McGill Engineering Services Pty Ltd

Engineering, Adjudication & Arbitration Services ABN 45 106 691 169

KARARA POWERPTY LTD
TRANSMISSION LICENCE ETL 6
ASSET MANAGEMENT SYSTEM REVIEW

Prepared By Kevan McGill
25 September 2013

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Mahendra Kuruppu
Utilities Superintendent
Karara Power Pty Ltd
L9, 216 St George Tce
PERTH WA 6000

Dear Mr Kuruppu

Asset Management System Review Electricity Licences

The fieldwork on the asset management system review of Transmission Licence ETL 6 for the review period (27 October 2010 to 30 June 2013) is complete and I am pleased to submit the report to you.

In my opinion, the Licensee maintained, in all material aspects, effective control procedures and an effective asset management system in relation to the Transmission licence (ETL 6) for the review period on the relevant clauses referred to within the scope section of this report. There are some improvements necessary.

Yours sincerely

Kevan McGill
Director

Date 25 September 2013

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Executive Summary

Karara Power Pty Ltd (Karara KPPL) holds an Electricity Transmission Licence (*ETL 6*) issued by the Economic Regulation Authority under the Electricity Industry Act 2004 (WA). The Electricity Industry Act 2004 (WA) requires the holder of a Transmission Licence 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 Karara Asset Management System was conducted in accordance with the guidelines issued by the Economic Regulation Authority (*Authority)* for the review period (27 October 2010 to 30 June 2013) to assess the Licensee's asset management systems.

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

The Licensee has a 330kV/132kV transmission line running from Western Power's Eneabba Substation to Western Power's Three Springs Terminal and then to Karara mine site. Western Power wheels electricity from Eneabba to Three Springs. The Licensee purchases power in bulk from Verve and is metered by Western Power at the network's entry point at Eneabba. There are no meters operated by the Licensee. The licensee currently supplies itself but there is an intention to supply other miners at Karara. Western Power will wheel power though the line for another miner. Western Power intends to purchase the Eneabba to Three Springs section in the future as part of its Mid West project.

The Electricity Licence requires Karara to provide the authority with a report following the Asset Management System Review by an independent expert on a defined time scale. This is the first review of the Karara Asset Management System.

OVERALL CONCLUSION

In my opinion, the Licensee maintained, in all material aspects, an effective asset management system in relation to the Transmission licence (ETL 6) for the review period based on the relevant clauses referred to within the asset management review objectives (Page 8) of this report.

There are some improvements required.

LICENCE

The licensee has no customers and the Licensee has not supplied any retailers in the review period and no small use customers. There have been no generators, retailers or other customers connected to the network in the review period. The Licensee intends to supply other miners in the future. Western Power will wheel power though the line for another miner. Western Power intends to purchase the Eneabba to Three Springs section in the future as part of its Mid West project.

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 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 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	2
2. Asset creation/ acquisition	A	1
3. Asset disposal	B	NR[1]
4. Environmental analysis	A	2
5. Asset operations	B	2
6. Asset maintenance	A	2
7. Asset Management Information System	A	1
8. Risk management	B	2
9. Contingency planning	C	3
10. Financial planning	B	2
11. Capital expenditure planning	B	2
12. Review of AMS	A	NR

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.	Asset Management Element	Finding	Recommendation

[1] NR – Not Rated

2.0	Asset Creation	Improve HR standards by having requirements to comply with statutory obligations	Add an overt requirement to comply with statutory obligations to HR standards.
3.1	Asset Disposal	Asset disposal process incomplete.	Develop an asset disposal process.
5.6	Asset Operations	Not monitoring for outages	Commence monitoring for outages
9.1	Contingency Planning	Contingency Plans not yet developed	Develop Contingency plans based on risk assessment and subsequently schedule testing of the contingency plans.
12.2	Review of AMS	Schedule review of AMS	The Asset Management System requires a scheduled formal review every 5 years.

POST REVIEW IMPLEMENTATION PLAN

The Licensee will provide a post review implementation plan.

Asset Management System Review

ASSET MANAGEMENT SYSTEM REVIEW OBJECTIVES

Under the *Electricity Industry Act 2004* (the Act) section 14, the holder of a Transmission License must develop an Asset Management Plan and maintain 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 Review Guidelines: Electricity, Gas and Water Licences published by the ERA.

The review conducted between July and September 2013 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 Transmission 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 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 Licence obligations.

The review was conducted in a manner consistent with Australian Reviewing Standards (AUS) 808 “Planning Performance Reviews” and AUS 806“Performance Reviewing”. 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 Transmission Licence through a combination of enquiries, examination of documents and detailed testing for Electricity Transmission Licence ETL 6 for Karara Power Pty Ltd.

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 review/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 review during an review/review.

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

- no work has been undertaken by the reviewer, or a member of the review/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 6months; and
- there is no close family relationship with a Licensee, its directors, officers or employees, and
- the reviewer is not, nor is perceived to be too sympathetic to the Licensee’s interests.

REVIEW PERIOD

The review period is 27 October 2010 to 30 June 2013. This is a first review.

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 as this is a first review.

CONTACTS

The key contacts were:

- Licensee
  - Mahendra Kuruppu- Utilities Superintendent
  - Sufi Sufani – Commercial Analyst
- McGill Engineering Services Pty Ltd
  - Kevan McGill

The review was conducted during May and June 2013. Kevan McGill took approximately 80 hours on the review.

Stage	Reviewer	Standard
1. Risk & Materiality Assessment Outcome - Operational/ Performance Review Plan	K McGill	ASA 300 Planning ASA 315: Risk Assessments and Internal Controls AUS 808: Planning Performance Reviews AS/NZS 4360:2004: Risk Management ERA Guidelines
2. System Analysis	K McGill	AUS 810: Special Purpose Reports on Effectiveness of Control Procedures
3. Fieldwork Assessment and testing of; • The control environment • Information system • Compliance procedures • Compliance attitude	K McGill	AUS 502: Review Evidence AUS 806: Performance Reviewing
4. Reporting	K McGill	ASA 300 Planning AUS 806: Performance Reviewing

REVIEW EVIDENCE

The following was considered in the review.

- Transmission Licence
- Contact details
- Asset Register
- Environmental Plans and Approvals
- Spares List
- Commissioning Plans
- Karara Mining Financial reports
- Annual compliance returns
- Reticulation plans
- Asset management plan
- Risk management policy
- Project management manual
- As constructed details
- Financial philosophy (Plan)
- HR Standards

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 Transmission licence (ETL 6) for the review period based on the relevant clauses referred to within the asset management review objectives (Page 8) of this report. There are some improvements required.

FINDINGS

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

ASSET MANAGEMENT SYSTEM REVIEW RESULTS AND RECOMMENDATIONS

Asset Planning	**Process/Policy rating** A	**Effectiveness rating** 2
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 176 km of Transmission lines between Eneabba and Karara. Asset management has to be part of the context of the licensed operations as part of the business of the company which is mining. The licensed facilities only exist to facilitate mining and are governed by the life of the mine. The life cycle of Transmission assets is usually much longer than the life of a mine. Asset planning will be subservient to mine planning. That is, there will be no planning for licensed assets that are not dependent on a mining development. The Licensee has developed an asset management plan for the licensed assets. This plan is to be reviewed 5 yearly by Utilities Superintendent. The asset management plan consists of following parts: • Purpose of the Asset Management Plan (AMP) • Key Stakeholders • Future Power Transmission Demand • Risk Management • Financials • Disposal of Eneabba to Three Springs 330kV Transmission Line • Land Access • Supply Reliability • Maintenance (Eneabba 132kV Substation to Three Springs Terminal) • Maintenance (Three Springs Terminal to Karara's Mine) • Corona and Thermal Imaging • Photos and Drawings • Annual Inspections • Spares • Emergency and Breakdown • Evaluation of Asset Performance Service strategies and service standards are set out in the plan. Given the context of the licensed assets as part of much bigger assets, the plan is		

appropriate for the scale and nature of the operations.

Allocation of responsibilities / statutory obligations
The organisational arrangements allocate responsibilities. There is documentation requiring compliance with statutory obligations.

Evaluation Criteria summary

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

Response: The AMP meets this criterion and reflects the needs of all stakeholders and is integrated with business planning.

1.2 Service levels are defined

Response: The AMP defines service levels.

1.3 Non-asset options (eg 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.

1.4 Lifecycle costs of owning and operating assets are assessed

Response: The AMP meets this criterion with lifecycle costs of owning and operating assets assessed as part of the existing mine infrastructure and any future mining proposals. Mine life, which is generally shorter than network asset life, is likely to be the determining factor of lifecycle costing. The capital cost will be considered and costed in mine project feasibility and not in terms of the electrical assets cost viability in its own right. Servicing the mines is the dominant requirement for the assets with mine profitability and metal prices being the major driving force.

1.5 Funding options are evaluated

Response: Financial decisions are often taken on mining project feasibility rather than analysis of the expected life of the electrical assets. Funding is determined by what is necessary to serve mining functions and funding provided for expansion from mining project feasibility.

1.6 Costs are justified and cost drivers identified

Response: Financial decisions are often taken on metal prices and mining project feasibility rather than analysis of the expected life of the electrical assets. Funding is determined by what is necessary to serve mining functions. Any proposal would include justification of costs and identification of cost drivers including availability and reliability of supply.

1.7 Likelihood and consequences of asset failure are predicted

Response: The evaluation of risks addressed in the AMP cover the aspects of asset failure and consequences.

1.8 Plans are regularly reviewed and updated

Response: The AMP meets this criterion as the responsibility of review of the AMS is assigned to the Utilities Superintendent. Annual performance reviews that take place and would be the basis for the AMP review. It is proposed that there be two yearly internal reviews and 5 yearly formal reviews of the AMP.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Utilities Superintendent. Documents: Transmission Licence, Asset Register, Environmental Plans and Approvals, Spares List, Commissioning Plans, Karara Mining Financial reports, Reticulation plans, Asset management plan, Risk

management policy, Risk register, Project management manual, As constructed details, Financial philosophy (Plan)						
Asset management performance						
Process	☐	Availability	☐	Use	☐	
Issues						
The asset management has to be part of the context of the licensed operations as part of the business of the company, which is mining. The licensed facilities primarily exist to facilitate mining and are governed by the life of the mine. The life cycle of Transmission assets is usually much longer than the life of a mine. Asset planning will be subservient to mine planning that is, there will be no planning for expansion of the licensed assets that are not dependent on a mining development. Given this context the plan is appropriate for the scale and nature of the business.						
Recommendation						
–None.						

Asset Creation	Process/Policy rating A	Effectiveness rating 2

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 are documented procedures for creation of fixed assets.

Meeting statutory obligations

There are documents and policies requiring contractors to comply with statutory obligations. There are HR standards that deal with non compliance but the existence of an overt requirement to comply with statutory obligations is recommended.

The asset creation processes are appropriate with extensive project approval processes and standard engineering specifications prepared. The Project execution plan requires compliance with Australian Standards and Codes and Government Acts and Regulations

Evaluation Criteria summary

2.1 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. In that circumstance there will be comprehensive assessment of creation options and justified as part of the mining project. 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 network or upgrading.

2.2 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. The life of the asset is much more likely to be determined by the life of the mine rather than the life of the Transmission asset.

2.3 Projects reflect sound engineering and business decisions

Response: The Licensee has the resources in house and by contract to ensure sound engineering and business decisions. There will be no asset creation likely outside mining related development. Extensive use has been made of external consultants for detailed engineering design.

Karara has a comprehensive project approval process.

Karara has a comprehensive set of standard engineering specifications available for major components of the network.

2.4 Commissioning tests are documented and completed

Response: The Licensee has the resources in house and by contract to ensure commissioning tests are documented and completed.

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

Response: The responsibilities of the AMS are assigned to the Utilities Superintendent 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.						
Asset management process and policy definition						
Process	☑	Policy	☑	Documentation	☑	
Evidence: interviewed Utilities Superintendent. Documents: Asset Register, Commissioning Plans, Reticulation plans, Asset management plan, Project management manual, As constructed details, Sample tender documents were sighted and seen to be comprehensive.						
Asset management performance						
Process	☐	Availability	☐	Use	☐	
Issues						
The procurement processes are appropriate. There are HR standards that deal with non compliance but the existence of an overt requirement to comply with statutory obligations is recommended.						
Recommendation						
–Add an overt requirement to comply with statutory obligations to HR standards.						

Asset Disposal	**Process/Policy rating** B	**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

There was no disposal action in the review period other than removal of a section of line which was no longer in use. Disposal processes are being developed. Removing the licensed plant is unlikely during the life of the customers' mines. The sale of the Eneabba to Three Springs section may be seen as an asset disposal but is only a financial transaction and not because of life / condition of the asset.

Meeting statutory obligations

There are documents and policies requiring contractors to comply with statutory obligations. There are HR standards that deal with non compliance but the existence of an overt requirement to comply with statutory obligations is recommended. This is addressed under Asset Creation.

Evaluation Criteria summary

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

Response: The AMS meets this criterion. There is little likelihood of disposal of the system or portions thereof outside mining operation imperatives. Disposal processes are being developed.

3.2 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. There is unlikely to be disposal of the asset but components will be disposed as they become unserviceable.

3.3 Disposal alternatives are evaluated

Response: The AMS meets this criterion. There is little likelihood of disposal of the system or portions thereof outside mining operation imperatives.

3.4 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.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Utilities Superintendent. Documents: Reticulation plans, Asset management plan, Project management manual, As constructed details,

Asset management performance						
Process	☐	Availability	☐	Use	☐	
Issues						
Develop an asset disposal process.						
Recommendation						
Develop an asset disposal process						

Environmental analysis	Process/Policy rating A	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 has an Environmental Management Plan (EMP). Reporting and monitoring tools are appropriate.

The Licensee has a number of environmental licences and no unresolved issues have arisen with respect to environmental matters. No non compliances have been reported.

The principal external threats to the assets relate to storms or bush fires to Transmission 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

4.1 Opportunities and threats in the system environment are assessed

Response: Opportunities are unlikely outside mining initiatives.

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

Response: The AMS meets this criterion with service standards defined but statistics are not yet gathered. The automatic acquisition of SCADA data in the Historical database is required as preliminary step. There has not been a customer to apply them to. With Western Power wheeling power to the future "customer" they will be responsible the power quality and supply continuity to a large extent. As supply is to the mining industry, capacity is only considered on a project by project basis. Forecasting for expansion is not relevant in this environment. Mining expansion is not predictable in the normal sense as it is heavily dependent on exploration and metal markets.

4.3 Compliance with statutory and regulatory requirements

Response: The Licensee's HR policy documents require compliance with statutory and regulatory obligations. There have been no noted environmental breaches for the assets covered by the licence during the review period.

Procedures at site require environmental approval for new projects, clearing of ground, protection of threaten birdlife and other activities that impact the environment. Policy documents were sighted.

4.4 Achievement of customer service levels

Response: The AMP defines the customer service levels. The Licensee has the systems to monitor outages but as not yet done so. However environmental requirements are met. There are no external customers to consider as part of the environment and outages.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Utilities Superintendent and staff on site listed. Documents:

Environmental Plans and Approvals, Reticulation plans, Asset management plan, Risk management policy, Risk register, Project management manual, As constructed details,						
Asset management performance						
Process	☑	Availability	☑	Use	☑	
Issues						
There are no environmental non-compliances reported. Karara monitors and considers the mining environment in which it operates.						
Recommendation						
None						

Asset operations	Process/Policy rating B	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 operated by Western Power from the Eneabba end and by Karara at the mine end. The asset operation is appropriate for the duty.

The demands of the mining process dictate continuous supply but due to the nature of radial feed supply some interruptions are always going to occur.

The Licensee records outages manually and will implement automatically gathering outages/ power quality information from which to extract statistics.. The service levels are defined and statistics will be gathered. 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 spread sheets and standard procedures.

Training/ resources / exceptions

The Licensee and Western Power operate the plant. The resourcing is considered appropriate for the size of the network 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

5.1 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 Transmission system is static and does not require operation outside maintenance/fault switching. Operational policies are substantially maintenance/reliability matters and those dictated by SWIN system requirements.

5.2 Risk management is applied to prioritise operations tasks

Response: There is very little operational control as the assets are predominantly operated for maintenance requirements. Simple risk analysis is applied by developing a task hazard analysis for all tasks on the site.

5.3 Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data

Response: Asset registers are contained with the appropriate information in the Ellipse system with each tower listed as an asset.

5.4 Operational costs are measured and monitored

Response: Operational costs – staffing, contracts and materials are measured and monitored. These are not significant to profitability or viability in the context of

the core business being mining. The mining operations are charged for energy which includes energy infrastructure and operational costs.

5.5 Staff receive training commensurate with their responsibilities

Response: The 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.

Karara follows a standard isolation permit procedure across all sites.

5.6 Performance measures such as unplanned outages

Response: The Licensee has the systems to monitor outages but as not yet done so. Outages are recorded manually and supported by Western Power Information. There are no external customers to consider.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Utilities Superintendent and staff on site listed. Documents: Asset Register, Environmental Plans and Approvals, Spares List, Commissioning Plans, Karara Mining Financial reports, Reticulation plans, Asset management plan, Risk management policy, Risk register, Project management manual, As constructed details,

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues

The asset operation is appropriate for the duty. Monitoring of outages has not yet commenced.

Recommendation

Commence monitoring of outages

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

The Ellipse business application is used by Karara

The asset management plan contains performance measures and lists significant maintenance plans.

The Licensee engages contractors to service their major maintenance outages as required for the Three Springs/mine section. Western Power are contracted to maintain the Eneabba to Three Springs section. Condition inspection of the lines is routinely carried out. Inventory of critical spares has been developed.

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

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

Response: Policies and procedures are documented. The AMP supports this criterion with service standards defined.

6.2 Regular inspections are undertaken of asset performance and condition

Response: The Ellipse 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 Corona, thermo-graphic, etc).

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

Response: Corrective (condition based) and preventative maintenance plans can be recorded in the Ellipse system but the line is too new for condition based issues yet. The electrical and shutdown maintenance planners run the maintenance process.

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

Response: Failures are infrequent. The Licensee has not had any failures of their plant with outages being from external sources such as Western Power equipment. There was no evidence of significant failure warranting adjustment of the plans within the review period.

6.5 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.

6.6 Maintenance costs are measured and monitored

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

6.7 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.

6.8 Performance measures such as unplanned outages

Response: Outage log including forced outages is to be implemented. The Western Power log was sighted. Level of investigation is dependent on cause and impact.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Utilities Superintendent and staff on site listed. Documents: Asset Register, Environmental Plans and Approvals, Spares List, Commissioning Plans, Reticulation plans, Asset management plan, Risk management policy, Risk register, Project management manual, As constructed details,

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues

None.

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 Ellipse business software system (described in section 6 above). The system allows for both time based and condition based activities. The Historical database will collect SCADA data as a basis of the required statistics. The system was viewed but the automatic captured of SCADA data has not yet commenced. The Licensee uses standard financial packages.

The maintenance system links project management to scheduled tasks to standard work plans, asset register and parts inventory. 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 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

7.1 Adequate system documentation for users and IT operators

Response: The Ellipse system is well documented. The system is intuitive with online assistance and documentation is rarely required. The viewing of Historic data is also intuitive.

7.2 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.

7.3 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.

7.4 Physical security access controls appear adequate

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

7.5 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.

7.6 Key computations related to Licensee performance reporting are materially accurate

Response: There is minimal regular computation work. Key computations related to Licensee performance reporting are materially accurate, to the extent possible to assess with visual inspection.

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

Response: No detailed management reports are generated by the Ellipse system which would assist to monitor licence obligations. The key reports are for outage logging and the capacity to develop appear adequate.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Utilities Superintendent and staff on site listed. Documents: Karara Mining Financial reports, Asset management plan, Financial philosophy (Plan), Ellipse overview. Viewed Ellipse, viewing of Historical database.

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues

None

Recommendation

None

Risk management	**Process/Policy rating** B	**Effectiveness rating** 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 has a documented risk management procedure and there is evidence that risk based approaches is being carried out.

. The Licensee has assessed and prioritised the threats to specific plant and developed contingencies for these threats which are based on assessment of risks.

The power quality measurement plan is a strategy to mitigate quality/reliability threats. Sample power quality surveys were sighted and no issues identified.

The risk management review and plan satisfied and closed the non-compliance identified in the last review.

Training

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

Evaluation Criteria summary

8.1 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. The risk management section of the plan and Risk Plan set out risks, risk assessment and risk mitigation.

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

Response: The risk process is set out in the AMP. There is a risk register of Karara mining which includes the Licensee. It would be appropriate to carry out reviews of equipment failure.

8.3 The probability and consequences of asset failure are regularly assessed

Response: During the review 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 Utilities Superintendent and staff on site listed. Documents: Asset Register, Environmental Plans and Approvals, Spares List, Commissioning Plans, Reticulation plans, Asset management plan, Risk management policy, Risk register, Project management manual, As constructed details,.

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues

None
Recommendation None

Contingency planning	Process/Policy rating C	Effectiveness rating 3

9. Contingency planning

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

Observations

Development of contingency plans / currency

The Licensee has good documentation of its data recovery plans.

The Licensee has documented the threats to specific plant but not yet 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 Corona, thermo-graphic assessment, tower/line inspections).

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

The power quality measurement plan (a strategy to mitigate quality/reliability threats) is carried out by Western Power.

Testing of contingency plans

The plans have not been developed to test.

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

Evaluation Criteria summary

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

Response: The AMS does not meet this criterion Critical spares are identified and being sourced. Standard spares such as insulators are on site. Contingency plans have not yet been developed.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Utilities Superintendent and staff on site listed. Documents: Asset Register, Environmental Plans and Approvals, Spares List, Reticulation plans, Asset management plan, Risk management policy, Risk register, Project management manual, As constructed details, Financial philosophy (Plan),

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues

Contingency plans have not yet been developed.

Recommendation
Develop Contingency plans based on risk assessment and subsequently schedule testing of the contingency plans.

Financial planning	Process/Policy rating B	Effectiveness rating 2

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 carries out budgeting and monitoring processes. These are on 1 year and 5 year cycles and upgraded year by year. Long ranges forecasting provides business outlook over the next 5 years. The Licensee is charging its mining parent for electricity but is not operating as a business with income streams and no external customers there is no income. With Western Power wheeling power to the “customer” and there will be no income. Costs are budgeted and funded by mining operations.

Costs are accrued monthly and estimates updated quarterly, The expenditure reports go to the parent body’s executives. There is a financial philosophy document together with the budget which is a financial plan given the simplicity of the financial model. *Evaluation Criteria summary*

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

Response: The Licensed assets are a small part of the company core business of mining which will determine the viability of the operations. The licensed electrical assets are part of that budgeting process. The overall budgets are related to objectives / strategies and actions to achieve the objectives of reliability and continuity of supply. There is no income at present. There is a financial philosophy document together with the budget which is a financial plan given the simplicity of the financial model.

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

Response: The Licensed assets are a small part of the mining electrical assets and are part of that budgeting process. The overall budget identifies the source of funds for capital expenditure and recurrent costs. All capital expenditure will be funded from mining. Minimal capital is required for other reasons except those arising from SWIN network issues. The only capital expenditure planed for 5 years is removing the future “customer” line.

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

Response: As the network is only part of the core business of mining detailed financial plans for the network are not relevant. Detailed financial plans for the mine are prepared. The Licensed assets do not attempt operating statements (profit and loss) and statement of financial position (balance sheets) but monitors costs with respect to budgets.

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

Response: The licensee does not predict income for access to the network as any customers do not yet exist and do not charge the parent miner for electricity as income. Profitability of the network per-se is immaterial.

10.5 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. 10.6 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 Utilities Superintendent and staff on site listed. Documents: Karara Mining Financial reports, Financial philosophy (Plan),						
Asset management performance						
Process	☑	Availability	☑	Use	☑	
Issues						
None						
Recommendation						
None						

Capital expenditure planning	Process/Policy rating B	Effectiveness rating 2

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 budgeting and monitoring processes. These are on 1 year and 5 year cycles and upgraded year by year. Long ranges forecasting provides business outlook over the next 5 to 10 years.

Capital expansion and expenditure is justified against mining projects. The funds for expansion or rearrangement of the network are provided from the mine project requiring the change.

Evaluation Criteria summary

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

Response: The AMP sets out “capital expenditure” but there is no significant expenditure planned outside the removal of future ”customer” line. This item is the sole issue of capital expenditure planned and is the Plan

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

Response: The AMP does not set out “capital expenditure” as these are unlikely in the near future outside the removal of future ”customer” line.

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

Response: The AMP sets out that the asset life is most likely to be governed by mine life rather than asset life. The plan responds to asset condition.

11.4 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. Karara has financial review processes.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Utilities Superintendent and staff on site listed. Documents Karara Mining Financial reports, Financial philosophy (Plan),

Asset management performance

Process	☑	Availability	☑	Use	☑	

Issues
None.
Recommendation
None

Review of AMS	**Process/Policy rating** A	**Effectiveness rating** 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 the asset management plan.

Evaluation Criteria summary

12.1 A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current

Response: The AMP assigns responsibility for review of the AMS to the Utilities Superintendent.

12.2 Independent reviews (eg internal review) are performed of the asset management system

Response: The AMP is too new for an internal review but such a review should be scheduled at 2 yearly intervals.

Asset management process and policy definition

Process	☑	Policy	☑	Documentation	☑	

Evidence: interviewed Utilities Superintendent and staff on site listed. Documents: Transmission Licence, Asset Register, Environmental Plans and Approvals, Spares List, Commissioning Plans, Karara Mining Financial reports, Reticulation plans, Asset management plan, Risk management policy, Risk register, Project management manual, As constructed details, Financial philosophy (Plan),

Asset management performance

Process	☐	Availability	☐	Use	☐	

Issues

The Asset Management System requires a scheduled internal reviews in 2 years and formal review every 5 years.

Recommendation

Scheduled internal reviews in 2 years and formal review every 5 years for the Asset Management System.