCC</b></p> <p>Tick n' flick Sheets for the quarterly and annual testing of the EBS (Form 1484152v5) are used to record the tests, comments and defects arising from the tests. Actions are listed in spreadsheets which identify responsibilities and action start and completion dates. No due dates are shown. All actions had been closed however there were no tests in May and June and December 2011, January to April and June 2012. (Action Sheet [SOCC] DM6874551).</p> <ul style="list-style-type: none"> <li>There was no evidence that actions had been closed when the action was allocated to other parties, e.g. a manual entry for 03/08/11 did not show closure of</li> </ul>	<p>5. Review the process of handling and closure of tests actions to ensure that issues are critically reviewed and by which stakeholders the review of shortcomings is carried out.</p> <p>6. (General) Carry out a risk analysis of the complete suite of contingency scenarios to ensure that all likely threats to responses are systematically evaluated and appropriate responses</p>

No.	Issue	Summary (► Findings)	Recommendations
		<p>actions by other parties such as SCADA.</p> <ul style="list-style-type: none"> <li>The test of July 2011 showed that not all tests could be carried out due to civil works at the Head Office Emergency Control Centre (HOECC). The finding was that the HOECC could be used in an emergency however:</li> <li>the question of the management of maintenance and construction at the back up facility needs to be reviewed to enable operation during emergencies and</li> <li>how critically and by which stakeholders the review of shortcomings is carried out.</li> </ul> <p><b>NOCC</b> The "BCC Trial Form" showed that most actions were closed.</p> <p>The "notes" discussed in item 2.2 include defects, statements of tests carried out and response actions. Closure is recorded by the insertion of further statements within the same entry which doesn't distinctly display that all the actions have been closed. A result was that not all entries show closure, e.g.</p> <ul style="list-style-type: none"> <li>In test of 16/6/2011, action "Review process for access and parking" did not show closure.</li> <li>In test of 8 August 2011 "fire extinguisher out of date" did not show closure.</li> </ul> <p>This issue has been overcome through the inclusion of action completion dates in a newer version of the worksheet. The dates were not expressly shown until a change in format on 13 August 2011 and since then the form showed completion of actions.</p>	<p>designed. For example the current set of responses does not include the event of maintenance and construction works being performed at the back up facility.</p>
3	<b>Wood pole management:</b>		
3.1	Accuracy of wood pole records, success of data cleansing (use the same sampling approach used in the previous review)	<p>[Ref18/4] Western Power has adopted a systematic approach to data cleansing which, in view of the extent of data types and the size of the records, has a wide and protracted scope. Typical errors with pole data were:</p> <ul style="list-style-type: none"> <li>incorrect pole location</li> <li>missing assets</li> <li>assets in the field not entered in the system.</li> </ul> <p>A Pilot Project for Picton and Northam has improved the data completeness from 70%</p>	

No.	Issue	Summary (► Findings)	Recommendations
		<p>to 93%. It has added photographic evidence to assets records, confirmed transformer nameplate information, corrected 53,522 pole locations with an average shift of 40 m, added 530 missing poles and removed 190 wood poles as well as distribution transformers and HV switches.</p> <p>Western Power included in its AA3 submission, planned expenditure for expanded data correction and verification, and rollout of its field data survey project following the pilot phase during AA2. The AA3 phase includes the North Country, South Country and Goldfields districts (excluding the areas of Northam and Picton). There will be a targeted approach to the North Metropolitan and South Metropolitan regions.</p> <p>At the time of the audit, Western Power had commenced the Field data survey for the 12/13 financial year in the areas of Collie, Narrogin and Rockingham.</p> <p>Following receipt of the ERA's final decision, planning commenced to consider revised business objectives to improve the quality of its network asset data within the expenditure level approved by the ERA. The revised objectives, once approved, would then be applied to the field data survey project for the remainder of 12/13 and for future survey or data cleansing based projects for the remainder of the regulatory period.</p> <p>Copies of project scope DM 8768239 and map DM 10090733 were available.</p>	
3.2	Adequacy of wood pole management process and practices end to end.	<p>An asset management plan has been prepared to address the management of wood poles end to end, the Wood Pole Asset Management Plan 2012-17", DM9155338. The plan covers:</p> <ul style="list-style-type: none"> <li>the policy to manage hardwood poles; the policy title is misleading as whilst it is termed "hardwood" it covers both hardwood and softwood poles; [since the end of the review, in November 2012, a separate softwood poles policy, the "Policy for Managing Softwood Poles in Western Power's Electricity Transmission and Distribution Networks", DM 9706185, has been issued];</li> <li>strategy;</li> <li>an implementation plan and</li> <li>a "Wood Pole Standard Operating Procedure Manual", DM9343690 which provides the structure of the documentation covering the wood pole management.</li> </ul> <p>The manual provides reference to all the documents that define the various aspect of wood pole management through:</p> <ul style="list-style-type: none"> <li>procurement;</li> </ul>	

No.	Issue	Summary (► Findings)	Recommendations
		<ul style="list-style-type: none"> <li>• design;</li> <li>• construction;</li> <li>• operation and maintenance, including serviceability assessment, inspection, defect identification and remedial action;</li> <li>• disposal;</li> <li>• supporting systems such as quality assurance, performance management, governance and continuous improvement.</li> </ul> <p>Supporting documents were reviewed such as the technical specification “Full Length Preservative Treated Timber Poles”, DM4469426v17, dated 5/9/2011.</p> <p>There was consistent evidence of the application of the procedures, of the training of personnel involved in the process, quality assurance and performance monitoring. There was evidence of independent review of the serviceability assessment, however not all the comments raised in the review had been addressed. Western Power advised they are currently reviewing the Serviceability Assessment Model.</p>	
3.3	Consistency between DFMS data and wood pole inspection records (contractors invoices for pole inspections); determine whether DFMS records are accurate and up to date.	<p>The procedure for entry of pole inspections into Western Power databases followed a process of transferring data from the inspectors to Western Power DFMS (Distribution Facilities Management System) through the DRE (DFMS Remote Entry) system. As there were delays in both the availability of the inspection report (sometimes manual forms were in use) and data entry, data from contractor invoices was also used to calculate inspection numbers. The previous review highlighted the discrepancy between numbers originating from inspections and from invoices.</p> <p>From March 2012 bundled pole inspections have been handled through the Mobile Workforce Solution (MWS) interface. This means that the inspector is able to load pole inspection data including pole conditions immediately the inspection is carried out. The inspection information is uploaded from the field computer to the Work Planner system. Work Planner then updates DFMS daily. Where errors are detected in the inspection data that data goes into “Exception Reports” and an exception process is followed to resolve the errors, however the scale is much reduced.</p> <p>Contractor invoices are calculated from the inspections loaded from the field into the system thus eliminating the chance of discrepancies from this source.</p>	

No.	Issue	Summary (► Findings)	Recommendations
		<p>The following figures were reported for the review period:</p> <ul style="list-style-type: none"> <li>• Inspections carried out and loaded into DFMS were 192961;</li> <li>• from Distribution Operation, (contractor data) is 191,307;</li> <li>• inspections required were 183,588 based on network numbers in SWIS (as per Network Metrics 2011/12) (Ref DM9385650);</li> <li>• Pole inspections invoiced between 1/7/2011 to 30/6/2012 were 216 748.</li> </ul> <p>The variance of 23,787 between invoiced numbers and DFMS data was made up of:</p> <ul style="list-style-type: none"> <li>• 8146 data in exception, held up in Work Planner due to errors in data which needs to be fixed manually;</li> <li>• approximately 5000 EQNI poles, these are jobs where the contractor found that the pole did not exist;</li> <li>• approximately 10000 backlog inspections brought forward, these are poles that need to be inspected as soon as possible because they are late, (they may be inspected twice in the year because they may belong to a zone that is going to be inspected in the year as part of the four year cycle).</li> </ul>	
3.4	Wood pole inspection sampling rate: check consistency with four year inspection cycle	<p>There were 751,725 distribution poles within the South West Interconnected System (SWIS) of which 628,891 were distribution wood poles as of July 2011 ("Network Data Metrics - Number of Distribution Poles 2010/2011" DM8375699); based on an inspection cycle of 4 years, 157,223 inspections are required per year. For the 14 months of the review period the target was 184,427.</p> <p>Western Power target over the 14 month period was 185,588, the figure achieved was 192,161 (as entered in DFMS), inspection contractor information showed 191,307, discrepancy was 854, i.e. 0.44%. Further data, noted as approximately 8,500, had been received but had not been entered in Work Planner due to difference in the data (due to pole type). 5000 Inspections had been attempted but were not completed as the poles were not found.</p> <p>► Separate Distribution documents (presentation "2012 AMS Review Distribution Division" DM9417527 and "Action 1103 PC_FIELD_TO_OFFICE_REPORT 15</p>	

No.	Issue	Summary (► Findings)	Recommendations
		<p>days" DM 8679019_v15A) showed that the number of ground line inspections uploaded per year was approximately 280,000 in the period June 2011 to June 2012 inclusive and 235,000 in the period July 2011 to June 2012. These numbers only include wood poles however they may include entry of backlog data.</p> <p>► The "2011 AMS Review" had concluded that 106,848 pole reports had not been loaded into DFMS during that review period (based on contractors' data versus DFMS; if the Wood Pole Inspection Tracker is used the figure is reduced to 75,095, however a new source of errors is introduced as there may be data lag between inspection/contractor data and data entered in if the Wood Pole Inspection Tracker. If the higher number is added to the target figure of 184,427 in order to manage the inspection backlog from the previous review period, the total of data entries into DFMS within this review period should be 290,275 which appears to confirm the numbers quoted above in presentation "2012 AMS Review Distribution Division" DM9417527.</p> <p>An investigation was carried out by Western Power to review the discrepancy noted during the previous review period. The investigation "Asset Management Information System Audit Reporting for Bundled Pole Inspection", DM 8994930 took the discrepancy to be 75095, (ignoring the higher discrepancy figure) and assessed it to be made of:</p> <ul style="list-style-type: none"> <li>• 3,500 Transfield Unloaded Inspection</li> <li>• 3,389 Non Wood Pole Inspection Loaded before 19/07/2011</li> <li>• 12,163 Nov 2009 Inspection Count (mismatch of one month in audit period)</li> <li>• 31,188 Inspection result for audit period loaded after 19/07/2011</li> <li>• 24,855 Other (possibly equipment no longer exists in the field, no access poles, incorrect report from the contractors).</li> </ul>	
3.5	Test that poles requiring remedial action are being rectified in a timely manner as per business requirements (P1, P2).	There are still delays in the rectification of condition priority 1 (P1). The condition priority severity is defined in procedure "Equipment Types and Defect Severities" for Distribution, DM1220966, later superseded by DM9047586 "Catalogue of Equipment Types and Definitions of Defect Severities for Distribution Overhead Lines". A P1 condition identifies an asset that is not serviceable and may fail shortly, the condition	<p>7. Continue actions to report on actual P1 and P2 delays</p> <p>8. Continue actions to identify causes of delays.</p> <p>9. Implement actions to reduce delays.</p>

No.	Issue	Summary (► Findings)	Recommendations
		<p>was due to be rectified within 2 weeks up to 6 February 2012 and within 4 weeks from that date.</p> <ul style="list-style-type: none"> <li>► No information was seen to show the grounds for extending the rectification of pole assets judged to “immediately fail” from 2 to 4 weeks.</li> <li>► It was noted that the P1 condition required rectification within: <ul style="list-style-type: none"> <li>◦ 24 hours in 2004;</li> <li>◦ was extended to 2 weeks on 22 September 2010;</li> <li>◦ extended to 4 weeks on 6 February 2012.</li> </ul> </li> </ul> <p>Once the condition is identified it requires notice to NOCC as an Emergency Fault. Condition 2 is given to damaged items which will be serviceable for at least 3 months and requires rectification within 3 months.</p> <p>Current information provided at the meeting of 10 July was that P1 and P2 conditions were being rectified in 71.7 days and 12 months respectively, greatly in excess of specified times.</p> <p>Qualeng reviewed a random sample of 400 pole inspection records which indicated that out of the 400 records there were 5 P1 and 11 P2 conditions. Of these the rectification time was 51.8 days and 11.37 months (reduced to 5.2 months if 1 outlier record is removed) for P1s and P2 respectively, which corroborates the Western Power finding above.</p> <p>The peak figures for the sample of 400 were:</p> <ul style="list-style-type: none"> <li>• P1, delay of 66 days;</li> <li>• P2, delay of 2036 days for closure.</li> </ul> <p>As of 30 June 2012 Western Power reported that there were 31,444 overdue unserviceable poles (i.e. P1 and P2 conditions). Of these in May 2012, 9,489 were high risk in Extreme of High fire danger areas (“Red Zone Poles”). These poles have been prioritised for treatment and by 30 June 2012 1367 high risk poles had been treated. The remaining 8422 “Red Zone Poles” were targeted for treatment by 30 November 2012. Progress with this action is being reported to the Executive on a monthly basis.</p>	<p>10. Document the risk effects of extending the time allowed for rectification of pole assets that may immediately fail (P1 condition) from 24 hours to 4 weeks.</p>

No.	Issue	Summary (► Findings)	Recommendations
		<p>P1 criterion stipulates the period from inspection to rectification, however the current Western Power report (DM9414211) uses the data entry date as the start of the period, which ignores the delay between the inspection and data entry, therefore results in a smaller figure understating the delay. With the advent of Mobile Inspector this delay is minimised.</p>	
4	<b>Wood pole failures:</b>		
4.1	<p>Consistency of reports (to Energy Safety) with DFMS statistics; understand the discrepancies between unassisted wood pole failure causes as reported through NOCC and through DFMS (assisted vs. unassisted)</p>	<p>Network failures (and coincidentally wood pole failures) are currently tracked through three (3) separate systems:</p> <ul style="list-style-type: none"> <li>• NOCC tracks customer phone calls of incidents (or faults generated by SCADA) through TCS and provides raw TCS data to Energy Safety (ES) in regular reports; the data provided in the ES reports is qualified by Western Power as follows: <ul style="list-style-type: none"> <li>□ “TCS...does not allow change of the initial report classification” and “this information is not validated against confirmed incidents, and Western Power recommends that this information is not relied upon as an accurate indication of failures or incidents”;</li> </ul> </li> <li>• an investigation process by Networks which compiles a spreadsheet to review all incidents related to wood poles and verifies the classification of the incidents through investigations in the field. Reports from this process go to the Western Power executive and the board and selected data is also included in reports sent to ES;</li> <li>• the work management system which tracks the work orders for crews sent to attend incidents on the basis of TCS work requests. The only information that goes back to TCS is the closure of the work order. The information from work orders remains in the DFMS system and does not flow back into TCS as TCS is not designed to collect this data.</li> </ul> <p>The review has found that the TCS system has only been designed to track customer calls and not wood pole failures. The correlation of the TCS reports with the Networks data and with DFMS data as related to wood pole failures is so minimal that there is no quantifiable confidence in its significance.</p> <p>The report has found consistency of 24 to 2 (8%) and 14 to 0 (0%) in two separate</p>	



No.	Issue	Summary (► Findings)	Recommendations
		<p>analysis of TCS data against DFMS (verified) data, therefore the review has concluded the following:</p> <ul style="list-style-type: none"> <li>• there is no justifiable correlation between the TCS data and the data in DFMS in regard to wood pole failures;</li> <li>• customer calls, as reported through NOCC, cannot be used to reliably report on wood pole failures; <ul style="list-style-type: none"> <li>□ customers reports and telephone operator interpretation tend to generalise reports into PBs (pole broken) when the cause of the fault has been found to be conductor clashing, transformer leaking, lightning, asset failure, pole top fire etc</li> <li>□ the error found in the two small review samples was 92% and 100%, too great to warrant use of the information in wood pole failure analysis;</li> </ul> </li> <li>• network investigations provide a consistent and verifiable process of data analysis and should be used in preference to TCS data for reporting on wood pole failures; the data is based on investigations by field crews and is reliant on factual evidence gathered by experienced crews.</li> </ul> <p><b>TCS Limitations</b></p> <p>As reviewed in section 3.2, “Observations and Recommendations”, item 6.4, the function of the TCS software is to manage customer trouble calls and allocate the calls to trouble tickets that are assigned to field crews. The customer information is used by the operator to classify the “fault” on the spot. Similarly when the fault is detected through SCADA it creates fault reports in TCS, these reports cannot qualify wood pole failures.</p> <p>Western Power have reported that “A number of the data fields in the [TCS] system are not able to be updated, making it difficult to use as the sole data source for asset fault and failure root cause information. Being a third party built, off-the-shelf product [GE] also makes it difficult/impossible for Western Power to customise it”.</p> <p>Western Power has also stated that, in TCS, there are free form fields that can record additional information however they cannot be validated. The application is therefore limited and cannot be used for fault investigation.</p> <p>Output from TCS can be used to populate spreadsheets and that data is used by</p>	

No.	Issue	Summary (► Findings)	Recommendations
		<p>Western Power to separately investigate, qualify and verify the data. This is covered in detail in the next review item, number 4.2.</p> <p>The review at item 4.2 has confirmed, as stated by Western Power, that TCS data is not accurate. Of 24 possible unassisted pole failures reported by TCS, only two had been confirmed as unassisted pole failures after investigation. Of 14 pole broken reports, none was confirmed as pole broken or as an unassisted failure. Therefore reliance on TCS data for an accurate representation of failures should be avoided and a different report should be used to track wood pole failures.</p>	
4.2	Examine Western Power's policy for determining failure criteria application (assisted vs. unassisted) and determine whether criteria are being accurately applied to the failures that have occurred during the review period using sampling. Check how many parties are involved in applying the criteria.	<p>The policy for determining failure criteria application (assisted vs. unassisted) is covered by the "Policy for Managing Hardwood Poles in Western Power's Electricity Transmission and Distribution Networks", DM 9204170. This policy provides a definition of unassisted pole failure which applies to all poles for which Western Power is responsible. The definition states:</p> <p><i>"Any breaking of a pole will be classified as an unassisted failure unless it can be shown that the pole:</i></p> <ol style="list-style-type: none"> <li><i>1. Was subjected to a force exceeding that equivalent to the design wind load specifications of AS/NZS7000;</i></li> <li><i>2. Was struck by lightning;</i></li> <li><i>3. Was compromised by vandalism; or</i></li> <li><i>4. Failed as a result of a fire.</i></li> </ol> <p><i>Poles that fail as a result of fire shall be recorded as a separate category."</i></p> <p>A leaning pole is not classified as an unassisted pole failure.</p> <p>► Leaning due to foundation failure should be considered further and should be assessed as unassisted failure (see item 6.2 of main review findings).</p> <p>The policy is consistent with the previous definition (Ref: "Identification and Investigation of Unassisted Pole Failures" DM7467671) which stated:</p> <p>"An Unassisted Pole Failure (UPF) is defined as:</p> <ul style="list-style-type: none"> <li>• Failure due to deterioration (rot, termite infestation or fibre strength loss) and the pole has fallen down, or</li> <li>• Where only conductors or stays are supporting the pole, i.e. the pole base has no resistance to bending moment.</li> </ul>	

No.	Issue	Summary (► Findings)	Recommendations
		<ul style="list-style-type: none"> <li>(This definition is consistent with Energy Networks Association (ENA)'s definition that has been adopted by the Power Poles and Crossarms Forum.)</li> <li>Failure below the design load as stipulated in CB1 2003 (wind speed taken as 140 kmph)."</li> </ul> <p>Only two members of the Poles and Towers section have the function of verifying the failure reports issued through TCS and confirming the classification of the failure and initiating any Networks investigation. The process entails:</p> <ul style="list-style-type: none"> <li>on a daily basis collecting the data from TCS, filtered to include around 13 failure classifications that relate to poles, and</li> <li>reviewing each case to see whether it may fall into the classification of unassisted failure.</li> <li>The data is recorded into a register "which stores the pole identification, report information, entries for further investigation and final confirmation of status.</li> </ul> <p>Filtered classifications include PB Pole broken / damaged, PD pole down, PH Pole hit, PL pole leaning etc.</p> <p>400 TCS records were collected from March 2012 and checks made against the Networks failure investigation register. Of the 400 TCS incidents there were:</p> <ul style="list-style-type: none"> <li>96 PB (broken)</li> <li>8 PD (down)</li> <li>14 PL (leaning)</li> <li>22 PH (hit)</li> <li>25 PA (arching)</li> </ul> <p>Of the 400 TCS incidents, 96 had been analysed by Networks. A sample of pole reports were reviewed to check the verification process and the accuracy of the TCS report:</p>	

No.	Issue	Summary ( Findings)	Recommendations																																																																											
		<table><tr><th>Condition</th><th>QTY</th><th>Unassisted Failure</th><th>Condition Not found</th><th>Pole Hit</th><th>Leaning</th></tr><tr><td>Sample total</td><td>24</td><td></td><td></td><td></td><td></td></tr><tr><td>PB (Broken)</td><td>14 See below</td><td></td><td></td><td></td><td></td></tr><tr><td>PH (Hit)</td><td>2</td><td></td><td></td><td>2</td><td></td></tr><tr><td>PA (Arching)</td><td>3</td><td></td><td>1</td><td></td><td>1</td></tr><tr><td>PD (Down)</td><td>3</td><td>2</td><td></td><td>1</td><td></td></tr><tr><td>PF (Fire)</td><td>1 Service lead fire</td><td></td><td></td><td></td><td></td></tr><tr><td>PL (Leaning)</td><td>1 No defect found</td><td></td><td></td><td></td><td></td></tr></table> <p>Broken / damaged pole (PB) reports were checked separately as indicated in the following table:</p> <table><tr><th>PB (Pole Broken)</th><th>14</th><th>Notes</th></tr><tr><td>Poor condition</td><td>3</td><td></td></tr><tr><td>Split</td><td>4</td><td></td></tr><tr><td>Lightning</td><td>2</td><td>1 Pole split and hanging off wires</td></tr><tr><td>Leaning</td><td>1</td><td></td></tr><tr><td>Not burnt</td><td>1</td><td></td></tr><tr><td>Pole top fire</td><td>1</td><td></td></tr><tr><td>Cross arm</td><td>1</td><td></td></tr><tr><td>Conductor clashing</td><td>1</td><td></td></tr></table> <p>Out of the Pole Broken incidents, none was confirmed as a broken pole or as an unassisted failure.</p> <p>Out of the 24 records investigated there were 2 unassisted pole failures. The following conclusions were drawn:</p> <ul style="list-style-type: none"><li>Pole condition identification from TCS and as reported straight out of trouble calls is not accurate;</li><li>All records investigated showed that sufficient analysis had been carried out and</li><li>unassisted pole failures had been subjected to further investigation as required and correctly verified.</li></ul>	Condition	QTY	Unassisted Failure	Condition Not found	Pole Hit	Leaning	Sample total	24					PB (Broken)	14 See below					PH (Hit)	2			2		PA (Arching)	3		1		1	PD (Down)	3	2		1		PF (Fire)	1 Service lead fire					PL (Leaning)	1 No defect found					PB (Pole Broken)	14	Notes	Poor condition	3		Split	4		Lightning	2	1 Pole split and hanging off wires	Leaning	1		Not burnt	1		Pole top fire	1		Cross arm	1		Conductor clashing	1		
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## 5 CHANGES TO THE LICENCE

No changes to the licence conditions are recommended.

## 6 CONCLUSION

The Asset Management System Review 2012 has assessed all 12 elements of the asset management system (AMS) outlined in the Guidelines, the actions in response to recommendations from the previous AMS review (2011) and the Special Areas of Interest defined by the Authority. The review has found that Western Power's asset management system is performing satisfactorily.

There was extensive evidence of a regime of improvement that is being applied to the system and that is addressing a number of gaps that had been identified in previous reviews and internally at Western Power.

The main risks to the system, arising from the large number of legacy systems, a very large set of data which was known to have errors, a large suite of documentation which requires good document control and structure, and the large number of interfaces are gradually being addressed and improved through various activities including:

- Implementation of the ISAM project for integration of IT systems;
- Data cleansing projects and better data entry controls;
- Improving document controls and reviews;
- Improved process mapping, training and staff awareness, and better systems for deploying the new processes.

In addition new resources throughout the organisation have added to the change in focus and urgency in addressing the risks.

Overall, as noted above, there are still actions in progress, however there is consistent evidence of commitment by Western Power to address risks, manage any shortcomings and introduce continuous improvement to the asset management system.

## **7 POST REVIEW IMPLEMENTATION PLAN**

The Post Review Implementation Plan (PRIP) is a document prepared by the licensee in response to the recommendations made in the review. As it represents the licensee's views and actions it does not form part of the review report, however it has been included in Appendix A in order to complete the documentation of the report.

Each key review finding and recommendation has been listed in the PRIP by the reviewer. For each recommendation the licensee has recorded responses and corrective actions, responsibility for the actions and a proposed date for completion.

# Appendix A - Post Review Implementation Plan



ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
2012/01	<p>1.1 There may be an opportunity to review the framework displayed in the Network Management Plan (NMP) (e.g. Fig 2.1) to show the relationship of documents such as the Production Plans, SCI, AAs etc in the framework.</p> <p>1.1 The implementation of the NMP is addressed in the Annual Work Program (AWP) and the Production Plans, however there is no ready traceability of programs noted in the NMP to tasks committed to in the production plans.</p> <p>1.8 There was no clear documented evidence of document review in the 2 versions of the NMP examined in the review. There was a "Prepared by" entry, however no review/approval and no control box. Approval by the Managing Director was provided by a separate document.</p>	<p>[OFI] There is an opportunity to review the presentation of the Asset Management Document Framework in the NMP to show documents related to the NMP, such as the Production Plans, Statement of Corporate Intent, Access Arrangement, which are not shown in the Asset Management Document Framework. [1]</p> <p>There should be more visible means to identify responsibilities and commitment to tasks described in the NMP through referencing to work plan activities. [2]</p> <p>There should be evidence of review / approval in the controlled version of critical documents such as the NMP.</p> <p>There is a need to document a methodology for document review for the NMP. [6, 25]</p>	<p>1. Update the Asset Management Document Framework in the NMP to show the relationship of integral documents included in the Network Investment Strategy Annual Planning cycle and all applicable corporate documents.</p> <p>2. Update the NMP to include linkage between the asset strategies/plans articulated within the NMP; to the work programs listed in the Production Plan/Approved Works Program.</p> <p>3. The NMP will be updated to include a document control page.</p> <p>4. The methodology for review of the NMP will be updated in section 11 of the NMP.</p>	Branch Manager Network Performance	November 2013
2012/02	<p>1.1 Processes for handover and delivery of OPEX and CAPEX work programs have been mapped and have been published on the appropriate Western Power portal (Modelpedia). Lifecycle Status Reporting and Delivery Status Reporting processes are still in progress and due to be published in October 2012.</p>	<p>Continue with the publishing of Lifecycle Status Reporting and Delivery Status Reporting processes. [11/06-1&amp;2]</p>	<p>Complete the publishing of Lifecycle Status Reporting and Delivery Status Reporting processes. See 2011 AMSR action item 11/06-2</p> <p>Status December 2012: The Project lifecycle and delivery status reporting processes (including required reporting templates) have been developed and uploaded to Western Power's corporate process portal. These processes and accountability have been approved and communicated to key internal stakeholders. This action was completed in October 2012. Documents "Announcement: Works Program</p>	Branch Manager Network Performance	October 2012  Completed

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
			Reporting Framework is now available in the WPGM porthole on Busbar “ and “Reporting process in Modelpedia” viewed verifying the completion of the action.		
2012/03	<p>1.1 It may be pertinent to review the Work Program Governance Model (WPGM) process in the Planning phase leading to Gate 3, where activities like procurement of long lead items and detailed design may take place prior to Business Case finalisation and approval.</p> <p>1.1 It was noted that interpretations of the WPGM model provided at meetings showed that Business Cases are created and reviewed after the AWP. It is expected that most of the Business Case approvals would take place before finalisation of work plans and production plans and any further Business Cases would be for changes or response to changing conditions. The reverse would imply that work plans are not implemented consistently.</p>	<p>[OFI] Review timing of resource expenditure such as purchase of long lead items and detailed design prior to Business Case finalisation and approval. It may be appropriate to incorporate purchase of long lead items and detailed design in preliminary Business Cases or to bring forward Business Cases. [3]</p> <p>[OFI] Clarify the process between the Approved Work Program and the WPGM, the process leading to and from the creation of the Approved Work Program and the relationship to Business Cases. [4]</p>	Develop a revised Investment Planning process including creation of the AWP. Process development to include review of early planning activities and Business Case production.	Branch Manager Network Investment	June 2013
2012/04	<p>1.4, There was evidence of “Ops” (operating) costs being considered in the New Facilities Investment Test (NFIT) however there was no explicit analysis of operating costs of alternatives (e.g. Ops costs for 3 transformer years was the same as 6 transformer years). No evidence found that lifecycle costs are consistently evaluated over the</p>	There should be a more explicit and accountable analysis of lifecycle operating costs in alternative evaluations within Business Cases and in project evaluations. [5]	The life-cycle costing and OPEX options will be incorporated into the business case process and template review program.	Branch Manager Network Performance	June 2013

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	<p>entire life of the assets.</p> <p>2.2 All lifecycle costs do not appear to be always evaluated. Full lifecycle costs are expected to be included in Business Cases (BC) such as in Southern River 3rd transformer project, "Southern River Capacity Improvements Business Case", where capital costs are included, as well as associated NFIT benefits, however no operating costs of transformer and feeders were sighted (e.g. the BC stated "additional benefits through improved reliability, slower asset deterioration and lower likelihood of faults, these have not been quantified due to lack of available data"). In evaluation of transmission line costs OPEX costs of insulator washing and vegetation maintenance were not sighted. The same OPEX costs were sighted in the options of installing two transformers simultaneously or staggered by two years.</p>				
2012/05	<p>4.2 The KPI, Pole Integrity Index (PII) measures unassisted pole failures per 10,000 poles for Transmission (TPII) and Distribution (DPII). Both were trending upwards in 2010-11. No analysis or further treatment of this KPI was evident in the section, it would be expected that the deterioration of the transmission KPI would be treated elsewhere however there are no references in the NMP on investigations</p>	<p>There should be an improvement in the accountability of KPIs in the NMP and in the referencing and traceability of investigations and actions. [7]</p>	<p>1. Develop and implement a process for the investigations, analysis and causes of KPI trending. (as part of the Asset Management Framework project)</p> <p>2. Include references in the NMP for investigations, analysis and actions for KPI trending, in particular for deteriorating trends.</p>	Branch Manager Network Performance	<p>June 2013</p> <p>November 2013</p>

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	and causes of the deterioration.				
2012/06	5.1 Some of the field procedures do not exist or do not have sufficient visibility: Whilst there are procedures for the management of QTs on receipt from the field, no procedure was sighted for the management of QT in the field; no procedure found in the "Work Practice Manual".	There should be a review to establish that there are appropriate procedures for core field processes. Procedure for the management of Query Trouble Reports (QTs) in the field should be created. [8]	Review Transmission Maintenance Core Field Processes for gaps and extend QT process to incorporate the initiator.	Branch Manager Transmission Maintenance Delivery	June 2013
2012/07	5.3 While the asset registers are up to date and complete, the accounting data (asset valuations) is captured in MIMS Ellipse, but not in the Asset Management systems at an asset level. Western Power should evaluate how asset valuation information (fair value) should be integrated between the Financial Asset Registers and the Asset Management systems to ensure that future lifecycle replacement costs can be predicted.	Continue with the implementation of the Integrated Strategic Asset Management (ISAM) project [9], which will create the electronic links between the Equipment Register and the Fixed Asset Register. [PRIP2011 11/02-1]	Include the implementation of electronic links between the Equipment Register and the Fixed Asset Register as part of the ISAM 2 project.	Branch Manager Network Performance	February 2013
2012/08	6.3 Western Power is due to develop a monthly report which tracks the date poles were inspected against the date the pole is due to be replaced for P1 and P2 condemned poles. This report will track the poles which are not replaced within the replacement target dates.  Western Power will include a standard	Continue with actions to develop the report on P1/P2 performance to be part of the agenda at meetings between operational managers. [PRIP11/09-2]  Continue with review of delays and correction of delays in rectification of P1 and P2 wood pole conditions. [10]	1. Finalise creation of monthly ISAM based P1 and P2 report and where there is a backlog, report it in the monthly Wood Pole Management Dashboard  2. Manage transition from existing (interim) report to sole use of new (ISAM) based report.  3. Review and discuss operational performance with business stakeholders and identify and	Branch Manager Network Performance	January 2013  December 2013  May 2013

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	<p>agenda item at meetings between key operational managers to discuss the report. Issues will be highlighted and managed through the minutes of meeting. The report, when developed will form part of the Business Performance report for all distribution management and will also be reviewed by the Operations General Manager.</p> <p>6.3 There are delays in achieving completion of wood pole replacements for P1 and P2 condition within the required time. The delays have been attributed to: reduction in planned outages, decreasing opportunities for replacing assets; data lag; find rate from inspections higher than replacement rate.</p>	<p>Continue actions to report on actual P1 and P2 delays. [PRIP 2011 11/09-1]</p> <p>Continue actions to identify causes of delays. Implement actions to reduce delays. [SAOI 7, 8, 9]</p>	<p>include mitigation activities in the monthly Wood Pole Management Dashboard</p> <p>4. Review the strategy by which non run to fail wood poles will be identified and scheduled for replacement or condition rectification.</p>		June 2013
2012/09	<p>6.3 A P1 condition identifies an asset that is not serviceable and may fail shortly, the condition was due to be rectified within 2 weeks up to 6 February 2012 and within 4 weeks from that date.</p> <p>No information was seen to show the grounds for extending the rectification of pole assets judged to "immediately fail" from 2 to 4 weeks. It was noted that the P1 condition required rectification within: 24 hours in 2004; was extended to 2 weeks on 22 September 2010; extended to 4 weeks on 6 February</p>	<p>Document the risk effects of extending the time allowed for rectification of pole assets that may immediately fail (P1 condition) from 24 hours to 4 weeks. [SAOI 10]</p> <p>Clarify or address the difference between the P1 target of 28 days in the "Catalogue of Equipment Types and Definitions of Condition Severities for Distribution Overhead Lines" versus the 24 hours target for Priority 1 work identified in the QT Reports process. [13]</p>	<p>1. Produce report on outcomes of changing wood pole replacement P1 rectification from 24hrs to 4 weeks.</p> <p>2. Review and compare reasons for difference in P1 SLA between the "Catalogue of Equipment Types and Definitions of Condition Severities for Distribution Overhead Lines", and "Review of Query Trouble Reports for 1st Half of 2011/12 FY".</p> <p>3. Update these documents at their next scheduled review date to ensure alignment in Fault/P1/P2 terminology and associated Service Level Agreements</p>	Branch Manager Network Performance	<p>February 2013</p> <p>February 2013</p> <p>August 2014</p>

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	<p>2012.</p> <p>6.5 There is an inconsistency between the priority attached to condition P1, specified in the "Catalogue of Equipment Types and Definitions of Condition Severities for Distribution Overhead Lines" (DM9047586) which provides the P definitions and defects identification, versus the information on Priorities provided in the " Review of Query Trouble Reports for 1st Half of 2011/12 FY", DM9121078). For a Priority 1 condition the Catalogue specifies a turnaround of 28 days from identification, whilst the information provided on QT Reports showed a 24 hours completion target.</p>				
2012/10	6.4 The procedure for the "Identification and Investigation of Unassisted Wood Pole Failures" DM7467671 does not indicate who is responsible for verification/ validation of data extracted from TCS. This has been found to take place satisfactorily in practice and the procedure should be updated to reflect the current process.	Review the "Identification and Investigation of Unassisted Wood Pole Failures" DM7467671 procedure to clarify responsibilities and update content (e.g. one of the areas for review deals with filtering of classes for data extraction). [11]	At next review of "Identification and Investigation of Unassisted Wood Pole Failures", clarify the role responsible for verification/validation of data extracted from TCS and the steps in the identification and investigation process	Branch Manager Network Performance	Aug 2013
2012/11	6.4 Some of the classifications of pole failure such as pole leaning are not identified as unassisted. There may be a need to analyse further the causes and the risk of this type of condition: leaning may be caused by faulty foundation, a foundation is an integral	[OFI] Review the classification of pole failures in terms of the whole pole asset and its design so that foundation failures are considered in pole failures. Where the cause of failure is foundation and not other factors such as high winds, pole hit etc, then that should be classified as unassisted pole failure.	<p>1. Western Power to review leaning attributes in consideration of wood pole failures.</p> <p>2. Western Power to conduct root cause analysis of pole failures where failure has been attributed to leaning or foundation failure (structural).</p>	Branch Manager Network Performance	June 2013

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	part of the pole design and the pole asset and therefore should be incorporated in the definition of pole failure; leaning may result in low clearances and a hazard to the public.	[12]	3. Apply any findings towards improving asset strategies relating to wood poles.		
2012/12	<p>7.1 Document registers need improvement to show consistency between the review frequency and dates of next review, the next review dates need to be updated and the registers may need to show more information on the status of the documents and their review when there are delays (i.e. If there is a postponement in a review there should be a reason given; e.g. "next review date is 19 November 2005", review had been assigned but is not yet completed).</p> <p>7.1 Appoint SOCC Document Controller. [Action PRIP2011 11/01-3] The SOCC Document Controller has not been engaged. Whilst contract personnel have been engaged in this function, there are still actions that need to be completed to effectively set up and manage the documentation.</p> <p>9.1 SOCC's Transmission Emergency Management Plan (TEMP) quotes a NOCC Emergency Management Plan (DM2072196), however that procedure is not listed in NOCC. There is an "Emergency Management</p>	<p>[SOCC] Continue review of "System Operation Control Room Instruction (CRI) Index" (DM7695336). This action is still in progress as several of the entries are obsolete (e.g. some of the reviews were assigned several years ago and show no closure). [23; PRIP2011 11/01-4]</p> <p>[OFI] [SOCC] Document registers need improvement to show consistency between the review frequency and dates of next review and should show more information on the status of the documents and their review (e.g. If a review is not required by that date, update the date of the review to a future date, and clarify reason in comments). The next review dates should be updated if the review is not required. [14]</p> <p>[SOCC] Several documents assigned for review in SOCC register have been pending review for a long time and will require to be reviewed; once reviewed the register will need to be updated. [15]</p> <p>[OFI] [SOCC] The number of "Assigned" reviews could also be a KPI. This would highlight periods when many procedures are due for review.</p>	<p>1. Appoint SOCC Document Controller.</p> <p>2. System Management will manage the Transmission System Operations Procedures &amp; Instructions using the document control register and process and ensure all individual document control information is updated with current information and reflected in the register.</p> <p>3. System Management will review all overdue Transmission System Operations Procedures &amp; Instructions to ensure all documents are updated and reflect a current review status.</p>	Branch Manager System Operations	<p>November 2012</p> <p>September 2013</p> <p>September 2013</p>

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	Plan for East Perth Control Centre" (DM5551897, last issue October 2011). Plan includes forms for emergency debrief checklist to be filled out post fire drill and post fire incidents. Actual application of the procedure did not have debrief information. "System Control Room Emergency Procedures" quotes the Emergency Management Plan for East Perth Control Centre" as DM367761 which appears to be a superseded version. The "Emergency Management Plan for East Perth Control Centre" (DM5551897) is not referenced in SOCC document index.	[PRIP 2011-11/01-1]  [SOCC] Continue with the actions to effectively set up and manage document control. [PRIP 2011-11/01-3]			
2012/13	7.1 Two wood pole inspection procedures were viewed, each with the same electronic name and DM number but with different version number, 8i and 11B, version 11A was noted as having been re-issued with a different DM number. 11B is titled "Bundled Pole Inspection Procedure" on its cover, compared with "Wood Pole Inspection Procedure" for the 8i version. Version 8i and 11B are due to be reviewed in May and June 2014 respectively. There is no information on whether revisions 9 and 10 were ever issued. There are no notices on either of the documents of the existence of the other. Version 11 does not show previous revision history. A notice should be included in documents issued under this process to	Clarify the existence of two documents with same DM number but documents are different. Determine causes and implement corrective action.[16]  If a document has been superseded an indicator showing its superseded status is included in the document and a historical reference is included on the new document. Revise applicable procedures. [17]	Update the document control page within the "Bundled Pole Inspection Procedure" to show previous published versions, their published dates and comments to show historical evolution of pole inspection procedures.	Branch Manager Network Performance	March 2013



ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	clarify: The status of the document, is it current, superseded, to be withdrawn? The existence of the other document. The reason for both documents and directions to the user: which procedure to use for which purpose?				
2012/14	8.2 OPEX tasks in the Transmission Production Plan are associated with risks, e.g. Underground (UG) System Inspection required for the early detection of developing faults in the UG cables. Some of the risks do not appear in the Division "Network Risk Issues Register" (e.g. fault development in UG cables) A field "risk register number" is included in the Transmission Production Plan however the function of this field is not clear as it does not refer to the risk register.	Ensure that risks identified in the Transmission Production Plan are included in the Division "Network Risk Issues Register" and improve their cross-traceability with the register. Clarify use of Risk register numbers. [18]	Review the Transmission and Distribution Production Plans to ensure that all risks addressed by the projects and programs are contained in and linked to a network issue in the network risk issues register. See also action 2012/15 -1 and 2	Branch Manager Network Investment	May 2013
2012/15	8.2 The Network Risk Issue Register does not show what actions and treatments are in place on each risk. Whilst that information may be available elsewhere, there is no readily visible traceability or link to the treatment plans, the actions, responsibilities and timing of responses.  [SAOI] The register is reliant on highly skilled staff to maintain it in synchronisation with CURA and to capture all risks that are generated by the asset managers. Because of the	Further review and development of the network risk register should be continued and its management process should be improved in view of the limitations of the present model. [SAOI 1]  There is a need to review the risk management process and the risk register to address: the traceability of treatment plans, responsibilities, response times. [19] As part of the review of the Network Risk Register there may be a need to review the interfaces and the inclusion of stakeholders that have day to day exposure to the asset	1. Each issue in the Network Risk Issues Register that is subject to an Opex treatment will be updated to include the reference/s to any related Opex treatments (programs). Where issues are to be addressed by a Capex treatment, the Business Case references are already captured in the Network Risk Issues Register.  2. The register will be updated to include the details of any Opex treatment (program) cycle times as well as forecast completion dates for Capex treatments (projects)	Branch Manager Network Investment	May 2013  May 2013

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	<p>manual intensive input the register is prone to gather small errors. The register does not show the treatment plans and the actions. Some of the risks may be the result of clearly defined factors (e.g. design, conditions) and the current structure is not optimal for highlighting those aspects of the risks and for following up on solutions.</p> <p>8.2 Interview with Transmission Operational Asset Management (OAM) section indicated that operational and maintenance staff with in depth knowledge of the asset risks and responsibilities for asset construction and maintenance were not aware of the Network Division "Network Risk Register", which indicates that there may be an opportunity to improve the annual risk analysis by including their contribution. Discussions highlighted a rising number of early faults in transformers, involvement of operational staff should highlight early any adverse operational trends.</p>	<p>operation, maintenance and field performance of assets. [20]</p>	<p>3. Each issue is assigned an owner in the Network Risk Issues Register, this is the responsible asset manager/planner in Networks Division for a respective issue and they also serve as the sponsor for any projects or programs to treat the issues. In addition, the Network Risk Issues Register will be updated to include Operational contacts for each issue and the risk review meeting agenda will be modified to include Operational staff, issues and feedback.</p>		February 2013
2012/16	<p>8.2 Delays in rectifying wood pole P1 and P2 conditions are not recorded in risk registers. Similar risks are recorded at a macro level: i.e. "Failure to deliver the Annual Works Program". In view of the risk of late rectification of P1 conditions, It may be opportune to highlight the existence of this risk separately so that sufficient attention</p>	<p>[OFI] In view of the risk of late rectification of P1 conditions it may be opportune to highlight the existence of this risk separately in risk registers so that sufficient attention and resources are available to mitigate this risk. [21]</p>	<p>Update CURA to reflect visibility of issue with allocated controls and treatment plans.</p>	Branch Manager Network Performance	Completed December 2012

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	and resources are available to mitigate this risk.				
2012/17	8.3 Assets such as the East Perth Control Centre should also be included in risk assessments both in terms of its operation and risks attached to the building. (A risk assessment was originally carried out for the building. The target availability of the building is 99.9%).	[OFI] The East Perth Control Centre and the building asset should also be analysed for risks. [22]	Arrange Risk Assessment of East Perth Control Centre building facilities and the East Perth Control Centre operations.	Branch Manager SCADA & Information Systems	January 2013
2012/18	9.1 Reviewer did not sight any formal: <ul style="list-style-type: none"> <li>lessons learnt and actions arising from emergency;</li> <li>systematic scenario test schedule and treatment of test responses.</li> </ul> <p>The test of July 2011 showed that not all tests were able to be carried out due to civil works at the Head Office Emergency Control Centre (HOECC). The finding was that the HOECC could be used in an emergency however:</p> <ul style="list-style-type: none"> <li>the question of the management of maintenance and construction at the back up facility needs to be reviewed to enable operation during emergencies and</li> <li>It is not always clear how issues encountered in tests are closed, which stakeholders are involved in the assessment of the corrective actions and whether all relevant stakeholders are aware of issues.</li> </ul>	<p>Review Contingency planning and testing at the Control Centre to incorporate the following for SOCC and NOCC:</p> <p>The preparation of Control Centre staff should be tested in a variety of scenarios to ensure that the staff can adequately respond to events and that, if there are shortcomings to response procedures, these are identified under test conditions, not in real life situations. Tests may include test of Pandemic contingency plan (leading to a loss of a potential 50% of Control Room staff); loss of operational phone systems etc. [24, SAOI 2, PRIP2011 11/05-1]</p> <p>There should be a further review of contingency plans which need to be tested to maintain staff competency and reduce the risk of failure when those plans are put into action in response to real events. Trial scenarios/role playing exercises should be enacted on an annual basis. The trials should consider different</p>	<p>1. Update Emergency Management Plan for East Perth Control Centre.</p> <p>2. Develop the East Perth Control Centre Business Continuity plan to be aligned to the Western Power Business Continuity management framework.</p> <p>3. Establish a formal test register to record details of tests and management of actions arising there from.</p>	<p>General Manager Systems Management</p>	<p>March 2013</p> <p>December 2013</p> <p>December 2013</p>

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	<p>Contingency planning may relate to the failure of an asset or to a threat to an asset or its operation. The reviewer has noted that other emergencies related to the operation of the assets may have to be considered because they relate to the possible disruption of service levels, e.g.:</p> <ul style="list-style-type: none"> <li>▪ Pandemic Contingency Plan, (loss of key staff operating the Control Centre);</li> <li>▪ Pole Top Fires Contingency Plan;</li> <li>▪ Response to Bushfire;</li> <li>▪ Manual Program Load shedding Curtailment Instruction.</li> </ul> <p>Viewed records of meetings however from an operational perspective, unless each of the minutes is examined there are:</p> <ul style="list-style-type: none"> <li>▪ no annual list of how many events had to be responded;</li> <li>▪ no rating of the quality of the response;</li> <li>▪ no measure of which actions and how many were raised, how critical and if any open.</li> </ul> <p>The recommendation made in the 2011 Review required that activation of contingency plans (other than BCC activation) should be recorded in a central register.</p> <p>The SOCC action was to develop “a system of logging tests and events</p>	<p>events so that the Control Centre is tested on many possible eventualities. [SAOI 2]</p> <p>There should be a specific procedure to address:</p> <ul style="list-style-type: none"> <li>▪ How to select the annual test scenario;</li> <li>▪ Who will be advised of the test;</li> <li>▪ Debriefing meeting and identification of errors and weaknesses;</li> <li>▪ Recording of corrective and improvement actions in an action log and monitoring of action completion. [SAOI 3]</li> </ul> <p>Review the process of handling and closure of tests actions to ensure that issues are critically reviewed and by which stakeholders the shortcomings are assessed. [SAOI 5]</p> <p>A formal test register should be implemented to record details of the tests and actions arising from the tests. [SAOI 4]</p>			

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	relating to significant disruptions which have occurred.” The system adopted was the System Disturbance Advice (SDA) system. The review found that the use of SDAs does not provide a system for recording the activation of contingency plans. The response from SOCC to the review was: “The System Disturbance process is on its own. This process is not part of contingency management. The system disturbance process is only to capture data”. On this basis the recommendation of the 2011 Review has not been addressed. [11/05-3]				
2012/19	9.1 The test of July 2011 showed that not all tests could be carried out due to civil works at the Head Office Emergency Control Centre.  Reviewer did not see a severe weather contingency plan for NOCC.	Carry out a risk analysis of the complete suite of contingency scenarios to ensure that all likely threats to responses are systematically evaluated and appropriate responses designed. For example the current set of responses does not include the event of maintenance and construction works being performed at the back up facility. [SAOI 6]	Conduct annual Emergency Management Risk Review Workshop to review the updated Emergency Management Plan for East Perth Control Centre.	Branch Manager Network Operations	June 2013
2012/20	12.1 Whist there are documented program for review and update of key documents and several documents showed review, various documents showed that their review cycles had not been maintained and no indication was available of the reasons for the delay. In some cases the due date of the next review was recorded within the document which is a requirement of the	There is a need to adopt a methodology defining document review cycles and maintaining them, and to apply the methodology consistently to all documentation across the board, to avoid conflict between documents and registers control information. [26] [6,14,15,16,17,23, PRIP2011 11/01-4]	1. Conduct a review to determine the extent and underlying reasons for inconsistent document control discipline over key documents  2. Develop a plan to address shortfalls, if necessary with a supporting business case for executive approval.  3. Implement agreed actions by dates specified in the plan.	Chief Information Officer IT	December 2012  March 2013  TBC

ASSET MANAGEMENT REVIEW					
Recommendation No	AMS Element / Effectiveness Criteria Finding	Elements of Recommendations	Actions	By Whom	Date
	Document Management procedures, however this is not consistently applied and may be a cause for inconsistency.				
	<b>Actions from Previous Post Asset Management Review Implementation Plan</b>				
	All previous actions have been combined with current actions.				

## Appendix B - Documentation reviewed

### DOCUMENT REGISTER

	Document Name	DMS Ref.	Date
<b>A</b>	<b>Asset Management System – General</b>		
1	Network Management Plan, 1 July 2011 - 30 June 2017		
2	Statement of Corporate Intent 2010-11		
3	Statement of Corporate Intent 2011-12		
4	Dist Operational Asset Management _Document_Register		
5	Network Performance document register		
6	System Operations Control Room Instruction (SWIS)		
7	Western Power annual report 2011		
<b>1</b>	<b>Asset Planning</b>		
1	Distribution Production Plan for 2012/13	8800 441	01/03/12
2	Annual Planning Report		
3	Wood Pole Asset Management Plan (WE_n8172520_v12)		
4	Project Planning Report, Capacity Shortfall in suburbs supplied by Henley Brook Substation	7564230v5 D	
5	Planning Phase Estimate, Henley Brook Substation, Install Second Transformer	7818982	
6	Project Planning Definition (T&D SOW) Installation of a Second 132/22 kV Transformer at Henley Brook Substation		
7	Distribution Scope of Work – Henley Brook Second Transformer Installation		
8	Business Case, Installation of a Second 132/22 kV Transformer at Henley Brook Substation	7708278	
9	Program Performance Committee Terms of Reference	8806910	10/11/11
10	Works Program Committee Terms of Reference	8807104v2	30/05/12
11	Customer satisfaction 2011 annual report, Synovate		01/01/12
12	Forms Stage 1: Enquiry to Project Planning Definition	8935658	
13	Forms Stage 2: Contract negotiation and approvals stage to execution of IWC	8929741	
14	Forms Stage 3: Execution of IWC to project completion	8929757	
15	Forms Stage 2: Contract negotiation and approvals stage to execution of IWC: Water Corp - Sawyers Valley Substation	9005620	
<b>2</b>	<b>Asset Creation and Acquisition</b>		
1	Bus_Case_Removal_Restoration		
2	Bus_Case Establishment_of_Substation		
3	Bus_Case_Installation_of_transformer		
4	Commissioning instructions and QA index		

## DOCUMENT REGISTER

	Document Name	DMS Ref.	Date
5	Business Process Interconnections	51954979	01/07/11
6	Commissioning resource planning gateway – Field Protection Services	9080795	
7	Handover Process Brown/Greenfield site	7675546	22/03/12
8	Handover Process for Rapid Response Transformer	7675546	
9	Primary Asset Replacement Handover Process	7675545	22/03/12
10	Commissioning Process (Minor Projects and Asset Replacement)	5184293	
11	Commissioning Process (Major Projects)	4752114	
12	Final Determination on the New Facilities Investment Test Application for the Mid West Energy Project (Southern Section)		27/01/12
<b>5</b>	<b>Asset Operations</b>		
1	Authorisation Application Form		
2	Network_Authority_Card_Rules		
3	NWI 128 Level 0 DNAR Authorisation	9474867	
4	NIX Training Schedule (172 level2 + 83 level 1	8826524	
5	DNAR User Instructions	2319398	
<b>6</b>	<b>Asset Maintenance</b>		
1	Reports issued by Investigations Section		
2	Bassendean_Collier_Road_Dop_out_fuse_report		
3	Electrical_Incident_Notification_and_Reporting		
4	Incident_Management_Procedure		
5	Procedure_Significant_Incident_Management		
6	Guardian INC1005066 – Recloser tripped causing loss of supply, Dudley Park, 6/2/2012		
7	System Disturbance Advice 7602 – SF – E 72, Fault no interruption		
8	System Disturbance Advice 7603 – CT-MSS-PNJ 81		
<b>7</b>	<b>Asset Management Information System (MIS)</b>		
1	ERA_Audit_Data_Management_Information_Pac (WE_n6540570_v4)	6540570	
2	Information_and_records_manual (WE_n2802440_v10_1_2_1_1)	2802440	
3	Information_and_records_management Policy (WE_n4785948_v1_1_2_1)	4785948	
4	Document_control_procedures (WE_n6884554_v1C_W)	6884554	
5	Document_control_program_framework (WE_n7210971_v3A)	7210971	
6	Quarterly report 1 January 2012 - 31 March 2012		
7	Transmission Division Annual Production Plan 2012/2013 (Transmission Capital Program Management Office)		
8	Process Area Report – Prepare DX Volumetric Data		
9	User manual for Calculating - system minutes interrupted - Loss of supply events - Average outage duration	7229090	
10	Corporate Performance Report (May 2012)	9446476	



## DOCUMENT REGISTER

	Document Name	DMS Ref.	Date
11	Corporate Performance Report (April 2012)	9359328	
<b>8</b>	<b>Risk Management</b>		
1	Compliance failure reporting policy		
2	Corporate Risk Assessment Criteria Guidelines		
3	Corporate risk assessment criteria		
4	Legislative & regulatory compliance framework		
5	Network risk issues register (extract)		
6	Network Risk Management Framework		
7	Network Risk Management Procedure		
8	Q1 Risk and Compliance Quarterly Report		
9	Q2 Risk and Compliance Quarterly Report		
10	Q3 Risk and Compliance Quarterly Report		
11	Q4 Risk and Compliance Quarterly Report		
12	Risk management framework		
13	Risk Management Handbook		
14	Risk management policy		
15	Corporate risk review 11 12		
16	Corporate risk review 12 13		
17	Executive & committee action list		
18	PV Briefing to F&RC April 2012		
19	Random 20 Network Risk Issues		
20	Risk Assurance Annual Audit Plan 2011-12		
21	Risk Assurance Annual Audit Plan		
22	Summary of 11-12 audits		
23	Network Risk Investment Strategy (NIS) Diagram		
<b>9</b>	<b>Contingency Planning</b>		
1	Business continuity management framework		
2	Business continuity management policy		
3	Contingency plan procedures index		
4	Crisis management plan		
5	Emergency crisis and general paging		
6	ESO Critical Infrastructure NOCC Control		
7	Legislative_&_regulatory_compliance_policy		
8	Load shedding mpls load curtailment instruction		
9	Network operations backup control centre		
10	NOCC Work Instructions		
11	Pandemic contingency plan		
12	Pole_top_fires_contingency_plan		
13	Transmission_emergency_management_plan		
14	Procedure_Significant_Incident_Management		

## DOCUMENT REGISTER

	Document Name	DMS Ref.	Date
15	East Perth Control Centre (EPCC) Emergency Procedures Handbook – Medical, Bomb Threat, Armed Hold Up	5551915V1	
16	Peak Ready Working Group Task List Meeting Record 21 Dec 2011		
17	System Control Room Emergency Procedures	1190447v3	
18	Emergency Management Plan for East Perth Control Centre	5551897	01/10/11
19	Network Operation Controller Trainee Controller Assessment Guidelines	9577988	
20	BCC Trial Form, 23 April 2012	2182759	
21	BCC Trial Form, 21 December 2011	2182759	
<b>10</b>	<b>Financial Planning</b>		
1	Access Arrangement Information		
2	Amended access arrangement information		
3	Strategic Development Plan 2011/12 to 2015/16	7568312	
<b>11</b>	<b>Capital Expenditure Planning</b>		
1	Report Transmission CAPEX Delivery Status		
<b>12</b>	<b>Review of Asset Management System</b>		
1	Submission Coversheet Network Management Plan 2011 - 17	8548048	29/08/11
<b>13</b>	<b>PAIP 2011</b>		
1	ERA 2011 PAIP Update March 2012		
2	Holistic Mapping status reporting Works Prog		
3	Project Status Report, Enterprise Solution Partners for Integrated Solution for Asset Management (ISAM)	5519159	10/07/12
4	System Operations Procedures and Instruction Manager [CRI Procedures List with review dates]	7695336	
5	Network Operations Controlled Document Index	2530887	
<b>14</b>	<b>Special Area of Interest</b>		
1	Extract 400 random pole sample inspected		
2	Map 400 random pole sample inspected		
3	Map All Poles inspected during audit period		
4	Equipment types and defect severities (WE_n1220966_v6I)		
5	Wood Pole Inspection Procedure (WE_n5449945_v8I0)	5449945	
6	Bundled pole inspection procedure (WE_n5449945_v11B)	5449945	
7	Serviceability Assessment Model for Wood Poles (WE_n6662107_v11B)	6662107	
8	Catalogue of equipment types		
9	Policy for hardwood types		
10	Asset Data Report Metadata, maps of PWOD inspections		
11	System Operation Control Room Instruction (CRI) index showing review dates	7695336	
12	Spreadsheet with data for BCC test	6874551	
13	QA Report Process for Distribution Pole Inspection DM9428741	9428741	

## DOCUMENT REGISTER

	Document Name	DMS Ref.	Date
14	Weekly Progress Update, Key Metrics DM8665044 (wood pole replacement, reinforcing and inspections)	8665044	
<b>14</b>	<b>Presentations</b>		
1	Presentation for 2012 AMSR Network Planning and Development Branch (9 Jul)		
2	Presentation_for_2012_AMSR_Network_Performance (10 Jul)		
3	WE_n9414575_v12_Presentation for 2012_AMSR Wood poles (10 Jul)	9414575	
4	Presentation for 2012 AMSR_Transmission (11 Jul)		
5	Presentation_for_2012_Construction and Field Protection Services (11 Jul)		
6	2012 AMSR presentation OTX_Asset_Maintenance (17 Jul)		
7	Presentation for 2012 AMSR_AMIS (18 Jul)		
8	2012 AMSR presentation_Risk and Compliance (19 Jul)		
9	2012_AMSR Presentation Network Risk (19 Jul)		
10	2012 AMSR Presentation NOCC (25 Jul)		
11	2012 AMSR Presentation SOCC (25 Jul)		
12	2012 AMSR Presentation Distribution (26 Jul)		
13	2012 AMSR Presentation_Financial_Planning (27 Jul)		
14	WE_n9491575_v3_2012 AMSR Presentation Capital_Expenditure (27 Jul)	9491575	

## Appendix C - Staff interviewed

## Appendix C – Western Power Staff Interviewed

The following Western Power representatives participated in the review meetings or were requested to clarify areas of the review:

Representative	Title	Department
Douglas Thomson	Planning & Projects Manager	Transmission Planning & Projects - NPD
Steve Claridge	System Forecasting Manager (Acting)	System Forecasting - NPD
Neil Chivers	Transmission Planning Manager	Strategic Network Development - NPD
David Bones	Branch Manager	Network Planning & Development (NPD), Networks
Paul Frendy	Engineering Team Leader	Distribution Planning & Development - NPD
Dave Fyfe	Branch Manager	Network Performance, Networks
Ian Gibb	Asset Management Systems Manager	Asset Management Systems, Network Performance
Geoff Barnett	Engineering Team Leader	Asset Management Systems Section, Networks Performance
Michael Pover	Asset System Analyst	Asset Management Systems Section, Networks Performance
Aaron Gibbons	Engineering Team Leader	Asset Management Systems, Network Performance
Roger Petit	Principal Engineer	Asset Management Systems,

Representative	Title	Department
		Network Performance
Mukul Mahajan	Senior Asset Systems Engineer	Asset Management Systems, Network Performance
Kim McArthur	Engineering Team Leader	Plant, Network Performance
Karna Vyas	Asset Strategy Engineer	Plant, Network Performance
Sam Woolard	Engineering Team Leader	Plant, Network Performance
Raphael Ozsvath	Poles & Towers Asset Manager	Poles & Towers, Network Performance
Richard Tatnall	Engineering Team Leader	Poles & Towers, Network Performance
Neville Scott	Poles & Towers Asset Sponsor	Poles & Towers, Network Performance
Spencer Thompson	Branch Manager	Network Investment, Networks
Ian Hord	Network Risk Manager	Network Risk Management, Network Investment
Gareth Morris	Senior Asset Risk Analyst	Network Risk Management, Network Investment
Raj Parmar	Work Program Governance Manager	Works Program Management, Network Investment
Vincent Tzvetkov	Engineering Team Leader	Operational Asset Management, Transmission Maintenance Delivery
Zahra Jabiri	Engineering Team Leader	Operational Asset Management, Transmission Maintenance Delivery
Nick Cigulev	Program Manager	Operational Asset Management,

Representative	Title	Department
		Transmission Maintenance Delivery
Amir Sherkat Masoum	Asset Engineer	Operational Asset Management, Transmission Maintenance Delivery
Steve Power	Branch Manager	Substation Construction & Field Protection Services, Transmission
Pieter Olivier	Field Protection Team Leader	Field Protection Service, Substation Construction & Field Protection Services
Robert Rogerson	Distribution Standards & Policy Manager	Distribution Standards & Policy, Standards, Policy & Data Quality
Graham Backhouse	Branch Manager	Program & Works Integration, Distribution
Alan Mincherton	Service Delivery Manager (Acting)	Stand Alone Programs, Program & Works Integration, Distribution
Steve Bushby	Technical Works Manager (Acting)	Tech Work Coordination, Distribution
Tim Hunter	Regional Manager	South West Regional, Country
Steve Samuels	Planning & Works Manager	Planning Management, Program & Works Integration
Andy Neemann	Data Management & Quality Manager	Data Management, Standards, Policy & Data Quality
Nicholas Howard	Senior Data Analyst	Data Management, Standards, Policy & Data Quality
Peter Ridgwell	Data Analyst	Data Management, Standards, Policy & Data Quality

Representative	Title	Department
Matthew Kok	Branch Manager (Acting),	System Operations in System Management
Bala Shanmugam	System Operations Engineering Manager (Acting),	System Operations in System Management
Shane Duryea	Branch Manager	Network Operations, System Management
Clayton James	Operations Control Section Leader	System Operation Control, System Management
Brian Congear	Network Control Manager	Network Control, Network Operations
Dean Frost	Operations Reliability & Capacity Manager	Operational Reliability & Capacity, System Management
Peter Martino	System Operations Planning Manager	System Operation Planning, Planning & Market Operations
Rudy Bake	Operational Standards Development Manager	Operational Standards & Development, Network Operations
Margaret Pyrchla	Manager Risk and Compliance	Legal & Governance
Dave Christmas	Work Practices Manager	Work Practices, Operational Technical Excellence
Graeme Fairley	Program Manager	Integrated Solution Asset Management, Foundation & Transformation Programs
Johan Esterhuzen	Engineering Design Manager	Asset Driven Design, Customer Network Connections



Representative	Title	Department
Lee Russel Brown	Senior Finance Manager	Corporate Section, Bus Planning & Analysis Branch, Finance Division
Erin Stone	Senior Regulatory Analyst	Access Arrangement Branch, Regulation & Sustainability Division
Jane Wedgwood	Manager Treasury	Finance Division
Daniel Kennedy	Branch Manager	Business Planning & Analysis, Finance Division
Guy Chalkley	Branch Manager	Work Program Branch, Finance Division
Brenton Laws	Senior Regulatory Analyst	Treasury Branch, Finance Division