McGill Engineering Services Pty Ltd

Engineering, Adjudication & Arbitration Services ABN 45 106 691 169

TEC DESERT PTY LTD & TEC DESERT NO. 2 PTY LTD (T/A SOUTHERN CROSS ENERGY PARTNERSHIP)

ELECTRICITY DISTRIBUTION LICENCE EDL 3
ELECTRICITY TRANSMISSION LICENCE ETL 4
ELECTRICITY GENERATION LICENCE EGL 13
ASSET MANAGEMENT SYSTEM REVIEW

Prepared By Kevan McGill
12 March 2012

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Aron Willis, General Manger
TransAlta Energy Australia Pty Ltd
(Manager of Southern Cross Energy Partnership)
L 14 191 St George Terrace
PERTH WA 6000

Dear Mr Willis

Asset Management System Review Electricity Licences

The fieldwork on the asset management system review of Distribution Licence EDL 3, Transmission Licence ETL 4 and Generation Licence EGL 13 for the review period (1/July/2008 to 30/June/2011) is complete and I am pleased to submit the report to you. The report reflects my findings and opinions.

In my opinion, the Licensee maintained, in all material aspects, effective control procedures and an effective asset management system in relation to the Distribution Licence EDL 3, Transmission Licence ETL 4 and Generation Licence EGL 13 for the review period on the relevant clauses referred to within the scope section of this report.

There is one item that is not considered significant enough to address.

Yours sincerely

Kevan McGill
Director

Date 12 March 2012

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Executive Summary

Southern Cross Energy Partnership (SCE) holds Distribution Licence EDL 3, Transmission Licence ETL 4 and Generation Licence EGL 13 issued by the Economic Regulation Authority under the Electricity Industry Act 2004 (WA). The Electricity Industry Act 2004 (WA) requires the holder of Distribution, Transmission and Generation Licences to undertake a Review, and provide the Authority a report, by an independent expert on the effectiveness of their Asset Management System. This Review of the SCE Asset Management System was conducted in accordance with the guidelines issued by the Economic Regulation Authority (*Authority)* for the review period (1 July 2008 to 30 June 2011) to assess the Licensee's asset management systems.

Following development of an Asset Management System Review Plan and its approval by the *Authority*, SCE appointed McGill Engineering Services to undertake the Review.

. The owner is TransAlta which is in the electricity business and much of their business activities are about asset management - it is the essence of the business. TransAlta have 100% ownership of the entity which operates the power station and it is primarily TransAlta's processes that are used to meet the needs of the Asset Management System being reviewed. TransAlta carries out the higher level functions and may or may not involve the Licensee in the processes. I will therefore comment on TransAlta processes as well as the Licensee.

OVERALL CONCLUSION

In my opinion, the Licensee maintained, in all material aspects, an effective asset management system in relation to the Distribution Licence EDL 3, Transmission Licence ETL 4 and Generation Licence EGL 13 for the review period based on the relevant clauses referred to within the asset management review objectives (Page 8) of this report.

There is one item that is not considered significant to address.

LICENCES

The Licensee is a partnership established by the owners to operate and maintain the licensed plant. The Licensee does not have the role, capacity or resources to carry out the strategic asset management roles or any strategic decisions on customers.

AMS REVIEW – METHODOLOGY AND SUMMARY

The overall effectiveness rating for an asset management process is based on a combination of the process and policy adequacy rating and the performance rating. The rating systems are given below followed by a summary table of the Asset Management Effectiveness

RATING SYSTEM

The definition tables for process and policy adequacy rating and the performance rating are provided 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.
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).

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.

ASSET MANAGEMENT EFFECTIVENESS SUMMARY

A summary of the auditor'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 using the scales described below.

Asset management effectiveness summary

ASSET MANAGEMENT SYSTEM	Asset management process and policy definition adequacy rating	Asset management performance rating
1. Asset planning	A	1
2. Asset creation/ acquisition	A	NR[1]
3. Asset disposal	A	NR
4. Environmental analysis	B	2
5. Asset operations	A	2
6. Asset maintenance	A	2
7. Asset Management Information System	A	1
8. Risk management	A	2
9. Contingency planning	A	1
10. Financial planning	A	1
11. Capital expenditure planning	A	1
12. Review of AMS	A	NR

A Not Rated (NR) score is given when there was insufficient evidence relevant within the audit period to make a determination.

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.

RECOMMENDATIONS

No.	Process
4	*4. Environmental analysis* Environmental analysis examines the asset system environment and assesses all external factors affecting the asset system.
	Recommendation Schedule checks of level and alarm sensors on fuel tanks. A preventative maintenance order has already been scheduled.

POST REVIEW IMPLEMENTATION PLAN

[1] NR – Not Rated

The Licensee will provide a post review implementation plan. However the item has already been addressed.

Asset Management System Review

ASSET MANAGEMENT SYSTEM REVIEW OBJECTIVES

Under the *Electricity Industry Act 2004* (the Act) section 14, the holder of a Distribution, Transmission and Generation Licenses must provide for an asset management system to manage the assets accordingly for delivery of a reliable service 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 Audit Guidelines: Electricity, Gas and Water Licences published by the ERA.

The review was conducted between July 2011 and September 2011 and 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.

The recommendations identified in the previous review were examined and the outcomes included in this report.

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 Distribution, Transmission and Generation Licences 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 element of the review. McGill Engineering Services Pty Ltd then prioritised the review 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 review elements.

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 review.

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

There are no independence threats due to:

- self-interest – as the review company or a member of the review team have no financial or non-financial interests in the Licensee or a related entity;
- self-review – no circumstance has occurred where:
  - the review company or a member of the review team has undertaken other non-review work for the Licensee that is being evaluated in relation to the audit/review; or
  - when a member of the review team was previously an officer or director of the Licensee; or
  - where a member of the review 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 reviewer, or a member of the audit/review team, for the Licensee within the previous 24 months; or
  - the reviewer is currently undertaking for the Licensee; or
  - the reviewer 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.

REVIEW (AUDIT) PERIOD

The review (audit) period is 1 July 2008 to 30 June 2011. The previous review period was 1 June 2006 to 30 June 2008.

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.

PREVIOUS ACTIONS

There are no actions to follow up from previous reviews.

CONTACTS

The key contacts were:

- Licensee
    - Aron Willis, General Manager;
    - Troy Forward, Commercial Manager;
    - Keith Adams Manager Northern and Southern Section.
    - Jamie Crombie, Assistant Manager Southern Section;
    - Mark Ellis, Assistant Manager Northern Section;
    - Howard Price, Assistant Manager Northern Section; and
- McGill Engineering Services Pty Ltd
    - Kevan McGill, John McLoughlin

The review was conducted during July to September 2011. Kevan McGill and John McLoughlin took approximately 100 (80/20) hours on the review.

LICENSED SYSTEMS

Distribution/Transmission

The SCE network systems essentially operate as radial systems or N-0 interconnecting Lines.

The Northern Distribution System is an isolated system owned and operated by SCE. It has local loads and a transmission interconnection between Mt Keith and Leinster.

The Southern Distribution System in the Kalgoorlie/Kambalda area is connected to the South West Interconnected System through a tie between SCE and Western Power at Boulder.

At present, all SCE customers are mining operations with bilateral Power Purchase Agreements (PPA) and there are no Small Use Customers.

Generation

SCE have Gas Turbines at the Nickel West mines at Kambalda, Kalgoorlie Nickel Smelter, Mt Keith and Leinster. There is Diesel generating stations at these sites which are legacy systems used primarily as back up. By way of example during the review site visits, the Gas Turbines at Mt Keith had to be shut down due to blasting and the mine was supplied by Mt Keith diesels and Leinster diesels transmitted over the interconnecting transmission line.

REVIEW EVIDENCE

The following was considered in the review.

- Distribution Licence
- Transmission Licence
- Generation Licence
- Past review
- Outage log
- Risk procedures
- Risk register
- Meter calibration report
- Financial plan samples / capital plans
- Power procurement agreement (PPA) sample
- Meter drawings/documents
- Transformer repair/analyses documents
- Life cycle planning procedure
- decommissioning, obsolescence and disposal procedures

- Procurement procedures
- Maintenance IT system GPMate V6

OVERALL CONCLUSION

In my opinion, the Licensee maintained, in all material aspects, effective control procedures and an effective asset management system in relation to the Distribution Licence EDL 3, Transmission Licence ETL 4 and Generation Licence EGL 13 for the review period based on the relevant clauses referred to within the asset management review objectives (Page 8) of this report. The report reflects my findings and opinions.

FINDINGS

The conclusions of each of the elements of the review are summarised in the following tables.

ASSET MANAGEMENT SYSTEM REVIEW RESULTS AND RECOMMENDATIONS

Asset Planning	**Process/Policy rating** A	**Effectiveness rating** 1

1. *Asset planning*

Asset planning strategies are focused on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price).

Observations

Asset Planning Process/Plan and its currency
The Licensee has approximately 187 km of distribution lines and 285 km of transmission lines at Leinster/Mt Keith and Kambalda/Kalgoorlie. The Generator has 260 MW of Gas Turbine/Diesel generation plant.

The Licensee does not have the role, capacity or resources to carry out the strategic asset management roles. The only planning that the Licensee caries out is in the context of operating and maintaining the assets. TransAlta carries out the higher level functions and may or may not involve the Licensee in the processes. TransAlta is in the electricity business and much of their business activities are about asset planning - it is the essence of the business. TransAlta have 100% ownership of the entity which operates the power station and it is primarily TransAlta's processes that are used to meet the needs of the Asset Management System being reviewed. I will therefore comment on TransAlta processes as well as the Licensee. There not been any asset planning affecting this licensee in the review period.

Allocation of responsibilities / statutory obligations
The organisational arrangements allocate responsibilities. There is documentation requiring compliance with statutory obligations including induction processes for all visitors to site.

Evaluation Criteria summary -Licensee

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

Response: All the customers have bilateral Power Purchase Agreements (PPA) which contracts the obligations of both parties. The planning that occurs reflects the needs of stakeholders.

- Service levels are defined

Response: The service levels are given in the Power Purchase Agreements.

- Non-asset options (e.g. demand management) are considered

Response: The AMS is substantially about utilization of the current assets and no new proposals are likely outside mining development. Further asset options are unlikely and non asset options such as better utilization of the current assets will be most likely for capacity increases. Load shed schemes operate for protection of the network with a view to minimise significant impact to customers. It is very unlikely for the Licensee to be involved in any strategic

decisions for assets as that is likely to be done by the owners.

- Lifecycle costs of owning and operating assets are assessed

Response: Lifecycle costs of owning and operating assets are assessed as part of operating and maintenance functions. There has been no expansion within the audit period.

- Funding options are evaluated

Response: Financial decisions will not be taken by the Licensee for other than operating and maintenance issues.

- Costs are justified and cost drivers identified

Response: The assessment of costs and cost drivers for strategic issues will not be done by the Licensee but by the owners. Cost drivers for operating and maintenance are monitored and managed.

- Likelihood and consequences of asset failure are predicted

Response: The evaluation of risks for operating and maintenance cover the aspects of asset failure and consequences.

- Plans are regularly reviewed and updated

Response: There is no strategic Asset Management Plan to review as it is not within the scope of the Licensee to develop one.

Evaluation Criteria summary TransAlta

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

Response: Planning processes are tailored to meet the needs of the stakeholders and the project. Ongoing asset planning is managed through the GP Mate system with planning schedules for the review, repair, overhaul and replacement of component's being in line with published OEM practices.

- Service levels are defined

Response: . Service levels for repair, overhaul and replacement of component's and assets are in line with OEM schedules.

- Non-asset options (e.g. demand management) are considered

Response: A planning process that results in a non asset solution will result in not proceeding with the project. The utilization of the licensed assets is carried out by the Licensee in the context of mining requirements.

- Lifecycle costs of owning and operating assets are assessed

Response: .Lifecycle costs are assessed prior to asset creation and ongoing costs are assessed at .regular intervals throughout the life cycle. Assessment includes Long Range Forecasting, annual budgeting and monthly forecasting of physical and financial outcomes.

- Funding options are evaluated

Response: .Funding options are evaluated where necessary for new projects. Asset planning within the annual budgeting cycle is applied in accordance with internal policies and procedures.

- Costs are justified and cost drivers identified

Response: Asset planning within the annual budgeting cycle is applied in accordance with internal policies and procedures.

- Likelihood and consequences of asset failure are predicted

Response: Condition monitoring and predictive practices are employed.

- Plans are regularly reviewed and updated

Response: Plans are updated and reviewed on an ongoing basis.

Asset management process and policy definition						
Process	☑	Policy	☑	Documentation	☑	
Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Meter drawings/documents. Life cycle planning procedure, decommissioning, obsolescence and disposal procedures, Procurement procedures. Capital expenditure plans/reports.						
Asset management performance						
Process	☐	Availability	☐	Use	☐	
Issues						
The Licensee does not have the role, capacity or resources to carry out the strategic asset management roles. The only planning that the Licensee caries out is in the context of operating and maintaining the assets. The rating given is that of the owners.						
Recommendation						
None						

Asset Creation	**Process/Policy rating** A	**Effectiveness rating** 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
The Licensee does not have the role, capacity or resources to carry out the strategic asset creation roles. TransAlta carries out these functions and may or may not involve the Licensee in the processes. I will comment on TransAlta processes as they are the manager of the Licensee. As TransAlta are in the electricity business much of their business activities are about asset management - it is the essence of the business. There not been any asset planning affecting this licensee in the review period.

Procurement of major electricity plant is a very significant exercise taking considerable time. There are documented procedures for creation of fixed assets. Some minor work will be done to the assets and asset renewal (which are maintenance issues) but not creation of new major assets. There has been no significant asset creation on the licensed assets in the audit period. There has been no asset creation by TransAlta in the review period.

Meeting statutory obligations
There are documents and policies requiring employees and contractors to comply with statutory obligations.

The asset creation processes are appropriate with extensive project approval processes and standard engineering specifications prepared.

Evaluation Criteria summary Licensee

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

Response: Asset creation is unlikely outside of mining development or expansion and that will not be assessed by the Licensee but by the owners. In that circumstance there will be comprehensive assessment of creation options and justified by the owners. Non asset creating solutions would need to be considered against existing capacity and the ability of mine expansion to operate within the capacity. Significant demand management is not likely to be acceptable or satisfy the customer where expansion is required. The most likely options are to utilize existing capacity of the current assets or upgrading.

- Evaluations include all life-cycle costs

Response: Asset creation is unlikely outside of mining development or expansion where the capital cost is considered as part of the life cycle cost of the mine development. In that circumstance there will be comprehensive assessment of life cycle costs by the owners. The life of the asset is much more likely to be determined by the life of the mine rather than the life of the network or generation assets.

- Projects reflect sound engineering and business decisions

Response: The Licensee's owners have the resources in house and by contract to ensure sound engineering and business decisions. There will be no asset creation likely by the Licensee. Extensive use would be made of external consultants for detailed engineering design in that circumstance.

- Commissioning tests are documented and completed

Response: The Licensee's owners have the resources in house and by contract to ensure commissioning tests are documented and completed.

As no expansion has taken place in the audit period the use of these could not be tested for the licensed assets.

- Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood

Response: The responsibilities of the AMS are assigned to the Licensee by the owners and understood. Legal, environmental and safety are key components of new project work within the organisation and are specifically required to be addressed in projects.

Evaluation Criteria summary TransAlta

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

Response: There are robust processes for asset creation but there has been no activity in the review period.

- Evaluations include all life-cycle costs

Response: Lifecycle costs are assessed prior to asset creation and ongoing costs are assessed at .regular intervals throughout the life cycle. Assessment includes Long Range Forecasting, annual budgeting and monthly forecasting of physical and financial outcomes. There has been no activity in the review period.

- Projects reflect sound engineering and business decisions

Response: Onsite engineering is supplemented by external engineering consultancy where required. There has been no activity in the review period.

- Commissioning tests are documented and completed

Response: Commissioning tests are documented and completed (Prior to the previous review). There has been no activity in the review period.

- Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood

Response: Legal and contractual obligations rest with the Commercial Manager with Parent .company and external legal counsel available as needed. Environmental and safety obligations managed locally through dedicated OSE staff supported by parent company OSE teams.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Meter drawings/documents. Life cycle planning procedure, decommissioning, obsolescence and disposal procedures, Procurement procedures. Capital expenditure plans/reports.						
Asset management performance						
Process	☐	Availability	☐	Use	☐	
Issues						
The Licensee does not have the role, capacity or resources to carry out the strategic asset creation roles.						
Recommendation						
None -						

Asset Disposal	**Process/Policy rating** A	**Effectiveness rating** Not Rated

3. Asset disposal

Effective asset disposal frameworks incorporate consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets. Alternatives are evaluated in cost-benefit terms.

Observations

Policies and procedures for asset disposal / sample disposal activities
The Licensee does not have the role, capacity or resources to carry out the strategic asset disposal roles. TransAlta carries out these functions and may or may not involve the Licensee in the processes. I will comment on TransAlta processes as they are the manager of the Licensee. As TransAlta are in the electricity business much of their business activities are about asset management - it is the essence of the business. There not been any asset planning affecting this licensee in the review period.

There was no disposal action in the audit period. There are disposal processes (such as a business case for disposal) in addition to those for justification of replacement of plant (which includes disposal of redundant plant). Removing the licensed plant is unlikely during the life of the customers' mines. There has been no asset disposal by TransAlta in the review period.

Maintenance is planned out for 4 years and reviewed 12 /24 week cycles. There is very high frequency line washing (2 weeks) in high dust areas. There has not been a pole top fire for 7 years.

Meeting statutory obligations
There are documented obligations of the Licensee and their employees to comply with statutory obligations.

Evaluation Criteria summary Licensee

- Under-utilised and under-performing assets are identified as part of a regular systematic review process

Response: The Licensee does not have the role, capacity or resources to carry out the strategic asset disposal roles. There is little likelihood of disposal of the system or portions thereof outside mining operation imperatives. The existing assets are configured for customer load demands and even if under-utilized an economic case for re-sizing would not routinely be made as utilisation may increase as a result of mining activity.

- The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken

Response: The most likely issue is plant failures and these are critically examined. The nature of the mining industry dictates that some plant will for periods be under utilised as a result of production demand. Under utilised plant during mining downturn is retained in-situ for future resumption of mining operations.

- Disposal alternatives are evaluated

Response: The Licensee does not have the role, capacity or resources to carry out the strategic asset disposal roles. There is little likelihood of disposal of the system or portions thereof outside mining operation imperatives.

- There is a replacement strategy for assets

Response: The AMS meets this criterion and allows for plant replacement. Replacement will be determined by expansion need or a finding from condition based maintenance.

Policies and procedures for asset disposal / sample disposal activities

The Licensee does not have the role, capacity or resources to carry out the strategic asset disposal roles. . The owning companies carry out these functions and may or may not involve the Licensee in the processes. There was no disposal action in the audit period. There are disposal processes (such as a business case for disposal) in addition to those for justification of replacement of plant (which includes disposal of redundant plant). Removing the licensed plant is unlikely during the life of the customers' mines. There has been no asset disposal by TransAlta in the review period.

Meeting statutory obligations

There are documented obligations of the Licensee and their employees to comply with statutory obligations.

Evaluation Criteria summary - Licensee

- Under-utilised and under-performing assets are identified as part of a regular systematic review process

Response: The Licensee does not have the role, capacity or resources to carry out the strategic asset disposal roles. There is little likelihood of disposal of the system or portions thereof outside mining operation imperatives.

- The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken

Response: The most likely issue is plant failures and these are critically examined. The nature of the mining industry dictates that some plant will for periods be under utilised as a result of production demand. Under utilised plant during mining downturn is retained in-situ for future resumption of mining operations.

- Disposal alternatives are evaluated

Response: The Licensee does not have the role, capacity or resources to carry out the strategic asset disposal roles. There is little likelihood of disposal of the system or portions thereof outside mining operation imperatives.

- There is a replacement strategy for assets

Response: The AMS meets this criterion and allows for plant replacement. Replacement will be determined by expansion need or a finding from condition based maintenance.

Evaluation Criteria summary - TransAlta

- Under-utilised and under-performing assets are identified as part of a regular systematic review process

Response: Parent company has whole of life cycle procedures and practices in place. There has been no activity in the review period.

- The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken

Response: Parent company has whole of life cycle procedures and practices in place. There has been no activity in the review period.

- Disposal alternatives are evaluated

Response: Parent company has whole of life cycle procedures and practices in place. There has been no activity in the review period.

- There is a replacement strategy for assets

Response: Parent company has whole of life cycle procedures and practices in place. There has been no activity in the review period.						
Asset management process and policy definition						
Process	☑	Policy	☑	Documentation	☑	
Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Meter drawings/documents. . Life cycle planning procedure, decommissioning, obsolescence and disposal procedures, Procurement procedures. Capital expenditure plans/reports.						
Asset management performance						
Process	☐	Availability	☐	Use	☐	
Issues						
The Licensee does not have the role, capacity or resources to carry out the strategic asset disposal roles. The rating given is that of the owners.						
Recommendation						
None						

Environmental analysis	Process/Policy rating B	Effectiveness rating 2

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 does not have the role, capacity or resources to carry out the strategic environmental assessment roles. The Licensee has an Environmental Management Plan (EMP) developed to implement an environmental management system that is developed and managed to the ISO 14001 standards. Reporting and monitoring tools are appropriate.

The Licensee has a number of environmental licences. A non compliance has been reported which was an oil spill and was a breach but no penalty was applied.

The principal external threats to the assets relate to storms or bush fires to network assets. Given the close relationship to the mines there are little threats of external competition to the assets. The capability to meet customer capacity requirements is part of the asset management plan.

Evaluation Criteria summary - Licensee

- Opportunities and threats in the system environment are assessed

Response: The Licensee does not have the role, capacity or resources to carry out the strategic environmental assessment roles. Opportunities are unlikely outside mining initiatives. Given the remote location threats are unlikely but the Licensee would be able to respond to any proposals.

- Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved

Response: The AMS meets this criterion with service standards defined in the PPAs and statistics gathered. The PPAs require a level of availability with penalties for not meeting that level. The Licensee measures performance as required in the PPAs.

- Compliance with statutory and regulatory requirements

Response: The Licensee's policy documents require compliance with statutory and regulatory obligations. A non compliance has been reported which was an oil spill and was a breach but no penalty was applied.

Procedures at site require environmental approval for new projects, clearing of ground and other activities that impact the environment but this is unlikely to be done by the Licensee but by the owners.

- Achievement of customer service levels

Response: The PPAs define the customer service levels. Review of the outage logs showed that the applicable service levels are maintained. Planned outages are communicated well in advance.

Evaluation Criteria summary- TransAlta

- Opportunities and threats in the system environment are assessed

Response: The owner continuously scans the market/environment for opportunities or threats (political, economic, technological and social)

- Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved

Response: Compliance with statutory and regulatory requirements of the licensee are regularly monitored. Performance standards are an element of the assessment of threats or opportunities.

- Achievement of customer service levels

Response: Compliance with customer service levels requirements of the licensee are regularly monitored. Customer service levels are an element of the assessment of threats or opportunities.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Meter drawings/documents. Life cycle planning procedure, decommissioning, obsolescence and disposal procedures, Procurement procedures. Capital expenditure plans/reports.

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues

There was an environmental non-compliance reported. The fuel tank level sensor and alarm sensor have been replaced which should prevent reoccurrence. The alarm sensors should be checked regularly on a time basis. (Otherwise there condition is not sensed until there is an overflow condition). The level sensors should be also checked for condition basis.

The Licensee does not have the role, capacity or resources to carry out the strategic environmental assessment roles.

There are contingency plans that cover the threats and processes to minimise outages such as staff, plant failures, loss of fuel, and flight delays. The external issues other than capacity have a low visibility. The rating is given for the owner.

Recommendation

Schedule checks of level and alarm sensors on fuel tanks. A preventative maintenance order for these requirements has already been implemented.

Asset operations	Process/Policy rating A	Effectiveness rating 2

5. Asset operations

Operations functions relate to the day-to-day running of assets and directly affect service levels and costs.

Observations

Policies and procedures for asset operation / sample activities

The system is very small and operates substantially from the Parkeston (Kalgoorlie) power station control room. Network staff is contacted to treat alarms and carry out scheduled tasks, such as switching, on a planned or as required basis. Isolation and switching procedures requirements are documented. Switching and testing procedures are prepared in writing on prepared forms as are inspection processes. The asset operation is appropriate for the duty.

The demands of the mining process dictate continuous supply with some contractual penalties for interruptions to supply and agreed understanding of expected service levels due to the nature of radial feed or N-0 (single lines with no redundancy that will have no alternative in the event of a fault) supply. These are defined in the Power Purchase Agreements which also cover access arrangements.

The Licensee records outages. The service levels are defined and statistics are gathered but with a small number of customers statistical interpretation of results is difficult. The feedback from statistics is more likely to affect maintenance regimes rather than operations but some improvements may be possible.

The asset register is part of the maintenance system and supported by spreadsheets.

Training/ resources / exceptions

The Licensee operates the plant. The resourcing is considered appropriate for the size of the network/plant and ongoing training is evident, as are the operating procedures and practices. Plant operation and related maintenance appears to take due allowance of any possible faults or operating requirements in the licensed plant.

Evaluation Criteria summary

- Operational policies and procedures are documented and linked to service levels required

Response: The AMS meets this criterion with service standards defined. Due to the size and topology of the network there is no requirement for additional formal documentation.
The distribution/transmission system is static and uses remote operation outside maintenance/fault switching. Switching process procedures are documented. Generation and load network switching is remotely operated from the Parkeston control room. Operational policies are substantially maintenance/reliability matters e.g. Gas Turbine generation run hours and stops/starts govern maintenance.

- Risk management is applied to prioritise operations tasks

Response: Simple risk analysis is applied by developing a task hazard analysis for all tasks on the site.

- 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 GPmate system. These are supported by spreadsheets.

- Operational costs are measured and monitored

Response: Operational costs – staffing, contracts and materials are measured and monitored.

- Staff receive training commensurate with their responsibilities

Response: Staff receives training commensurate with their responsibilities. Personnel undergo HV Operator training for switching operations at established training centres followed by on site approval and appointment under Mining Regulations.

- Performance measures such as unplanned outages

Response: Outage log, including forced outages logged.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Meter drawings/documents.

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues

The asset operation is appropriate for the duty.

Personnel are adequate for normal duty.

Recommendation

None.

Asset Maintenance	Process/Policy rating A	Effectiveness rating 2

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 for the system is controlled by an IT system (GPmate V6)) that coordinates tasks, incorporates condition, risk, breakdown and time based maintenance. Maintenance jobs are standardised which gives a quality and safety assurance and change management where by changing the standard job specification the work process is changed. Spare parts required for standard jobs and inventories are also contained in the system. There are spare parts stores on sites with the typical spares.

The asset management plan contains performance measures (in the PPAs) and lists significant maintenance plans.

The Licensee provides first line maintenance and engages contractors to service their major maintenance outages as required. There are considerable spares including a spare Gas Turbine engine (in addition to spare capacity).

Training / resources / exceptions

Maintenance is scheduled well into the future and these actions are 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 at Western Power and College of Electrical Training. Plant maintenance appears to take account of any expected failures in the licensed plant.

Evaluation Criteria summary

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

Response: Policies and procedures are documented. Service levels are defined in the PPAs.

- Regular inspections are undertaken of asset performance and condition

Response: The GPmate maintenance planning system fulfils this criterion by regular scheduling of inspections to assess condition. Time based schedules are set up for physical inspection, testing and collection of samples for condition based analysis (eg oil sampling, thermographic, etc). Line washing for high risk areas is carried out at a very high frequency (2 weekly).

- Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule

Response: Corrective (condition based) and preventative maintenance plans are recorded in the GPmate system. These were reviewed on site with the maintenance planner. The schedules are issued on a weekly basis. Completion rates are recorded as part of the overall maintenance analysis. The network is in good condition.

Maintenance plans for emergencies were evident for a set of high risk issues.

- Failures are analysed and operational/maintenance plans adjusted where necessary

Response: Failures are infrequent. There was no evidence of significant failure warranting adjustment of the plans within the audit period.

- Risk management is applied to prioritise maintenance tasks

Response: Maintenance tasks and frequencies have been developed over a period of time using local experience and industry standards applied at the mine. Plant failure risks and contingencies are documented.

- Maintenance costs are measured and monitored

Response: Maintenance costs are recorded, measured and monitored by the site.

- 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 and was sighted. Level of investigation is dependent on cause and impact. This also involves upstream supplier when applicable.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Meter drawings/documents, Outage Log. Transformer repair analysis documents.

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues

The maintenance is appropriate for the duty required.

Recommendation

None.

Asset Management Information System	Process/Policy rating A	Effectiveness rating 1

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. The maintenance management system based on the GPmate V6 software system (described in section 6 above). The system allows for fault, time based and condition based activities.

A project (Work Management Implementation) to link project management to scheduled tasks to standard work plans (assisting with safety and change management), asset register and parts inventory is underway and is expected to be complete by December 2011. Documentation and familiarity of the system appears 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 Perth to ensure data integrity.

The reliability of the plant is evidence of good maintenances practices and that exceptions are being followed up.

Evaluation Criteria summary

- Adequate system documentation for users and IT operators

Response: The GPmate system is well documented. The system is intuitive with online assistance and documentation is rarely required.

- 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. Personnel are automatically logged out of computer systems after periods of inactivity.

- Physical security access controls appear adequate

Response: Physical security is adequate with the system on access controlled mine sites.

Access to site is by key pad or is on controlled access mine sites and Perth office is by swipe card. Visitors are required to be escorted.

- Data backup procedures appear adequate

Response: Data backup is reported by the site IT personnel to be carried out daily and weekly on all servers with weekly back up being stored off site.

- Key computations related to Licensee performance reporting are materially accurate

Response: There is minimal regular computation work other than meter data handled on spreadsheets. Validation checks are incorporated. Key computations related to Licensee performance reporting are materially accurate, to the extent possible to assess with visual inspection.

- Management reports appear adequate for the Licensee to monitor licence obligations

Response: No detailed management reports are generated by the GPmate system which would assist to monitor licence obligations. The key reports are for outage logging and quality of supply and appear adequate for licence requirements. Licence obligations such as licence fee payments are outside the scope of a maintenance system (GPMate) and are provided elsewhere.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Meter drawings/documents., Outage Log. Contingency plans.

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues

None

Recommendation

None

Risk management	Process/Policy rating	Effectiveness rating
	A	2

8. Risk management

Risk management involves the identification of risks and their management within an acceptable level of risk.

Observations

Policies and procedures

The Licensee does not have the role, capacity or resources to carry out the strategic risk management roles. External risks such as competition or political, environmental, sociological and technological threats are outside the range the Licensees functions or resources. The Licensee has a documented risk management procedure and a risk register and there is evidence that risk based approaches is being carried out.

The investigation of the provision of contingencies such as a spare gas turbine is a result of critical risk management. The Licensee has assessed and prioritised the threats to specific plant and developed contingencies for these threats which are based on assessment of risks. An example of risk management was observed during the review where to prevent the risks to Gas Turbine of seismic shocks due to blasting, the mine at Mt Keith was supplied with diesels at Mt Keith and Leinster via the joining transmission line.

Training

There is evidence of training and awareness by staff of risk based approaches.

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: There is strong evidence of risk approaches with contingency plans for failure contingencies, fuel shortages, staff availability, fly on fly out delay issues and bomb threats. Risk Management procedures and risks register have been sighted.

- Risks are documented in a risk register and treatment plans are actioned and monitored.

Response: The contingencies plans are available as documentation of the risks processes Actions are scheduled as a result of the risk plans.

- The probability and consequences of asset failure are regularly assessed

Response: During the audit period, the risks of asset failures have been assessed based on probability and consequence parameters.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Meter drawings/documents, Outage Log. Contingency plans. Risk procedures and risk register.

Asset management performance						
Process	☑	Availability	☑	Use	☑	
Issues						
None						
Recommendation						
None.						

Contingency planning	Process/Policy rating A	Effectiveness rating 1

9. Contingency planning

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

Observations

Development of contingency plans / currency
Policies and procedures
The Licensee does not have the role, capacity or resources to carry out the strategic contingency planning roles. External risks such as competition or political, environmental, sociological and technological threats are outside the range the Licensees functions or resources.

The Licensee has good documentation of its data recovery plans.

The Licensee has documented the threats to specific plant and developed contingencies for these threats. An inventory of spare parts has been developed.

The Licensee has detailed maintenance scheduled out for several years, with minor and major shutdowns allowed to deal with potential issues. Maintenance is partly conducted on condition based maintenance which monitors critical items for indicators of future failure (eg oil testing, thermographic assessment, pole inspections).

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

Testing of contingency plans
The Licensee tests safety systems routinely. Emergency response drills are completed at each facility twice per annum.

The company conducts major incident training for the emergency services crews at site.

Evaluation Criteria summary

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

Response: The AMS meets this criterion with contingency planning occurring and documented. Critical spares are identified and being sourced. Standard spares such as poles, insulators and Generation equipment are on site.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Meter drawings/documents, Outage Log. Contingency plans.

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues
None
Recommendation
None

Financial planning	**Process/Policy rating** A	**Effectiveness rating** 1

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 does not have the role, capacity or resources to carry out the strategic financial planning roles.

The Licensee carries out budgeting and monitoring processes. These are on 1 year and 5 year cycles and upgraded year by year.

Evaluation Criteria summary

- The financial plan states the financial objectives and strategies and actions to achieve the objectives

Response: The financial plan meets the requirements.

- The financial plan identifies the source of funds for capital expenditure and recurrent costs

Response: The financial plan identifies source of funds for capital and recurrent expenditure.

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

Response: The financial plans provide profit and loss and 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 reasonable 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 minor capital expenditure requirements of the services.

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

Response: When significant variation in expenditure or budget are noted this is investigated.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Financial plans.						
Asset management performance						
Process	☑	Availability	☑	Use	☑	
Issues						
None						
Recommendation						
None						

Capital expenditure planning	Process/Policy rating A	Effectiveness rating 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 does not have the role, capacity or resources to carry out the strategic financial planning roles. The capital expenditure planning relates to major work schedules of the plant.

The Licensee has budgeting and monitoring processes. These are on 1 year and 5 year cycles and upgraded year by year.

Evaluation Criteria summary

- There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates

Response: The AMP sets out “capital expenditure” and monitored..

- The plan provide reasons for capital expenditure and timing of expenditure

Response: The AMP sets out “capital expenditure” ” with expenditure planned and monitored.

- The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan

Response: The plan responds to asset condition.

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

Response: The AMP sets out a review process.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Financial & capital expenditure plans.

Asset management performance

Process	☑	Availability	☑	Use	☑	
Issues						
None.						
Recommendation						
None						

Review of AMS	Process/Policy rating	Effectiveness rating
	A	Not Rated

12. Review of AMS

The asset management system is regularly reviewed and updated.

Observations

The Licensee does not have the role, capacity or resources to carry out the strategic asset management planning roles. TransAlta carries out these functions and may or may not involve the Licensee in the processes. I will comment on TransAlta processes as they are the manager of the Licensee. As TransAlta are in the electricity business much of their business activities are about asset management - it is the essence of the business. There not been any asset planning affecting this licensee in the review period. As a supplier of electricity the service delivery is heavily asset based and needs an AMS. There is ongoing review of the technical and financial performance.

Evaluation Criteria summary - Licensee

- 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 owners assign responsibility for review of the AMS to the Licensee. There are regular reviews of performance and outcomes. . The licensee has a competent asset management information system with a number of elements. The maintenance management system has complex functionality managing expenditure and a dedicated maintenance management database (GPMate) 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 Calgary, Canada to ensure data integrity.

- Independent reviews (eg internal audit) are performed of the asset management system

Response: The owners conduct independent reviews, through their annual review and planning process. It would not be appropriate to require the licensed entities to carry out these functions when they are already carried out by the owning companies.

Evaluation Criteria summary Trans Alta

- 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 owners continuously review the performance of the investment and processes and procedures.

- Independent reviews (e.g. internal audit) are performed of the asset management system

Response: There is an internal audit function but no reviews of have been requested.

Asset management process and policy definition						
Process	☑	Policy	☑	Documentation	☑	
Evidence: interviewed Commercial Manager, Manager North & South, Assistant Managers North and South. Documents: Include Power procurement agreement sample, Meter drawings/documents, Outage Log. Financial plans. Life cycle planning procedure, decommissioning, obsolescence and disposal procedures, Procurement procedures. Capital expenditure plans/reports.						
Asset management performance						
Process	☐	Availability	☐	Use	☐	
Issues						
None - There is no business case for carrying out asset planning when it is carried out by the owning bodies. The rating is that of the owner.						
Recommendation						
None.						