McGill Engineering Services Pty Ltd



Engineering, Adjudication & Arbitration Services ABN 45 106 691 169

NEWGEN NEERABUP PARTNERSHIP

GENERATION LICENCE EGL 18

ASSET MANAGEMENT SYSTEM REVIEW

Prepared By Kevan McGill Date 9 August 2010



McGill Engineering Services Pty Ltd

Engineering, Adjudication & Arbitration Services ABN 45 106 691 169

Phillip MacMahon Operations Manager ERM Power PO Box 7152 Riverside Centre Queensland 4000

Dear Mr MacMahon

Asset Management System Review Electricity Licences

The fieldwork on the asset management system review of Generation Licence EGL 18, for the review period (26 March 2008 to 31 March 2010) is complete and I am pleased to submit the report to you. The report reflects my findings and opinions.

The Licensee is an entity established by the owners to operate and maintain the plant and accordingly the full scope of asset management is not able to be carried out by the Licensee.

In my opinion, the Licensee maintained, in all material aspects, effective control procedures in relation to the Generation Licence (EGL 18) for the review period and in my opinion, for the functions that it is able to carry out, the Licensee maintained an effective asset management system in relation to the Generation licence (EGL 18) for the review period on the relevant clauses referred to within the objectives section of this report.

Yours sincerely

Kevan McGill Director

Date 9 August 2010

TABLE OF CONTENTS

Executive Summary	4
Overall Conclusion	4
Asset Management System Review	4
Ratings	4
Asset Management System Review	6
Asset Management System Review Objectives	6
Licensee's business	7
Review (audit) Period	8
Scope Limitation	8
Statement of Independence	9
Recommendations	9
Review Evidence	11
Asset management system review results and recommendations	12

Executive Summary

This asset management review was conducted in accordance with the guidelines issued by the Economic Regulation Authority (*Authority*) for the review period (26 March 2008 to 31 March 2010).

The plant is new and this is the first review. The plant is a gas turbine operating in the WEM as a peak mode plant when the SWIS is operating near maximum generation demand. The plant consists of 2 Siemens 170MW open cycle gas turbines operated as one unit with a single 330KV Western Power transmission line connecting to the Western Power Neerabup substation. The gas supply is by a full sized (26 inch) lateral from the Dampier to Bunbury Natural Gas Pipeline.

OVERALL CONCLUSION

The Licensee is an entity established by the owning partners to operate and maintain the plant and accordingly the full scope of asset management is not able to be carried out by the Licensee. The Licensee's business model and resources are those consistent with operating and maintaining gas turbine generation plant and does not have the capacity to undertake strategic asset management functions. The Licensee cannot require the owning partners to carry out these strategic functions and if the owning partners do, at their discretion, carry out these functions they may or may not involve the Licensee.

In my opinion, the Licensee maintained, in all material aspects, effective control procedures in relation to the Generation Licence (EGL 18) for the review period.

In my opinion, for the functions that it is able to carry out, the Licensee maintained an effective asset management system in relation to the Generation licence (EGL 18) for the review period on the relevant clauses referred to within the objectives section of this report (Page 6).

ASSET MANAGEMENT SYSTEM REVIEW

A summary of the findings of the asset management system review is:

RATINGS

The reviewer's assessment of both the process and policy definition rating and the performance rating for each key process in the Licensee's asset management system is assessed using the scales described below.

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.

В	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).
с	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).

Asset management review effectiveness rating scale

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.

The overall effectiveness rating for asset management process is based on a combination of the process and policy adequacy rating and the performance rating.

The summary table used to report effectiveness in asset management review reports is shown below.

Asset management effectiveness summary

ASSET MANAGEMENT SYSTEM	Asset management process and policy definition adequacy rating	Asset management performance rating
Asset planning	Not Rated	Not Rated
Asset creation/ acquisition	Not Rated	Not Rated
Asset disposal	Not Rated	Not Rated
Environmental analysis	В	2
Asset operations	A	1
Asset maintenance	A	1
Asset Management Information System	A	1
Risk Management	В	2
Contingency planning	В	2
Financial planning	A	1
Capital expenditure planning	A	1
Review of AMS	Not Rated	Not Rated

It is not implied that any assessment at "A" or "1" means that there is not scope for continuous improvement, rather that no recommendations for improvement have been recommended in this report.

ASSET MANAGEMENT SYSTEM REVIEW

ASSET MANAGEMENT SYSTEM REVIEW OBJECTIVES

Under the *Electricity Industry Act 2004* (the Act) section 14, a generation Licensee must develop and maintain an asset management system to manage the significant asset base for ongoing service delivery to its customers. The Act requires a review of the asset management system every two years (or other time approved by the *Authority*).

This report is an impartial review of the Licensee's asset management effectiveness under the ERA guidelines.

The review conducted between May and July 2010 examined the asset management processes used by the Licensee in delivering the services to its customers. These services include lifecycle processes for:

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

As well as the processes, the asset management supporting systems were tested as to their use and effectiveness. Data used by the Licensee was also examined with respect to its effectiveness for asset management and the delivery of outcomes.

Tests were undertaken through interviews and investigation of the processes to assess whether they were being performed as documented.

The Licensee appointed McGill Engineering Services Pty Ltd to conduct the review of its Generation Licence with approval from the Authority. A preliminary assessment was conducted with the Licensee's management to determine the inherent risk and the state of control for each compliance element of the Licence obligation. McGill Engineering Services Pty Ltd then prioritised the audit coverage based on the risk profile of the Licensee with an emphasis on providing greater focus and depth of testing for areas of higher risk to provide reasonable assurance that the Licensee had complied with the standards, outputs and outcomes under the Licence obligations.

The audit was conducted in a manner consistent with Australian Auditing Standards (AUS) 808 "Planning Performance Audits" and AUS 806 "Performance Auditing". McGill Engineering Services Pty Ltd evaluated the adequacy and effectiveness of the controls and performance by the Licensee relative to the standards referred in the Generation Licence through a combination of enquiries, examination of documents and detailed testing for Electricity Generation Licence EGL 18 for the Licensee.

LICENSEE'S BUSINESS

The Licensee is an entity set up by its owning partners to operate and maintain the generation plant. As a consequence not all of the asset management system elements are carried out by the Licensee. The plant is a gas turbine operating in the WEM as a peak mode plant when the SWIS is operating near maximum generation demand. The plant consists of 2 Siemens 170MW open cycle gas turbines operated as one unit with a

single 330KV Western Power transmission line connecting to the Western Power Neerabup substation. The gas supply is by a full sized (26 inch) lateral from the Dampier to Bunbury Natural Gas Pipeline.

REVIEW (AUDIT) PERIOD

The review (audit) period is 26 March 2008 to 31 March 2010.

SCOPE LIMITATION

The review was undertaken by examination of documents, interviews with key persons and observations and is not a detailed inspection of physical items.

There are no actions taken in response to recommendations in previous review to follow up as this is the first audit.

The report to the Licensee and the *Authority* clearly expresses the opinion of the reviewer in respect of the findings of the review.

The key contacts were:

- Licensee
 - Philip MacMahon Operations Manager, Bruno Lanciano Power Station Manager and Alison Jones Admin Assistant;
- McGill Engineering Services Pty Ltd
 - Kevan McGill, John McLoughlin

The audit was conducted during May and July 2010. Kevan McGill took 90 hours and John McLoughlin 6 hours on the review.

\Stage	Auditor	Standard
1. Risk & Materiality	K McGill	ASA 300 Planning
Assessment Outcome		ASA 315: Risk Assessments and
- Operational/		Internal Controls
Performance Audit		AUS 808: Planning Performance
Plan		Audits
		AS/NZS 4360:2004: Risk Management
		ERA Guidelines
2. System Analysis	K McGill	AUS 810: Special Purpose Reports on
		Effectiveness of
		Control Procedures
0 Fieldwerk		
3. Fieldwork	K McGill	AUS 502: Audit Evidence
Assessment and	John Mel eughlin	AUS 806: Performance Auditing
testing of;	McLoughlin	
 The control 		
environment		
 Information system 		
 Compliance 		
procedures		

Compliance attitude		
4. Reporting	K McGill	ASA 300 Planning
		AUS 806: Performance Auditing

STATEMENT OF INDEPENDENCE

To the best of my knowledge and belief, there is no basis for contraventions of any professional code of conduct in respect of the audit.

I have not done or contemplate undertaking any other work with the Licensee.

There are no independence threats due to:

- self-interest as the audit company or a member of the audit team have no financial or non-financial interests in the Licensee or a related entity;
- self-review no circumstance has occurred where:
 - the audit company or a member of the audit team has undertaken other nonaudit work for the Licensee that is being evaluated in relation to the audit/review; or
 - when a member of the audit team was previously an officer or director of the Licensee; or
 - where a member of the audit team was previously an employee of the Licensee who was in a position to exert direct influence over material that will be subject to audit during an audit/review.

There is no risk of a self-review threat as:

- no work has been
 - undertaken by the auditor, or a member of the audit/review team, for the Licensee within the previous 24 months; or
 - the auditor is currently undertaking for the Licensee; or
 - the auditor has submitted an offer, or intends to submit an offer, to undertake for the Licensee within the next 6 months; and
- familiarity there is no close family relationship with a Licensee, its directors, officers or employees,
- and is not nor is perceived to be too sympathetic to the Licensee's interests.

RECOMMENDATIONS

The conclusions of each of the elements of the licence are summarised in the following table.

Asset operations	Process/Policy rating A	Effectiveness rating
5. Asset operations		I
Operations functions relat levels and costs.	e to the day-to-day running of asse	ts and directly affect service
Recommendation		
	scheduling regular starts to verify the recommendation Audit guidelines	

Risk management	Process/Policy rating	Effectiveness rating
	В	2
8. Risk management		
Risk management involves the i acceptable level of risk.	dentification of risks and their ma	anagement within an
Recommendation		
5	ping safety risk management as plant as for the pipeline. (Non ma s 11.9).	
The commercial risks should be	assessed and documented. (No	n mandatory

recommendation Audit guidelines 11.9).

Contingency planning	Process/Policy rating B	Effectiveness rating 2
9. Contingency planning		
Contingency plans document th	e steps to deal with the unexpec	ted failure of an asset.
Recommendation		
5	pping contingency plans arising fillans for the generators. (Non ma	2
•	ng generator circuit breakers at recommendation Audit guideline	

REVIEW EVIDENCE

The following evidence was considered.

- Generation Licence
- Asset management agreement
- Decommissioning Plan
- Asset management system document
- Financial statements
- Job safety and environmental analysis procedure
- Licence fee invoices, journal entries
- Land lease payments
- Outage reports
- Servers back up schedules
- ERA annual returns
- Gas Pipeline Commissioning, Operations and Maintenance Hazard identification report

ASSET MANAGEMENT SYSTEM REVIEW RESULTS AND RECOMMENDATIONS

Process/Policy rating

Effectiveness rating

Abbert lanning	Not Rated	Not Rated
1. Asset planning		
	cused on meeting customer need the right service at the right price	
Observations		
plant and accordingly the full sco the Licensee. The Licensee's bu operating and maintaining gas to undertake strategic asset manage owning partners to carry out the	<i>id its currency</i> ished by the owning partners to a ope of asset management is not usiness model and resources are urbine generation plant and does gement functions. The Licensee se strategic functions and if the a functions they may or may not in	able to be carried out by those consistent with not have the capacity to cannot require the owning partners do, at
	f life asset management plan for nnual, and five year plans includ	
 Operating budget Capital budget Scheduled maintenance Major overhaul plans Planned outages Technical issues Cash flow forecast Opportunities and Threat compliance, with key act KPI's Performance review (finate Operating statistics 	c .	et, contracts, regulatory
be carried for the owning partne covering the broader or strategic decisions if and when to invest a	ers the asset management obliga rs. However, there is no formal s c elements by the Licensee. The and will make the disposal decisi Brisbane) which has the capacit arry them out for the Licensee.	strategic asset plan owners make the ons. The owners have a

Allocation of responsibilities / statutory obligations

The organisational arrangements allocate responsibilities. There is documentation (such as the owners (ERM Power Pty Ltd) policy manual) requiring compliance with statutory obligations. Staff responsibilities are assigned in local plan and policy documents.

Evaluation Criteria summary

Asset Planning

•	Planning process and objectives reflect the needs of all stakeholders and is
	integrated with business planning

Response:	The Licensee cannot carry out these functions and if they are carried out it
	will be by the owning partners. For the functions carried out by the Licensee
	the AMP meets the requirement.

• Service levels are defined

Response: The AMP defines service levels.

- Non-asset options (e.g. demand management) are considered
- Response: The Licensee cannot carry out these and if they are carried out it will be by the owning partners. The Licensee is responsible for the utilisation of the existing plant which is very low as it is a peaking plant with capacity to increase utilisation subject to availability of fuel and IMO requiring extra despatch of this plant.
- Lifecycle costs of owning and operating assets are assessed
- Response: The AMP meets this criterion as lifecycle costs of owning and operating assets are assessed.
- Funding options are evaluated
- Response: The Licensee cannot carry out evaluation of funding options for development outside this plant and if it is carried out it will be by the owning partners. The Licensee has been given a funding model by the owning partners for the licensed plant but this does not extend beyond this scope.
- Costs are justified and cost drivers identified
- Response: Costs of the plant are monitored and costs are justified and cost drivers identified for the licensed plant.
- Likelihood and consequences of asset failure are predicted
- Response: The AMP meets this criterion as there are risk assessments of asset failure and consequences.
- Plans are regularly reviewed and updated
- Response: The review of the broader aspects cannot be undertaken by the Licensee but the AMP with the owners can be reviewed but as the plant has been commissioned about 12 months there is no evidence to assess review.

Asset ma	nag	ement process a	nd	oolicy definition			
Process	×	Policy	×				
Evidence: interviewed Philip MacMahon and listed staff on site. Inspected site. Documents: Include Asset Management agreement, Asset management system document, Risk management policy, Decommissioning plans, Financial statements, Job safety and environmental analysis procedure, Outage reports and Gas Pipeline Commissioning, Operations and Maintenance Hazard identification report.							
Asset management performance							
Process 🗵 Documentation 🗵 Availability 🗵 Use 🗵							
Issues							
The Licensee has an agreement with the owners to carry out the asset management of the plant to defined service levels. The Licensee conducts the shorter timeframe asset management elements, (operations, maintenance and contingency planning) and longer term issue for the licensed assets such as the environment and whole of life of the plant							

issues. Other than a strategic overview, the elements of an asset management process exist.

The owning bodies such as ERM Power Pty Ltd in Australia carry out the long term and strategic elements of an asset management system. The Licensee does not carry out these functions as it is not within their capacity to undertake this work. There has been no broad asset planning activity in the review period.

The rating based on the scope of asset management available to the Licensee is A/2 with good documentation but as the plant is new there will be scope to improve with experience. As the Licensee is unable to carry out all the roles defined in the Audit Guidelines the ratings are Not Rated/ Not Rated.

Recommendation

None - as the Licensee will never have the capacity to undertake the strategic roles.

Rating

Process/Policy rating Not Rated Effectiveness rating Not Rated

Asset Creation	Process/Policy rating	Effectiveness rating
	Not Rated	Not Rated

2 Asset creation and acquisition

Asset creation/acquisition means the provision or improvement of an asset where the outlay can be expected to provide benefits beyond the year of outlay.

Observations

Policies and procedures for asset creation / sample creation activities

Procurement of major electricity plant is a very significant exercise taking considerable time. There has been no asset creation of the generation plant in the audit period. The responsibility for asset creation does not belong to the Licensee as the Licensee's business model and resources are those consistent with operating and maintaining gas turbine generation plant and they do not have the capacity to undertake asset creation functions. The owners have a Business Development team with the capacity to carry out these functions. There has not been any major capital development since commissioning

Meeting statutory obligations

There are documents requiring employees and contractors to meet statutory obligations.

Evaluation Criteria summary

• Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions

Response: The Licensee cannot carry out these functions as the Licensee's business model and resources are those consistent with operating and maintaining gas turbine generation plant and they do not have the capacity to undertake asset creation functions.

• Evaluations include all life-cycle costs

Response: The Licensee cannot carry out these functions as the Licensee's business model and resources are those consistent with operating and maintaining

	gas turbine gene asset creation fur		nd they do not	nave the ca	apacity to undertake
Projects	s reflect sound eng	gineering and	business decis	sions	
Response:	There will be no a	sset creation	by the License	e.	
Commis	ssioning tests are	documented a	and completed		
	and when the op place – before or completed and d checklists.	erating and m after commis ocumented wi	aintenance cor sioning. The co th acceptance	ntract with to mmissioni testing and	
underst	ood	-	-		er are assigned and
Response:	the Licensee in the partners.		•	•	stem) are assigned to y the owning
Asset man	agement proces	s and policy	definition		
Process	Policy	×			
Documents: Include Asset Management agreement, Asset management system document, Risk management policy, Decommissioning plans, Financial statements, Job safety and environmental analysis procedure, Outage reports and Gas Pipeline Commissioning, Operations and Maintenance Hazard identification report. Asset management performance					
Process	Documentatio	on 🗵 Avail	ability 🗵	Use	X
Issues					1
The owning bodies such as ERM Power Pty Ltd in Australia carry out the long term and strategic elements of an asset management system. The Licensee does not carry out these functions. There has been no asset creation activity in the review period. The rating based on the scope of asset management available to the Licensee is B/4 with good documentation developed by the owning partners but there is no likelihood of asset creation happening and if any asset creation occurs the owning partners will make the decisions. As the Licensee is unable to carry out all the roles defined in the Audit					
Guidelines the ratings are Not Rated/ Not Rated.					
Recommendation					
None - as t roles.	he Licensee will r	ever have the	capacity to ur	dertake the	e asset creation
	he Licensee will r	never have the	e capacity to ur	dertake the	e asset creation

	1						
Asset Disposal	Process/Policy rating Not Rated	Effectiveness rating Not Rated					
3. Asset disposal							
Effective asset disposal framew disposal of surplus, obsolete, u	-						
evaluated in cost-benefit terms.							
Observations							
Policies and procedures for ass							
There is no disposal action in the plans to decommission the	• •						
asset disposal belongs with the							
Business Development team to	-	•					
commitments with their financie	ers about disposal of significant	assets.					
Meeting statutory obligations There are documented obligation	one of the Lieoneoe's omnloves	a to comply with statutory					
obligations.	ons of the Licensee's employee						
Evaluation Criteria summary							
2	forming assets are identified a	s part of a regular					
systematic review process	-						
	Response: The Licensee is responsible for the utilisation of the existing plant which is very low as it is a peaking plant with capacity to increase utilisation subject to						
availability of fuel and IMO requiring extra despatch of this plant. The							
operation and main performance.	tenance contract with the owne	ers has a focus on					
•	ation or poor performance are c	critically examined and					
corrective action or disposal							
Response: The Licensee has new plant which has not been despatched on load and underutilisation is natural for peaking plant. The operation and maintenance							
contract with the owners has a focus on performance.							
Disposal alternatives are eva							
Response: There is no likelihoo not be a decision by	od of disposal of the plant as it / the Licensee but by the ownir						
There is a replacement strat	2	9					
Response: The AMS meets this	s criterion and allow for equipm	ent replacement but not					
plant replacement.							
Asset management process a	and policy definition						
Process 🗵 Policy	×						
Evidence: interviewed Philip M		•					
Documents: Include Asset Man document, Risk management p	č	•					
safety and environmental analy	sis procedure, Outage reports	and Gas Pipeline					
Commissioning, Operations and	d Maintenance Hazard identific	ation report.					

Asset ma	inag	ement performar	nce				
Process	Ø	Documentation	×	Availability	×	Use	×
Issues	I	<u> </u>		I			I
strategic e these fund The rating Rated with happening As the Lic	belemiction: bas bas b a d g and cense	ents of an asset n s. There has beer sed on the scope o lecommissioning p	nana n no of as olan osal rry o	agement system. asset disposal ac set management but there is no lik occurs the ownin	The tivity avai eliho ng pa	Licensee c in the revi lable to the bod of asse intners will	e Licensee is B/Not et disposal make the decisions.
Recomm	enda	ation					
None - as roles.	the	Licensee will neve	er ha	ave the capacity to	o uno	dertake the	e asset disposal
Ratings							
Process/	Polic	cy rating No	ot Ra	ated Effective	enes	s rating	Not Rated

Environmental analysis	Process/Policy rating B	Effectiveness rating				
4. Environmental analysis						
Environmental analysis examines the asset system environment and assesses all external factors affecting the asset system.						
Observations						
Standards / monitoring / reporting / breaches The Licensee has environmental management policies. Reporting and monitoring tools are appropriate.						
The Licensee has air and water discharge environmental licences.						

The owners have the responsibility for market surveillance for expansion opportunities or threats. The owners have a Business Development team to carry out these functions. The Licensee has in its whole of life asset plan, gas sharing with the Kwinana plant and operational strategies for differing gas availability of this plant for 30 years.

The principal external threat is gas availability. There is some line pack available as the pipeline is as large as the Dampier/Bunbury pipeline and this will give about 9 hours running. The customer has some capacity to allocate gas but otherwise there is no alternative but to constrain operation to the level of gas available. There are no major spares holdings for critical plant failures such as a generator transformer. Critical minor spares are held.

The input of the external environment to asset planning is carried out by the Licensee for

this plant but not strategic environmental issues. Evaluation Criteria summary • Opportunities and threats in the system environment are assessed Response: Opportunities/threats for this plant are part of the contract with the owning partners. The Licensee cannot carry out the external functions as the Licensee's business model and resources are those consistent with operating and maintaining gas turbine generation plant and they do not have the capacity to undertake external environmental functions outside those affecting this plant. • Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved Response: The local AMS meets this criterion with service standards defined and measured but there has been no operation on despatched load to assess achievement of performance. • Compliance with statutory and regulatory requirements Response: The AMS meets this criterion and the Licensee's policy documents require compliance with statutory and regulatory obligations. There have been no environmental breaches. • Achievement of customer service levels Response: The plant has not been despatched on load to assess performance. Asset management process and policy definition Process Policy Evidence: interviewed Philip MacMahon and listed staff on site. Inspected site Documents: Include Asset Management agreement, Asset management system document, Risk management policy, Decommissioning plans, Financial statements, Job safety and environmental analysis procedure, Outage reports and Gas Pipeline Commissioning, Operations
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Response: The AMS meets this criterion and the Licensee's policy documents require compliance with statutory and regulatory obligations. There have been no environmental breaches. • Achievement of customer service levels Response: The plant has not been despatched on load to assess performance. Asset management process and policy definition Process Policy Evidence: interviewed Philip MacMahon and listed staff on site. Inspected site Documents: Include Asset Management agreement, Asset management system document, Risk management policy, Decommissioning plans, Financial statements, Job safety and environmental analysis procedure, Outage reports and Gas Pipeline Commissioning, Operations and Maintenance Hazard identification report. Asset management performance Process Documentation Process Documentation Process Documentation There are no material environmental breaches reported. The air emission license
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Process Image: Description Process Image: Description Issues Image: There are no material environmental breaches reported. The air emission license
Issues There are no material environmental breaches reported. The air emission license
There are no material environmental breaches reported. The air emission license
•
requires 6 monthly stack testing and routine calibration of the continuous emissions monitoring system. Due to the infrequent operation of the power station (less than 0.5% capacity factor to date) it is not possible to comply with these testing requirements unless the units were operated specifically to produce emissions to test. This is clearly not the intent of license to minimize emissions by creating emissions just to measure emissions and application has been made to the EPA for a revision to the license to address this. There are no contingency plans for back up generation to minimise outages outside of line pack, this is the policy position chosen by the Licensee and the owning partners and is not unreasonable for a peaking plant. The rating based on the scope of asset management available to the Licensee is A/2 with the local AMS requiring assessment of environmental threats/ opportunities to be pursued for the licensed plant. On the roles defined in the Audit Guidelines the rating is

B/2.			
Recommendation			
None			
Ratings			
Process/Policy rating	В	Effectiveness rating	2

A 1 5. Asset operations Operations functions relate to the day-to-day running of assets and directly affect servicely and costs. Observations Policies and procedures for asset operation / sample activities The plant has not been despatched on load. The generation assets are a simple/oper cycle gas turbine. The plant is constructed to appropriate standards. The operational policies are well documented. The asset register is part of the Licensee's maintenance IT system. Training/ resources / exceptions The Licensee operates the plant. The resourcing is appropriate and ongoing training i evident as are the operating procedures and practices. Evaluation Criteria summary • Operational policies and procedures are documented and linked to service levels required Response: The local AMS meets this criterion with service standards defined. Operational procedures are documented. • Risk management is applied to prioritise operations (maintenance predominantly) based on risk assessment. • Assets are documented in an Asset Register including asset type, location, materiar plans of components, an assessment of assets' physical/structural condition and accounting data Response: Operational costs – equipment, fuel, staffing, contracts and materials are measured and monitored Response: Operational costs – equipment, fuel, staffing, contracts and materials are measured and monitored Response: Staff receive training commensurate with their responsibilities <th>Asset operations</th> <th>Process/Policy rating</th> <th>Effectiveness rating</th>	Asset operations	Process/Policy rating	Effectiveness rating
 Operations functions relate to the day-to-day running of assets and directly affect services and costs. Observations <i>Policies and procedures for asset operation / sample activities</i> The plant has not been despatched on load. The generation assets are a simple/oper cycle gas turbine. The plant is constructed to appropriate standards. The operational policies are well documented. The asset register is part of the Licensee's maintenance IT system. <i>Training/ resources / exceptions</i> The Licensee operates the plant. The resourcing is appropriate and ongoing training i evident as are the operating procedures and practices. <i>Evaluation Criteria summary</i> Operational policies and procedures are documented and linked to service levels required Response: The local AMS meets this criterion with service standards defined. Operational procedures are documented. Risk management is applied to prioritise operations tasks Response: The local AMS meets this criterion with operations (maintenance predominantly) based on risk assessment. Assets are documented in an Asset Register including asset type, location, materiar plans of components, an assessment of assets' physical/structural condition and accounting data Response: Asset registers are contained with the appropriate information in the IT system. Operational costs are measured and monitored Response: Operational costs – equipment, fuel, staffing, contracts and materials are measured and monitored. Staff receive training commensurate with their responsibilities 		A	1
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 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 Response: Asset registers are contained with the appropriate information in the IT system. Operational costs are measured and monitored Response: Operational costs – equipment, fuel, staffing, contracts and materials are measured and monitored. Staff receive training commensurate with their responsibilities Response: Staff receive training commensurate with their responsibilities 	Response: The local AMS meet	ts this criterion with operations (n	naintenance
 system. Operational costs are measured and monitored Response: Operational costs – equipment, fuel, staffing, contracts and materials are measured and monitored. Staff receive training commensurate with their responsibilities Response: Staff receive training commensurate with their responsibilities 	plans of components, an ass	. .	
 Response: Operational costs – equipment, fuel, staffing, contracts and materials are measured and monitored. Staff receive training commensurate with their responsibilities Response: Staff receive training commensurate with their responsibilities 		contained with the appropriate inf	formation in the IT
Response: Staff receive training commensurate with their responsibilities	Response: Operational costs -	equipment, fuel, staffing, contrac	ts and materials are
	Staff receive training comme	nsurate with their responsibilities	6
		•	sibilities
Performance measures such as unplanned outages Response: Outage log including forced outages has been implemented.			mented.

Asset ma	Asset management process and policy definition						
		•					
Process	\square	Policy		Documentation	V		
Evidence	: inte	erviewed Philip Ma	acMa	ahon and listed st	aff o	n site. Insp	pected site.
Document	ts: In	Iclude Asset Mana	ager	nent agreement, A	Asse	t manager	nent system
document	, Ris	k management po	olicy	, Decommissionin	ig pla	ans, Finan	cial statements, Job
safety and	lenv	vironmental analys	sis p	rocedure, Outage	rep	orts and G	as Pipeline
Commissi	onin	g, Operations and	d Ma	intenance Hazard	lide	ntification r	eport.
Asset ma	nag	ement performar	nce				
Process	V	Documentation	X	Availability	V	Use	
Issues							
The plant has not operated on load apart from tests and would benefit by scheduling							
starts if only to verify valve operations.							
The asset operation is appropriate for the duty.							
The rating based on the scope of asset management available to the Licensee is A/1 $$.							
On the roles defined in the Audit Guidelines the rating is A/1.							
Recommendation							
Consideration is given to scheduling regular starts to verify that valves are operating							
correctly. (Non mandatory recommendation Audit guidelines 11.9)							
Rating							
Process/F	Polic	cy rating A		Effectiveness ra	ating	j 1	

Asset Maintenance	Process/Policy rating A	Effectiveness rating						
6. Asset maintenance								
Maintenance functions relate to the upkeep of assets and directly affect service levels and costs.								
Observations								

Policies and procedures for asset maintenance / sample activities Maintenance costs are closely monitored as they are a key indicator of performance.

Maintenance is controlled by an IT system (MEX - V12.4.0.0) that coordinates tasks, incorporates condition, risk, breakdown and time based maintenance. Work orders are prioritised on the basis of the works impact on safety, environment and operational availability. Spare parts required for standard jobs and inventories are being developed as part of the system.

The asset plan for operations, maintenance and contingencies contains performance measures. The equipment manufacturer requires maintenance to their standard and

frequency to validate warrantee conditions.

Training / resources / exceptions

Maintenance is scheduled well into the future and these actions appear appropriate for the type of equipment. The resourcing is appropriate and ongoing training is evident as are the operating procedures and practices. High Voltage training occurs. Plant maintenance appears to take due allowance of any exceptions in the licensed plant.

Evaluation Criteria summary

Maintenance policies and procedures are documented and linked to service levels
 required

Response: The local AMS meets this criterion with service standards defined. Policies and procedures are documented.

- Regular inspections are undertaken of asset performance and condition
- Response: The local AMS meets this criterion with inspections undertaken as part of manufacturer's maintenance conditions.
- Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule
- Response: The AMS meets this criterion. Maintenance plans are documented and completed on schedule. The plant is very new, so condition is good. The equipment manufacturer requires maintenance to their standard and frequency to validate warrantee conditions.

• Failures are analysed and operational/maintenance plans adjusted where necessary Response: Failures are analysed and adjustments made where necessary.

• Risk management is applied to prioritise maintenance tasks

Response: Risk management is the key method of prioritising maintenance tasks.

• Maintenance costs are measured and monitored

Response: Maintenance costs are measured and monitored.

 System maintenance strategy, including the methodology used to maintain the system and frequency of maintenance activities.

Response: The AMS meets this criterion with maintenance strategies defined.

• Performance measures such as unplanned outages

Response: Outage log including forced outages has been implemented.

Asset management process and policy definition

Process	ব	Policy	ব	Documentation	ব		
1100633	Ċ.	T Olicy		Documentation			
Evidence	• inte	rviewed Philip Ma	acMa	ahon and listed st	aff o	n site. Inspected site.	
Lindenioe							
Documents: Include Asset Management agreement, Asset management system							
document, Risk management policy. Decommissioning plans, Financial statements, Job							

document, Risk management policy, Decommissioning plans, Financial statements, Job safety and environmental analysis procedure, Outage reports and Gas Pipeline Commissioning, Operations and Maintenance Hazard identification report.

Asset management performance

Process 🗹 Documentation	×	Availability	V	Use	
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Issues

The maintenance is appropriate for the duty required.

The rating based on the scope of asset management available to the Licensee is A/1. On

the roles defined in the Au	dit Guide	lines the rating is A/1.						
		3						
Recommendation								
None.								
Rating								
Process/Policy rating	A	Effectiveness rating	1					

Asset Management Information System	Process/Policy rating A	Effectiveness rating							
7. Asset Management Information System (MIS)									
An asset management information system is a combination of processes, data and software that support the asset management functions.									
Observations									
Policies and procedures The Licensee has a competent asset management information system with a number of elements.									
It has complex spreadsheets managing expenditure and a dedicated maintenance management database (MEX V12.4.0.0) to control a complex list of items. The maintenance system links project management to scheduled tasks to standard work plans (assisting with safety and change management), asset register and parts inventory. Documentation is appropriate.									
Access to write to the database is controlled (passwords) and changes are tracked. There is good documentation for data recovery procedures which include operating on the Perth office server and backing up the servers in Brisbane to ensure data integrity. The power station is a controlled access site which provides adequate physical security for IT systems.									
<i>Exceptions</i> The plant has not operated suffi	ciently to determine exceptions.								
Evaluation Criteria summary									
 Adequate system documentation for users and IT operators Response: The MEX system is sufficiently documented. It is easy to use and reasonably intuitive, there are user manuals. 									
 Input controls include appropriate verification and validation of data entered into the system 									
Response: The system is easy to use with a maintenance focus rather than a database focus and includes appropriate verification and validation of data entered into the system.									
Logical security access controls appear adequate, such as passwords									
Response: Logical control is adequate with hierarchical access by password.									
Physical security access controls appear adequate									
Response: Physical security is	adequate with the system on acc	cess controlled							

	ge	neration site.					
Data backup procedures appear adequate							
Response	Response: Data backup is robust.						
Key c	ompi	utations related to	Lice	ensee performanc	e re	porting are	e materially accurate
Response							rting are materially
		curate, to the exte	•				
 Mana obliga 	•	ent reports appea s	ar ad	equate for the Lic	ense	ee to moni	tor licence
Response		÷ .					to monitor licence
		•		•			spection. Sighted a
		rsion of the month aintenance, compl	•	•			against preventive
		vironmental comp					•
		anagement needs		c, commentary a	boui		
		0					
Asset ma	inag	ement process a	nd	policy definition			
Process	Ø	Policy	V	Documentation	V		
Evidence	: inte	erviewed Philip Ma	acM	ahon and listed st	aff o	n site. Insp	pected site.
Documen	ts: In	clude Asset Mana	ager	nent agreement, A	Asse	t manager	nent system
		• .	•		• •		cial statements, Job
		/ironmental analys		•	•		•
Commissi	onin	g, Operations and	i Ma	Intenance Hazard	lidei	ntification i	eport.
Asset ma	inag	ement performar	nce				
Process	Ø	Documentation	×	Availability	V	Use	
Issues	•				•		
The rating	bas	ed on the scope of	of as	set management	avai	lable to the	e Licensee is A/1 On
	•	ed in the Audit Gu		•			
_							
Recommendation							
None							
Rating							
Process/Policy rating A Effectiveness rating 1							
L							
Risk man	0000	mont	Dre	ocess/Policy rati	n <i>a</i>		factivaness rating

Risk management	B	2 2					
8. Risk management							
Risk management involves the identification of risks and their management within an acceptable level of risk.							
Observations							
Policies and procedures							

There is a detailed safety risk matrix for the pipeline. There is evidence that risk based approaches being carried out particularly as it affects security of the plant. The generating plant has had risks identified and managed through a number of different approaches. Being a proven and standard design, the V. 94.2 units incorporate a proven degree of redundancy and safety protective systems. Design and construction is to Australian and international standards. Additionally the entire project was the subject of a HAZOP study (Hazard and Operability review). Other than major plant failures the commercial risks are not developed and the Licensee should benefit from a commercial risk assessment and any response plans that could arise.

Training

There is evidence of training and awareness by staff of risk based approaches particularly in approaches to tasks where JSA (Job Safety Analysis) are prepared for all work.

Evaluation Criteria summary

- Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system
- Response: The AMS meets this criterion. Risks are assessed and drive maintenance in particular.
- Risks are documented in a risk register and treatment plans are actioned and monitored

Response: The local AMS meets this criterion. The risk register is set out in the AMP.
The probability and consequences of asset failure are regularly assessed

Response: The AMS meets this criterion. The probability and consequences of asset failure are regularly assessed.

Asset ma	Asset management process and policy definition						
Process	V	Policy	V	Documentation	V		
Evidence	: inte	erviewed Philip Ma	acM	ahon and listed st	aff o	n site. Insp	pected site.
Documen	ts: Ir	clude Asset Mana	ager	nent agreement, A	Asse	t manager	nent system
	•	U 1		•	•••		cial statements, Job
		•		rocedure, Outage			
Commissi	onin	g, Operations and	d Ma	intenance Hazard	lidei	ntification r	eport.
Asset ma	nag	ement performa	nce				
Process	V	Documentation	×	Availability	V	Use	V
Issues							
-					-		s for the pipeline and
				0	erati	ng plant. T	The commercial risks
should als	so be	e assessed and do	ocum	nented.			
The rating based on the scope of asset management available to the Licensee is B/2 On							
the roles defined in the Audit Guidelines the rating is B/2.							
Recommendation							
		•		•	•		sment that could be
implemented for the generating plant as for the pipeline. (Non mandatory							

recommendation Audit guidelines 11.9).

The commercial risks should be assessed and documented. (Non mandatory recommendation Audit guidelines 11.9).

В

Rating

Process/Policy rating

Effectiveness rating

2

Contingency planning	Process/Policy rating B	Effectiveness rating
9 Contingency planning		

9. Contingency planning

Contingency plans document the steps to deal with the unexpected failure of an asset.

Observations

Development of contingency plans / currency

The line pack is a reasonable contingency for short gas interruptions. The Licensee has chosen to not provide liquid fuel as not a commercially viable option.

The plant has a single line to Neerabup substation and a trip on either machine trips both. Consideration is being given to circuit breakers for both gas turbines at the plant so a trip of one will not isolate both. While generator circuit breakers are a costly item such provision would improve security of supply. Note that as a peaking plant the probability of such a failure coinciding with the need to supply load is remote (the plant has not supplied load last summer).

Any contingencies arising from the generator safety and commercial risk planning should be documented.

The Licensee has detailed maintenance scheduled out for several years, with minor and major shutdowns allowed to deal with potential issues.

The maintenance regime is geared to keeping the plant operational without forced outages.

Testing of contingency plans

The Licensee tests safety systems routinely.

Evaluation Criteria summary

• Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks

Response: The contingency for gas shortage is the line pack in the lateral pipeline. There has been no test scheduled to assess effectiveness of the line pack on desk top basis as very hard to simulate without cutting off gas.

The trip of the transmission line on a single unit failure demonstrated the value of installing generator switches.

Any contingencies arising from generator safety and commercial risk planning should be documented.

Asset management process and policy definition							
Process	\checkmark	Policy	V	Documentation	$\overline{\mathbf{A}}$		
		erviewed Philip Ma					
		clude Asset Mana					
		• .			• •		cial statements, Job
-		vironmental analys					•
Commissi	onin	g, Operations and	i ivia	Intenance Hazaro	luei	nuncation	epon.
Asset ma	nag	ement performar	nce				
Process	V	Documentation	×	Availability	V	Use	
Issues	1					I	
There are	no c	documented strate	gic	contingency plans	s for	the genera	ator as a result of
there bein	ig no	implemented risk	ma	nagement plans f	or th	e generato	or.
The rating	ıbas	ed on the scope of	of as	set management	avai	lable to the	e Licensee is B/2 On
		ed in the Audit Gu		0			
Recomm	enda	ations					
Considera	ation	is given to develo	ping	contingency plar	ns ar	ising from	safety and
commerci	al ris	k management pl	ans	for the generators	s. (N	on mandat	tory recommendation
Audit guid	leline	es 11.9).					
Consideration is given to installing generator circuit breakers at the plant to reduce single							
mode failures. (Non mandatory recommendation Audit guidelines 11.9).							
Rating							
Process/	Polic	y rating B		Effectiveness ra	ating	g 2	

Financial planning	Process/Policy rating A	Effectiveness rating
10. Financial planning		

The financial planning component of the asset management plan brings together the financial elements of the service delivery to ensure its financial viability over the long term.

Observations

Financial planning process / plans

The Licensee has financial plans, budgeting and monitoring processes. These are on an annual basis and upgraded year by year.

The owning partners provide guidance and approve the Licensee's budget and then monitor financial progress. The Licensee's managers are responsible for reporting actual versus budget. Revenue is retained for maintenance and capital expenditure where that is within the retained funds capacity. Evaluation Criteria summary

- The financial plan states the financial objectives and strategies and actions to achieve the objectives
- Response: The local AMS meets the obligations as it states the financial objectives and strategies and actions to achieve the objectives.
- The financial plan identifies the source of funds for capital expenditure and recurrent costs

Response: The local AMS meets the with retained earnings used for capital expenditure and recurrent costs where that is within the retained funds capacity.

• The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)

Response: The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets).

• The financial plan provide firm predictions on income for the next five years and reasonable indicative predictions beyond this period

Response: The financial plan provides predictions on income for the next five years and indicative predictions beyond this period.

• The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services

Response: The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services.

• Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary

Response: Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary.

Asset management process and policy definition							
Process	Ø	Policy	V	Documentation	V		
Evidence: interviewed Philip MacMahon and listed staff on site. Documents: Include Asset Management agreement, Asset management system document, Risk management policy, Decommissioning plans, Financial statements, Job safety and environmental analysis procedure, Outage reports and Gas Pipeline Commissioning, Operations and Maintenance Hazard identification report.							
Asset ma	nag	ement performa	nce				
Process	V	Documentation	×	Availability	Ŋ	Use	
Issues					•		
None							
The rating based on the scope of asset management available to the Licensee is A/1 On the roles defined in the Audit Guidelines the rating is A/1.							
Recommendation							
None							

Rating				
Process/Policy rating	А	Effectiveness rating	1	

Capital expenditure	Process/Policy rating	Effectiveness rating
planning	A	1

11. Capital expenditure planning

The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure on each over the next five or more years.

Since capital investments tend to be large and lumpy, projections would normally be expected to cover at least 10 years, preferably longer. Projections over the next five years would usually be based on firm estimates.

Observations

Capital expenditure process / plans

The Licensee has financial plans, budgeting and monitoring processes. There are capital expenditure plan for a rolling 5 years.

Revenue is retained for capital expenditure where that is within the retained funds capacity. Only at a point where equity is required to be injected/funded from the owners will that occur. There has been no budget for any equity injection/funding.

Evaluation Criteria summary

- There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates
- Response: The local AMS meets the obligations. The expenditure is that required to maintain to the manufacturer's requirements or any breakdowns is scheduled.
- The plan provide reasons for capital expenditure and timing of expenditure
 Response: The local AMS meets the obligations capital expenditure is scheduled
 according to the service frequency (blade replacement etc) as required by
 the manufacturer.
- The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan

Response: The local AMS meets the obligations. The plant is very new and capital expenditure is that required to maintain to the manufacturer's requirements or any breakdowns.

 There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned

Response: The local AMS meets the obligations as the capital expenditure plan is updated annually.

Asset management process and policy definition							
Process	V	Policy	V	Documentation	Ø		
Evidence: interviewed Philip MacMahon and listed staff on site. Documents: Include Asset Management agreement. Asset management system document. Risk							
ASSEL MANAGEMENT AGTEENTENT, ASSEL MANAGEMENT SYSTEM GOCUMENT, RISK							

management policy, Decommissioning plans, Financial statements, Job safety and environmental analysis procedure, Outage reports and Gas Pipeline Commissioning, Operations and Maintenance Hazard identification report.

Asset management performance

Process	V	Documentation	×	Availability	V	Use	
Issues							

None.

The rating based on the scope of asset management available to the Licensee is A/1 On the roles defined in the Audit Guidelines the rating is A/1.

Recommendation

None

Rating

Process/Policy rating

Effectiveness rating

1

А

Review of AMS			Process/Policy rating			Effectiveness rating		
			No	t Rated		Not Rated		
12. Review of AMS								
The asset management system is regularly reviewed and updated.								
Observations								
As a supplier of electricity the service delivery is heavily asset based and needs an AMS. There is ongoing review of asset issues relating to operations, maintenance and contingencies.								
 Evaluation Criteria summary A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current Response: The review of the strategic level aspects cannot be undertaken by the Licensee but the AMP with the owning partners can be reviewed but as the plant has been commissioned about 12 months there is no evidence to assess review. 								
 Independent reviews (e.g. internal audit) are performed of the asset management system 								
Response: The review of the broader aspects cannot be undertaken by the Licensee. Review of the local AMS is assigned to the Station Manager and Operations Manager.								
Asset management process and policy definition								
Process	$\mathbf{\nabla}$	Policy	$\mathbf{\nabla}$	Documentation	\square			

Evidence: interviewed Philip MacMahon and listed staff on site. Documents: Include

Asset Management agreement, Asset management system document, Risk management policy, Decommissioning plans, Financial statements, Job safety and environmental analysis procedure, Outage reports and Gas Pipeline Commissioning, Operations and Maintenance Hazard identification report. Asset management performance Process \checkmark Documentation × Availability \mathbf{V} Use $\mathbf{\nabla}$ Issues Strategic asset planning is carried out by the owning partners and they carry out continuous review of the process. There is a division of an asset management system where the owners carry out the strategic asset planning and the Licensee caries out the whole of plant life functions including shorter term and operational functions. The Licensee cannot carry out these functions as the Licensee's business model and resources are those consistent with operating and maintaining gas turbine generation plant and they do not have the capacity to undertake asset review functions outside the licensed plant. The local AMS has scheduled reviews. The rating based on the scope of asset management available to the Licensee is B/2. As the Licensee is unable to carry out all the roles defined in the Audit Guidelines the ratings are Not Rated/ Not Rated. Recommendation None - as the Licensee will never have the capacity to undertake the strategic roles. Rating **Process/Policy rating** Not Rated Effectiveness rating Not Rated