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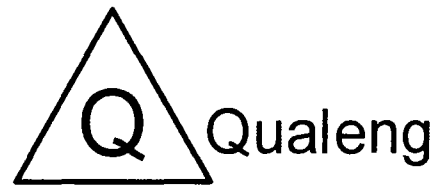
Qualeng

ABN 20 009 454 111

Review Report

Horizon Power Electricity Licence 2011 Asset Management Review

Telephone:	+61 8 9260 0003
Fax:	+61 8 9225 7447
E-Mail:	projects@qualeng.net
Web:	www.qualeng.net
Postal Address:	PO Box Z5261, St George's Terrace, PERTH WA 6831
Office:	Level 2, 231 Adelaide Terrace, Perth, Western Australia, 6000



Executive Summary

The Asset Management System Review was conducted in order to assess Horizon Power's level of compliance with the conditions of its licence.

Horizon Power have an Electricity Integrated Regional Licence (EIRL2 Licence) [the Licence] issued by the Economic Regulation Authority [the Authority] under Sections 7 and 15(2) of the Electricity Industry Act 2004 (WA) [the Act].

Section 14 of the Act requires Horizon Power to provide the Authority with a report by an independent expert on the effectiveness of their Asset Management System. In November 2010 Horizon Power commissioned Qualeng to carry out the Asset Management System review for the period between 1 October 2009 and 31 March 2011. 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

Horizon Power supply electricity and electricity services across 34 townships that are isolated from the South West Interconnected System (SWIS). These extend from the Kimberley in the North to Esperance in the South, 5 remote Aboriginal communities and the North West Interconnected System (NWIS). Horizon Power supplies electricity to 15,210 customers in the NWIS and around 27,781 in non-interconnected systems. In addition to their own power generating plant in Carnarvon, Marble Bar, Nullagine, Kununurra and Wyndham, Horizon Power also purchase electricity from third parties.

Horizon Power manages a diverse set of power systems including small scale LNG, CNG and diesel/wind hybrids. The transmission system, the NWIS is about 450km in length and consists of the transmission line between Dampier in the West Pilbara to Goldsworthy in the East Pilbara with ring systems in Karratha and Port Hedland, with voltages up to 220kV. The distribution system is nearly 6000 km in length and comprises 6.6kV, 11kV, 22kV and 33kV systems.

The Review

The review was conducted through an initial document review followed by meetings in the Bentley office. A number of visits were carried out at the Licensee sites which included Karratha, Carnarvon, Port Hedland and Esperance.

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 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 and

(iii) a post review implementation plan listing the review recommendations and actions proposed by Horizon Power. Although this plan does not form part of the report, it is included to complete the documentation.

Summary Of Issues And Recommendations

The **Summary of Issues and Recommendations** is shown in Table 1 listing the issues that have resulted in recommendations that require corrective actions by the Licensee.

The summary follows the order of Asset Management System elements provided in the Authority guidelines. Some of the recommendations appear under more than one element, for example, findings on planning documents may appear under planning, information systems, maintenance, review etc. In the Post Review Implementation Plan, as far as practical, the recommendations have been combined into common entries so that no duplication of recommendations is created.

The **Post Review Implementation Plan**, was prepared by the Reviewer and completed by the Licensee in regard to actions, responsibility and date for completion. A copy of the plan is attached in Appendix C.

Table 1: Summary of Issues and Recommendations

Item	Asset Management System Element / Requirement	Summary of Issues	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
1	**Asset Planning**				
1.3	Non-asset options (eg. demand management) are considered.	There was evidence that demand management is practiced in the field. Some of the districts have agreements with major customers to address demand management. Trials of demand side management were completed in November 2010. The results of these trials are under review.	B	2	▸ Continue with the evaluation of demand side management trial and the development of policy and procedures.
3	**Asset Disposal**				
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process.	Asset under-utilisation is reported in management reports and highlighted if below target. Treatment of asset under-utilisation could be improved but asset disposal/replacement may be impractical due to statutory/regulatory requirements and the cost of disposal being higher than retention costs.	B	2	▸ Consider a policy and/or procedures to clarify treatment of under-utilisation.
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken.	There is no explicit policy/procedure for asset evaluation due to under-utilisation however asset poor performance or under-utilisation are regularly reviewed and corrective actions are evident for performance improvement. The transition from a strategy of "Fit for Purpose" to a "Life Cycle Strategy" noted in the Executive Submission 30 June 2010 "The Future Asset Management Strategy – Asset Lifecycle Strategy" is aimed at further improving the utilisation of assets.	B	2	▸ Consider a policy and/or procedures to clarify treatment of under-utilisation.

Item	Asset Management System Element / Requirement	Summary of Issues	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
	Environmental Analysis				
4.4	Achievement of customer service levels.	A number of targets are not being achieved in some of the districts and overall. Where this occurs charts are provided in the report analysing trends and causes.	A	2	▸ [OFI] District reports could include wood pole inspections / QA audits targets and actuals
5	**Asset Operations**				
5.1	Operational policies and procedures are documented and linked to service levels required.	Audits on projects identified contract personnel that did not have the required training/competency on the work site.	A	2	▸ The finding of contract personnel without the required competency on work sites shows that the auditing process is effective, however an improvement is required on the system of project supervision/ contractor approval to prevent non qualified contractor personnel from entering job locations and endangering themselves and other workers.
5.3	Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical / structural condition and accounting data.	Asset records are stored in a number of legacy systems which are shared with Western Power (WP). Horizon Power is striving to streamline all assets record systems through a two year "Transformation Program", however at this point it is still reliant on WP for managing some of the systems as both organisations share the same technology model. Inaccuracies existing in the asset records are being corrected by validating data through physical verification,	B	2	▸ Continue the implementation of streamlined asset record systems. ▸ Continue to update asset registers to improve the accuracy of the data.

Item	Asset Management System Element / Requirement	Summary of Issues	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
5.5	Staff receive training commensurate to their responsibilities.	At the Control Centre in Karratha training for operators has been conducted, however relevant training records are not controlled by the Workforce Capability Improvement Group which is responsible for workforce training and improvement in the Operations Division. Competency approval of HPCC operators has not been implemented. The approval is given solely by the Horizon Power Control Centre (HPCC) Supervisor. TCS (Trouble Call Management System) Training module has been completed and delivered but more resources are required to complete and deliver further module(s).	B	3	▸ Develop and implement a competency approval procedure / training schedule for HPCC operators. Ensure appropriate training at HPCC is conducted in a timely fashion. ▸ Complete and deliver HPCC training modules. ▸ Consider adding HPCC/ENMAC (Electricity Network Management and Control) training and certification into VETtrack.
6	**Asset Maintenance**				
6.2	Regular inspections are undertaken of asset performance and condition.	Inspections of substations and transmission lines are managed from the Karratha office using local resources for most of the inspections. Problems that arise are referred to the District Operations Officer (DOO) Transmission, Port Hedland, support was provided by Karratha, however as officer(s) were seconded elsewhere there was a possible gap in delegation precluding access to systems records and Work Orders. Alternative arrangements were put in place during the review.	B	2	▸ **[OFI]**There may be a need to review a possible gap in Transmission maintenance services delegation which may preclude access to systems records and Work Orders. ▸ **[OFI]**District reports could report on wood pole inspections / QA audits targets and actuals as part of their performance monitoring.
7	**Asset Management Information Systems**				

Item	Asset Management System Element / Requirement	Summary of Issues	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
7.5	Data backup procedures appear adequate.	All restoration of data is done by Western Power. Recovery was tested in December 2010 and issues were raised that will need to be resolved. There was no evidence that the actions taken by Western Power were documented to Horizon at the time of the testing.	C	3	▸ Continue with separation program from Western Power and ensure that processes of software acceptance, back up, restoration are robust, documented and transparent. ▸ Ensure that there is a process for recording, investigating and following up to conclusion IT incidents.
12	**Review of AMS**				
12.2	Independent reviews (eg internal audit) are performed of the asset management system.	While internal audits of IT systems were performed by the Internal Auditors, there was no clear evidence of IT carrying out audits of software implementation.	B	2	▸ There may be a need for IT to carry out audits of software applications to ensure their performance and implementation, this may be appropriate for the validation of the Transformation Program.

Licensee's Response To Previous Audit Recommendations

The corrective actions taken by Horizon Power in order to address the recommendations of the 2009 Asset management review show an appropriate approach and commitment by Horizon Power. All corrective actions have been closed, except for one which is in the final stages, concerning the implementation of a contingency template for the generation assets and power stations. A further corrective action on training at the Karratha Control Centre has been implemented however actions were still in progress at the time of the review.

Horizon Power has split up the recommendations further and assigned the tasks to different task owners. This shows commitment by Horizon Power for the continuous improvement of the asset management system.

Summary Review Of The Control Environment

Horizon Power has demonstrated that it has an effective plan to manage the different aspects of the asset management system. Horizon Power has shown continuous improvement and commitment to regulatory compliance.

The Control Environment includes several management elements which are well structured: corporate governance, organisation structure which is conducive to an effective asset management system, assignment of authority and responsibility, documentation of policies and procedures, records management and use of internal audit . Following the review the Reviewer has formed the opinion that Horizon Power have maintained a detailed asset management system for their assets during the period from 1 October 2009 to 31 March 2011.

The review found sound implementation of planning, asset management plan preparation, risk management, operation and maintenance and financial planning. The approach to asset replacement was comprehensive. Performance is analysed and management reports generated at various levels.

Risk management is applied to capital projects prioritising projects on the basis of risk. One issue noted was that as CAPEX funding decreases a greater tranche of projects has to be postponed to future periods generating higher risks.

The IT services have a transformation program in place to manage the separation of IT systems from Western Power. Horizon Power is currently relying on a Service Level Agreement with Western Power until 2012. The recovery and restoration of data is done by Western Power. Some issues with data recovery have been found during the latest recovery test. It was not clear how these issues have been addressed or documented, as these actions are monitored by Western Power.

Efforts have been made to improve performance in districts affected by IPP operation, mainly by implementing stricter reporting controls and improved monitoring. Reliability of the IPPs has generally improved.

During the field visits there was evidence that Horizon Power has tested and evaluated contingency plans. Emergency and evacuation plans were tested at the different depots. Some of the contingency plans were tested during actual emergencies such as severe weather and floods.

A new training management system is being rolled out in 2011. The Karratha Control

Centre has issues with training procedures, these need to be improved. The review also noted that the Control Centre training has not been integrated into the central training system.

Improvements were made regarding the correction, verification and validation of data in the asset registers.

Asset Management Review Effectiveness Summary

A summary of the findings is shown in Table 2 using the Effectiveness and Performance ratings defined in Table 4 and Table 5 (pages 20 and 21). The ratings represent average levels for each element, individual sub-elements highs and lows will not be apparent in the table.

The review has concluded that the asset management procedures used by Horizon Power are appropriate and effective. Continual monitoring and updating of the system and controls have resulted in continuing improvement of the management system.

Table 2: Asset management effectiveness summary

ASSET MANAGEMENT SYSTEM	Asset Management process and policy definition adequacy rating	Asset management performance rating
Process Effectiveness rating	A - D*	1 - 4*
1. Asset planning	A	1
2. Asset creation/ acquisition	A	1
3. Asset disposal	B	2
4. Environmental analysis	A	2
5. Asset operations	A	2
6. Asset maintenance	A	1
7. Asset management information system	B	2
8. Risk management	A	1
9. Contingency planning	A	2
10. Financial planning	A	1
11. Capital expenditure planning	A	1
12. Review of asset management system	B	2

* See Table 4 and 5 for definition of ratings

This report is an accurate representation of the findings and opinions of the reviewers 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 reviewer, 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 included in this report to complete the documentation, however it does not form part of the reviewer's opinion or the final report.

Approvals

Representation	Name	Signature	Position	Date
Auditor:	M Zammit	[redacted]	Lead Auditor / Engineering Manager, Qualeng	19/08/11
Licensee:	T Corfield		Technical Regulation and Compliance Manager, Horizon Power	

Issue Status

Issue No	Date	Description	Prepared	Verified	Approved
0A	9 Jun 11	First draft	GC/MZ	MZ	MZ
0B	28 Jun 11	Second Draft	MZ	SC	MZ
1	29 Jul 11	First Issue	MZ		MZ
2	18th Aug 11	Final Issue	MZ	EH	MZ

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1 Objectives and Scope of Review

1.1 Introduction

Horizon Power supply electricity and electricity services across 34 townships isolated from the South West Interconnected System (SWIS). These extend from the Kimberley in the North to Esperance in the South, 5 remote Aboriginal communities and the North West Interconnected System (NWIS). In addition to their own power generation plant in Carnarvon, Marble Bar, Nullagine, Kununurra and Wyndham, Horizon Power also purchase electricity from third parties.

Horizon Power transmit and distribute electricity to both residential and commercial customers. The transmission system, the NWIS, is about 450km in length and consists of the transmission line between Dampier in the West Pilbara to Goldsworthy in the East Pilbara with ring systems in Karratha and Port Hedland, with voltages up to 220kV. The distribution system is nearly 6000 km in length and comprises 6.6kV, 11kV, 22kV and 33kV systems.

Horizon Power have an Electricity Integrated Regional Licence (EIRL2 Licence) (the Licence) issued by the Economic Regulation Authority (the Authority) under Sections 7 and 15(2) of the Electricity Industry Act 2004 (WA) (the Act).

Under Section 14 of the Act Horizon Power are required to provide to the Authority an Asset Management System Review of the EIRL2 Licence. The last review was completed in April 2010 for the period 1 April 2008 and September 2009 and a number of findings made which resulted in the Authority leaving open Notice D/2009/00623 which identified two non compliances.

Between September and December 2010 the corrective actions were independently reviewed and the contraventions were found to have been addressed. This resulted in the closure of the notice of contravention in January 2011.

In November 2010 Horizon Power commissioned Qualeng to carry out the Asset Management System Review to cover the period 1 October 2009 to 31 March 2011

The review has been conducted and this report prepared in accordance with the Authority's Audit Guidelines: Electricity, Gas and Water Licences (August 2010) and the Audit Plan prepared by Qualeng and approved by the Authority (April 2011).

1.2 Review Objectives

The purpose of the asset management system review is to 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, alteration or disposal of relevant assets.

1.3 Scope Of Review

An asset management system comprises the processes and plans needed to ensure that physical

assets continue to provide a specified level of service in a cost-effective manner throughout their useful life.

The system review assessed the effectiveness of the following 12 asset management sub-components:

1. Asset planning
2. Asset creation/acquisition
3. Asset disposal
4. Environmental analysis
5. Asset operations
6. Asset maintenance
7. Asset management information system
8. Risk management
9. Contingency planning
10. Financial planning
11. Capital expenditure planning
12. Review of the asset management system

The review encompassed the following activities:

- meetings and discussions with key Horizon Power personnel,
- documentation review (including an update on the corrective actions raised in the 2009 Asset Management Systems Review by Qualeng),
- risk and materiality assessment,
- facility and site visits,
- system testing; and
- post review implementation planning.

The review was carried out between February and June 2011. Compliance testing was conducted based on the risk assessment and priority ratings documented in the Audit Plan prepared by Qualeng.

On Horizon Power's behalf, various representatives participated in the review including the Technical Regulation and Compliance Manager, Terry Corfield and Manager Asset Strategy and Capability, Brett Hovingh. Various other representatives contributed to sourcing the documentation and providing evidence to the review. A list of personnel interviewed is included in section 1.6.

The main auditor representatives were Mr M Zammit, Project Director and Lead Auditor, Mr G Catteeuw, Project Engineer and Auditor / Reviewer, Mr S Campbell, Verifier and Reviewer. A total of 430 hours were required to complete the core review tasks. Minor resource use and support staff have not been included in the total. Audit team hours were broken down as follows:

M Zammit	Project Director / Lead Auditor	135
G Catteeuw	Project Engineer / Auditor	280
S Campbell	Verifier & Reviewer	15

A list of the main documents accessed by the auditors is included in Appendix A. It is noted that this list does not include all of the documentation viewed during the audit, due to the large number of electronic documentation made available for verification as well as documents sampled during certain compliance tests and field visits.

1.4 Review Methodology

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

- preparation of an audit plan, risk and materiality assessment and system analysis,
- fieldwork including the asset management system review; and
- reporting.

For the Asset Management System Review an audit plan was prepared outlining the review objectives, scope, risk and materiality assessment, system analysis, fieldwork plan, the report structure, key contacts, auditing staff and program.

The review adopted a risk based approach where a preliminary risk and materiality assessment was carried out for each asset management sub-component to evaluate the risks resulting from non-compliance and/or lack of controls and assessing the control procedures in place within Horizon Power.

The existing controls were rated and an audit priority assigned depending on the risk resulting from the lack of controls or adequacy of the existing controls. Tests were also defined for each asset management sub-component to assess the compliance and effectiveness of the current process.

Following the Authority's approval of the Audit Plan in April 2011, the review proceeded with meetings, interviews, checks of processes and documentation review. These were supported by additional queries to further clarify aspects of Horizon Power's policies and procedures and site visits to the following locations:

1. Bentley,
2. Karratha,
3. Carnarvon,
4. Port Hedland and,
5. Esperance.

1.5 Limitations And Qualifications

A review provides a reasonable level of assurance on the effectiveness of control procedures, however there are limitations due to the nature of the evidence available to the auditor, the sampling process inherent in the checking of evidence, the limitations of internal controls and the need to use judgement in the assessment of evidence.

In regard to the review process, the auditor relies on supplementary evidence being available to the auditor to demonstrate the effectiveness of the control procedures, when the initial process and procedures do not provide sufficient evidence to the level that would be required by the review.

1.6 Horizon Power Staff Interviews

The following Horizon Power staff were either interviewed or attended meetings during the course of the review:

Bentley Office

Terry Corfield, Technical Regulation and Compliance Manager

Brett Hovingh, Manager Asset Strategy and Capability

Atul Garg, Energy Contract Manager

Gordon Pack, Gap Ridge Project Manager

John Kitis, Project and Facilities Manager

Jeanette Appleby, Land and Approval Coordinator

Marion O'Connor, Administration Support

Mark Roberts, Service Delivery Manager

Meryl Hunt, Governance Coordinator

Paul Thomas, Manager Knowledge and Technology Division

Shane Eeles, Workforce Capability Improvement Manager

Karratha depot, West Pilbara district

Nick Lockwood, District Business Manager

Paul Elliott, Manager System Operations

Wayne Karslake, District Operations Officer Transmission

Alf Martin, Superintendent Horizon Power Control Centre

Marty Panting, District Operations Officer Networks

Paul Deen, Transmission Linesman

Roman Raudonikis, Community and Customer Relations Manager

Carnarvon depot, Gascoyne district

Mark Milton, District Operations Officer Generation

Les Bardoe, District Operations Officer Network

Edgar Macapili, Power Systems Officer, Performance

David Shelton, Community and Customer Relations Manager

Port Hedland depot, East Pilbara district

Bob Cirulis, District Operations Officer Generation

Ben Mason, Transmission Officer

Esperance depot, Esperance district

Layton Baker, District Business Manager
Scott Frazer, District Operations Officer

1.7 Acronyms And Terms

Table 3: Acronyms and Terms

Acronym / Term	Description
AMP	Asset Management Plan
AMS	Asset Management System
AS	Australian Standard
CAPEX	Capital Expenditure
CCRM	Community and Customer Relations Manager
CURA	Computer system to record and manage legal obligations and risks to Horizon Power.
OAMP	Operations District Asset Management Plan
DBM	District Business Manager
DEC	Department of Environment and Conservation
DFIS	Distribution Facilities Information System
DFMS	Distribution Facilities Management System
DMS	Document Management System
DOO	District Operations Officer
EIRL	Electricity Integrated Regional Licence
Ellipse	Enterprise Asset and Financial Management System
ENMAC	Electricity Network Management and Control
Gating Process	The Horizon Power capital and operating expenditure decision making process.
HPCC	Horizon Power Control Centre
HR	Human Resources
IPP	Independent Power Producer (from which Horizon Power purchases electricity).
IT	Information Technology
JRA	Job Risk Analysis
KPI	Key Performance Indicators
kV	Kilovolts
LAN	Local Area Network
LCC	Life Cycle Costing
MO	Major Overhaul
MPSO	Power Systems Officer, Maintenance

Acronym / Term	Description
MSO	Management System Officer
MST	Maintenance Schedule Task
NWIS	North West Interconnected System
OFI	Opportunity for Improvement
OPEX	Maintenance and Operating Expenditure including operational projects
PRIP	Post Review Implementation Plan
PSO	Power Systems Officer
PUPP	Pilbara Underground Power Project
QE	Qualeng, the Reviewer
QuickBase	Enterprise web based project management tool
SAMP	Strategic Asset Management Plan
SCI	Statement of Corporate Intent
SDP	Strategic Development Plan
SLA	Service Level Agreement
SWIS	South West Interconnected System
TCS	Trouble Call Management System
VT	Voltage Transformer
VETtrack	Training Management Software
WDC	Works Delivery Coordinator
WO	Work Order

2 *Licensee's Response to Previous Audit Recommendations*

2.1 Background

Horizon Power were granted an Integrated Regional Licence on 30 March 2006 by the Authority. The previous asset management systems review under the terms of the licence was completed in November 2009 by Qualeng.

A copy of Qualeng's Post Review Implementation Plan is included in Appendix B. Horizon Power subsequently expanded Qualeng's recommended actions and the current status of each of these actions is also included in Appendix B.

2.2 Progress

The document in Appendix B summarises the actions undertaken by Horizon Power to address Qualeng's recommendations. Qualeng have reviewed these actions with Horizon Power and are of the view that the issues that gave rise to Qualeng's original recommendations have been resolved, with the following reservation:

Qualeng's Recommendations 2009	Horizon Power Actions	Qualeng Review
1. Finalise and issue District Contingency Plans. 2. Identify and document specific contingency procedures in district contingency plans, for example, Carnarvon Generation plan should include the response plan for the loss of PLC software	1. Identify and document specific contingency procedures in district contingency plans. 2. Incorporate into district contingency plan template both generation assets and specific power station systems contingencies or substation controls.	Specific district contingency plans have been prepared. Template preparation is still in progress however examples of Plans incorporating substation and generation assets were viewed.

2.3 Further Actions

A total of 95 tasks were created by Horizon Power as a result of the asset management review 2009. At the time of this review 94 tasks had been completed. The action identified in section 2.2 showed substantial implementation and was in the final stages of completion at the time of the review.

Qualeng has no further actions to recommend in regard to the 2009 review.

2.4 Overall Assessment

The corrective actions taken by Horizon Power to address the recommendations of the 2009 Asset management review showed an appropriate approach and commitment by Horizon Power to Licence compliance. Horizon Power had split up the recommendations into sub-tasks and assigned each to different owners. There is evidence of a consistent effort by Horizon Power for closure of the actions and continuous improvement of the asset management system.

All corrective actions have been closed, except for one noted above which is near closure. The task status is detailed in Appendix B.

It is the opinion of the reviewer that the recommendation have been resolved with the corrective actions taken by Horizon Power.

3 Key Findings and Recommendations

3.1 Performance Summary

The findings of the asset management system review are summarised in Table 6. More details on the findings for all elements of the Asset Management System Review are presented in Section 3.2.

A Post Review Implementation Plan was prepared by the Auditor for the Licensee's review and approval, a copy of the plan is attached in Appendix C.

The summary below separately rates Horizon 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 4 and 5.

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 Horizon Power to address the issue(s) that have resulted in those ratings.

Table 4: Asset management process and policy definition adequacy ratings

Rating	Description	Criteria
A	Adequately defined	Processes and policies are documented. Processes and policies adequately document the required performance of the assets. Processes and policies are subject to regular reviews, and updated where necessary The asset management information system(s) are adequate in relation to the assets that are being managed.
B	Requires some improvement	Process and policy documentation requires improvement. Processes and policies do not adequately document the required performance of the assets. Reviews of processes and policies are not conducted regularly enough. The asset management information system(s) require minor improvements (taking into consideration the assets that are being managed).
C	Requires significant improvement	Process and policy documentation is incomplete or requires significant improvement. Processes and policies do not document the required performance of the assets. Processes and policies are significantly out of date. The asset management information system(s) require significant improvements (taking into consideration the assets that are being managed).
D	Inadequate	Processes and policies are not documented. The asset management information system(s) is not fit for purpose (taking into consideration the assets that are being managed).

Table 5: Asset management performance ratings

Rating	Description	Criteria
1	Performing effectively	The performance of the process meets or exceeds the required levels of performance. Process effectiveness is regularly assessed, and corrective action taken where necessary.
2	Opportunity for improvement	The performance of the process requires some improvement to meet the required level. Process effectiveness reviews are not performed regularly enough. Process improvement opportunities are not actioned.
3	Corrective action required	The performance of the process requires significant improvement to meet the required level. Process effectiveness reviews are performed irregularly, or not at all. Process improvement opportunities are not actioned.
4	Serious action required	Process is not performed, or the performance is so poor that the process is considered to be ineffective.

Table 6: Asset Management System Review Findings and Recommendations

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
1	Asset Planning	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 the stake holders and is integrated with business planning	Planning studies and demand forecasts studies draw on information from the stakeholders, and are used by the districts to create work plans which are then incorporated in the Asset Management Plan (AMP) The Operations Division of Horizon Power prepares Strategic Asset Management Plans (SAMP) on a yearly basis to define the asset management planning and operation processes, the operations and asset management objectives, the expected outcomes, strategies, the framework and key methodologies to achieve the objectives. Implementation of the SAMP leads to the preparation of the yearly AMP.	B	1	
1.2		Service levels are defined.	Service levels are defined in the AMP both in terms of Fit for Purpose drivers such as safety, regulatory, capacity, reliability, quality, asset service and cost, and high level objectives that align with WA Government strategic objectives for energy. Additional KPIs are also reported in management reports such as service delivery (completion of activities, repairs etc). A number of the above KPIs are not meeting the targets in some of the districts and overall. Where this occurs charts are provided in management reports analysing trends and causes.	A	2	

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
6.4		Failures are analysed and operational/maintenance plans adjusted where necessary.	Asset failures are investigated either in house or using external resources. Incidents are recorded in CINTELLATE and trigger investigations and further analysis. Evidence of incident reporting, records and corrective actions was noted during site visits. An incident investigation procedure was viewed addressing asset failure. Two incidents were noted which were caused by inexperienced operators.	A	2	
6.5		Risk management is applied to prioritise maintenance tasks.	Maintenance tasks are prioritised according to risk. A severity index is used to identify asset replacement.	A	1	
6.6		Maintenance costs are measured and monitored.	The asset management plan contains the maintenance budget forecast for the next 5 years. Horizon Power has put measures in place to monitor the maintenance costing.	A	1	
7	**Asset Management Information Systems**	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.				
7.1		Adequate system documentation for users and IT operators.	Horizon Power has extensive documentation to support its information system. Appropriate training programs have been implemented to ensure that all staff are trained. Corrective response by Western Power to deficiencies highlighted in restoration tests in December 2010 was not documented. There was no evidence that the actions taken by WP were monitored or documented to /by Horizon at the time of the testing.	B	2	Recommended corrective action noted at item 7.5.

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
7.2		Input controls include appropriate verification and validation of data entered into the system.	Data verification occurs at various steps in the asset management process. Procedure "Project Flow and QA Procedure for All Work Types" defines the points at which data checks are performed. Prior to construction data has to be submitted in accordance with the "Network Diagram Updating Procedure (DFIS and ENMAC)". As-built and commissioning data has to be in accordance with the guide "As Constructed Drawing Requirements" prior to submission for entry into the asset databases (DFIS/ DFMS/ TPES/ Ellipse). Asset registers are continuously updated. Physical verification of assets is ongoing to improve the accuracy of the data. Current strategy is to implement improvements through the forthcoming Transformation Program.	B	2	
7.3		Logical security access controls appear adequate, such as passwords.	Procedures are in place to allow system access. Access to the system is controlled through passwords.	A	1	
7.4		Physical security access controls appear adequate.	Physical access to offices and depots is controlled by swipe cards and visitor registers. Inductions are also conducted for first time visitors. Visitor registers were used at each location visited. New employee at the Karratha office reception was not aware of induction procedure.	A	2	

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
1.3		Non-asset options (eg. demand management) are considered.	Forecasts of increased demand are managed through analysis in the System Studies and application of the plans in the districts. Strategies are: • use of IPPs • demand management • review of plant capacity and operability under revised demand including analysis of thermal capacity of equipment, equipment rating for expected fault levels and equipment condition • review of system reliability in terms of interruptions to customers both in frequency and duration • protection grading studies to determine optimum protection arrangements for plant under increasing loads. There was evidence that demand management is practiced in the field. Some of the districts have agreements with major customers to address demand management. Trials of demand side management were completed in November 2010. The results of these trials are under review.	B	2	▸ Continue with the evaluation of demand side management trial results and the development of policy and procedures.

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
1.4		Lifecycle costs of owning and operating assets are assessed.	Business Cases incorporate lifecycle cost analysis. Business Cases viewed during the review contained lifecycle costs of owning and operating assets. Horizon Power has plans in place to change their operations asset management strategy from a "Fit for Purpose" to a "Asset Life Cycle Strategy" with the intent to manage the assets not based on their age, but on their condition and serviceability. At Carnarvon a Lifecycle model was used to assess the performance of steel poles against that of wooden poles. Development is underway for a more comprehensive life cycle costing model.	A	1	
1.5		Funding options are evaluated.	Recommended projects, complete with drivers and costs are included in the 10 year budget contained in the AMP. Funding for the AMP requires agreement both by the Horizon Power Board and Treasury. Projects can be re-prioritised (and postponed) to meet the budget.	A	1	
1.6		Costs are justified and cost drivers identified.	Projects are approved through business cases based on data loaded into QuickBase for projects below $ 100k, while other projects have to go through the Gating process which follows a documented project justification and prioritisation methodology. Recommended projects, complete with drivers and costs are included in the 10 year budget contained in the AMP	A	1	

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
1.7		Likelihood and consequences of asset failure are predicted.	Risks are managed through the CURA system. CURA provides a central register from which compliance reports are generated. Risks are reviewed six monthly in District Workshops and quarterly by the management team, risk severity is assessed and actions identified mitigating the risks. Programs of work by the districts address the risks and actions.	A	1	
1.8		Plans are regularly reviewed and updated.	The performance of the asset management plans is monitored monthly and the plans are reviewed each year. Financial plans are driven by funding approval from Treasury.	A	1	
2	**Asset Creation and Acquisition**	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.	New assets and projects are justified though the Gating process. During the process the project goes through several review, approval and evaluation steps. Business cases viewed included assessment of alternative solutions.	A	1	
2.2		Evaluations include all life-cycle costs.	Once the new asset or project has gone through the essential approvals of the Gating process than the process becomes more detailed and a business case is prepared which includes evaluation of life cycle costing. Evidence of life-cycle cost modelling has been viewed. Horizon Power has implemented a life cycle cost guideline.	A	1	

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
2.3		Projects reflect sound engineering and business decisions.	Projects reviewed showed a systematic business and engineering approach. All contained a wide range of control measures ranging from job planning, control documents, asset information and commissioning records.	A	2	
2.4		Commissioning tests are documented and completed.	Project viewed showed clear evidence of commissioning procedures and records. Comprehensive records were viewed for the power stations at Marble Bar and Nullagine.	A	1	
2.5		Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.	Interviews and projects queries confirmed that staff were aware of environmental obligations. Project files showed the presence of environmental checkpoints. During the visits at Karratha, Carnarvon and Port Hedland HAZOP/ HAZID records were viewed. Records of Monthly Safety and Health meetings and a hazard identification study for the Marble Bar power station were viewed at Port Hedland. At the Carnarvon power station noise testing and emission monitoring were completed.	A	1	
3	**Asset Disposal**	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.	Asset under-utilisation is reported in management reports and highlighted if below target. Treatment of asset under-utilisation could be improved but asset disposal/replacement may be impractical due to statutory/regulatory requirements and the cost of disposal being higher than retention costs.	B	2	▸ Consider a policy and/or procedures to clarify treatment of under-utilisation.

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
3.2		The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken.	There is no explicit policy/procedure for asset evaluation due to under-utilisation however asset poor performance or under-utilisation are regulariy reviewed and corrective actions for performance improvement are evident . The transition from a strategy of "Fit for Purpose" to a "Life Cycle Strategy" noted in the Executive Submission 30 June 2010 "The Future Asset Management Strategy – Asset Lifecycle Strategy" is aimed at further improving the utilisation of assets. A procedure has been implemented that allows Horizon Power to issue non-conformance reports to IPPs in order to improve Horizon Power's reliability performance.	B	2	▸ Consider a policy and/or procedures to clarify treatment of under-utilisation.
3.3		Disposal alternatives are evaluated.	Horizon Power has an asset disposal strategy and procedures and funding are in place for the disposal of Horizon Power owned power stations, transmission and distribution assets. Horizon Power also records and monitors disposal of IPP assets.	A	1	
3.4		There is a replacement strategy for assets.	Evidence was apparent throughout the review of strong commitment to asset replacement. Horizon Power has inherited an aging distribution network from Western Power, as a result it has a strong replacement strategy program. The PUPP at Karratha and the replacement of reclosers and feeders in the Esperance district demonstrated Horizon Power's replacement strategy.	A	1	
4	**Environmental Analysis**	The asset management system regularly assesses external opportunities and threats and takes corrective action to maintain requirements.				

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
4.1		Opportunities and threats in the system environment are assessed.	Review of possible opportunities and threats to the system environment is part of Horizon Power's planning process. A central register (CURA) is used to record and monitor system threats and risks. Data in CURA can be out of date by a few months.	A	2	
4.2		Performance standards (availability of service, capacity continuity, emergency response, etc) are measured and achieved.	Horizon Power has implemented a process for monthly reporting to monitor the performance and service levels of the business and the assets. Additional reporting is being received from the IPPs. Not all performance standards are continually achieved however variations are reviewed and targeted.	A	2	
4.3		Compliance with statutory and regulatory requirements.	Statutory and regulatory requirements are documented and reported. Compliance obligations and controls are regulariy reviewed at a high management level to ensure compliance with statutory requirements and regulations. All incidents are recorded in CINTELLATE.	A	2	
4.4		Achievement of customer service levels.	In general customer service levels are being achieved. Where KPIs are not being met charts are provided in management reports analysing trends and causes. Horizon Power has made provisions to replace aging assets in order to improve reliability performance and enhance customer service levels. Capital work projects have been identified to address reliability issues over the next ten years.	A	2	▸ **[OFI]** District reports could include wood pole inspections / QA targets and actuals.
5	**Asset Operations**	Operations plans adequately document the processes and knowledge of staff in the operation of assets so that service levels can be consistently achieved.				

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
5.1		Operational policies and procedures are documented and linked to service levels required.	The Operations Division SAMP provides the policies and framework to manage the assets and achieve Horizon Power's operational objectives. Audits on projects identified contract personnel that did not have the required training/competency on the work site.	A	2	▸ The finding of contract personnel without the required competency on work sites shows that the auditing process is effective, however an improvement is required on the system of project supervision/contractor approval to prevent non qualified contractor personnel from entering job locations and endangering themselves and other workers.
5.2		Risk management is applied to prioritise operations tasks.	Fit for purpose drivers and risks direct the operational programs. All risks identified in risk workshops and risk analysis are recorded in a central register held by the CURA data base and are used for task prioritisation.	A	2	
5.3		Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical / structural condition and accounting data.	Asset records are stored in a number of legacy systems which are shared with Western Power (WP). Horizon Power is striving to streamline all assets record systems through a two year "Transformation Program", however at this point it is still reliant on WP for managing some of the systems as both organisations share the same technology model. Inaccuracies existing in the asset records are being corrected by validating data through physical verification.	B	2	▸ Continue the implementation of streamlined asset record systems. ▸ Continue to update asset registers to improve the accuracy of the data.
5.4		Operational costs are measured and monitored.	Cost of operations are budgeted and included in the AMP, actual costs are recorded and monitored in the asset and work management system (ELLIPSE).	A	1	

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
5.5		Staff receive training commensurate to their responsibilities.	At present all training for Horizon Power employees and contractors is coordinated from the Bentley office. The competency approvals, certification and training records are kept in a number of record systems. Records viewed of employees and contractors showed that staff receives appropriate training. Some of the contractors involved in major projects undergo monthly audits. Horizon Power is working on the implementation of a new system (VETtrack) to monitor certification and training (to be completed by 2011). At the Karratha Control Centre training for operators has been conducted, relevant training records are not controlled by the Workforce Capability Improvement Group which is responsible for workforce training and improvement in the Operations Division. Competency approval of HPCC operators has not been implemented. The approval is given solely by the Horizon Power Control Centre (HPCC) Supervisor. TCS Training module has been completed and delivered but more resources are required to complete and deliver further module(s).	B	3	▸ Develop and implement a competency approval procedure / training schedule for HPCC operators. Ensure appropriate training at HPCC is conducted in a timely fashion. ▸ Complete and deliver HPCC training modules. ▸ Consider adding HPCC/ENMAC (Electricity Network Management and Control) training and certification into VETtrack.
6	**Asset Maintenance**	Maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work can be done on time and on cost.				

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
6.1		Maintenance policies and procedures are documented and linked to service levels required.	Horizon Power has an extensive list of maintenance and inspection procedures for their assets. The maintenance process is defined in the asset management plan and includes planning, scheduling, implementing, recording and analysing. A range of maintenance policies are in use to maintain the plant to the required service levels.	A	1	
6.2		Regular inspections are undertaken of asset performance and condition.	Inspections are driven by maintenance scheduled tasks. The inspections result in preventive or predictive maintenance to restore the asset to its original working condition. A number of MSTs (Maintenance Schedule Task), Standard Jobs and inspections reports were viewed during the field visits. Inspections of substations and transmission lines are managed from the Karratha office using local resources for most of the inspections. Problems that arise are referred to the district Operations Officer (DOO) Transmission, Port Hedland, support was provided by Karratha, however as officer(s) were seconded elsewhere there was a possible gap in delegation precluding access to systems records and Work Orders. Alternative arrangements were put in place during the review.	B	2	▸ **[OFI]**There may be a need to review a possible gap in Transmission maintenance services delegation which may preclude access to systems records and Work Orders. ▸ **[OFI]**District reports could report on wood pole inspections / QA targets and actuals as part of their performance monitoring.
6.3		Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule.	Corrective and preventative maintenance tasks are managed by the districts. Processes are in place to manage all types of maintenance. The system (Ellipse) showed long term inspection and maintenance planning.	A	1	

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
7.5		Data backup procedures appear adequate.	All restoration of data is done by Western Power. Recovery was tested in December 2010 and issues were raised that will need to be resolved. There was no evidence that the actions taken by Western Power were documented to Horizon at the time of the testing.	C	3	▸ Continue with separation program from Western Power and ensure that processes of software acceptance, back up, restoration are robust, documented and transparent. ▸ Ensure that there is a process for recording, investigating and following up to conclusion IT incidents.
7.6		Key computations related to licensee performance reporting are materially accurate.	There was evidence of performance calculations being carried out on templates or verified separately by staff: Evidence of data validation / verification for generation operation was confirmed for Camarvon both through independent calculations on site and independently by staff in Bentley .	A	1	
7.7		Management reports appear adequate for the licensee to monitor licence obligations.	Various reports and meetings at management level routinely record and assess compliance with licence obligations.	A	1	
8	**Risk Management**	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.	Horizon Power has comprehensive Risk Management policies and process to identify, rank, review risks and develop corrective actions to resolve or mitigate risks.	A	1	

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
8.2		Risks are documented in a risk register and treatment plans are actioned and monitored.	The Horizon Power risk management system, CURA, is used to identify risks, evaluate the probability of asset failures and the treatment of risks. The register records actions, responsibilities and timing.	A	1	
8.3		The probability and consequences of asset failure are regulariy assessed.	Risk evaluation is performed to identify both the probability and consequences of asset failure. The districts review the risks and threats every six months and the Risk Register is updated after each review.	A	1	
9	**Contingency Planning**	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.	Horizon Power has comprehensive contingency policies and procedures to address the management of significant events. At the top level a Crisis, Emergency & Business Continuity Management Systems provides the overall strategy and procedures for Horizon Power. The districts manage and test their site specific fire and evacuation plans yearly. Desktop trials of asset contingency plans are used to test the effectiveness of the plans. The procedure requires that each trial or test is followed by a review of the response, documentation of the results, the lessons learnt and recording of recommended actions. Documentation of Karratha and Broome fire/evacuation drills was good and could be used as model(s) for others.	A	2	
10	**Financial Planning**	A financial plan that is reliable and provides for the long-term financial viability of the services.				

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
10.1		The financial plan states the financial objectives and strategies and actions to achieve the objectives.	Horizon Power has set out comprehensive economic, financial objectives and operational targets in the asset management plan. The "Statement of Corporate Intent" and the "Strategic Development Plan 2010/11 to 2014/15" (SDP) describe the strategies that have been developed to realise the set targets.	A	1	
10.2		The financial plan identifies the source of funds for capital expenditure and recurrent costs.	The SDP identifies sources of funds for operating and capital expenditure and recurrent costs.	A	1	
10.3		The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets).	The SDP contains 5 year forecasts of revenue and costs, operating and capital expenditure by drivers, sources of funds, debt, profit and loss and economic and financial forecasts including cash flow and balance sheets.	A	1	
10.4		The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period.	The SDP contains predictions of income and 5 year forecasts of revenue and costs.	A	1	

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
10.5		The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services.	The AMP provides operating, maintenance and capital project expenditure requirements. District financial plans are included in the forecasts and funding, these are used for CAPEX, OPEX, maintenance programs and administration.	A	1	
10.6		Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary.	Variances in the budget are reviewed and corrective action addressed at review meetings (Operations Performance Review meetings). Changes to projects or works are controlled through Change Control Request forms and tracked. Financial risks were highlighted in the future execution of the Gap Ridge project however contingencies were in place to manage those risks.	A	1	
11	**Capital Expenditure Planning**	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.	Horizon Power prepares a yearly Capital Expenditure (CAPEX) Plan as part of the annual process of reviewing and updating the AMP. The CAPEX Plan details all the projects proposed together with references to project data sheets and business cases, sponsors (usually a district), approval details, timing, drivers and risks (for the "Do Nothing" and "Do Something" options), funding and allocation of expenditure over the financial period and over the following 10 years .	A	1	

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
11.2		The plan provides reasons for capital expenditure and timing of expenditure.	A 5 year CAPEX project plan records the projects identified in the asset management plans, their expenditure requirements and timing. One issue noted was that as CAPEX funding decreases a greater number of projects has to be postponed to future periods resulting in increased risks.	A	1	
11.3		The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan.	The CAPEX Plan is developed by the Districts from system and planning studies, risk analysis, from the fit for purpose drivers, inspections, asset conditions and maintenance plans.	A	1	
11.4		There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned.	Capital projects and business cases will only be approved after they have been justified through the Gating process. Projects are re-prioritised in order to maximise Horizon Power's allocation of resources and meeting the available budget.	A	1	
12	**Review of AMS**	Review of the Asset Management System to ensure the effectiveness of the integration of its components and their currency				

Item	Asset Management System Element	Requirement	Summary of Findings / Observations	Adq. Rtg.	Perf. Rtg.	Recommended Corrective Actions
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.	The SAMP and the AMP go through an annual documented process of review and approval which starts in October of each year. The latest review and update of the AMP was done in October 2010. A further management review occurs at the end of June and a final one on capital and operating budgets in September. Once in operation the asset management system is subject to continuous review through monthly reviews by the districts, the Monthly Business Reports and review at management meetings.	A	1	
12.2		Independent reviews (eg internal audit) are performed of the asset management system.	Horizon Power has an internal audit plan, inclusive of risk management activities, in place for the year 2010/11. Some of the audits are commissioned to external auditors. All audit results are recorded and actions are monitored in CURA. In addition, projects are subject to quality assurance audits. While internal audits of IT systems were performed by the Internal Auditors, there was no clear evidence of IT carrying out audits of software implementation.	B	2	▸ There may be a need for IT to carry out audits of software applications to ensure their performance and implementation. This may be appropriate for the validation of the Transformation Program.

3.2 Discussion

The following sections report on the findings of the Asset Management System review. Where applicable, observations, recommendations and opportunities for improvement (OFI) are noted in each section. The report follows the order provided in the Authority's guidelines. A discussion on the operation of the system elements looks at all relevant criteria given by the Authority and at the evidence of compliance.

The Horizon Power asset management system is based on high level strategies and objectives. From these strategies work plans and budgets are developed at district level. Work plans are prepared for generation, transmission and distribution systems. The performance of the asset management plan is monitored monthly and the plan is comprehensively reviewed each year.

3.2.1 Asset Planning

The Operations Division of Horizon Power has prepared Strategic Asset Management Plans (SAMP) on a yearly basis, the latest being the 2010-11 version, to direct the asset management planning and operation processes. The SAMPs define the operations and asset management objectives, the expected outcomes, the strategies, framework and key methodologies to achieve the objectives. Implementation of the SAMP leads to the preparation of the yearly Asset Management Plan (AMP).

Each SAMP includes the program for the planning and delivery cycles which start from the drafting of the yearly SAMP, preparation of its supporting documentation (currently Instruction Modules), the SAMP review, defining the expected outcomes and the required projects. This is followed by the preparation and justification of budgets and translation into work programs which are then managed through the districts, while progress and costs are monitored through the year. The cycle ends with the final review of the outcomes and processes leading into the next year cycle.

The planning process is based on the preparation of long term planning studies and demand forecasts. The latest "Demand and Energy Forecasting FY2010/11-FY2019-20" report was issued in June 2010 and follows a documented process. It provides ten year demand and energy forecasts for systems and towns. It includes inputs from:

- Sales growth estimates based on current and historical data and estimates of trends,
- Forecasts of maximum demands from long term trends, maximum capacity requirements and seasonal trends,
- New project forecasts which generate discrete loads,
- Market research,
- Feedback and contact from district stakeholders, developers, Shires, external agencies, local District staff including District Business Managers (DBMs) and Community and Customer Relationship Managers (CCRMs).

System planning studies are generated every two years or whenever major network changes occur. The studies follow a process documented in the "Scope of Works, System Studies for District's Asset

Management", November 2009 and cover generation, transmission, distribution and substations for capacity, operability, reliability protection and fault rating. The studies indicate the required system augmentation, list of works, replacement and upgrades required over 10 years. As well as internal contributors, sources include external bodies such as the WA Planning Commission, Landcorp and local Shires.

The "Fact Sheet No: 1, The Demand and Energy Forecasting Process" shows how the forecasts integrate with the operations, financial, commercial, accounts, strategy and technical sectors of the business.

Projects are then categorised in terms of "Fit for Purpose" drivers which are, in order of priority:

1. Safety
2. Regulatory
3. Capacity
4. Reliability
5. Quality
6. Asset Service
7. Cost

The AMP for 2010/11 documents high level objectives which align with the Government of Western Australia Strategic Energy Initiative 2030, of "Secure, Reliable, Competitive and Cleaner Energy". The AMP translates these into measurable performance indicators (Public Safety, Incidents/ Employee Safety/ Complying Systems/ Cost: OPEX - Actual versus budget/ Customer satisfaction/ Employee Perception) and provides the strategies to achieve them.

Horizon Power has several Power Purchase Agreements (PPAs) with Independent Power Producers (IPPs) to supply power where Horizon does not have sufficient generating capacity. IPPs key performance is reviewed regularly in a newly developed risk register and key performance reports.

Forecasts of increased demand are managed through analysis in the System Studies and application of the plans in the districts. The review noted that the strategy is to match demand through various approaches:

- use of IPPs
- demand management
- review of plant capacity and operability under revised demand including analysis of thermal capacity of equipment, equipment rating for expected fault levels and equipment condition
- review of system reliability in terms of interruptions to customers both in frequency and duration
- protection grading studies to determine optimum protection arrangements for plant under increasing loads.

There was evidence that demand management is practiced in the field. Some of the districts have agreements with major customers to address demand management. One example was noted at Exmouth were a major customer has agreed to drop their load and use its own power generation when demand exceeds supply. A trial has been conducted regarding the Demand Side Management process and the results are currently being evaluated.

Risks are managed through the CURA system. CURA provides a central register from which compliance reports are generated. Risks are reviewed six monthly in District Workshops and quarterly by the management team. Risk severity is assessed and actions identified mitigating the risks. Programs of work by the districts address the risks and actions. These risk programs are assigned specific drivers by the fit for purpose drivers listed earlier.

Long term work and resourcing plans (10 years CAPEX and 5 years operating budget) are developed by the Districts from system and planning studies, risk analysis, from the fit for purpose drivers, inspections and asset conditions and maintenance plans. Projects are approved through business cases based on data loaded into Quickbase for projects below $ 100k, while other projects have to go through the Gating process which follows a documented project justification and prioritisation methodology. Recommended projects, complete with drivers and costs are included in the 10 year budget contained in the AMP. Funding for the AMP requires agreement both by the Horizon Power Board and Treasury. Projects can be re-prioritised (and postponed) to meet the budget.

Asset management plans are reviewed and updated yearly as they are driven by the need to seek governmental budget approval.

Horizon Power has plans in place to change their operations asset management strategy from a "Fit for Purpose" to a "Asset Life Cycle Strategy" with the intent to manage the assets not based on their age, but on their condition and serviceability. At Carnarvon a Lifecycle model was used to assess the performance of steel poles against that of wooden poles.

Recommendations:

1.	Continue with the evaluation of demand side management trial results and the development of policy and procedures.

3.2.2 Asset Creation and Acquisition

New assets and projects are justified though the Gating process. In the course of the process the project goes through several review, approval and evaluation steps. Once these steps have been addressed the process becomes more detailed and a business case is prepared which includes life cycle costing.

Horizon Power has established new power stations in Marble Bar and the neighbouring town of Nullagine. Both power stations are renewable energy / hybrid solar-diesel power stations . More than 2,000 solar panels and a solar tracking system have been installed at both power stations. Storage technology has been used to store energy and to stabilise power quality between diesel generators and the solar stations. Commissioning records were viewed for both power stations. The decommissioning procedures and processes were viewed at the Bentley office where comprehensive records are kept of power station decommissioning.

At Karratha, the Pilbara Underground Power Project (PUPP) is underway. The project aims to provide a safe and reliable power supply by replacing overhead infrastructure with underground networks. This

project is managed by Horizon Power and construction performed by a contractor. Horizon Power has one local site supervisor to oversee the project and external auditing is provided by Asset Strategy and Capability. Testing procedures have been developed to determine the take-over of the project at completion.

Horizon Power completed the planning and evaluation of the Gap Ridge Project over the last two years. This project will provide power to industrial properties. A transmission and distribution network will be built at the Gap Ridge Industrial Estate and connected to the existing substation. The project's key delivery is the transmission line which includes 17 free standing cyclone proof poles. The project has been awarded to several contractors. This project showed possible exposure to financial risk for Horizon Power due to the complexity of the project, the involvement of other entities such as LandCorp and Main Roads, several delays caused by severe weather and changes to plans by Main Roads.

Files viewed regarding the above projects showed a systematic business and engineering approach. All contained a wide range of documents ranging from job planning, control measures, asset information and commissioning records.

During interviews and through projects queries it was apparent that staff were aware of environmental obligations. Project files showed the presence of environmental checkpoints. During the visits at Karratha, Carnarvon and Port Hedland HAZOP/ HAZID records were viewed. Records of Monthly Safety and Health meetings and a hazard identification study for the Marble Bar power station were viewed at Port Hedland. At the Carnarvon power station noise testing and emission monitoring were completed.

3.2.3 Asset Disposal

Horizon Power has an asset disposal strategy and procedures. Funding is in place for the disposal of Horizon Power owned power stations, transmission and distribution assets. Horizon Power also records and monitors disposal of IPP assets.

Extensive documentation and records were available for the decommissioning and disposal of Horizon Power assets. Detailed plans were viewed for the remediation and disposal of assets from several sites. The process included remediation of the site environmental conditions, addressing soil contamination and reinstating it to the original state, working closely with the Department of Environment and Conservation (DEC). This part of the process was taking up to 5 years to complete. The process also includes demolishing structures, selling assets and monitoring sites which can not be returned to pristine conditions. Assets like transformers may be returned back to depots. Meetings with environmental representatives are held monthly to manage and monitor the environmental aspects of decommissioning.

The complete decommissioning of the Esperance power station was viewed. Disposal procedures for the wooden poles and copper conductors were observed during the Esperance site visit. Disposal planning for the Nullagine and Marble bar Power stations were also reviewed.

Horizon Power has inherited an aging distribution network from Western Power, and consequently Horizon Power has a strong replacement strategy program. Evidence was apparent throughout the

review of this strong commitment to asset replacement. The PUPP at Karratha and the replacement of reclosers and feeders in the Esperance district demonstrated Horizon Power's replacement strategy.

There is no explicit policy/procedure for asset evaluation due to under-utilisation, however, asset poor performance or under-utilisation are regularly reviewed and corrective actions are evident to achieve performance improvement. Treatment of asset under-utilisation could be improved but asset disposal/replacement may be impractical due to statutory/regulatory requirements and the cost of disposal being higher than retention costs. It was noted that the transition from a strategy of "Fit for Purpose" to a "Life Cycle Strategy" noted in the Executive Submission 30 June 2010 "The Future Asset Management Strategy – Asset Lifecycle Strategy" is aimed at further improving the utilisation of assets.

Opportunity for Improvement:

1.	Consider a policy and/or procedures to clarify treatment of under-utilisation.

3.2.4 Environmental Analysis

Review of possible opportunities and threats to the system environment is part of Horizon Power's planning process. A central register (CURA) is used to record and monitor threats. Horizon Power has implemented a process for monthly reporting to monitor the performance and service levels of the business and the assets.

Monthly Business Reports" provide:

- the District Balanced Scorecard,
- the Opex Profit and Loss,
- the District Capex Summary,
- Sales by Town,
- Capital Program Delivery both Internally Funded and Customer Funded, and
- special issues such as risks, IPP management, resource utilisation.

Monthly "Asset Management Reports" monitor the district performance against the Fit for Purpose drivers KPIs:

- for safety,
- reliability,
- quality (including customer complaints for power quality),
- capacity (which includes among others utilisation and thermal efficiency),
- cost (including monitors on variations of actual versus quoted and contingencies),
- asset service (including poles outside planned life),
- regulatory (interruptions, planned outages, pending conditions, inspection of street lights) and
- service delivery (completion of activities, repairs etc).

A number of the above KPIs are not meeting the targets in some of the districts and overall. Where this occurs charts are provided in the reports analysing trends and causes. In some cases weather events have affected the KPIs, for instance the reliability performance of Esperance rural, Hopetoun rural and Norseman has been below the compliant targets for January 2011 due to weather. Horizon Power has made provisions to replace the ageing assets to improve reliability performance, enhance customer service levels and has identified capital work projects to address reliability issues over the next ten

years.

KPIs for frequency and duration of interruptions are monitored, these KPI's are also monitored on feeders.

Community and Customer Relations Managers (CCRM) based in each district keep in contact with local communities, business and stake holders and collect feedback and data reporting this information for review and action. The data obtained will be used to produce demand forecasts and develop future planning programs. Horizon Power collects data and feedback from yearly surveys regarding its performance.

An annual customer survey, Evaluation and Performance Measuring, was carried out by Synovate.

Quality of supply and reliability of Independent Power Producers (IPPs) is monitored. Each District receives monthly reports from their IPPs regarding reliability and information about voltage and frequency fluctuations. A procedure has been implemented that allows Horizon Power to issue non-conformance reports to IPPs in order to improve Horizon Power's reliability performance.

Compliance obligations are monitored through the CURA database and reports and controls are regularly reviewed at high management level to ensure compliance with statutory requirements and regulations.

Opportunities for Improvement:

1.	District reports could include wood pole inspections / QA targets and actuals

3.2.5 Asset Operations

The Operations Division SAMP 2010/11 to 2021/22 provides the policies and framework to manage the assets and achieve Horizon Power's operational objectives. The AMP (the latest version is 2010/11) details the work delivery plans required to meet those objectives and performance levels. The AMP details current and future programs required to address specific performance issues or shortcomings.

Fit for purpose drivers and risks direct the operational programs. All risks identified in risk workshops and risk analysis (see section 3.2.1 Asset Planning) are recorded in a central register held by the CURA data base and are used for task prioritisation.

Contract personnel without the required competency were found on work sites during quality assurance audits. This confirms that the auditing process is effective, however an improvement is required on the system of project supervision/contractor approval to prevent non qualified contractor personnel from entering job locations and endangering themselves and other workers.

Asset records are stored in a number of legacy systems which are shared with Western Power (WP). Horizon Power is striving to streamline all assets record systems through a two year "Transformation

Program", however at this point it is still reliant on WP for managing some of the systems as both organisations share the same technology model. Horizon Power has signed a Service Level Agreement with WP until 2012.

Inaccuracies existing in the asset records are being corrected by validating data through physical verification, or, as in the case of the PUPP, by the acquisition of new assets and disposal of old, which require the entry of totally new field validated data.

Cost of operations are budgeted and included in the AMP, actual costs are recorded and monitored in the asset and work management system (ELLIPSE).

At present all training for Horizon Power employees and contractors is coordinated from the Bentley office. The competency approvals, certification and training records are kept in a number of record systems. Records of employees and contractors were viewed, demonstrating that staff receive appropriate training. Some of the contractors involved in major projects undergo monthly audits.

Horizon Power is implementing a new system (VETtrack) to monitor certification and training in 2011. The system will record and monitor all employees and contractors training competency records. The learning management system (learning from a distance) will be connected to VETtrack. This will allow employees and contractors to complete training modules from any location. Districts will be able to access VETtrack in order to view the training and certification records.

At the Horizon Power Control Centre in Karratha (HPCC) training for operators had been conducted but management of the records had not been finalised. Workforce Capability Improvement Group is responsible for workforce training and improvement in the Operations Division and may be better placed to control the HPCC training records. Competency approval of HPCC operators has not been implemented. The approval is given solely by the HPCC Supervisor. A TCS (Trouble Call Management System) Training module has been completed and delivered but more resources are required to complete and deliver further modules.

Recommendations:

1.	The finding of contract personnel without the required competency on work sites shows that the auditing process is effective, however an improvement is required on the system of project supervision/contractor approval to prevent non qualified contractor personnel from entering job locations and endangering themselves and other workers.
2.	Continue the implementation of a streamlined asset record system.
3.	Continue to update asset registers to improve the accuracy of the data.
4. 5.	Develop and implement a competency approval procedure / training schedule for HPCC operators. Ensure appropriate training at HPCC is conducted in a timely fashion.
6.	Complete and deliver HPCC training modules.
7.	Consider adding HPCC/ENMAC (Electricity Network Management and Control) training and certification into VETtrack.

3.2.6 Asset Maintenance

Horizon Power has an extensive list of maintenance and inspection procedures for their assets. The maintenance process is defined in the asset management plan. The process consists of planning, scheduling, implementing, recording and analysing. Horizon Power has decentralised maintenance operations and as such the districts are responsible for maintenance planning. District Operation Officers (DOO) perform regular analysis of the network for maintenance planning purposes.

Maintenance work is managed through the Ellipse system and Maintenance Schedule Tasks (MSTs). These generate Work Orders from information contained in a Standard Job which is a predefined work package. Each work package for maintenance or inspection is assigned a priority rating. The risks associated with work packages are represented in CURA and monitored on a regular basis. All planned work is managed by the use of Standard Jobs.

Inspections of substations and transmission lines are managed from the Karratha office using local resources for most of the inspections. Problems that arise are referred to the District Operations Officer (DOO) Transmission, Port Hedland. During the review it was noted that support was provided by Karratha, however as officer(s) are seconded elsewhere there was a possible gap in delegation precluding access to systems records and Work Orders.

A number of MSTs, Standard Jobs and inspection reports were viewed during the field visits. The system (Ellipse) showed long term inspection and maintenance planning.

An incident investigation procedure was viewed addressing asset failure. Asset failures are investigated either in house or using external resources. Incidents are recorded in CINTELLATE and trigger investigations and further analysis. Evidence of incident reporting, records and corrective actions were noted during site visits including:

- Defect reports through Ellipse report no.620. "Investigation on Mobile Plant Failure" requiring bolt re-tensioning and a change in maintenance procedures;
- Incident Report on Carnarvon Power Outage 13 September 2010;
- "Lake McLeod Feeder Outage and Incorrect Re-instatement of Feeders" 21 October 2010.

Two incidents were noted which were caused by inexperienced operators.

The asset management plan contains the maintenance budget forecast for the next 5 years. Horizon Power has put measures in place to monitor the maintenance costing. Several projects were viewed during the review.

Horizon Power has completed underground cabling in Port Hedland. The underground cabling project at Karratha is scheduled to be completed by the end of 2012. This is expected to significantly reduce the maintenance expenditure for these areas.

The 2009 pole management program to improve safety and reliability on the network and to comply with safety standards has been implemented. Australian Standard AS1720 requires wood poles to be replaced or reinforced no later than 25 years after installation, and replaced no later than 40 years after

installation. The wood pole replacement program has high priority, as Horizon Power strives to improve compliance with applicable Safety Standards. Horizon Power has therefore prioritised its expenditure on the program above other programmes. Field trials in Esperance are being conducted to determine if wood poles should be replaced on the basis of their condition rather than their age.

Opportunities for Improvement:

1.	There was a possible gap at the time of the review in Transmission maintenance services delegation preventing access to systems records and Work Orders.
2.	District reports could report on wood pole inspections / QA targets and actuals as part of their performance monitoring.

3.2.7 Asset Management Information System

Horizon Power has extensive documentation to support its information system. Appropriate training programs have been implemented to ensure that all staff are trained. Documentation regarding management training programs, plans, course attendance were sighted during the review. Districts have a regional Document Management training champion who trains and inducts staff. A significant effort has been made to train staff in the operation of the asset management system.

Horizon Power has initiated a transformation program to address the transfer of IT systems between Western Power and Horizon Power. Horizon Power is using Western Power systems to manage its assets under a Service Level Agreement in force until 30 June 2012. Under the program Horizon Power will be looking at alternative options for support of its IT systems.

Data input verification occurs at various steps in the asset management process. Procedure "Project Flow and Quality Assurance Procedure for All Work Types" defines the points at which data checks are performed. Major checks are defined:

- at project start, with data updating prior to construction (as per "Network Diagram Updating Procedure"),
- QA checks during construction in projects,
- as built assets are subject to QA checks and data, including commissioning information, submitted for entry into the asset databases (DFIS/DFMS/TPES/Ellipse). The data is to be in accordance with the guide "As Constructed Drawing Requirements".

Evidence of data validation/verification was viewed:

- for Carnarvon, generation engine data reports were reviewed by Bentley staff, including fuel, oil, power and operation hours data;
- Re-inspection of pole assets carried out to verify asset condition;
- Verified commissioning data entered during the PUPP construction validated the asset register.

The site visits showed that access to offices and depot is controlled by swipe cards and visitor registers. Access to computer systems and documents is controlled by passwords. Access procedures seem to be consistently implemented throughout the organisation.

Recovery and restoration of data is done by WP. Tests for data recovery have been done and have shown some deficiencies that required remediation. Corrective response by Western Power to deficiencies highlighted in restoration tests in December 2010 was not documented. There was no evidence that the actions taken by Western Power were monitored or documented to /by Horizon Power at the time of the testing.

The Knowledge and Technical division has had several internal audits in the past to assess the transformation program (phase 1) performance.

Data is backed up daily and secured at Horizon Power's Bentley office, with some data hosted externally.

While internal audits of IT systems were performed by the Internal Auditors, there was no clear evidence of IT carrying out audits of software implementation, which would be required for the validation of the Transformation Program.

Management reports to monitor licence obligations are kept in CURA (refer to Section 3.2.4 Environmental Analysis).

Recommendations:

1.	Continue with separation program from Western Power and ensure that processes of software acceptance, back up, restoration are robust and transparent.
2.	Ensure that there is a process for recording, investigating and following up to conclusion IT incidents.

3.2.8 Risk Management

One objective of the Horizon Power asset management plan is to manage risk. Risk is considered to be a major driver of the management plan. Horizon Power has comprehensive Risk Management policies and processes to identify, rank, review and develop corrective actions to resolve or mitigate risks. The Horizon Power risk management system, CURA, is used to identify risks, evaluate the probability of asset failures and the treatment of risks.

Programs to manage risk are mainly developed by the districts as they are responsible for work development in their district. The districts review the risks and threats every six months and the Risk Register is updated after each review. Programs can be driven by Safety, Regulatory, Capacity, Reliability, Quality, Asset Service or Cost Drivers. Actions are reviewed on a monthly basis.

Samples of risk and contingency plans were viewed in CURA. The records confirmed that actions are in place to minimise internal and external risks. The risk register for the Esperance IPP was viewed and demonstrated that possible risks have been assessed in accordance with the corporate risk matrix.

3.2.9 Contingency Planning

Horizon Power has comprehensive contingency policies and procedures to address the management of significant events. At the top level a Crisis, Emergency & Business Continuity Management System provides the overall strategy and procedures. Each district has developed individual contingency and emergency plans. These vary from responses to storm and cyclone damage to power station and network infrastructure failures.

The districts manage and test their site specific fire and evacuation plans yearly. Desktop trials of asset contingency plans are used to test the effectiveness of the plans. Each trial or test is followed by a review of the response, documentation of the results, the lessons learnt and recording of recommended actions. Some of these contingency plans have been tested under actual conditions such as flooding and cyclones. At Carnarvon, the flood events between December 2010 and January 2011 resulted in the identification of several improvements learnt from the management of the crisis. After the emergency several actions were identified such as securing transformer compounds, preventing soil erosion by water at pole bases and protecting cable conduits against erosion. Documentation of Karratha and Broome fire/evacuation drills was good and could be used as model for others.

Horizon Power has contingency plans to address the reduction or loss of generation by IPPs. Similarly, IPPs have contingency plans.

3.2.10 Financial Planning

Horizon Power has set out comprehensive economic, financial objectives and operational targets in the asset management plan. The "Statement of Corporate Intent" and the "Strategic Development Plan 2010/11 to 2014/15" (SDP) describe the strategies that have been developed to realise the set targets.

Horizon Power requires financial funding approval from the State Treasury and the Minister of Energy. Other revenue is obtained from the Tariff Equalisation Fund (TEF) and Customer Service Obligations (CSO). Horizon Power uses many factors to determine their budgetary needs, including forecasts of demands in power generation and distribution. District financial plans are included in the forecasts and funding, these will be used for CAPEX, OPEX, maintenance programs and administration.

The SDP contains 5 year forecasts of revenue and costs, operating and capital expenditure by drivers, sources of funds, debt, profit and loss and economic and financial forecasts including cash flow and balance sheets.

Throughout the review evidence was found of sound management of financial planning and objectives. Financial risks were highlighted in the future execution of the Gap Ridge project however contingencies were in place to manage those risks.

3.2.11 Capital Expenditure Planning

Horizon Power prepares a yearly Capital Expenditure (CAPEX) Plan as part of the annual process of reviewing and updating the AMP. The CAPEX Plan details all projects proposed together with

references to project data sheets and business cases, sponsors (usually a district), approval details, timing, drivers and risks (for the "Do Nothing", ie. No action to be taken and "Do Something" options), funding and allocation of expenditure over the financial period and over the following 10 years .

The plan represents the cost of works identified in the district work programs and approved by Horizon Power Board and by the Minister. Capital projects and business cases will only be approved after they have been justified through the Gating process. Projects are re-prioritised in order to address risks, maximise Horizon Power's allocation of resources and meeting the available budget. One issue noted was that as CAPEX funding decreases a greater number of projects have to be postponed to future periods, resulting in increased risks.

Horizon Power currently uses QuickBase, an online web based database to record all project data. Project approvals are controlled and tracked. Districts need to obtain approval before implementing any changes to these projects or works.

CAPEX implementation was demonstrated by a number of projects including the completion of the upgrade of the three-phase rural network in Esperance, part of the Esperance Network Rural Upgrade Project (ENRUP) program being carried out through an alliance between Horizon Power and Transfield Service Ltd, as well as the single phase upgrade program that started in April 2011. This last program includes replacing poles and reducing the number of long bays.

3.2.12 Review of Asset Management System

The SAMP and AMP go through an annual documented process of review and approval which starts each year, in October . The latest review and update of the AMP was performed in October 2010.

The process cycle starts from a review of the approved work programs, budgets, maintenance costs, previous objectives and, following the availability of new load forecasts, leads to the review of project risks, prioritisation and the preparation of new objectives and criteria which are then approved by the Executive. Once the SAMP is issued, the AMP and the operation management plan development process follows, which includes the preparation of preliminary work programs, analysis of job options, preparation of project data sheets and business cases and work prioritisation. Between May and June a further review takes place looking at work and funding justification and prioritisation. A further management review occurs at the end of June and a final one on capital and operating budgets in September.

Once in operation the asset management system is subject to continuous review through monthly reviews by the districts, the Monthly Business Reports and review at management meetings.

Horizon Power has an internal annual audit plan in place. Some of the audits are outsourced and all audit results are recorded and actions are monitored in CURA. Internal audits regarding the transformation program were viewed.

In addition, projects are subject to quality assurance audits. In Esperance an external audit was carried out to assess the status of wood poles at the start of the pole management program. The data

obtained from this audit was then put into geographical maps.

Recommendations:

1.	There may be a need for IT to carry out audits of software applications to ensure their performance and implementation. This may be appropriate for the validation of the Transformation Program.

4 Post Review Implementation Plan

A Post Review Implementation Plan (PRIP) is included in Appendix C. Each element of the asset management system review that has resulted in recommendations for corrective actions is listed in the PRIP. For each recommendation, Horizon Power has recorded responses, responsibility for the actions and a proposed completion date.

Appendix A
References and Documentation Reviewed

APPENDIX A: REFERENCES AND DOCUMENTATION REVIEWED

Due to the large amount of documentation accessed during the audit, only the main documents are referred in this list. Other documentation is individually referred to in the audit, review tables and report.

DOCUMENT REGISTER

Number	Document name	DMS#	Date	Type
1	Strategic Asset Management Plan 2010/11-2021/22 – Operation Division	3205918		Hardcopy
2	Statement of Corporate Intent 2010			Hardcopy
3	Organisation Chart 2011	3116926		Hardcopy
4	Transformation Program- Gating Approval Tracker			Hardcopy
5	Incident Investigation- Asset Failure & Protection Operation Investigation Procedure	3261027v1		Hardcopy
6	HP Post Review Implementation Plan	3215054		Hardcopy
7	Qualeng Asset Management System Review Matrix			Hardcopy
8	Esperance Depot Emergency Response (incl. Emergency Desktop Exercise)	3133050v1		Hardcopy
9	Asset Management Plan Operations Division	3258034v1	08/10/10	Hardcopy
10	IPP Management System and Processes	3230055		Hardcopy
11	Monthly Business Report January 2010			Hardcopy
12	West Pilbara Onslow Generation Asset Risk and Contingency Plan			Hardcopy
13	East Pilbara Marble Bar and Nullagine Generation Asset Risk and Contingency Plan			Hardcopy
14	Generation Incident Reports #006039, 006041, 006042, 004892, 004891	UA18725 12/02		Hardcopy
15	IPP Onslow Electric Power Monthly Report – February 2010			Hardcopy
16	West Pilbara Annual Desktop Asset Contingency Trial	3380438		Hardcopy
17	East Pilbara Annual Desktop Asset Contingency Trial	3380139		Hardcopy
18	Induction Procedure for Visitors, New Employees and Contractor/Consultants	308930v5	15/02/10	Hardcopy
19	Marble Bar Power Station Operations Hazard Identification Study	3263521		Hardcopy
20	Monthly Safety and Health Meeting	3371973	20/01/11	Hardcopy
21	Port Hedland Depot Emergency Response	3133053v1	24/11/??	Hardcopy
22	Regional District work Order Job Completion Card			Hardcopy
23	OAMP Template	3375371		
24	Strategic Development plan 2010/11 to 2014/15	3311737		
25	Operations Risk Register			
26	Operation Strategic Planning 2010/11 – Workshop 4	3276182v2A		
27	CAPEX 2010/11 Approved list	3280930		
28	Environmental Management Utility Manual (EMU)	3176106	14/01/10	
29	EMU Fact Sheet			
30	Sample page of EMU in Powerlink			
31	Crisis and Emergency Management Plan	3254129	30/04/10	
32	Life Cycle Costing Guideline	3224739		
33	East Pilbara District Business Report	3223704		
34	West Pilbara District Business Report	3223831v18		
35	Gascoyne – Midwest District Monthly Business Report	3224159v19		
36	West Kimberley Distrct Business Report	3224649v17		
37	Operations Division Performance Presentation	3374574v1		
38	Esperance District Business Report	3374592v1		
39	East Kimberley District Business Report	3374621v1		
40	Hazard Incident Reporting, Notification and Investigation Procedure	3016578v24	07/07/10	
41	Cintellate Process Flow Chart	3165820		
42	Substation Maintenance Schedule (RPES)	3280388v1		
43	Substation Maintenance Schedule (CRNGEN)	3280396v1		
44	Substation Maintenance Schedule (RPCN)	3280397v1		
45	Substation Maintenance Schedule (RPMW)	3280398v1		
46	Substation Maintenance Schedule (PPKA)	3280411v1		
	Substation Maintenance Schedule (RPKN)	3280417v1		
47	Substation Maintenance Schedule (KNAGEN)	3280416v1		
48	Substation Maintenance Schedule (MLBGEN)	3280426v1		
49	Substation Maintenance Schedule (PPPH)	3280431v1		
50	Substation Maintenance Schedule (TRANS)	3280442v1		
51	Substation Maintenance Schedule (RPBM)	3280385v1		
52	CORE Business System Program Report (Transformation Program)	3261026	31/01/11	
53	Esperance District Contingency Plan	3180593v5		
54	Kununurra East Kimberley District Contingency Plan	3241788v1		
55	Powerlink Kwowledge and Technology Services			
56	IT Doc--New Engagement of Employee	3003120vR		
57	IT Doc--Lotus Notes - Mailbox Archiving	3004566vR		
58	IT Doc--Lotus Notes - Quick Reference Guide	3013126vR		
59	IT Doc--Lotus Notes - Email Management	3021861vR		
60	IT Doc—Lotus Notes - Instant Messaging Setup	3030476vR		
61	IT Doc--DFIS DFMS DRE	3043357vR		
62	IT Doc--BlackBerry - Email Activation	3069137vR		
63	IT Doc--DQM Access	3074234vR		
64	IT Doc--Hewlett Packard Printers - Fault Logging Process	3120191vR		
65	IT Doc--ENMAC System Access	3130352vR		
66	IT Doc--MBS Access	3132673vR		
67	IT Doc--REMOTE ACCESS	3192167vR		
68	IT Doc--Collage Project Access	3192168vR		
69	IT Doc--Business Intelligence Requests	3192171vR		
70	IT Doc--New Engagement of Contractor	3201670vR		
71	IT Doc--Gentrack Velocity Access	3221739vR		

72	IT Doc-Hardware Catalogue	3225241vR		
73	IT Doc–Software Catalogue	3225292vR		
74	IT Doc- REQUEST FORM	3233156vR		
75	IT Doc–BlackBerry - Device Personalisation	3245028vR		
76	IT Doc- INFORMATION SHEET.	3278036vR		
77	Mobile Fleet Briefing Paper	3193894v2A		
78	Mobile Fleet Requirements	3213138v1		
79	Business Case to Executive Pole Management System – Operations Division	3247856v1		
80	Short Form Business Case			
81	Operational Performance Review – January 2011	3374574		
82	Pilbara branch - Port Hedland Emergency Evacuation & Environmental Response Plan	917038v5		
84	Port Hedland Emergency Evacuation Plan Shell Document	917043v1		
86	Esperance Depot Emergency Response Procedure	3133050v2		
88	Unassisted Pole Failure Investigation Procedure	3231453v2		
90	Life Cycle Cost Comparison Model Between Steel and Wood Poles	3248809v1		
92	Emergency Contacts – Esperance – 2010	3285796v1		
93	Emergency Desktop Exercise Esperance.	3299589v1		
95	Karratha Evacuation Drill Lessons Learnt & Feedback	3367986v1		
97	Transformer Capitalised Loss Calculations – Carnarvon (estimate)	3374525v1		
99	Broome Fire Drill Debrief	3375782v2		
101	Distribution Transformer Economic Analysis	3378751v1		
102	LCC comparison MV vs LED vs CFL	3382006v1		
103	Simple LCC (Table)			
105	New Engagement of Employee (includes access to it systems)	3003120v4		
106	Archiving in Lotus Notes	3004566v1		
107	IT& T Group Lotus Notes Calendar Quick Reference Guide	3013126v1		
109	Lotus Notes Cleanup Basics	3021861v1		
110	Instant Messaging Guide for Horizon Power Users	3030476v2		
111	Blackberry Enterprise Activation Guide	3069137v3		
113	Horizon Power DGM Access Request Form	3074234v2		
114	Hewlett Packard - How to log a Service Call	3120191v1		
115	MBS Access Application Form	3132673v3		
116	Remote Access Form	3192167v1		
117	Collage Project Access Form	3192168v1		
118	Business Intelligence Request Form	3192171v1		
119	New Engagement of Contractor Form (template)	3201670v3		
120	Velocity Access Form	3221739v1		
121	Horizon Power Computer Hardware Catalogue	3225241v1		
122	Horizon Power Computer Software Catalogue	3225292v1		
123	KTS Computer Hardware & Software Authority Form	3233156v1		
124	Knowledge and Technology Organisation Chart	3234375v12		
125	Setting Up Your Blackberry	3245028v1		
126	Information Sheet - New Staff Member IT Requirements	3278036v1		
127	SCADA Services - DFIS Group - DFIS DFMS Access Request Form	3043357v1		
128	ENMAC User Access Request Form	3130352v2		
129	EA 006 – Asset Management Systems Review 2009 (Qualeng) CURA Report		11/01/11	Hardcopy
130	Operations Internal Audit Assessments CURA Report		11/01/11	Hardcopy
131	Risk Assessment Audits Updated Plan – As at 11 April 2010		11/01/11	Hardcopy
132	District Asset Management Contingency Plan – Esperance	3180593v5	26/05/10	Hardcopy
133	Application for Authorisation to Work On or Near Horizon Power Networks	3166598v4		Hardcopy
134	Non-Conformance Report NCR # 00082	3105503		Hardcopy
135	Decommissioned Site Management: Review Methology	3207505		Hardcopy
136	Generation Asset Decommissioning and Disposal Plan	3190106		Hardcopy
137	Disposal of Land	3135412v2		Hardcopy
138	Asset Lifecycle Strategy	3239307		Hardcopy
139	DM6 Training Plan Roll-Out 2010	3236753		
140	Training Records – DM Training Attendance Session	3230120v1	21/10/10	
141	2011 BAU training schedule for Bentley	3361107v1		
142	DR Remediation	3401384		Hardcopy
143	Internal Audit Report - Business Transformation Portfolio Healthcheck IA085	3297315	01/10/10	
144	Internal Audit Report – IT General Controls IA086	3354661	01/11/10	
145	Esperance 2009-10 Wood pole testing QA pole list	3376716v1		
146	Knowledge & technology division Organisational Chart	3367284	01/01/11	Hardcopy
147	Project Flow and QA Procedure for All Work Types	3212393		
148	Network Diagram Updating Procedure (DFIS and ENMAC)	3174527		
149	As Constructed Drawing Requirements	3130572		
150				
151				

Appendix B

Previous Review Recommendations (Qualeng 2009 Review)

HORIZON POWER

HORIZON POWER ELECTRICITY LICENCE ASSET MANAGEMENT REVIEW

Post Review Implementation Plan

DMS#:3215054

Qualeng

Table 1: Post Review Implementation Plan

AMS Element	Recommendations	Actions	By Whom	Date
1	**Asset Planning**			
1.1	Review requirements for planning studies and prepare planning studies for Hopetoun, Norseman and other required localities.	a.) Review system planning study requirements that identifies frequency of studies and study criteria in conjunction with system load growth. b.) Request planning studies for Hopetoun and Norseman.	Bill Bignell Scott Frazer	30/03/10 30/04/10
1.1	Complete Distribution planning studies for Carnarvon and Kununurra.	a.) Complete Kununurra planning study. b.) Complete Carnarvon planning study.	Graham Vick Les Bardoe	12/04/10 12/04/10
1.1	Complete Carnarvon and Esperance Generation District Asset Management Plans (DAMPs). Missing data and follow-up actions need to be tracked.	a.) Complete and have approved Carnarvon Generation DAMP. b.) Incorporate actions in DAMP into OAMPs. c.) Incorporate missing data into next iteration of Esperance Generation DAMP.	DOOG DOOG DOOG	31/05/10 31/05/10 31/05/10
1.1	Complete Generation DAMPs to show compliance with the environmental analysis defined in section "Environmental Load Forecast" of the Transmission and Generation SAMP.	Incorporate environmental analysis into Asset Management Plan for Generation.	Robert Kerrigan	30/06/10
1.1, 1.8, 7.2	Document control system should be improved to ensure compliance of format and content across all planning documents such as DAMPs. Identify document author, reviewer and approver consistently. Ensure DAMPs are clearly identified when in draft and when approved. Consider a more robust document management system for version/revision control, document dissemination to stakeholders and general quality control.	Investigate and implement new document control system for AM plans, which will be in line with the new DMS system currently in procurement by Knowledge and Technology.	Document Controller	28/02/11

AMS Element	Recommendations	Actions	By Whom	Date
	Apply better version/revision control to ensure asset management plans follow one single development stream and no multiple versions exist.			
1.1, 1.8, 6.1, 7.2, 12.1	A control should be in place for the verification of the DAMPs accuracy, completeness and suitability for approval.	Implement interim documentation control solution of Asset Management Documents to identify owner, version and approval status, pending above action.	Document Controller	31/05/10
1.1, 1.8, 11.4, 12.1	Document and monitor update cycles for all key planning documents using CURA or equivalent control environment. Strengthen DAMP review control process by documenting deliverables and timeline for annual asset management planning documentation, disseminate responsibilities to districts and monitor due dates and status of preparation, review, approval, issue etc.	Implement AM plan cycle monthly status reporting that tracks progress against plan.	Robert Kerrigan	31/03/10
1.2, 4.4	Continue to ensure that performance benchmarks are being achieved or corrective actions are being raised as appropriate to minimise low results.	Enhance the monthly asset management performance report and the initiation of any identified corrective actions.	Brett Hovingh	31/10/10
1.3	Continue the demand side management trial leading to the development of guidance or methodology on the adopted approach.	Create formal procedure for demand site trials that identifies opportunities and success of trial.	Manus Higgins	31/12/10
1.4, 2.2	Complete development of life cycle costing model. Ensure consistent application of life cycle costing model across organisation.	a.) Complete life cycle costing model. b.) Implement and evaluate effectiveness of life cycle model.	Robert Kerrigan Robert Kerrigan	21/02/10 30/09/10

AMS Element	Recommendations	Actions	By Whom	Date
1.7, 8.2	Improve quality control over CURA data, remove duplication of risks from register, ensure all actions are allocated dates, responsible party and maintained current.	Update CURA actions with due dates and streamline actions where possible.	Phoebe Colman	31/03/10
2	**Asset Creation and Acquisition**			
2.4	Strengthen the consistency of project completion and/or final inspection sign-off in accordance with forms in use.	Reinforce and review compliance of project sign off and final inspection.	MBOs	30/06/10
2.5	[OFI] There may be scope for extending and better integrating the governance training system with other training areas of HP leading to a centralised training system.	HP are already in the process of implementing a central training system, therefore no action required.		
3	**Asset Disposal**			
3.2	Document policy and/or procedure for the treatment of under-utilised and/or poorly performing assets.	a.) Create policy on management of under utilised assets. b.) Create procedure on identifying and investigating under utilised assets.	Bill Bignell Robert Kerrigan	30/12/10 30/06/11
4	**Environmental Analysis**			
4.2	Confirm sufficient data being received from all IPP sites to measure compliance and document/report formally IPP performance. Obtain documentation on IPP contingency plans. Consider use of non- conformance reports to deal with IPP failures.	a.) Review and improve IPP performance data collation and include in monthly reports. b.) Include IPP performance data in DAMP template. c.) Consider and implement IPP non conformance reports if required. d.) Obtain copies of IPP contingency plans	Kevin Carey Robert Kerrigan Atul Garg Atul Garg	31/05/10 28/04/10 30/06/10 30/06/10

AMS Element	Recommendations	Actions	By Whom	Date
4.2	[OFI] Investigate the feasibility of placing back to back responsibility on the IPPs in future Service Level Agreements for compliance with the regulatory requirements.	Enhance new IPP PPAs to include regulatory compliance.	Atul Garg	30/04/10
4.2	[OFI] Consider adding contingency/emergency response measures to the balanced scorecard.	Consider Including contingency perfonmance/trials on balanced scorecard.	Phoebe Colman	31/05/10
5	**Asset Operations**			
5.1	Ensure site manuals are kept up to date.	a.) Review and enhance site emergency manuals. b.) Update Wyndham site emergency manuals. c.) Continuous review of manuals to be undertaken in conjunction with implementation of the Electricity Safety Case.	DBMs Tony Lister Document Controller	30/06/10 31/03/10 01/12/10
5.1	Continue with documentation of procedures for HPCC activities, including a procedure for the verification of fault reports.	Develop a plan for the completion of HPCC documentation and monitor progress against it, with a plan finalising a completion date.	Alf Martin	30/07/10
5.3	Complete measures to streamline and integrate various 'Asset Register' systems.	Complete business case for amalgamation of asset registers.	Bill Bignell	31/10/10
5.3	Complete project to update data associated with asset age profiles.	Complete the data verification project.	Nia Nguyen	30/04/10
5.3, 7.2	Program to verify and correct inaccurate data in asset registers should be continued and completed. While resources have been allocated to correct the data, there is a need to better quantify the task and resource requirements.	Network maintenance management interim instruction issued 06/11/09 that targets data correctly aligned with next inspection cycle. A more detailed instruction to be issued in 2010.	Brett Hovingh	30/06/10

AMS Element	Recommendations	Actions	By Whom	Date
5.5	Proceed with consolidation of training records and training system.	HP have already commenced implementation of a central training register, therefore this action is not required.		
5.5	Document training needs and program for HPCC staff.	Review and enhance the HPCC training competency program modules that provide assurance of competencies for both existing and future Controllers.	Shane Eeles/Paul Elliott	30/11/10
5.5	Record training attendance and competency requirements for staff in HPCC.	Track HPCC staff employees progression against competencies.	Alf Martin	30/06/11
6	**Asset Maintenance**			
6.2	Confirm that all inspection plans are being carried out as scheduled including transmission and substation inspection. Reports and data on transmission assets, including substation inspection and status of the assets should be made available to the respective district management.	a.) Develop inspection reporting that includes transmission substation inspections in accordance with maintenance schedule b.) Develop substation maintenance schedule for each district for their reference.	Kevin Carey Wayne Karslake	31/05/10 31/05/10
6.2	Document requirements for Quality Assurance/Auditing inspections for wood pole maintenance in asset management plans. Plan and carry out QA inspections in a timely fashion.	a.) Develop wood pole inspection QA requirements. b.) Implement wood pole inspection QA.	Nia Nguyen Scott Frazer/Les Bardoe	30/06/10 31/07/10
6.2	Implement consistent completion and/or final inspection sign-off.	Implement final inspection sign off.	DOOs	31/07/10
6.4	Recording and management of non-safety related incidents should be implemented using CINTELLATE or similar system.	Develop a system for tracking non run to fail asset failures that identifies root cause and areas of improvement.	Robert Kerrigan	31/05/10

AMS Element	Recommendations	Actions	By Whom	Date
6.4	[OFI] Where applicable there should be more in depth analysis of main contributors to low reliability figures for assets.	a.) Enhance fault case reporting analysis in DAMP template. b.) Review TCS capabilities to identify and record asset type failure to determine which system will become Horizon Power's asset failure database.	Robert Kerrigan Paul Elliott	30/04/10 30/04/10
7	**Asset Management Information Systems**			
7.1	With introduction of new systems review/upgrade IT system documentation and training requirements.	Incorporate into transformation scope of work requirements to prepare system documentation, training documentation and update system architecture documentation.	Geoff White	30/06/10
7.2	DFMS system lacks a facility to store historical data. If new data is entered in error previous data cannot be viewed or restored. There should be consideration of a facility to view the asset historical records and recover from errors.	As part of the IT Separation Programme add to DFMS replacement specification a requirement for historical asset data review, to be fully implemented, subject to funding, by 30/06/12.	Brett Hovingh	30/06/10
7.4	Re-visit and apply physical security/access restrictions to Esperance depot.	Review, reinforcement and monitoring of current Esperance security access restriction protocols, including repairing the operations yard electronic access gate. There will be a new Esperance depot constructed in 2011/12, and security requirements will be enhanced then.	Layton Baker	31/05/10
7.4	[OFI] Consider improvement in safety/visitor induction procedures for Esperance office/depot.	Standardise depot inductions across all 6 district sites.	Heather Jarvis	30/06/10
7.5	Confirm and maintain test records for data backup and restoration across all systems/databases.	Backup tapes are tested on a regular basis through the provision of file restores at the request of end users. Records for these restores are maintained in the HP OpenView Service Desk application. Given the frequency of these requests (approximately 2 -5 per week) and the random nature of the time HP are required to restore from, we feel that the backup tapes are being adequately tested. No further action is required.		

AMS Element	Recommendations	Actions	By Whom	Date
7.5	Document procedure for restoration of IT systems to minimise down time. Educate personnel on restoration procedures.	a.) Risk and Audit group is currently conducting a Business Impact Analysis of the existing IT restoration procedures to determine HP's tolerance for the loss of key systems. b.) Knowledge and Technology group will conduct an assessment of current IT recovery solution against the Business Impact Analysis results to identify potential gaps and initiate improvement projects.	Liang Tay	31/01/10
7.6	[OFI] There may be an opportunity for improvement in documenting the method for monitoring and verifying fault data entry.	This action is not required as HP has introduced a new trouble call system (TCS) which requires fault verification to be undertaken by the asset owner on a weekly basis.		
8	**Risk Management**			
8.1	[OFI] Consider evaluation of internal risks such as loss of key specialists in the organisation, loss of corporate systems (CURA etc.).	HP does consider internal risks and these are included on the Horizon Power risk register (as distinct from the Operations risk register) as some of these issues are HP-wide and not just owned by Operations. I.e. Loss of IT systems is on our top risk register, as is staff retention. No further action required.		
8.2	[OFI] Link risks from Risk Register to DAMPs (improve transparency).	Incorporate risk numbers into DAMPs when requesting a new risk audit or new capital projects.	DOOs/Rob Kerrigan	31/05/10
9	**Contingency Planning**			
9.1	Finalise and issue District Contingency Plans.	Update district contingency plans to new format.	DBMs	28/05/10
9.1	Identify and document specific contingency procedures in district contingency plans, for example, Carnarvon Generation plan should include the response plan for the loss of PLC software.	Incorporate into district network contingency plans template generation assets and specific power station systems contingencies or substation controls.	Paul Elliott	30/06/10

AMS Element	Recommendations	Actions	By Whom	Date
9.1	Effective management of testing of emergency procedures is recommended. Review of emergency response and recording of debrief sessions and improvement action should be carried out in accordance with the procedures, alternatively procedures should be reviewed and revised if necessary. Similarly for testing of evacuation procedure.	a.) Schedule annual depot emergency evacuation test, conduct debrief review of performance and implement identified improvement actions. b.) Schedule annual desktop asset contingency trial, conduct debrief review of perfonnance and implement identified improvement actions.	DBMs DBMs	31/03/10 31/07/10
9.1	There is a need to include in each district plan, a clear strategy on how a loss of IPP supplies will be managed and to identify where, when, how and to what extent alternatives will be available.	Include loss of IPP supplies in contingency plan template.	Paul Elliott	30/06/10
10	**Financial Planning**			
10.6	[OFI] Review the use of existing project variance documentation.	Enhance compliance to variation processes and reintroduce procedure.	MBOs	31/05/10
11	**Capital Expenditure Planning**			
11.1	Complete operations management plans for each district.	Complete and finalise OAMPs in line with the annual planning cycle.	DBMs	30/06/10
12	**Review of AMS**			
12.1	Recommendation included in 1.1 Asset Planning.			

Appendix C
Post Review Implementation Plan

HORIZON POWER

HORIZON POWER ELECTRICITY LICENCE ASSET MANAGEMENT REVIEW

Post Review Implementation Plan 2011

Qualeng

DM#:3418113v2

Table I: Post Review Implementation Plan

AMS Element	Recommendations	Actions	By Whom	Date
1	**Asset Planning**			
1.3 Non-asset options (e.g. Demand management) are considered.	Continue with the evaluation of demand side management trial and the development of policy and procedures.	1) Progress the Grid Support Service (GSS) to Gate 4 (Product Launch). Includes operational rollout of dispatch process and integration into operational management practices.	Scott Davis	30/11/2011
		2) Integrate Demand Side Management products into the Demand and Energy forecast to inform generation investment decisions, with a sales target of 815 kW of GSS to cover the 2012/13 summer.	Scott Davis	30/04/2012
3	**Asset Disposal**			
3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process.	Consider a policy and/or procedures to clarify treatment of under-utilisation.	Develop under utilised asset policy for future treatment of assets that are not fully utilised.	Bill Bignell	31/01/2012
3.2 The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken.	Consider a policy and/or procedures to clarify treatment of under-utilisation.	Incorporation of the explicit process and procedures included in the 2011/12 AMP Cost Module no. 9 DM#:3371520.	Bill Bignell	Complete
4	**Environmental Analysis**			
4.4 Achievement of customer service levels.	[OFI] District reports could include wood pole inspections / QA audits targets and actuals (also at item 6.2).	Add number pole inspections and QA inspections required per year and monitor against completion and performance targets to Asset Management Report.	Simon Duggan	01/12/2011

AMS Element	Recommendations	Actions	By Whom	Date
5	**Asset Operations**			
5.1 Operational policies and procedures are documented and linked to service levels required.	The finding of contract personnel without the required competency on work sites shows that the auditing process is effective, however an improvement is required on the system of project supervision/contractor approval to prevent non qualified contractor personnel from entering job locations and endangering themselves and other workers.	Horizon Power holds forums with its contractors to explain the contractor authorisation system. In addition, on 29/04/11, Horizon Power wrote to all its contractors reinforcing use of the contractor authorisation process. The current contractor authorisation system requires tender recommendations to be reviewed to ensure the contractors are authorised. Action: Provide access to all relevant Horizon Power staff of the authorised contractor data base for assessment and management of contractors.	Shane Eeles	31/12/2011
5.3 Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical / structural condition and accounting data.	Continue the implementation of streamlined asset record systems. Continue to update asset registers to improve the accuracy of the data.	1) Execution of the Business Transformation Program. 2) The Monthly Asset Management Report lists various data accuracy issues for each region and sets targets for correcting the data.	Geoff White Simon Duggan	31/12/2012 Complete
5.5 Staff receive training commensurate to their responsibilities.	Develop and implement a competency training schedule for HPCC operators. Ensure appropriate training at HPCC is conducted in a timely fashion. Complete and deliver HPCC training modules. Consider adding HPCC/ENMAC training and certification into VETtrack.	1) Document the training modules for the use of HPCC systems and processes. 2) Develop the HPCC Operators training courseware and assessment. 3) Commence delivering HPCC/ENMAC training against the schedule and have the training recorded in VETtrack.	Shane Eeles Shane Eeles Shane Eeles	30/12/2012 30/12/2013 30/06/2012

AMS Element	Recommendations	Actions	By Whom	Date
6	**Asset Maintenance**			
6.2 Regular inspections are undertaken of asset perfomance and condition.	**[OFI]** There may be a need to review a possible gap in transmission maintenance services delegation which may preclude access to systems records and Work Orders to staff when senior staff are away.	The two new staff in Karratha office have now received training in Ellipse and a performance plan will be put in place to ensure that future skill up take is monitored and needs addressed. The perceived gap in resources and access was generated out of compliance to the HR policy of only 'acting' someone into a role when the incumbent was on leave greater than 1 working week.	Paul Elliott	01/10/2011
	[**OFI**] District reports could report on wood pole inspections / QA audits targets and actuals as part of their performance monitoring. (also at item 4.4)	See action item 4.4		
7	**Asset Management Information Systems**			
7.5 Data backup procedures appear adequate.	Continue with separation program from Western Power and ensure that processes of software acceptance, back up, restoration are robust, documented and transparent.	1) The separation program will follow the Horizon Power processes for Project Handover to Production Checklist DM#:3377791.	Paul Thomas	Complete
	Ensure that there is a process for recording, investigating and following up to conclusion of IT incidents.	2) The process for recording, investigating and follow up of IT incidents is included in Horizon Power's Disaster Recovery Plan DM#:3400914.	Paul Thomas	Complete
9	**Contingency Planning**			
9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks..	Identify and document specific contingency procedures in district contingency plans, for example, Carnarvon Generation plan should include the response plan for the loss of PLC software	Incorporate into district contingency plan template both generation assets and specific power station systems contingencies or substation controls.	Paul Elliott	01/08/2011

AMS Element	Recommendations	Actions	By Whom	Date
12	**Review of AMS**			
12.2 Independent reviews (e.g. internal audit) are performed of the asset management system.	There may be a need for IT to carry out audits of software applications to ensure their performance and implementation, this may be appropriate for the validation of the Transformation Program.	Horizon Power has Guidelines for Service Handover to Production to continuously look at software to ensure there is no duplication and for compliance with licensing and maintenance DM#:3198276.	Paul Thomas	Complete

Appendix D
Field Visits

APPENDIX D: FIELD VISITS

Field visits were included in the the review plan to assess the compliance of Horizon Power asset management system. The scope of the field work was proposed by Qualeng and then approved by the Authority to include the following depots and districts:

1. Carnarvon depot, Gascoyne district,
1. Karratha depot, West Pilbara district,
2. Port Hedland depot, East Pilbara district, and
3. Esperance depot, Esperance district.

Findings and recommendations arising from the site visits have been included in the body of the report. The table below provides the timeline and staff interviewed during each of the visits:

Table 7: Field Visits

Location	Dates Visited	Criteria
Carnarvon	21-22 March 2011	• Mark Milton, DOO Generation • Les Bardoe, DOO Network • Edgar Marapili, PSO Performance • David Shelton, CCRM
Karratha	28 and 30 March 2011	• Nick Lockwood, DBM • Paul Elliot, Manager System Operations • Roman Raudonikis, CCRM • Wayne Karslake, DOO Transmission • Marty Panting, DOO Networks • Alf Martin, Superintendent HPCC • Paul Deen, Transmission Linesman
Port Hedland	29 March 2011	• Bob Cirulis, DOO - Generation • Ben Mason, Transmission Officer • Chelsey Podmore, Customer Services Officer
Esperance	5 April 2011	• Layton Baker, DBM • Scott Frazer, DOO

Where:

DBM = District Business Manager

DOO = District Operations Officer

CCRM= Community and Customer Relations Manager

PSO= Power Systems Officer