





Performance Audit and Asset Management System Review for Generation Licence EGL5 for Kemerton Power Station.

| Audit Report | Authorisation | Name | Position | Date |
|-------------------------|---|---------------|---------------------------------------|---------------|
| Prepared By |  | Nicole Davies | Principal Consultant (GES Pty Ltd) | 21 March 2017 |
| Agreed By (licensee) |  | Wayne Roberts | RATCH-Australia | 22 March 2017 |

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2. Kemerton Power Station Asset Management System Review March 2017

GLOSSARY

| Abbreviation | Description |
|-----------------|---|
| ABC | Automatic balancing control; System Management generation dispatch system |
| AEMO | Australian energy market operator. |
| AMP | Asset management plan |
| AMS | Asset Management System |
| AMT | Alliance management team |
| CM | Corrective maintenance |
| DBP | Dampier Bunbury Natural Gas Pipeline |
| DCS | Distributed Control System |
| DM | Demand management |
| EMR | Electricity market review; a State Govt initiative |
| EOH | Equivalent operating hours; considers hours, starts and mode of operation |
| EoI | Expression of interest |
| ERA | Economic Regulation Authority |
| FESA | Fire and Emergency Services Authority, superseded by DFES |
| GES | Geographe Environmental Services |
| GT | Gas turbine |
| IT | Information Technology |
| OEM | Original equipment manufacturer |
| PLC | Programmable logic controller |
| PM | Preventive maintenance |
| PPA | Power purchase agreement |
| PSS | Power system stabiliser; a Technical Rules requirement |
| RATCH-Australia | RATCH-Australia Corporation; the Owners and Licence holders |
| RFQ | Request for quotation |
| SAP | A business management software package |
| SCADA | System control and data acquisition |
| SFC | Static frequency converter; uses the generator as a motor to start the GT |
| SWIS | South West Interconnected System |
| TWPS | The operations and maintenance contractor |
| WP | Western Power |

This report is prepared by representatives of GES Pty Ltd in relation to the above named client's conformance to the nominated audit standard(s). Audits are undertaken using a sampling process and the report and its recommendations are reflective only of activities and records sighted during this audit process. GES Pty Ltd shall not be liable for loss or damage caused to or actions taken by third parties as a consequence of reliance on the information contained within this report or its accompanying documentation.

Quality Control Record

| | CLIENT | DATE |
|--------------|--------------------------------|--------------|
| REQUESTED BY | WAYNE ROBERTS, RATCH-Australia | |
| PREPARED BY | NICOLE DAVIES | MARCH 2017 |
| CHECKED BY | SIMON ASHBY | MARCH 2017 |
| REVISION | 1 | 5 APRIL 2017 |

1. EXECUTIVE SUMMARY

Kemerton Power Station operates as a peaking plant and provides input into the SWIS in Western Australia. The power station comprises two open cycle gas turbines. It was developed by RATCH-Australia and commenced operation in November 2005.

In June 2008, RATCH-Australia completed a 40MW upgrade to Kemerton Power Station, increasing its capacity to 300MW. The upgrade has made the power station more efficient and improved its environmental rating by reducing greenhouse gas emissions, while providing power for an additional 10,000 households.

It is independently estimated that Kemerton has a remaining life of 25yrs, with a 2040 asset end.

KEMERTON KEY NUMBERS

| | | | |
|--|----------------------------------|---|---|
| Total MW 344 | No. Turbines 2 | Where 17km NE of Bunbury (140km South of Perth) WA | Fuel Type Natural gas; oil |
| Turbine type Siemens Open Cycle Gas Turbine | Turbine size 2 * 155MW | Built (when) 2005/ Update: 2008 | Built by Siemens. Maintained/Operated by TW Power Services |

Ownership

Kemerton Power Station is 100 per cent wholly owned by RATCH-Australia and is maintained and operated by TW Power Services.

RATCH-Australia has engaged Geographe Environmental Services Pty Ltd to undertake its fourth Performance Audit and Asset Management System Review as required by the Economic Regulation Authority (ERA). RATCH-Australia was granted a Generation Licence (Licence Number EGL5) under the Electricity Industry Act 2004 on 26th March 2008.

Sections 13 and 14 of the Electricity Industry Act 2004 require as a condition of every licence that the licensee must, not less than once in every period of 24 months (or any longer period that the Authority allows) calculated from the grant of the licence, provide the Authority with a performance audit and a asset management system review report by an independent expert acceptable to the Authority.

Geographe Environmental Services has been approved by the Authority to undertake the works subject to development of an audit and review.

The Asset Management System Review and the Performance Audit have been conducted in order to assess the effectiveness of the Kemerton Power Station Asset Management Systems and level of compliance with the conditions of its Generation Licence EGL5. Through the execution of the Audit Plan, field work, assessment and testing of the control environment, the information system, control procedures and compliance attitude, the audit team members have gained reasonable assurance that RATCH-Australia has an effective asset management system and has complied with its Generating Licence during the audit period 1st April 2013 to 31st October 2016. This audit report is an accurate representation of the audit team's findings and opinions.

1.1 Performance Audit Summary

All licence requirements reviewed were found to be compliant during the audit, with the exception of the marginally late licence fee payment for the June 2016 standing data invoice.

A two-dimensional rating scale (refer Section 11.4.1 of the Audit Guidelines) was used in the Audit report to summarise the compliance rating for each licence condition. Each obligation was rated for both the adequacy of existing controls and the compliance with the relevant licence obligation.

A comprehensive report of the audit findings is included in Appendix 1.

There were Generation Licence compliance elements that were not included in the scope of this audit because they did not eventuate in this audit period or have not been established within licence EGL5. These are defined in Table 1.

The performance audit was conducted in a period over February and March and required 50 hours of Nicole Davies time.

Table 1 : Performance Audit Compliance Summary

| Compliance Obligation Reference No. | Licence Reference | Audit Priority | Adequacy of Controls Rating | | | | | Compliance Rating | | | | |
|---|--|-------------------|-----------------------------|---|---|---|----|-------------------|---|---|---|----|
| | | | | | | | | | | | | |
| | | | A | B | C | D | NP | 1 | 2 | 3 | 4 | NR |
| SECTION 8: TYPE 1 REPORTING REQUIREMENTS | | | | | | | | | | | | |
| THERE ARE NO TYPE 1 REPORTING REQUIREMENTS APPLICABLE TO EGL5 | | | | | | | | | | | | |
| SECTION 11: ELECTRICITY INDUSTRY ACT - LICENCE CONDITIONS AND OBLIGATIONS | | | | | | | | | | | | |
| 101 | Electricity Industry Act section 13(1) Generation Licence condition 14.1 | 5 | A | | | | | 1 | | | | |
| 102 | Electricity Industry Act, section 14(1)(a) Generation Licence condition 20.1 | 5 | A | | | | | 1 | | | | |
| 103 | Electricity Industry Act, section 14(1)(b) Generation Licence condition 20.2 & 20.3 | 4 | A | | | | | 1 | | | | |
| 104 | Electricity Industry Act, section 14(1)(c) Generation Licence, condition 20.4 | 5 | A | | | | | 1 | | | | |
| 105 | Electricity Industry Act section 17(1) Generation Licence condition 4.1 | 4 | A | | | | | | 2 | | | |
| 106 | Electricity Industry Act section 31(3) Generation Licence condition 5.1 | 4 | A | | | | | 1 | | | | |
| 107 | Electricity Industry Act section 41(6) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| SECTION 12: ELECTRICITY LICENCES - LICENCE CONDITIONS AND OBLIGATIONS | | | | | | | | | | | | |
| 119 | Electricity Industry Act section 11 Generation Licence condition 12.1 | 4 | A | | | | | 1 | | | | |

| Compliance Obligation Reference No. | Licence Reference | Audit Priority | Adequacy of Controls Rating | | | | | Compliance Rating | | | | |
|--|--|-------------------|-----------------------------|---|---|---|----|-------------------|---|---|---|----|
| | | | | | | | | | | | | |
| | | | A | B | C | D | NP | 1 | 2 | 3 | 4 | NR |
| 120 | Electricity Industry Act section 11 Generation Licence condition 13.4 | 4 | | | | | NP | | | | | NR |
| 121 | Electricity Industry Act section 11 Generation Licence condition 14.2 | 4 | A | | | | | 1 | | | | |
| 122 | Electricity Industry Act section 11 Generation Licence condition 20.5 | 4 | A | | | | | 1 | | | | |
| 123 | Electricity Industry Act section 11 Generation Licence condition 15.1 | 4 | | | | | NP | | | | | NA |
| 124 | Electricity Industry Act section 11 Generation Licence condition 16.1 | 4 | A | | | | | 1 | | | | |
| 125 | Electricity Industry Act section 11 Generation Licence condition 17.1 & 17.2 | 4 | | | | | NP | | | | | NR |
| 126 | Electricity Industry Act section 11 Generation Licence condition 18.1 | 4 | A | | | | | 1 | | | | |
| SECTION 14: ELECTRICITY INDUSTRY METERING CODE - LICENCE CONDITIONS AND OBLIGATIONS | | | | | | | | | | | | |
| 324 | Electricity Industry Metering Code, CI 3.3B Generation Licence, condition 5.1 | 4 | | | | | NP | | | | | NR |
| 339 [349] | Generation Licence condition 5.1 Electricity Industry Metering Code CI 3.27 | 4 | A | | | | | 1 | | | | |
| 364 [372] | Electricity Industry Metering Code CI 3.27 Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 371 [379] | Electricity Industry Metering Code CI 4.4(1) Generation Licence condition 5.1 | 5 | A | | | | | 1 | | | | |
| 372 [380] | Electricity Industry Metering Code CI 4.5(1) Generation Licence condition 5.1 | 5 | | | | | NP | | | | | NR |

| Compliance Obligation Reference No. | Licence Reference | Audit Priority | Adequacy of Controls Rating | | | | | Compliance Rating | | | | |
|---|--|-------------------|-----------------------------|---|---|---|----|-------------------|---|---|---|----|
| | | | | | | | | | | | | |
| | | | A | B | C | D | NP | 1 | 2 | 3 | 4 | NR |
| 373 [381] | Electricity Industry Metering Code CI 4.5(2) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 388 [393] | Electricity Industry Metering Code CI 5.4(2) Generation Licence condition 5.1 | 5 | | | | | NP | | | | | NR |
| 401 [406] | Electricity Industry Metering Code CI 5.16 Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 402 [407] | Electricity Industry Metering Code CI 5.17(1) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 405 [408] | Electricity Industry Metering Code clause 5.18 Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 406 [409] | Electricity Industry Metering Code CI 5.19(1) Generation Licence condition 5.1 | 5 | | | | | NP | | | | | NR |
| 407 [410] | Electricity Industry Metering Code CI 5.19(2) Generation Licence condition 5.1 | 5 | | | | | NP | | | | | NR |
| 408 [411] | Electricity Industry Metering Code CI 5.19(3) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 410 [414] | Electricity Industry Metering Code CI 5.19(6) Generation Licence condition 5.1 | 5 | | | | | NP | | | | | NR |
| 416 [420] | Electricity Industry Metering Code CI 5.21(5) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 417 [421] | Electricity Industry Metering Code CI 5.21(6) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 435 [439] | Electricity Industry Metering Code CI 5.27 Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |

| Compliance Obligation Reference No. | Licence Reference | Audit Priority | Adequacy of Controls Rating | | | | | Compliance Rating | | | | |
|---|--|-------------------|-----------------------------|---|---|---|----|-------------------|---|---|---|----|
| | | | | | | | | | | | | |
| | | | A | B | C | D | NP | 1 | 2 | 3 | 4 | NR |
| 448 [446] | Electricity Industry Metering Code CI 6.1(2) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 451 [448] | Electricity Industry Metering Code CI 7.2(1) Generation Licence condition 5.1 | 5 | A | | | | | 1 | | | | |
| 453 [450] | Electricity Industry Metering Code CI 7.2(4) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 454 [451] | Electricity Industry Metering Code CI 7.2(5) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 455 [452] | Electricity Industry Metering Code CI 7.5 Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 456 [453] | Electricity Industry Metering Code CI 7.6(1) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 457 [454] | Electricity Industry Metering Code CI 8.1(1) Generation Licence condition 5.1 | 5 | | | | | NP | | | | | NR |
| 458 [455] | Electricity Industry Metering Code CI 8.1(2) Generation Licence condition 5.1 | 5 | | | | | NP | | | | | NR |
| 459 [456] | Electricity Industry Metering Code CI 8.1(3) Generation Licence condition 5.1 | 5 | | | | | NP | | | | | NR |
| 460 [457] | Electricity Industry Metering Code CI 8.1(4) Generation Licence condition 5.1 | 4 | | | | | NP | | | | | NR |
| 461 [458] | Electricity Industry Metering Code CI 8.3(2) Generation Licence condition 5.1 | 5 | | | | | NP | | | | | NR |
| SECTION 16: ELECTRICITY LICENCES - LICENSEE SPECIFIC CONDITIONS AND OBLIGATIONS | | | | | | | | | | | | |
| THIS SECTION IS NOT APPLICABLE TO KEMERTON AS THERE HAVE BEEN NO SPECIFIC CONDITIONS AND OBLIGATIONS ATTACHED TO THE GENERATION LICENCE | | | | | | | | | | | | |

1.2 Asset Management System Review Summary

The asset management system was found to be satisfactory. The recommendations made mainly concern documenting the more pragmatic approach used for what is a small operation of 3+1 staff and the changes resulting from the replacement DCS. The performance of the AMS has been good in all areas.

As required by section 11.4.2 of the Audit and Review Guidelines – Electricity and Gas Licences (April 2014) Table 2 summarises the auditor's assessment of both the process and policy definition rating and the performance rating for each key process in the licensees asset management system, using the scales described in Table 5 and Table 6 (refer Section 3.3 Asset Management Review Methodology). The rating was determined by the auditor's judgement based on the execution of the Audit Plan.

The process and policy and asset management system adequacy ratings are summarised below;

Table 2: Asset Management System - Effectiveness Summary

| Asset Management System | Asset Management Process And Policy Definition Adequacy Rating | Asset Management Performance Rating |
|--|--|-------------------------------------|
| 1. Asset planning | A | 1 (#1.4 not assessed) |
| 2. Asset creation/ acquisition | A | 1 |
| 3. Asset disposal | A | 1 (#3.3 not assessed) |
| 4. Environmental analysis | A | 1 |
| 5. Asset operations | B | 1 (#5.3 not assessed) |
| 6. Asset maintenance | B | 1 |
| 7. Asset Management Information System | B | 1 |
| 8. Risk management | B | 1 |
| 9. Contingency planning | A | 1 |
| 10. Financial planning | A | 1 |
| 11. Capital expenditure planning | A | 1 |
| 12. Review of AMS | B | 1 |

The Audit and Review Guidelines – Electricity and Gas Licences (April 2014) require that auditors who have rated the adequacy of the process and policy definition process as C or D or the asset management performance as 3 or 4 also make recommendations to address the issue(s).

2. PERFORMANCE AUDIT

2.1 Performance Audit Scope

Follow-Up from Previous Audit Findings

This is the fourth audit of EGL5. The organisation has implemented the recommendations of the previous audit and as required by Section 11.3 of the Audit Guidelines (April 2014). Table 3 below details how all recommendations were resolved during in the current audit period.

Table 3 Previous audit non compliances and recommendations

| Previous Non-Compliances & Audit Recommendations | | | | |
|--|---|---|--|---------------------------|
| A Resolved before end of previous audit period | | | | |
| Reference (no./year) | (Compliance rating/ Legislative Obligation/ details of the issue) | Auditors' Recommendation or action taken | Date Resolved | Further action required * |
| There were no non-compliances resolved prior to the previous audit period. | | | | |
| B Resolved during the current audit period | | | | |
| Reference (no./year) | (Compliance rating/ Legislative Obligation/ details of the issue) | Auditors' Recommendation or action taken | Date Resolved | Further action required * |
| CI 5.1 L17 124 (CI16.1) | 3/EGL5 Clause 5.1/Non-compliance noted in applicable legislation relating to EGL5 notification of name change and late submission of the Environmental Ministerial Compliance Report. | Monitor the performance of the new compliance system for effectiveness. Compliance Register (TMF-6023-AD-002) | Completed : 23 rd July 2013 Implementation of a Compliance Register (TMF-6023-AD-0002), ongoing internal and external audits. Timely submission of Environmental Ministerial Reports noted during the audit period. | No |
| 106 | 3/Electricity Industry Act S31(3)/Regular review and identification of asset and operational risks | Multidiscipline risk analysis/workshops of asset risks should be performed regularly. Risk registers should be used to reflect asset and operational risks. | Completed: 23 rd July 2013 Implementation of Risk & Opportunity Table and Corrective Action Tracker monitoring opportunities for improvements identified in the various internal audit processes (TMF-6023-QA-0004 i.e. 5.2 Planning & Risk Control) | No |
| C Unresolved at the end of the current audit period | | | | |
| Reference (no./year) | (Compliance rating/ Legislative Obligation/ details of the issue) | Auditors' Recommendation or action taken | Date Resolved | Further action required * |
| There were no non-compliances unresolved at the end of the current audit period. | | | | |

* (Yes/No/Not Applicable) & required including current recommendation reference if applicable

2.2 Post Audit Implementation Plan

As stipulated in section 11.8 of the Audit and Review Guidelines – Electricity and Gas Licences (April 2014), the Audit Team notes that the Performance Audit Post Implementation Plan (Appendix 3) does not form part of the Audit Opinion. It is the responsibility of the licensee to ensure actions are undertaken as determined by RATCH-Australia.

There are no audit non compliances identified that require the development of a post audit implementation plan. It is noted that the late payment of the Standing Data Charge (Refer Table 4) was an anomalous event during the audit period. All other licence fees were paid within the required timeframe. This is reflective of the assessment that the Licensee has well established processes for compliance (Refer Appendix 1, Ref 124). It is noted that further internal improvements for compliance have already been addressed within the Risks & Opportunity Table with further review scheduled for later in 2017. The organisation has identified regulatory compliance as an ongoing requirement and as such reviews it through internal and external audits continually.

Table 4: Post Audit Implementation Plan

| CURRENT AUDIT NON COMPLIANCES/RECOMMENDATIONS | | | |
|--|--|--|--|
| A. RESOLVED DURING THE CURRENT AUDIT PERIOD | | | |
| REF. | Non Compliance/Controls Improvement (Rating/ Legislative Obligation/ Details of Non Compliance or Inadequacy of Controls) | Auditors Recommendation | Management action taken by end of Audit period |
| 105 | The invoice ERA 100866 for the Standing Data Charge was paid 4 days past the due date. The Station Manager was aware of the late payment has paid subsequent invoices issued within the timeframe. | No recommendations are made as the payment of licence fees is prompted in the Compliance Register (TMF-6023-AD-0002) | Nil |
| B. UNRESOLVED AT END OF CURRENT AUDIT PERIOD | | | |
| | Non Compliance/Controls Improvement (Rating/ Legislative Obligation/ Details of Non Compliance or Inadequacy of Controls) | Auditors Recommendation | Management action taken by end of Audit period |
| There are no non compliances or recommendations raised and unresolved during the audit period. | | | |

3. ASSET MANAGEMENT SYSTEM EFFECTIVENESS REVIEW

3.1 AMS Review Scope

The scope of the AMS review includes an assessment of adequacy and effectiveness of Kemerton Power Station's asset management system by evaluating during the audit period 1st April 2013 to 31st October 2016 the following;

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

The review has been established as a requirement of the current Generating Licence issued by the Economic Regulation Authority to RATCH-Australia.

The asset management review follows the approved audit plan and uses;

- a risk based approach to auditing using the risk evaluation model set out in ISO31000:2009
- an overall effectiveness rating for an asset management process based on a combination of the process and policy adequacy rating and the performance rating
- the format and content of the reviewer's report and post- implementation plan as described in the Guidelines.

The following people were interviewed during the review;

| | | |
|---------------|---|--|
| Wayne Roberts | Kemerton Power Station Manager | TW Power Services / RATCH-Australia |
| Tony Polley | General Manager Asset Management and Asset Development | RATCH-Australia |

Table 1: Previous review ineffective components recommendations

| Table of Previous Review Ineffective Components Recommendations | | | | |
|---|--|---|---------------|---|
| A. Resolved before end of previous review period | | | | |
| Reference (no./year) | (Asset management effectiveness rating/ Asset Management System Component & Criteria / details of the issue) | Auditors' Recommendation or action taken | Date Resolved | Further action required (Yes/No/Not Applicable) & Details of further action required including current recommendation reference if applicable |
| None | | | | |
| B. Resolved during current Review period | | | | |
| Reference (no./year) | (Asset management effectiveness rating/ Asset Management System Component & Criteria / details of the issue) | Auditors' Recommendation | Date Resolved | Further action required (Yes/No/Not Applicable) & Details of further action required including current recommendation reference if applicable |
| 1.7 | C2. Likelihood and consequences of asset failure are predicted. | 1. See item 8.2 for recommendation. | 2/12/13 | No |
| 4.3 | B2. Compliance with statutory and regulatory requirements. | 2. Monitor the performance of the Licence and Permit Register and the effectiveness of the process to address the non-compliance against licence obligations. | 31/7/13 | No |
| 5.3 | C2. Assets are documented in an Asset Register including asset type, location, material, plans of components, and an assessment of assets physical/structural condition and accounting data. | 3. The asset register functionality should be further utilised to store information on the asset conditions and job history. | 2/12/13 | No |
| 5.5 | B3. Staff receive training commensurate with their responsibilities. | 4. A review is required to determine what training is required to maintain competency. Lapsed training should be performed to maintain currency. | 2/12/13 | No |

| B. Resolved during current Review period | | | | |
|--|---|--|---------------|---|
| Reference (no./year) | (Asset management effectiveness rating/ Asset Management System Component & Criteria / details of the issue) | Auditors' Recommendation | Date Resolved | Further action required (Yes/No/Not Applicable) & Details of further action required including current recommendation reference if applicable |
| 6.1 | B3. Maintenance policies and procedures are documented and linked to service levels required. | 5. There should be a maintenance schedule showing the maintenance regime applied to the plant systems and clarifying the maintenance policies. | 2/12/13 | No |
| 6.3 | C3. Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule. | 6. Recommendation at item 6.1. | 2/12/13 | No |
| 6.4 | B2. Failures are analysed and operational/maintenance plans adjusted where necessary. | 7. [OFI] Consider the revision and updating of the failure recording system to systematically track the details of each event, including identification of plant, causes, documentation, actions, dates. This will enable a historical record of the asset performance. | 2/12/13 | No |
| 7.5 | B2. Data backup procedures appear adequate. | 8. Operation of back-up system should be documented including off site and local operation. | 30/8/13 | No |
| 8.2 | C2. Risks are documented in a risk register and treatment plans are actioned and monitored. | 9. An overall risk register should be in operation showing regular (eg. annual) risk assessment for all significant assets systems and assets, and identifying likelihood and consequences of risks, actions required for risk mitigation, responsibilities and timing of actions. | 2/12/13 | No |
| 8.3 | C2. The probability and consequences of asset failure are regularly assessed. | 10. Recommendation as per item 8.2. | 2/12/13 | No |
| 9.1 | B3. Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks. | 11. Implement contingency plans and test to confirm their application. 12. Recommendation on training is as per item 5.5. | 31/7/13 | No |
| 11.1 | B2. There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates. | 13. Short term CAPEX should clearly identify allocation to individual projects. | 2/12/13 | No |
| 11.2 | B2. The plan provides reasons for capital expenditure and timing of expenditure. | 14. Recommendation as per item 11.1. | 2/12/13 | No |
| 12.1 | B2. A review process is in place to ensure that the asset management plan and the | 15. [OFI] Correct AMP to include missing section. | 2/12/13 | No |

| B. Resolved during current Review period | | | | |
|---|--|---|--|---|
| Reference (no./year) | (Asset management effectiveness rating/ Asset Management System Component & Criteria / details of the issue) | Auditors' Recommendation | Date Resolved | Further action required (Yes/No/Not Applicable) & Details of further action required including current recommendation reference if applicable |
| | asset management system described therein are kept current. | | | |
| 12.2 | B2. Independent reviews (e.g. internal audit) are performed of the asset management system. | 16. Refer to recommendation identified at item 5.5. | 2/12/13 | No |
| C. Unresolved at end of current Review period | | | | |
| Reference (no./year) | (Asset management effectiveness rating/ Asset Management System Component & Criteria / details of the issue) | Auditors' Recommendation | Further action required (Yes/No/Not Applicable) & Details of further action required | |
| None | | | | |

The key documents and other information sources are detailed below and further in Appendix

2.

| # | Description |
|----|---|
| 1 | Kemerton Asset Management Plan 2013 |
| 2 | Kemerton Asset Management Plan 2014 V1 0 |
| 3 | Kemerton Asset Management Plan 2015 V1 0 |
| 4 | Kemerton Asset Management Plan 2016 |
| 5 | Kemerton Annual Operating Report 2013 |
| 6 | Kemerton Annual Operating Report Jan-Dec 2014 |
| 7 | Kemerton Annual Operating Report Jan - Dec 2015 |
| 8 | Not available yet Kemerton Annual Operating Report Jan - Dec 2016 |
| 9 | QA certificates 9001 |
| 10 | Townsville and Kemerton life cycle models v1_201702 |
| 11 | Power Purchase Agreement sighted |
| 12 | Distillate tank inspection |
| 13 | Financial forecast meeting |
| 14 | Kemerton July 2013 Report |
| 15 | Kemerton August 2013 Report |
| 16 | Kemerton September 2013 Report |
| 17 | Kemerton October 2013 Report |
| 18 | Kemerton November 2013 Report |
| 19 | Kemerton December 2013 Report |
| 20 | Kemerton January 2014 Report |
| 21 | Kemerton February 2014 Report |
| 22 | Kemerton March 2014 Report |
| 23 | Kemerton April 2014 Report |
| 24 | Kemerton May 2014 Report |
| 25 | Kemerton November 2014 Report |
| 26 | Kemerton December 2014 Report |
| 27 | Kemerton January 2015 Report |
| 28 | Kemerton February 2015 Report |
| 29 | Kemerton April 2015 Report |

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|----|---|
| 30 | Kemerton May 2015 Report |
| 31 | Kemerton July 2015 Report |
| 32 | Kemerton September 2015 Report |
| 33 | Kemerton November 2015 Report |
| 34 | Kemerton December 2015 Report |
| 35 | Kemerton February 2016 Report |
| 36 | Kemerton April 2016 Report |
| 37 | Kemerton June 2016 Report |
| 38 | Kemerton July 2016 Report |
| 39 | Kemerton August 2016 Report |
| 40 | Kemerton September 2016 Report |
| 41 | 20130730 - AMT Meeting Minutes |
| 42 | 20130911 - AMT Meeting Minutes |
| 43 | 20131119 - AMT Meeting Minutes |
| 44 | 20131219 - AMT Meeting Minutes |
| 45 | 20140128 - AMT Meeting Minutes |
| 46 | 20140416 - AMT Meeting Minutes |
| 47 | 20140529 - AMT Meeting Minutes |
| 48 | 20140701 - AMT Meeting Minutes |
| 49 | 20141202 - AMT Meeting Minutes - amended |
| 50 | 20150120 - AMT Meeting Minutes Signed |
| 51 | 20150225 - AMT Meeting Minutes _3.4 amended_ |
| 52 | 20150323 - AMT Meeting Minutes |
| 53 | 20150427 - AMT Meeting Minutes (item 4.5 amended) |
| 54 | 20150519 - AMT Meeting Minutes |
| 55 | 20150616 - AMT Meeting Minutes |
| 56 | 20150728 - AMT Meeting Minutes |
| 57 | 20150827 - AMT Meeting Minutes (amended) |
| 58 | 20150917 - AMT Meeting Minutes |
| 59 | 20151022 - AMT Meeting Minutes |
| 60 | 20151126 - AMT Meeting Minutes |
| 61 | 20151215 - AMT Meeting Minutes (amended) |
| 62 | 20160121 - AMT Meeting Minutes |

- 63 20160226 - AMT Meeting Minutes
- 64 20160427 - AMT Meeting Minutes
- 65 20160526 - AMT Meeting Minutes
- 66 20160630 - AMT Meeting Minutes
- 67 20160729 - AMT Meeting Minutes
- 68 20160831 - AMT Meeting Minutes
- 69 Kemerton Control System - White Paper 2015
- 70 Kemerton Controls Upgrade Risk Analysis
- 71 Townsville and Kemerton Control Systems 2013
- 72 All monthly reports
- 73 Operations & maintenance alliance agreement
- 74 All AMT meetings

The review was conducted in conjunction with the Performance Audit during February-March 2017 and included desktop review, one day's audit to execute audit plan and interview sessions and report writing. In total the audit required 50 hours of Simon Ashby's time.

3.2 Objective of the Asset Management System Review

The objective of the review is to examine the effectiveness of the processes used by RATCH-Australia to deliver asset management, the information systems supporting asset management activities and the data and knowledge used to make decisions about asset management. These elements were examined from a life cycle perspective i.e. planning, construction, operation, maintenance, renewal, replacement and disposal using the guidelines developed by the Economic Regulation Authority.

3.3 Methodology for Asset Management System Review

The audit methodology detailed in the Audit Guidelines – Electricity and Gas Licences (April 2014) was used in the execution of the Asset Management System Review and is detailed in the Audit Plan.

Asset Management System Effectiveness Rating

The Audit Guidelines – Electricity and Gas Licences (April 2014) (section 11.4.2) states that the asset management review report must provide a table that summarises 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 in Table 5 and Table 6. It is left to the judgement of the auditor to determine the most appropriate rating for each asset management process.

Table 8: Asset management process and policy definition adequacy ratings

| Rating | Description | Criteria |
|--------|----------------------------------|--|
| A | Adequately defined | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> Processes and policies are not documented. The asset management information system(s) is not fit for purpose (taking into consideration the assets that are being managed). |

Table 9: Asset management performance ratings

| Rating | Description | Criteria |
|--------|-----------------------------|---|
| 1 | Performing effectively | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> Process is not performed, or the performance is so poor that the process is considered to be ineffective. |

Table 2: Table of Current Review Asset System Deficiencies/Recommendations

| Table of Current Review Asset System Deficiencies/Recommendations | | | |
|---|---|--|--|
| A. Resolved during current Review period | | | |
| Ref. | Asset System Deficiency (Rating / Asset Management System Component & Effectiveness Criteria / Details of Asset System Deficiency) | Date Resolved (& management action taken) | Auditors comments |
| None | | | |
| B. Unresolved at end of current Review period | | | |
| Reference (no./year) | Asset System Deficiency (Rating / Asset Management System Component & Effectiveness Criteria / Details of Asset System Deficiency) | Auditors' Recommendation | Management action taken by end of Audit period |
| 5. Asset Operations | B1. | <ol style="list-style-type: none"> The risk register is overly complex and should be simplified to ensure that it is regularly maintained. The next revision of the AMP should be fully reviewed for currency and reflect; <ul style="list-style-type: none"> the simplified processes now in place, | |

| | | | |
|--|----|--|--|
| | | <ul style="list-style-type: none"> the replacement of SAP and the new DCS. | |
| 6. Asset Maintenance | B1 | 2. The next revision of the AMP should be fully reviewed for currency and reflect; <ul style="list-style-type: none"> the simplified processes now in place, the replacement of SAP and the new DCS. | |
| 7. Asset Management Information System | B1 | 3. Review security access to the DCS, e.g. should password protection be required and the findings documented. 4. Review physical security of the site and the findings documented. 5. Review computer/DCS back-up procedures, e.g. should copies be stored off site, and the findings documented. | |
| 8. Risk Management | B1 | 1. The risk register is overly complex and should be simplified to ensure that it is regularly maintained | |
| 12 Review of AMS | B1 | 2. The next revision of the AMP should be fully reviewed for currency and reflect; <ul style="list-style-type: none"> the simplified processes now in place, the replacement of SAP and the new DCS. | |

3.4 Deviation from the Audit Plan

Audit Priority for Risk Management #8.3 and Contingency Planning # 9.1 were changed from 2 to 4 due to review and assessment of control adequacy. Control mechanisms are sufficient and adequately address requirements.

3.5 2013 Post- Review Implementation Plan

As stipulated in section 11.8 of the Audit Guidelines – Electricity and Gas Licences (April 2014), the Audit Team notes that the Asset Management System Review Post-Review Implementation Plan does not form part of the Audit Opinion. It is the responsibility of the licensee to ensure actions are undertaken as determined by RATCH-Australia.

The 2013 Post–Review Implementation Plan has been implemented.

4. FOLLOW UP AUDIT PROCESS

This is the fourth Performance Audit and Asset Management System Review conducted since the issue of the licence. Review of actions taken in response to recommendations will form part of subsequent audit plans.

The license proposes that RATCH-Australia reports progress on the Post Audit Implementation Plan to the ERA in the annual Compliance Reports.

APPENDIX 1

RATCH-Australia

PERFORMANCE AUDIT MARCH 2017

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|--|--------------------------------------|---|--|-------------------|---|-------------------------|----------------------|
| SECTION 8: TYPE 1 REPORTING REQUIREMENTS | | | | | | | |
| THERE ARE NO TYPE 1 REPORTING REQUIREMENTS APPLICABLE TO EGL5 | | | | | | | |
| SECTION 9: ELECTRICITY INDUSTRY CUSTOMER TRANSFER CODE - PART 3 - CUSTOMER/ CONNECTION INFORMATION/DATA | | | | | | | |
| 101 | Generation Licence condition 14.1 | <i>Electricity Industry Act section 13(1)</i> | A licensee must provide the ERA with a performance audit conducted by an independent expert acceptable to the ERA, not less than once every 24 months. | 5 | <p>This is the fourth Audit conducted by an independent expert since the licence was granted in March 2006. The requirement for the audit is monitored by the Kemerton Station Manager it is raised in email communications and correspondence with the Secretariat, as well as being tracked in the Compliance register.</p> <ul style="list-style-type: none"> ▪ Compliance Register (TMF-6023-AD-0002) ▪ ERA correspondence ▪ RATCH-Australia Personnel interviewed <ul style="list-style-type: none"> - Kemerton Power Station Manager | A | 1 |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------|--|---|---|-------------------|--|-------------------------|----------------------|
| 102 | Generation Licence condition 20.1 | <i>Electricity Industry Act, section 14(1)(a)</i> | A licensee must provide for an asset management system. | 5 | <p>The licensee maintains an Asset Management System which is continually monitored and updated in response to plant conditions. A detailed asset management plan is established and implemented by the Kemerton Station Manager. Additionally, maintenance systems have been employed during the audit period SAP was used but it noted that the licensee has moved to another operating system. History of maintenance is preserved as it linked through the KKS numbering system.</p> <ul style="list-style-type: none"> ▪ Asset Management Plans 2013-2016 ▪ Monthly and Annual Reports ▪ RATCH-Australia Personnel interviewed ▪ Kemerton Power Station Manager | A | 1 |
| 103 | Generation Licence condition 20.2 and 20.3 | <i>Electricity Industry Act, section 14(1)(b)</i> | A licensee must notify details of the asset management system and any substantial changes to it to the ERA. | 4 | There have been no substantial changes to the Asset Management System which have required notification to the ERA during the audit period. | A | 1 |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------|---------------------------------------|---|--|-------------------|---|-------------------------|----------------------|
| 104 | Generation Licence, condition 20.4 | <i>Electricity Industry Act, section 14(1)(c)</i> | A licensee must provide the ERA with a report by an independent expert about the effectiveness of its asset management system every 24 months, or such longer period as determined by the ERA. | 5 | <p>GES was appointed, with the Authority's approval to undertake the asset management system review for the period 1 April 2013 to 31 October 2016. The technical aspects of the review have been addressed by Power & Energy Services, as detailed in the Audit Plan and approved by the Authority. This is the fourth review of the asset management system in accordance with the EGL5 The 2013 asset management system review report was provided to the Authority in June 2013, and met the requirements of the Authority. Planning for this report has been noted in email communications, scheduled in the compliance register, management meetings and by the engagement of GES.</p> <ul style="list-style-type: none"> ▪ Compliance Register (TMF-6023-AD-0002) ▪ ERA Correspondence | A | 1 |
| 105 | Generation Licence condition 4.1 | <i>Electricity Industry Act section 17(1)</i> | A licensee must pay the prescribed licence fees to the ERA according to clauses 6, 7 and 8 of the Economic Regulation Authority (Licensing Funding) Regulations 2014. | 4 | The licence was granted on 20th March 2006 and the requirement is for the invoices to be paid by 19 th April of each year. Annual Licence fees that were due to be paid within the audit period were | A | 2 |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------|----------------------|------------------------|------------------------------------|-------------------|---|-------------------------|----------------------|
| | | | | | <p>compliant and paid in accordance with requirements as follows;</p> <ul style="list-style-type: none"> - ERA Invoice ERA100704 (Issued on 16/3/16) and Paid 15/4/16 - ERA Invoice ERA100251 (issued on 23/2/15) and Paid 20/3/15 - ERA Invoice ERA100121 (issued on 14/3/14) and Paid 3/4/14 - ERA Invoice ERA100018 (issued on 11/3/13) and Paid 4/4/13 <p>In addition, the Standing Charge Fees, which were introduced in Quarter 1 of 2015 and are to be paid within the 30 Days of date of issue and were paid as follows during the audit period.;</p> <ul style="list-style-type: none"> - ERA Q1 2015 Invoice ERA100413 (Issued on 29/6/15) and Paid 16/7/15 - ERA Q2 2015 Invoice ERA100499 (issued on 26/8/15) and Paid 1/9/15 - ERA Q3 2015 Invoice ERA100598 (issued on 30/11/15) and Paid 18/12/15 - ERA Q4 2015 Invoice ERA100653 (issued on 15/2/16) and Paid 11/3/16 | | |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------|----------------------|------------------------|------------------------------------|-------------------|--|-------------------------|----------------------|
| | | | | | <p>- ERA Q1 2016 Invoice ERA100661 (issued on 15/2/16) and Paid 11/3/16</p> <p>- ERA Q2 2016 Invoice ERA100753 (issued on 5/5/16) and Paid 27/5/16</p> <p>- ERA Q3 2016 Invoice ERA100866 (issued on 26/8/16) and Paid 30/9/16</p> <p>- ERA Q4 2016 Invoice ERA100973 (issued on 30/12/16) and Paid 20/1/17 (Note: Outside scope of audit period but payment demonstrating anomalous delay in payment of the Q3 2016 invoice)</p> <p>It is noted that all of the invoices were paid in accordance with the compliance requirements with the exception of ERA 100866 which was only slightly past the due date. Review of the subsequent payment showed ongoing compliance to the anomalous late payment. It is noted that the Compliance Register records the payment of both Annual and the Standing Charges.</p> <p>Invoices issued by the Authority Record of Payment in accounts system. Verification of receipt of payment was confirmed through discussions with the Finance Officer of the ERA.</p> <p>▪ Compliance Register (TMF-6023-AD-0002)</p> | | |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------|-------------------------------------|---|--|-------------------|--|-------------------------|----------------------|
| 106 | Generation Licence condition 5.1 | <i>Electricity Industry Act section 31(3)</i> | A licensee must take reasonable steps to minimise the extent, or duration, of any interruption, suspension or restriction of the supply of electricity due to an accident, emergency, potential danger or other unavoidable cause. | 4 | <p>Through discussions with the Power Station Manager and review of Kemerton's systems and documentation it is noted that there are;</p> <ul style="list-style-type: none"> - Detailed emergency response planning is in place to manage the impact of unplanned outages and unplanned events. - Well established condition monitoring systems implemented. - Reciprocal arrangements with other businesses to access parts. - Regular review of the adequacy of the Emergency Response Plans, brief from response to Yarloop bushfires shows well implemented response strategies employed. - Detailed schedule for planned outages, which is regularly reviewed and monitored. - Risk assessment processes established | A | 1 |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|--|--------------------------------------|---|--|-------------------|--|-------------------------|----------------------|
| | | | | | <ul style="list-style-type: none"> Emergency Response Plan Risk & Opportunity Table Discussion with Kemerton Station Manager | | |
| 107 | Generation Licence condition 5.1 | <i>Electricity Industry Act section 41(6)</i> | A licensee must pay the costs of taking an interest in land or an easement over land. | 4 | There have been no changes in the interest of the land since the previous audit. The land is owned by the licensee. As such, no activity has taken place to exercise the obligation and this requirement was not assessed. | NP | NR |
| SECTION 12: ELECTRICITY LICENCES - LICENCE CONDITIONS AND OBLIGATIONS | | | | | | | |
| 119 | Generation Licence condition 12.1 | <i>Electricity Industry Act section 11</i> | A licensee and any related body corporate must maintain accounting records that comply with the Australian Accounting Standards Board Standards or equivalent International Accounting Standards. | 4 | <p>The General Manager Asset Management and Asset Development confirmed that the Accounting and Reporting requirements for the company were being met and an independent third party was used to prepare all accounting records for compliance purposes.</p> <p>A review of the statement of independent audit report for the period</p> | A | 1 |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------|-----------------------------------|--|--|-------------------|--|-------------------------|----------------------|
| | | | | | <ul style="list-style-type: none"> Financial Report 2015 (22/2/16) Financial Report 2014 (20/2/15) Financial Report 2013 (22/2/14) <p>Confirmed that for the period 1 April 2014 to 31 October 2016 the licensee was compliant with the Australian Accounting Standards Board (AASB) standards. The Independent Auditor's reports confirmed compliance with Australian Accounting Standards, subject to Note 1.</p> | | |
| 120 | Generation Licence condition 13.4 | <i>Electricity Industry Act section 11</i> | A licensee must comply with any individual performance standards prescribed by the ERA. | 4 | Discussions with the Power Station Manager confirmed that, for the period 1 April 2013 to 31 October 2016, the licensee was not prescribed individual performance standards by the Authority. As, no activity has taken place to exercise the obligation during the audit period and this requirement has not been assessed. | NP | NR |
| 121 | Generation Licence condition 14.2 | <i>Electricity Industry Act section 11</i> | A licensee must comply, and require its auditor to comply, with the ERA's standard audit guidelines for a performance audit. | 4 | The Authority approved the audit and review plan on the 23/2/17 which ensured that the licensee and the Auditor comply with the all regulatory reporting requirements associated with EGL5. The audit and review were undertaken using the | A | 1 |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------|-----------------------------------|--|---|-------------------|---|-------------------------|----------------------|
| | | | | | framework from the Audit and Review Guidelines: Electricity and Gas Licences, April 2014. | | |
| 122 | Generation Licence condition 20.5 | <i>Electricity Industry Act section 11</i> | A licensee must comply, and must require the licensee's expert to comply, with the relevant aspects of the ERA's standard audit guidelines for an asset management system review. | 4 | As above | A | 1 |
| 123 | Generation Licence condition 15.1 | <i>Electricity Industry Act section 1</i> | In the manner prescribed, a licensee must notify the ERA, if it is under external administration or if there is a significant change in the circumstances that the licence was granted which may affect the licensee's ability to meet its obligations. | 4 | Under Licence clause 15.1 the licensee is required to report relevant information to the Authority in the event that it: (a) Is under external administration (b) Experiences a change in its corporate, financial or technical circumstances upon which this licence was granted; and that change may materially affect the licensee's ability to perform its obligations under this licence (c) Changes its name, ABN or address. The General Manager Asset Management and Asset Development confirmed that, for the period | NP | NA |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------|-----------------------------------|--|--|-------------------|---|-------------------------|----------------------|
| | | | | | 1 April 2013 to 31 October 2016, no such changes arose. | | |
| 124 | Generation Licence condition 16.1 | <i>Electricity Industry Act section 11</i> | A licensee must provide the ERA, in the manner prescribed, with any information that the ERA requires in connection with its functions under the Electricity Industry Act. | 4 | <p>Discussions with the Kemerton Station Manager confirm that the licensee has processes in place to respond to requests for information from the Authority.</p> <p>Communication between the licensee and the Authority was sighted, such as;</p> <ul style="list-style-type: none"> ▪ submission of required information and reports ▪ Monitoring compliance with the licence obligations ▪ Developing and submitting the Annual Compliance reports to the Authority by 31 August each year <p>The Licensee has established a compliance scheduling system within Compliance Register (Doc Ref TMF-6023-AD-0002) to ensure compliance with its regulatory obligations relevant to its Licence.</p> <p>The annual compliance reports were sighted for ;</p> | A | 1 |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------|--|--|--|-------------------|--|-------------------------|----------------------|
| | | | | | <ul style="list-style-type: none"> 1 July 2013 to 30 June 2014 (dated 22/8/14) – Acknowledged by the ERA 29/8/2014 1 July 2014 to 30 June 2015 (dated 26/8/15) – Acknowledged by the ERA 27/8/2015 1 July 2015 to 30 June 2016 (dated 15/7/16) – Acknowledged by the ERA 18/7/016 | | |
| 125 | Generation Licence condition 17.1 and 17.2 | <i>Electricity Industry Act section 11</i> | A licensee must publish any information it is directed by the Authority to publish, within the timeframes specified. | 4 | Discussions with the Kemerton Station Manager confirmed that, for the period 1 April 2013 to 31 October 2016, the Authority did not direct the licensee to publish any information with regards to its Licence. As such, no activity has taken place to exercise the obligation during the audit period and this requirement was not assessed. | NP | NR |
| 126 | Generation Licence condition 18.1 | <i>Electricity Industry Act section 11</i> | Unless otherwise specified, all notices must be in writing. | 4 | A review of documentation and emails sighted confirmed that Kemerton Power Station maintains records to evidence formal communications with the Authority within its Document Management System. It is noted that all responses to requests from the Authority have been made in writing, unless otherwise requested. During the audit period 1 April 2013 to 31 October 2016 there were | A | 1 |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|--|-----------------------------------|--|---|-------------------|--|-------------------------|----------------------|
| | | | | | no formal requests made from the Authority to Licensee. | | |
| SECTION 14: ELECTRICITY INDUSTRY METERING CODE - LICENCE CONDITIONS AND OBLIGATIONS | | | | | | | |
| 324 | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code, clause 3.3B</i> | If a user is aware of bi-directional electricity flows at a metering point that was not previously subject to a bi-directional flows or any changes in a customer's or user's circumstances in a metering point that will result in bi-directional flows, the user must notify the network operator within 2 business days. | 4 | The Power Station Manager confirmed that during the period 1 April 2013 to 31 October 2016, no metering installations were commissioned which are subject to bi-directional electricity flows. As such, no activity has taken place to exercise the obligation during the audit period and this requirement cannot be assessed. | NP | NR |
| 339 [349] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 3.11(3)</i> | A Code participant who becomes aware of an outage or malfunction of a metering installation must advise the network operator as soon as practicable. | 4 | The network operator is responsible for metering installations and manages all aspects of the metering services. A verification check is undertaken by the Licensee using the SCADA and DCS to confirm data provided by the Network Operator. The Power Station Manager confirmed that during the period 1 April 2013 to 31 October 2016, no metering installation malfunctions were identified. | A | 1 |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------------------|--------------------------------------|---|---|-------------------|---|-------------------------|----------------------|
| 364 [372] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 3.27</i> | A person must not install a metering installation on a network unless the person is the network operator or a registered metering installation provider for the network operator doing the type of work authorised by its registration. | 4 | The Licensee is not responsible for installing and managing all metering installations on the site. Additionally, the Licensee has not installed any metering installations on the network. The Network Operator has independent access to metering installations. Discussions with the Power Station Manager also confirmed no installation of meters. As such, no activity has taken place to exercise the obligation during the audit period and tis requirement cannot be assessed. | NP | NR |
| 371 [379] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 4.4(1)</i> | If there is a discrepancy between energy data held in a metering installation and in the metering database, the affected Code participants and the network operator must liaise to determine the most appropriate way to resolve the discrepancy. | 5 | Kemerton Power Station Manager confirmed that during the audit period they were not aware of any discrepancy between energy data held in a metering installation and data held in the metering database. It is noted that although the metering database is not the Licensees responsibility they perform meter check calculations subject to error acceptance in order to confirm charges and balance production data. No discrepancies were identified during the audit period. | A | 1 |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------------------|--------------------------------------|---|---|-------------------|---|-------------------------|----------------------|
| 372 [380] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 4.5(1)</i> | A Code participant must not knowingly permit the registry to be materially inaccurate. | 5 | RATCH-Australia Kemerton does not maintain any standing data or energy data in relation to the metering installations captured under the Metering Code. These activities are managed by the Network Operator and are outside the control of the Licensee. As the Network operator maintains sole responsibility for the management of standing data within the registry and/or metering database, these obligations are not relevant to the Licensee's operations for the period 1 April 2013 to 31 October 2015. | NP | NR |
| 373 [381] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 4.5(2)</i> | If a Code participant (other than a network operator) becomes aware of a change to or an inaccuracy in an item of standing data in the registry, then it must notify the network operator and provide details of the change or inaccuracy within the timeframes prescribed. | 4 | As Above. | NP | NR |
| 388 [393] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.4(2)</i> | A user must, when reasonably requested by a network operator, use reasonable endeavours to assist the network operator to comply with the network operator's obligation. | 5 | The network operator has not requested the assistance of RATCH-Australia Kemerton with respect to their metering installation during the audit period. | NP | NR |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------------------|--------------------------------------|--|---|-------------------|---|-------------------------|----------------------|
| 401 [406] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.16</i> | A user that collects or receives energy data from a metering installation must provide the network operator with the energy data (in accordance with the communication rules) within the timeframes prescribed. | 4 | The network operator collects the energy data. This requirement is not applicable to the Licensee. | NP | NR |
| 402 [407] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.17(1)</i> | A user must provide standing data and validated (and where necessary substituted or estimated) energy data to the user's customer, to which that information relates, where the user is required by an enactment or an agreement to do so for billing purposes or for the purpose of providing metering services to the customer. | 4 | As previously detailed, there are no meters maintained by the Licensee to collect information or data from billing. The Network Operator is responsible for metering installations. | NP | NR |
| 405 [408] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.18</i> | A user that collects or receives information regarding a change in the energisation status of a metering point must provide the network operator with the prescribed information, including the stated attributes, within the timeframes prescribed | 4 | The network operator has access to their own metering installation. This obligation is not applicable to the Licensee. | NP | NR |
| 406 | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.19(1)</i> | A user must, when requested by the network operator acting in accordance with good electricity industry practice, use reasonable endeavours to collect information from customers, if any, that assists the | 5 | Discussions with the Power Station Manager confirm that there have been no requests during | NP | NR |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|--------------|--------------------------------------|--|--|-------------------|--|-------------------------|----------------------|
| [409] | | | network operator in meeting its obligations described in the Code and elsewhere. | | the audit period to collect information from customers. | | |
| 407 [410] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.19(2)</i> | A user must, to the extent that it is able, collect and maintain a record of the address, site and customer attributes, prescribed in relation to the site of each connection point, with which the user is associated | 5 | The connection point is with the network operator and there are no meters from which to obtain such data. | NP | NR |
| 408 [411] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.19(3)</i> | A user must, after becoming aware of any change in a site's prescribed attributes, notify the network operator of the change within the timeframes prescribed. | 4 | There is only one connection point with the Network Operator and there have been no changes in attributes during the audit period. | NP | NR |
| 410 [414] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.19(6)</i> | A user must use reasonable endeavours to ensure that it does not notify the network operator of a change in an attribute that results from the provision of standing data by the network operator to the user. | 5 | During the audit period there has been no provision of standing data by the network operator to the user that resulted in the user notifying the network operator of a change in attributes. | NP | NR |
| 416 | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.21(5)</i> | A Code participant must not request a test or audit unless the Code participant is a user and the test or | 4 | The Power Station Manager confirmed that no tests have been requested during the audit period, 1 April 2013 to 31 October 2016. | NP | NR |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------------------|--------------------------------------|--|---|-------------------|--|-------------------------|----------------------|
| [420] | | | audit relates to a time or times at which the user was the current user or the Code participant is the IMO. | | | | |
| 417 [421] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.21(6)</i> | A Code participant must not make a test or audit request that is inconsistent with any access arrangement or agreement. | 4 | As above | NP | NR |
| 435 [439] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 5.27</i> | Upon request, a current user must provide the network operator with customer attribute information that it reasonably believes are missing or incorrect within the timeframes prescribed. | 4 | The network operator did not make any requests for customer attributes information during the audit period | NP | NR |
| 448 [446] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 6.1(2)</i> | A user must, in relation to a network on which it has an access contract, comply with the rules, procedures, agreements and criteria prescribed. | 4 | Discussions with the Power Station Manager confirm that there have been no breaches of the rules, procedures, agreements and criteria during the audit period. | NP | NR |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|------------------|--------------------------------------|---|--|-------------------|---|-------------------------|----------------------|
| 451 [448] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 7.2(1)</i> | Code participants must use reasonable endeavours to ensure that they can send and receive a notice by post, facsimile and electronic communication and must notify the network operator of a telephone number for voice communication in connection with the Code. | 5 | The RATCH-Australia Kemerton site has well established communication processes such as a main telephone line & facsimile, mobile telephone coverage, SMS notification, remote system monitoring and wireless internet access. During the audit period, there have been no communication issues arising. | A | 1 |
| 453 [450] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 7.2(4)</i> | A Code participant must notify its contact details to a network operator with whom it has entered into an access contract within 3 business days after the network operator's request. | 4 | The Power Station Manager confirmed that, during the period 1 April 2013 to 31 October 2016, the network operator did not request the licensee to provide its contact details. There have been no changes made to Licensee's contact details. | NP | NR |
| 454 [451] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 7.2(5)</i> | A Code participant must notify any affected network operator of any change to the contact details it notified to the network operator at least 3 business days before the change takes effect. | 4 | There has been no change in contact details during the audit period. | NP | NR |
| 455 | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 7.5</i> | A Code participant must not disclose, or permit the disclosure of, confidential information provided to it under or in connection with the Code and may only use or reproduce confidential information for the purpose | 4 | The Power Station Manager confirmed that during the period 1 April 2013 to 31 October 2016, the Licensee was not required to disclose or permit the | NP | NR |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|--------------|--------------------------------------|---|--|-------------------|---|-------------------------|----------------------|
| [452] | | | for which it was disclosed or another purpose contemplated by the Code. | | disclosure of confidential information in connection to the Code. | | |
| 456 [453] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 7.6(1)</i> | A Code participant must disclose or permit the disclosure of confidential information that is required to be disclosed by the Code. | 4 | As above | NP | NR |
| 457 [454] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 8.1(1)</i> | Representatives of disputing parties must meet within 5 business days after a notice given by a disputing party to the other disputing parties and attempt to resolve the dispute under or in connection with the Electricity Industry Metering Code by negotiations in good faith | 5 | Under the Metering Code, 'disputes' refers to metering disputes between RATCH-Australia Kemerton as a generator, a Code Participant, another generator, the network operator, a user or the IMO. The Power Station Manager confirmed that no metering disputes have arisen between Kemerton Power Station or any other relevant Code participant during the period 1 April 2013 to 31 October 2016. | NP | NR |
| 458 [455] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 8.1(2)</i> | If a dispute is not resolved within 10 business days after the dispute is referred to representative negotiations, the disputing parties must refer the dispute to a senior management officer of each disputing party who must meet and attempt to resolve the dispute by negotiations in good faith. | 5 | As above | NP | NR |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|---|--------------------------------------|---|--|-------------------|---|-------------------------|----------------------|
| 459 [456] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 8.1(3)</i> | If the dispute is not resolved within 10 business days after the dispute is referred to senior management negotiations, the disputing parties must refer the dispute to the senior executive officer of each disputing party who must meet and attempt to resolve the dispute by negotiations in good faith. | 5 | As above | NP | NR |
| 460 [457] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 8.1(4)</i> | If the dispute is resolved by representative negotiations, senior management negotiations or CEO negotiations, the disputing parties must prepare a written and signed record of the resolution and adhere to the resolution. | 4 | As above | NP | NR |
| 461 [458] | Generation Licence, condition 5.1 | <i>Electricity Industry Metering Code clause 8.3(2)</i> | The disputing parties must at all times conduct themselves in a manner which is directed towards achieving the objective of dispute resolution with as little formality and technicality and with as much expedition as the requirements of Part 8 of the Code and a proper hearing and determination of the dispute permit. | 5 | As above | NP | NR |
| SECTION 16: ELECTRICITY LICENCES - LICENSEE SPECIFIC CONDITIONS AND OBLIGATIONS | | | | | | | |

| REF* | LICENCE CONDITION | RELATED LEGISLATION | LEGISLATIVE/LICENCE REQUIREMENT | AUDIT PRIORITY | AUDITING FINDING <ul style="list-style-type: none"> ▪ RELATED DOCUMENTATION &/OR CONTROL SYSTEMS/AUDIT EVIDENCE → CORRECTIVE ACTION (CA) OPPORTUNITY FOR IMPROVEMENT | ADEQUACY OF CONTROLS | COMPLIANCE RATING |
|---|----------------------|------------------------|------------------------------------|-------------------|---|-------------------------|----------------------|
| THIS SECTION IS NOT APPLICABLE TO RATCH-AUSTRALIA KEMERTON AS THERE HAVE BEEN NO SPECIFIC CONDITIONS AND OBLIGATIONS ATTACHED TO THE GENERATION LICENCE | | | | | | | |

Note:

NP - not possible to provide a compliance rating because no activity has taken place to exercise the obligation during the audit period

NA - Not applicable to audit period and as such not assessed.

[XXX] – The numbers in the square brackets refer to the Compliance Reporting Manual Reference in the previous audit report and are included for ease of comparison only

APPENDIX 2

RATCH-Australia ASSET MANAGEMENT REVIEW MARCH 2017

Table 7 Audit Review Ratings & Recommendations

Introduction.

RATCH-Australia have only one contract for the supply of power, with Synergy, which requires availability at all times unless previously agreed. Fuels, gas and distillate, are paid for by Synergy.

Payment to RATCH-Australia is based on;

- a capacity charge; the capability to supply an amount of power,
- a variable O&M and start charge; to cover costs when power is being supplied and
- a gas bonus; a shared saving on operating efficiency.

Earlier in the reporting period when the Carbon Tax was in place these costs were passed on to Verve Energy (now merged into Synergy).

Major events during the reporting period include replacement of the DCS, HMI and SFC and exchanging the generator rotors on both units (partial warranty claim) due to windings cracking. These have been carefully investigated, planned, procured and executed and returned to service on time and below budget.

The new DCS system has introduced some changes and IT security has had to be revised for the Windows based system.

The DCS performs many of the AMS functions with automatic duty/standby functions in event of a failure, data logging, trending, actioning and reporting.

SAP enterprise application software was used for asset management throughout the reporting period but it has now been replaced by another system and it was not possible for the auditors to see the SAP system. Company financials, human resources and administration still utilise SAP and are handled in the head office.

Monthly reports (performance and financial), Refs #72 and 74, cover the key requirements of operations for the reporting period including safety, environmental, regulatory notifications, audits, operations, inspection plans, finance, key performance indicators and incident reports. These are augmented by annual performance reports, Refs#5-7.

The scale of the Kemerton operations with just three technical and one administration staff and the extremely low staff turnover of 1 person in 12 year means staff have an intimate knowledge of the plant and experience in its operation and are familiar with established processes and procedures.

The old Transfield Worley Processes and Systems was overly complicated for such a small operation and a more pragmatic approach is employed. The Asset Management Plan is revised annually and forms the foundation of asset management at Kemerton and these changes should be reflected in the next revision of the AMP.

Table 8 Effectiveness Criteria Descriptors

| | | |
|----------|---|--|
| 1 | Key Process - Asset Planning <i>Asset planning strategies are focused on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price).</i> | Outcome <i>Integration of asset strategies into operational or business plans will establish a framework for existing and new assets to be effectively utilised and their service potential optimised.</i> |
| 1.1 | Asset management plan covers key requirements | |
| 1.2 | Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning | |
| 1.3 | Service levels are defined | |
| 1.4 | Non-asset options (e.g. demand management) are considered | |
| 1.5 | Lifecycle costs of owning and operating assets are assessed | |
| 1.6 | Funding options are evaluated | |
| 1.7 | Costs are justified and cost drivers identified | |
| 1.8 | Likelihood and consequences of asset failure are predicted | |
| 1.9 | Plans are regularly reviewed and updated | |
| 2 | Key Process - Asset creation/acquisition <i>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.</i> | Outcome <i>A more economic, efficient and cost-effective asset acquisition framework which will reduce demand for new assets, lower service costs and improve service delivery.</i> |
| 2.1 | Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions | |
| 2.2 | Evaluations include all life-cycle costs | |
| 2.3 | Projects reflect sound engineering and business decisions | |
| 2.4 | Commissioning tests are documented and completed | |
| 2.5 | Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood | |
| 3 | Key process - Asset disposal <i>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</i> | Outcome <i>Effective management of the disposal process will minimise holdings of surplus and under-performing assets and will lower service costs.</i> |
| 3.1 | Under-utilised and under-performing assets are identified as part of a regular systematic review process | |
| 3.2 | The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken | |
| 3.3 | Disposal alternatives are evaluated | |
| 3.4 | There is a replacement strategy for assets | |

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|----------|---|---|
| 4 | Key Process - Environmental analysis <i>Environmental analysis examines the asset system environment and assesses all external factors affecting the asset system.</i> | Outcome <i>The asset management system regularly assesses external opportunities and threats and takes corrective action to maintain performance requirements.</i> |
| 4.1 | Opportunities and threats in the system environment are assessed | |
| 4.2 | Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved | |
| 4.3 | Compliance with statutory and regulatory requirements | |
| 4.4 | Achievement of customer service levels | |
| 5 | Key Process - Asset operations <i>Operations functions relate to the day-to-day running of assets and directly affect service levels and costs.</i> | Outcome <i>Operations plans adequately document the processes and knowledge of staff in the operation of assets so that service levels can be consistently achieved.</i> |
| 5.1 | Operational policies and procedures are documented and linked to service levels required | |
| 5.2 | Risk management is applied to prioritise operations tasks | |
| 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 | |
| 5.4 | Operational costs are measured and monitored | |
| 5.5 | Staff receive training commensurate with their responsibilities | |
| 6 | Key process - Asset maintenance <i>Maintenance functions relate to the upkeep of assets and directly affect service levels and costs.</i> | Outcome <i>Maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work can be done on time and on cost.</i> |
| 6.1 | Maintenance policies and procedures are documented and linked to service levels required | |
| 6.2 | Regular inspections are undertaken of asset performance and condition | |
| 6.3 | Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule | |
| 6.4 | Failures are analysed and operational/maintenance plans adjusted where necessary | |
| 6.5 | Risk management is applied to prioritise maintenance tasks | |
| 6.6 | Maintenance costs are measured and monitored | |
| 7 | Key process - Asset Management Information System (MIS) <i>An asset management information system is a combination of processes, data and software that support the asset management functions.</i> | Outcome - <i>The asset management information system provides authorised, complete and accurate information for the day-to-date running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards.</i> |
| 7.1 | Adequate system documentation for users and IT operators | |
| 7.2 | Input controls include appropriate verification and validation of data entered into the system | |
| 7.3 | Logical security access controls appear adequate, such as passwords | |
| 7.4 | Physical security access controls appear adequate | |
| 7.5 | Data backup procedures appear adequate | |
| 7.6 | Key computations related to licensee performance reporting are materially accurate | |

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| 7.7 | Management reports appear adequate for the licensee to monitor licence obligations | |
| 8 | Key Process - Risk Management <i>Risk management involves the identification of risks and their management within an acceptable level of risk.</i> | Outcome <i>An effective risk management framework is applied to manage risks related to the maintenance of service standards</i> |
| 8.1 | Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system | |
| 8.2 | Risks are documented in a risk register and treatment plans are actioned and monitored | |
| 8.3 | The probability and consequences of asset failure are regularly assessed | |
| 9 | Key Process - Contingency Planning <i>Contingency plans document the steps to deal with the unexpected failure of an asset.</i> | Outcome- <i>Contingency plans have been developed and tested to minimise any significant disruptions to service standards.</i> |
| 9.1 | Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks | |
| 10 | Key Process - Financial Planning <i>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.</i> | Outcome <i>A financial plan that is reliable and provides for long-term financial viability of services</i> |
| 10.1 | The financial plan states the financial objectives and strategies and actions to achieve the objectives | |
| 10.2 | The financial plan identifies the source of funds for capital expenditure and recurrent costs | |
| 10.3 | The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) | |
| 10.4 | The financial plan provide firm predictions on income for the next five years and reasonable indicative predictions beyond this period | |
| 10.5 | 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 | |

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| 11 | Key Process - Capital Expenditure Planning <i>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.</i> | Outcome - <i>A capital expenditure plan that provides reliable forward estimates of capital expenditure and asset disposal income, supported by documentation of the reasons for the decisions and evaluation of alternatives and options.</i> |
| 11.1 | There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates | |
| 11.2 | The plan provide reasons for capital expenditure and timing of expenditure | |
| 11.3 | The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan | |
| 11.4 | There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned | |
| 12 | Key Process - Review of AMS <i>The asset management system is regularly reviewed and updated</i> | Outcome <i>Review of the Asset Management System to ensure the effectiveness of the integration of its components and their currency.</i> |
| 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 | |
| 12.2 | Independent reviews (e.g. internal audit) are performed of the asset management system | |

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|---|--|--|---|--|
| 1 | Key Process - Asset Planning <i>Asset planning strategies are focused on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price).</i> | | Asset management process and policy definition adequacy rating A | Asset management performance rating 1 |
| | Outcome <i>Integration of asset strategies into operational or business plans will establish a framework for existing and new assets to be effectively utilised and their service potential optimised.</i> | | | |
| Interviewees: <div>Wayne Roberts Kemerton Power Station Manager TW Power Services / RATCH-Australia</div> <div>Tony Polley General Manager Asset Management and Asset Development RATCH-Australia</div> | | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 5 Kemerton Annual Operating Report 2013 6 Kemerton Annual Operating Report Jan-Dec 2014 7 Kemerton Annual Operating Report Jan - Dec 2015 9 QA certificates 9001 10 Townsville and Kemerton life cycle models 11 Power Purchase Agreement sighted 13 Financial forecast meeting 14 Kemerton July 2013 Report 17 Kemerton October 2013 Report 30 Kemerton May 2015 Report 34 Kemerton December 2015 Report 45 20140128 - AMT Meeting Minutes 55 20150616 - AMT Meeting Minutes 56 20150728 - AMT Meeting Minutes 57 20150827 - AMT Meeting Minutes (amended) 58 20150917 - AMT Meeting Minutes 59 20151022 - AMT Meeting Minutes 60 20151126 - AMT Meeting Minutes 69 Kemerton Control System - White Paper 2015 71 Townsville and Kemerton Control Systems 2013 72 All monthly reports 73 Operations and maintenance alliance agreement 74 All AMT meetings | |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|---|---|--|--------------------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 1.1 Asset management plan covers key requirements | Ref docs - 1, 2, 3, 4, 5, 6, 7, 9, 11, 72, 73 & 74 | The plant is to supply peaking power and has operated reliably and profitably. | C | 1 | L | S | 5 | A | 1 |
| 1.2 Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning | Ref docs - 1, 2, 3, 4, 5, 6, 7, 10, 11, 14, 30 & 72 | Plant is fit for purpose requiring no upgrades apart from the DCS and planning mainly concerns maintenance and is co-ordinated with Synergy. Black start Eol a response to external stakeholder's needs. | C | 2 | M | S | 4 | A | 1 |
| 1.3 Service levels are defined | Ref docs - 11, & 73 | The PPA and AEMO cover service levels. | C | 2 | M | S | 4 | A | 1 |
| 1.4 Non-asset options (e.g. demand management) are considered | Ref docs- 11 | DM is not generally applicable to a peaking generator operator. The PPA has efficiency incentives. | C | 1 | L | Not assessed | 5 | Not assessed | |
| 1.5 Lifecycle costs of owning and operating assets are assessed | Ref docs - 1, 2, 3, 4, 5, 6, 7, 10, 17, 69 & 71 | Life cycle costing is reviewed annually and extends beyond the end of the PPA. | C | 2 | M | S | 4 | A | 1 |
| 1.6 Funding options are evaluated | Ref docs - 13, 34, 57, 58, 59 60, & 74 | Funding is within the whole of RATCH-Australia and not site/project specific. The DCS project considered hedging. | C | 2 | M | S | 4 | A | 1 |
| 1.7 Costs are justified and cost drivers identified | Ref docs - 13, 69, 71, 72, & 74 | Costs and revenue are monitored and actual compared to forecast with variances investigated. Competitive tendering is employed eg DCS contract. | C | 2 | M | S | 4 | A | 1 |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|---|---|---|--------------------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 1.8 Likelihood and consequences of asset failure are predicted | Ref docs - 69, 71 & 72 | Issues/challenges section of monthly reports and risk register have current known risks and mitigation. Stock of spares held. TWPS initiated the Australian users network of similar GTs. | C | 2 | M | S | 4 | A | 1 |
| 1.9 Plans are regularly reviewed and updated | 1, 2, 3, 4, 5, 6, 7, 10, 13, 45, 55, 56, 57, 58, 69, 71, 72 & 74, | AMS and life cycle costing are annually updated in the light of experience. Maintenance history retained in reports. | C | 1 | L | S | 5 | A | 1 |

| Comments & Recommendations |
|--|
| Capacity factor of peaking plant is very low and thus wear and tear is low with the number of GT starts the critical element. The design is proven, based on other peaking plant, and the main asset planning process is complete. The new DCS has been the main asset replacement in the reporting period. |

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|--|---|--|--|---|--|
| 2 | Key Process - Asset creation/acquisition <i>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.</i> | | | Asset management process and policy definition adequacy rating A | Asset management performance rating 1 |
| | Outcome <i>A more economic, efficient and cost-effective asset acquisition framework which will reduce demand for new assets, lower service costs and improve service delivery.</i> | | | | |
| Interviewees: Wayne Roberts Kemerton Power Station Manager TW Power Services / RATCH-Australia Tony Polley General Manager Asset Management and Asset Development RATCH-Australia | | | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 5 Kemerton Annual Operating Report 2013 6 Kemerton Annual Operating Report Jan-Dec 2014 7 Kemerton Annual Operating Report Jan - Dec 2015 14 Kemerton July 2013 Report 15 Kemerton August 2013 Report 17 Kemerton October 2013 Report 18 Kemerton November 2013 Report 20 Kemerton January 2014 Report 24 Kemerton May 2014 Report 25 Kemerton November 2014 Report 28 Kemerton February 2015 Report 32 Kemerton September 2015 Report 33 Kemerton November 2015 Report 34 Kemerton December 2015 Report 35 Kemerton February 2016 Report 36 Kemerton April 2016 Report 45 20140128 - AMT Meeting Minutes 46 20140416 - AMT Meeting Minutes 47 20140529 - AMT Meeting Minutes 52 20150323 - AMT Meeting Minutes 54 20150519 - AMT Meeting Minutes 55 20150616 - AMT Meeting Minutes 56 20150728 - AMT Meeting Minutes 57 20150827 - AMT Meeting Minutes (amended) 58 20150917 - AMT Meeting Minutes 59 20151022 - AMT Meeting Minutes 69 Kemerton Control System - White Paper 2015 70 Kemerton Controls Upgrade Risk Analysis 71 Townsville and Kemerton Control Systems 2013 72 All monthly reports & All AMT meetings | |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|--|--|--|--------------------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 2.1 Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions | Ref docs – 1, 2, 3, 4, 5, 6, 7, 30, 33, 34, 52, 54, 55, 56, 57, 58, 59, 69, 70, 71, 72 & 74 | The upgrade DCS replaced a system no longer supported and was awarded to a different supplier following a thorough selection process from a shortlist of three. | C | 2 | M | S | 4 | A | 1 |
| 2.2 Evaluations include all life-cycle costs | Ref docs – 1, 2, 3, 4, 5, 6, 7, 69, 70, 71, 72 & 74 | Life-cycle costs are evaluated as part of the asset acquisition and maintenance management processes. The replacement DCS was anticipated but occurred earlier than originally envisaged due to the withdrawal of OEM support. | C | 1 | L | S | 5 | A | 1 |
| 2.3 Projects reflect sound engineering and business decisions | Ref docs – 1, 2, 3, 4, 5, 6, 7, 14, 15, 17, 18, 20, 24, 25, 32, 45, 69, 70, 71, 72 & 74 | OEM or other reputable suppliers are normally involved with engineering decisions, and supervision of major works, some of which were residual warranty issues. Staff and local labour are used as much as possible to gain expertise. | C | 2 | M | S | 4 | A | 1 |
| 2.4 Commissioning tests are documented and completed | Ref docs – 1, 2, 3, 4, 5, 6, 7, 15, 17, 20, 28, 32, 34, 35, 36, 46 & 47 | Commissioning test data is retained. PSS compliance tests are in conjunction with WP. Capacity tests are performed twice a year, (using distillate), to meet System Management requirements. Oracle were used to confirm DCS compliance. | C | 2 | M | S | 4 | A | 1 |
| 2.5 Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood | Ref docs – 1, 2, 3, 4, 5, 6, 7 72 & 74 | Safety and compliance reporting is on every AMT meeting agenda and a compliance register is maintained. | C | 2 | M | S | 4 | A | 1 |

| Comments & Recommendations |
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| Apart from the DCS asset creation has been small scale with the focus on maintaining the existing plant. Rotor rewinds were part warranty issues and awarded to the OEM after getting pricing from two others. |

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| 3 | Key process - Asset disposal <i>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</i> | Asset management process and policy definition adequacy rating A | Asset management performance rating 1 |
| | Outcome <i>Effective management of the disposal process will minimise holdings of surplus and under-performing assets and will lower service costs.</i> | | |
| Interviewees: Wayne Roberts Tony Polley | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 10 Kemerton Life cycle models v1_201702 41 20130730 - AMT Meeting Minutes 42 20130911 - AMT Meeting Minutes 43 20131119 - AMT Meeting Minutes 72 All monthly reports 74 All AMT meetings | |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
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| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy Rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process | Ref docs – 72, 74 | Peaking plant inherently has a low capacity factor and reliability is more important than efficiency. All incidents are investigated and reported on. | C | 1 | L | S | 5 | A | 1 |
| 3.2 The reasons for under-utilisation or poor performance are critically examined and | Ref docs – 1, 2, 3 4, 41, 42 & 43 | The DCS was replaced as it was no longer supported. Rotor windings were replaced because of cracking. OEM assisted with diagnosis and took some responsibility. OEM designs were used for winding repairs | C | 2 | M | S | 4 | A | 1 |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|---|----------------|--|--------------------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy Rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| corrective action or disposal undertaken | | | | | | | | | |
| 3.3 Disposal alternatives are evaluated | Ref docs – | Not applicable. RATCH propose returning the site to its natural condition at the end of life, not before 2030. A detailed de-commissioning plan has not been considered so early in the project's lifetime. | C | 1 | L | Not assessed | 5 | Not assessed | |
| 3.4 There is a replacement strategy for assets | Ref docs – 10, | Wear and tear items are stocked or pre-ordered for services. Majors are planned well ahead and replacement parts pre ordered. | C | 2 | M | S | 4 | A | 1 |

| Comments & Recommendations |
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| With quality, reliable plant operating on a low capacity factor there has been no requirement for asset disposal apart from the DCS which is primarily software. Redundant DCS hardware was disposed of in an approved manner. Winding problems were detected early and are part subject to warranty. |

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| 4 | Key Process - Environmental analysis <i>Environmental analysis examines the asset system environment and assesses all external factors affecting the asset system.</i> | | | Asset management process and policy definition adequacy rating A | Asset management performance rating 1 |
| | Outcome <i>The asset management system regularly assesses external opportunities and threats and takes corrective action to maintain performance requirements.</i> | | | | |
| Interviewees: Wayne Roberts Kemerton Power Station Manager TW Power Services / RATCH-Australia Tony Polley General Manager Asset Management and Asset Development RATCH-Australia | | | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 6 Kemerton Annual Operating Report Jan-Dec 2014 7 Kemerton Annual Operating Report Jan - Dec 2015 15 Kemerton August 2013 Report 19 Kemerton December 2013 Report 20 Kemerton January 2014 Report 22 Kemerton March 2014 Report 24 Kemerton May 2014 Report 27 Kemerton January 2015 Report 28 Kemerton February 2015 Report 29 Kemerton April 2015 Report 30 Kemerton May 2015 Report 31 Kemerton July 2015 Report 35 Kemerton February 2016 Report 37 Kemerton June 2016 Report 41 20130730 - AMT Meeting Minutes 42 20130911 - AMT Meeting Minutes 43 20131119 - AMT Meeting Minutes 53 20150427 - AMT Meeting Minutes (item 4.5 amended) 56 20150728 - AMT Meeting Minutes 57 20150827 - AMT Meeting Minutes (amended) 58 20150917 - AMT Meeting Minutes 59 20151022 - AMT Meeting Minutes 60 20151126 - AMT Meeting Minutes 72 All monthly reports 73 Operations and maintenance alliance agreement 74 All AMT meetings | |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
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| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy Rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 4.1 Opportunities and threats in the system environment are assessed | Ref docs – 1, 2, 3, 4, 5, 6, 7, 29, 30, 41, 42, 43, 53, 56, 57 & 58 | The PPA prevents selling power to third parties and Synergy is a secure customer with the 25yr contract. Responded to WP RFQ for black start capability. | B | 2 | M | S | 4 | A | 1 |
| 4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved | Ref docs – 5, 6, 7, 72 & 74 | Performance standards are reported monthly and variances explained. | B | 2 | M | S | 4 | A | 1 |
| 4.3 Compliance with statutory and regulatory requirements | Ref docs – 1, 2, 3, 4, 5, 6, 7, 15, 19, 20, 22, 24, 27, 28, 29, 31, 35, 37, 72, 73 & 74. | Monthly management meetings review the compliance schedule for the coming month as part of the risk review. | C | 2 | M | S | 4 | A | 1 |
| 4.4 Achievement of customer service levels | Ref docs – 72 & 74 | Customer service levels are well documented in the monthly reports and reviewed financially and for performance internally. System Management (AEMO) and Synergy also monitor technical compliance. | C | 2 | M | S | 4 | A | 1 |

| Comments & Recommendations |
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| There were several environmental changes during the reporting period with changes in the System Management IMO>AEMO, introduction of ABC, repeal of the carbon tax, EMR, WP PSS requirements. RATCH-Australia was prepared and responded to these changes effectively. |

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| 5 | Key Process - Asset operations <i>Operations functions relate to the day-to-day running of assets and directly affect service levels and costs.</i> | | Asset management process and policy definition adequacy rating B | Asset management performance rating 1 |
| | Outcome <i>Operations plans adequately document the processes and knowledge of staff in the operation of assets so that service levels can be consistently achieved.</i> | | | |
| Interviewees: <div>Wayne Roberts Kemerton Power Station Manager TW Power Services / RATCH-Australia</div> <div>Tony Polley General Manager Asset Management and Asset Development RATCH-Australia</div> | | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 5 Kemerton Annual Operating Report 2013 6 Kemerton Annual Operating Report Jan-Dec 2014 7 Kemerton Annual Operating Report Jan - Dec 2015 10 Townsville and Kemerton life cycle models v1_201702 12 Distillate tank inspection 70 Kemerton Controls Upgrade Risk Analysis 73 Operations & maintenance alliance agreement 74 All AMT meetings | |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
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| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy Rating | Performance rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 5.1 Operational policies and procedures are documented and | Ref docs – 1, 2, 3, 4, 5, 6, 10, 73 & 74 | Operations are largely automated with programming mainly by OEM suppliers and staff. Synergy electronically call for generation when needed. | C | 2 | M | M | 4 | B | 1 |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|---|---|--|--|---|---|---|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood A=likely B=probable C=unlikely | Consequence 1=minor 2=moderate 3=major | Inherent Risk rating L=low M=medium H=high | Adequacy of existing controls S=strong M=moderate W=weak | Review priority | Adequacy Rating | Performance rating |
| linked to service levels required | | | | | | | | | |
| 5.2 Risk management is applied to prioritise operations tasks | Ref docs – 1, 2, 3, 4, 5, 6, 7, 12, 70, & 74 | The risk register is reviewed at monthly meetings. The register is over complex and certain aspects are not maintained. Maintenance work is planned based on historical performance, OEM recommendations and condition monitoring. OEM manufacturers and GT users Group provide regular updates on similar GT's performance and issues. Insurers, require actions to minimise risk. | C | 2 | M | M | 4 | B | 1 |
| 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 | Ref docs – | New and old assets are recorded on SAP. (SAP was no longer used for asset register at the time of the audit so it could not be viewed.) The KKS Power Plant numbering system is used for equipment identification. There is an extensive hard copy of O&M manuals on site | C | 2 | M | Not assessed | 4 | Not assessed | |
| 5.4 Operational costs are measured and monitored | Ref docs – 1, 2, 3, 4, 5, 7, 10, 73, & 74 | Operational costs and revenue are included in the Monthly Forecast Meetings and Annual Operating Reports. | C | 2 | M | S | 4 | A | 1 |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|--|---------------------------------|--|--------------------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy Rating | Performance rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 5.5 Staff receive training commensurate with their responsibilities | Ref docs – 1,2 3, 4, 5, 7, & 74 | A training matrix is maintained and is reported in the Monthly Management Meetings and includes safety, first aid, HV switching, control, protection, SCADA, and equipment specific. Operators have responded knowledgably and safely when required. | C | 2 | M | S | 4 | A | 1 |

| Comments & Recommendations |
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| <p>The power station has operated reliably and efficiently. Any incidents have been responded to promptly. Compliance deadlines have been met.</p> <p>The old Transfield Worley processes documented in the AMP are outdated with a less complex approach being adopted and the new DCS. The next AMP should reflect these changes.</p> |

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| 6 | Key process - Asset maintenance <i>Maintenance functions relate to the upkeep of assets and directly affect service levels and costs.</i> | | Asset management process and policy definition adequacy rating B | Asset management performance rating 1 |
| | Outcome <i>Maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work can be done on time and on cost.</i> | | | |
| Interviewees: Wayne Roberts Kemerton Power Station Manager TW Power Services / RATCH-Australia Tony Polley General Manager Asset Management and Asset Development RATCH-Australia | | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 5 Kemerton Annual Operating Report 2013 6 Kemerton Annual Operating Report Jan-Dec 2014 7 Kemerton Annual Operating Report Jan - Dec 2015 11 Power Purchase Agreement sighted 12 Distillate tank inspection 13 Financial forecast meeting 14 Kemerton July 2013 Report 15 Kemerton August 2013 Report 17 Kemerton October 2013 Report 18 Kemerton November 2013 Report 19 Kemerton December 2013 Report 20 Kemerton January 2014 Report 21 Kemerton February 2014 Report 22 Kemerton March 2014 Report 23 Kemerton April 2014 Report 24 Kemerton May 2014 Report 25 Kemerton November 2014 Report 26 Kemerton December 2014 Report 27 Kemerton January 2015 Report 32 Kemerton September 2015 Report 39 Kemerton August 2016 Report 45 20140128 - AMT Meeting Minutes 46 20140416 - AMT Meeting Minutes 47 20140529 - AMT Meeting Minutes 52 20150427 - AMT Meeting Minutes 54 20150519-AMT Meeting 60 20151126 - AMT Meeting Minutes 72 All monthly reports 73 Operations & maintenance alliance agreement 74 All AMT meetings | |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|--|---|--|--------------------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy Rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 6.1 Maintenance policies and procedures are documented and linked to service levels required | Ref docs – 1, 2, 3, 4, 5, 7, 11, 72, 73, & 74 | Maintenance plans, policy and procedures are based on OEM recommendations, historical records and condition monitoring. Procedures have been streamlined to suit the small operation concerned and these should be updated in the next revision of the AMP. | C | 2 | M | M | 4 | B | 1 |
| 6.2 Regular inspections are undertaken of asset performance and condition | Ref docs – 1, 2, 3, 4, 5, 7, 72, & 74 | The DCS monitors the GT online. PD and flux probe testing points have been installed for speedy testing of stator and rotor. Balance of plant is regularly inspected with thermograph, vibration etc. and visual inspections. | C | 2 | M | S | 4 | A | 1 |
| 6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule | Ref docs – 1, 2, 3, 4, 5, 7, 12, 14, 15, 27, 32, 39, 52, 60, 72, 73 & 74 | Maintenance outages of the plant are planned and reported in the Monthly Reports. The major on #12 was well planned with parts, expert supervisors and contract labour procured before work started. A DCS procurement team was established for the project with peer review of the install prior to starting. | C | 2 | M | S | 4 | A | 1 |
| 6.4 Failures are analysed and operational/maintenance plans adjusted where necessary | Ref docs – 1, 2, 3, 4, 5, 7, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 45, 46, 47, 72, & 74 | Stator and rotor winding problems were detected early, OEM consulted and put back into service with close monitoring until opportune time for outage and parts/expertise procurement. Incident reports include analysis of cause and mitigation measures. | C | 2 | M | S | 4 | A | 1 |
| 6.5 Risk management is applied to prioritise maintenance tasks | Ref docs – 1, 2, 3, 4, 5, 7, 15, 54, 72, & 74 | Incident reports include risk assessment if the equipment is put back in service, eg excitation transformer 'hot joint'. CM is rarely required and is given priority. The Synergy power demand is seasonal and routine maintenance is planned accordingly. | C | 2 | M | S | 4 | A | 1 |

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| 6.6 Maintenance costs are measured and monitored | Ref docs – 1, 2, 3, 4, 5, 7, 10, 13, 72, & 74 | Maintenance costs for materials and contractors are monitored and reported monthly. In-house and local contractors are used where possible. | C | 2 | M | S | 4 | A | 1 |
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Comments & Recommendations

Maintenance is carried out in accordance to OEM recommendations, good industry practice and advice from the GT users group. Balance of plant is subject to daily inspection and routine testing. The low capacity factor means wear and tear is low apart from thermal cycling of the GT resulting from the large number of short runs associated with peaking plant. The AMP should be revised to reflect the less bureaucratic approach applied to maintenance and risk registers.

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| 7 | Key process - Asset Management Information System (MIS) <i>An asset management information system is a combination of processes, data and software that support the asset management functions.</i> | | Asset management process and policy definition adequacy rating | Asset management performance rating |
| | Outcome <i>The asset management information system provides authorised, complete and accurate information for the day-to-date running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards.</i> | | B | 1 |
| Interviewees: <div>Wayne Roberts<div>Kemerton Power Station Manager</div></div> <div>Tony Polley<div>GM, Asset Management & Asset Development</div></div> | | | Relevant documentation: <div>1 Kemerton Asset Management Plan 2013</div> <div>2 Kemerton Asset Management Plan 2014 V1 0</div> <div>3 Kemerton Asset Management Plan 2015 V1 0</div> <div>4 Kemerton Asset Management Plan 2016</div> <div>5 Kemerton Annual Operating Report 2013</div> <div>6 Kemerton Annual Operating Report Jan-Dec 2014</div> <div>7 Kemerton Annual Operating Report Jan - Dec 2015</div> <div>72 All monthly reports</div> <div>73 Operations & maintenance alliance agreement</div> <div>74 All AMT meetings</div> | |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|---|------------------------------------|---|--------------------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy Rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 7.1 Adequate system documentation for users and IT operators | Ref docs – 1, 2, 3, 4, 72, 73 & 74 | Emerson and SAP are all reputable software suppliers with OEM support. A support contract with Emerson is proposed at the end of the defects liability period. On-site staff have been trained in the control system. | C | 2 | M | S | 4 | A | 1 |
| 7.2 Input controls include appropriate verification and validation of data entered into the system | Ref docs – 1, 2, 3, 4, 72 & 74 | Data is collected by the DCS and reported. Power import/export and gas usage are monitored. The shared saving bonus for efficient operation requires energy balances and variances are investigated. System Management and Synergy also do checks. | C | 2 | M | S | 4 | A | 1 |
| 7.3 Logical security access controls appear adequate, such as passwords | Ref docs – 1, 2, 3, 4, 72 & 74 | Access to the DCS is currently limited by physical measures (locked gates and doors) only. This policy should be reviewed and justified. Firewalls are in place and virus protection active. The DCS and its data acquisition system is controlled to ensure validity of data entry. | C | 2 | M | M | 4 | B | 1 |
| 7.4 Physical security access controls appear adequate | Ref docs – 1, 2, 3, 4, 72 & 74 | The site is remote and there have been no break ins or vandalism at the power station. Physical security consists of a wide perimeter fire break, double fencing (one electrified) and locked gates. CCTV is installed but proved unreliable and ineffective. The site is unattended out of normal working hours. | C | 2 | M | M | 4 | B | 1 |
| 7.5 Data backup procedures appear adequate and | Ref docs – 1, 2, 3, 4, 72 & 74 | Back up for the DCS relies on the control room computer with multiple drives and the unit controllers each located in separate generator halls. Physical separation means it is improbable that they would all fail together. This differs from the old system and a review is suggested. | C | 2 | M | M | 4 | B | 1 |

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| backups are tested | | Back-up reinstallation has not been tested yet. | | | | | | | |
| 7.6 Key computations related to licensee performance reporting are materially accurate | Ref docs – 1, 2, 3, 4, 5, 6, 7, 72 & 74 | Monitoring of electrical energy transfer to the SWIS is with Western Power calibrated duplicate metering at the Kemerton Terminal substation. Gas is supplied by Synergy under their procurement contract(s). Distillate is also paid for by Synergy. Energy balances (gas in v elec out) are in each Monthly Report and part of a shared savings bonus scheme. | C | 2 | M | S | 4 | A | 2 |
| 7.7 Management reports appear adequate for the licensee to monitor licence obligations | Ref docs – 1, 2, 3, 4, 5, 6, 7, 72 & 74 | Regulatory reporting is maintained on the compliance register that is an agenda item on each AMT monthly meeting and has been carried out in a timely manner during the reporting period. | C | 2 | M | S | 4 | A | 1 |

Comments & Recommendations

The new DCS is Windows based whilst the old was Unix and a review of back up procedures and DCS access is recommended.
The power station is in an isolated area with little history of theft; considering the time taken for security services to get to site RATCH-Australia feel electronic surveillance is not justified. The rationale for this decision should be documented.

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| 8 | Key Process - Risk Management <i>Risk management involves the identification of risks and their management within an acceptable level of risk.</i> | | Asset management process and policy definition adequacy rating B | Asset management performance rating 1 |
| | Outcome <i>An effective risk management framework is applied to manage risks related to the maintenance of service standards</i> | | | |
| Interviewees: Wayne Roberts Kemerton Power Station Manager TW Power Services / RATCH-Australia Tony Polley GM, Asset Management & Asset Development RATCH-Australia | | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 6 Kemerton Annual Operating Report Jan-Dec 2014 7 Kemerton Annual Operating Report Jan - Dec 2015 12 Distillate tank inspection 69 Kemerton Control System - White Paper 2015 70 Kemerton Controls Upgrade Risk Analysis 71 Townsville and Kemerton Control Systems 2013 72 All monthly reports 74 All AMT meetings | |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|--|---|--|--------------------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy Rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 8.1 Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system | Ref docs – 1, 2, 3, 4, 5, 6, 7, 12, 69, 70, 71, 72 & 74 | Risk management is integral with their management and safety policies. Association with other power stations in TWPS and the users group reduces risk. | B | 2 | M | S | 4 | A | 1 |
| 8.2 Risks are documented in a risk register and treatment plans are actioned and monitored | Ref docs – 1, 2, 3, 4, 5, 6, 7, 72 & 74 | A risk register is discussed at monthly meetings. The risk register is over-complicated and the 'issues/challenges' section in monthly reports is a more functional approach | C | 2 | M | M | 4 | B | 1 |

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| | | GT incidents and experience are shared with others in the GT users group, the OEM and TWPS.. | | | | | | | |
| 8.3 The probability and consequences of asset failure are regularly assessed Note: Audit Priority changed from 2 to 4 due to review and assessment of control adequacy. Control mechanisms are sufficient and adequately address requirements | Ref docs – 1, 2, 3, 4, 5, 6, 7, 72 & 74 | The probability and consequences of asset failure are reviewed regularly. GT incidents and experience is shared with others in the GT users group, the OEM and TWPS. The OEM also advises of known issues. Duplication of plant provides some back up for demand < 155MW | B | 3 | M | S | 4 | A | 1 |

Comments & Recommendations

Risk management is considered in the decision making at RATCH-Australia/TWPS. The risk register is overcomplicated and thus could be overlooked and a simpler version is recommended.

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| 9 | Key Process - Contingency Planning <i>Contingency plans document the steps to deal with the unexpected failure of an asset.</i> | | | Asset management process and policy definition adequacy rating A | Asset management performance rating 1 |
| | Outcome- <i>Contingency plans have been developed and tested to minimise any significant disruptions to service standards.</i> | | | | |
| Interviewees: <div>Wayne Roberts<div>Kemerton Power Station Manager</div></div> <div>Tony Polley<div>GM, Asset Management & Asset Development</div></div> <div>TW Power Services / RATCH-Australia</div> <div>RATCH-Australia</div> | | | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 5 Kemerton Annual Operating Report 2013 6 Kemerton Annual Operating Report Jan-Dec 2014 7 Kemerton Annual Operating Report Jan - Dec 2015 12 Distillate tank inspection 35 Kemerton February 2016 Report 72 All monthly reports 73 Operations & maintenance alliance agreement | |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|---|---|---|--------------------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy Rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks Note: Audit Priority changed from 2 to 4 due to review and assessment of control adequacy. Control mechanisms are sufficient and adequately address requirements. | Ref docs – 1, 2, 3, 4, 5, 6, 7, 12, 35, 72 & 74 | Site evacuation policy in event of bushfires has been agreed with FESA. Emergency plans are discussed at monthly management meetings and toolbox meetings. First line of call is 000. Plans in place and discussed for fire, gas leakage etc. Operationally many backup arrangements are incorporated in the DCS. Duplication and transfer capability allows each SFC to operate either GT. Single GT can provide most of the historical peaking demand. | C | 3 | HIGH | S | 4 | A | 1 |

| Comments & Recommendations |
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| 2016 Yarloop bushfires were handled in a calm and safe manner and reviewed with FESA afterwards. Many contingencies are automated in the DCS, eg calling second GT if fail to start, others require manual intervention such as using #11's SFC to start #12. |

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| 10 | Key Process - Financial Planning <i>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.</i> | | | Asset management process and policy definition adequacy rating A | Asset management performance rating 1 |
| | Outcome <i>A financial plan that is reliable and provides for long-term financial viability of services</i> | | | | |
| Interviewees: Wayne Roberts Kemerton Power Station Manager TW Power Services / RATCH-Australia Tony Polley GM, Asset Management & Asset Development RATCH-Australia | | | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 5 Kemerton Annual Operating Report 2013 6 Kemerton Annual Operating Report Jan-Dec 2014 7 Kemerton Annual Operating Report Jan - Dec 2015 10 Townsville and Kemerton life cycle models v1_201702 11 Power Purchase Agreement sighted 13 Financial forecast meeting 72 All monthly reports 73 Operations & maintenance alliance agreement 74 All AMT meetings | |

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|--|---|---|--|---|--|---|--------------------|--------------------|-----------------------|
| | Policy | Performance | Likelihood A=likely B=probable C=unlikely | Consequence 1=minor 2=moderate 3=major | Inherent Risk rating L=low M=medium H=high | Adequacy of existing controls S=strong M=moderate W=weak | Review priority | Adequacy Rating | Performance Rating |
| 10.1 The financial plan states the financial objectives and strategies and actions to achieve the objectives | Ref docs – 1, 2, 3, 4, 5, 6, 7, 10, 11, 13, 72, 73 & 74 | Budget is prepared annually with a forward budget based on 5-10 years as basis. Life cycle cost model extends to 2040 and is revised annually. | C | 2 | M | S | 4 | A | 1 |
| 10.2 The financial plan identifies the source of funds for capital expenditure and recurrent cost | Ref docs – | Funding is internal from the RATCH-Australia. | C | 2 | M | S | 4 | A | 1 |
| 10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) | Ref docs – 1, 2, 3, 4, 5, 6, 7, 10, 13, 72 & 74 | Financials are reported in the Annual Operating Report and Monthly AMT meetings with actuals against budgeted. Any variances are investigated. | C | 2 | M | S | 4 | A | 1 |
| 10.4 The financial plan provide firm predictions on income for the next five years and reasonable indicative | Ref docs – 1, 2, 3, 4, 5, 6, 7, 10, 13, 72, 73 & 74 | Budget is prepared annually with a forward budget based on the contract with Synergy to 2030 and forecast O&M costs. | C | 2 | M | S | 4 | A | 1 |

| | | | | | | | | | |
|---|--|---|---|---|---|---|---|---|---|
| predictions beyond this period | | | | | | | | | |
| 10.5 The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services | Ref docs – 1, 2, 3, 4, 5, 6, 7, 10, 11, 13, 72, 73 & 74 | O&M, admin and overheads are incorporated in the plan together with forecast capital expenditure. | C | 2 | M | S | 4 | A | 1 |
| 10.6 Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary | Ref docs – 5, 6, 7, 10, 13 & 74 | Revenue and costs are monitored on a monthly basis and corrective action implemented accordingly. | C | 2 | M | S | 4 | A | 1 |

Comments & Recommendations

The plant operated reliably and profitably during the reporting period.

| | | | |
|----|--|---|--|
| 11 | Key Process - Capital Expenditure Planning <i>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.</i> <i>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.</i> | Asset management process and policy definition adequacy rating A | Asset management performance rating 1 |
| | Outcome - <i>A capital expenditure plan that provides reliable forward estimates of capital expenditure and asset disposal income, supported by documentation of the reasons for the decisions and evaluation of alternatives and options.</i> | | |

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|--|--|--|--|
| Interviewees: Wayne Roberts Kemerton Power Station Manager TW Power Services / RATCH-Australia Tony Polley GM, Asset Management & Asset Development RATCH-Australia | | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 5 Kemerton Annual Operating Report 2013 6 Kemerton Annual Operating Report Jan-Dec 2014 7 Kemerton Annual Operating Report Jan - Dec 2015 10 Townsville and Kemerton life cycle models v1_201702 13 Financial forecast meeting 69 Kemerton Control System - White Paper 2015 72 All monthly reports 74 All AMT meetings |
|--|--|--|--|

| Criteria Effectiveness | | | Post Review Audit Priority | | | | | | |
|--|--|---|--------------------------------------|----------------------------------|-----------------------------|----------------------------------|-----------------|-----------------|--------------------|
| | Policy | Performance | Likelihood | Consequence | Inherent Risk rating | Adequacy of existing controls | Review priority | Adequacy Rating | Performance Rating |
| | | | A=likely B=probable C=unlikely | 1=minor 2=moderate 3=major | L=low M=medium H=high | S=strong M=moderate W=weak | | | |
| 11.1 There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates | Ref docs – 1, 2, 3, 4, 5, 6, 7, 10, 13, 72 & 74 | Budget prepared annually with a forward budget based on 5-10 years as basis and end date of 2030 with possible extension. | C | 2 | M | S | 4 | A | 1 |
| 11.2 The plan provide reasons for capital expenditure and timing of expenditure | Ref docs – 1, 2, 3, 4, 72 & 74 | Funding applications to the Owner require what, why, how and when for capital projects. | C | 2 | M | S | 4 | A | 1 |
| 11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan | Ref docs – 1, 2, 3, 4, 5, 6, 7, 10, 11, 13, 69, 72 & 74 | Forecast capital expenditure is based on historical and forecast GT starts as a peaking station and a contract life to 2030 | C | 2 | M | S | 4 | A | 1 |
| 11.4 There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned | Ref docs – 1, 2, 3, 4, 5, 6, 7, 10, 11, 13, 72, 73 & 74 | Capital works are forecast in monthly reports, life cycle cost model and the annual AMP update. | C | 1 | L | S | 5 | A | 1 |

Comments & Recommendations

The DCS replacement project was identified, justified, best value obtained, incorporated in the budget, planned, implemented and monitored with few issues.

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|--|---|--|--|--|--|--|--|------------------------|------------------------|---------------------------|
| 12 | Key Process - Review of AMS <i>The asset management system is regularly reviewed and updated</i> | | | Asset management process and policy definition adequacy rating B | | | Asset management performance rating 1 | | | |
| | Outcome <i>Review of the Asset Management System to ensure the effectiveness of the integration of its components and their currency.</i> | | | | | | | | | |
| Interviewees: Wayne Roberts Kemerton Power Station Manager TW Power Services / RATCH-Australia Tony Polley GM, Asset Management & Asset Development RATCH-Australia | | | | Relevant documentation: 1 Kemerton Asset Management Plan 2013 2 Kemerton Asset Management Plan 2014 V1 0 3 Kemerton Asset Management Plan 2015 V1 0 4 Kemerton Asset Management Plan 2016 11 Power Purchase Agreement sighted 73 Operations & maintenance alliance agreement 74 All AMT meetings | | | | | | |
| Criteria Effectiveness | | | | Post Review Audit Priority | | | | | | |
| | Policy | Performance | | Likelihood A=likely B=probable C=unlikely | Consequence 1=minor 2=moderate 3=major | Inherent Risk rating L=low M=medium H=high | Adequacy of existing controls S=strong M=moderate W=weak | Review priority | Adequacy rating | Performance Rating |
| 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 | Ref doc – 1, 2, 3, 4, 5, 6, 7, 11, 73 & 74 | Annual updates of the AMP are a requirement of the OMAA. Revisions have been mainly to actual performance, current issues, budget and planned O & M works for the coming year. The common clauses such as “Relevant Australian Standards” refer to out of date versions. | | C | 2 | M | M | 4 | B | 1 |
| 12.2 Independent reviews (eg internal audit) are performed of the asset management system | Ref doc – 1, 2, 3, 4, 73 & 74 | Internal and external review of the assets and management systems are regularly conducted. ERA and the OMAA require AMS review. | | C | 2 | M | S | 4 | A | 1 |
| Comments & Recommendations | | | | | | | | | | |
| A thorough review of the common clauses of AMP is recommended with updating references to standards etc. Revise the old cumbersome Transfield Processes section to reflect the more pragmatic processes that are applied. | | | | | | | | | | |

Table 9 Effectiveness Criteria Pre- Audit Review

| Ref | Details/Requirements | Consequence 1=minor, 2=moderate, 3=major | Risk Likelihood A=likely, B=probable, C=unlikely | Inherent Risk low, medium, high | Adequacy of existing controls S=strong, M=moderate, W=weak | Review Priority | | | | |
|---------------------|---|---|---|---|--|-----------------|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| 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). | | | | | 0 | 0 | 0 | 6 | 3 |
| 1.1 | Asset management plan covers key requirements | 1 | C | LOW | M | | | | | 5 |
| 1.2 | Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning | 2 | C | MEDIUM | M | | | | 4 | |
| 1.3 | Service levels are defined | 2 | C | MEDIUM | M | | | | 4 | |
| 1.4 | Non-asset options (eg demand management) are considered | 1 | C | LOW | M | | | | | 5 |
| 1.5 | Lifecycle costs of owning and operating assets are assessed | 2 | C | MEDIUM | M | | | | 4 | |
| 1.6 | Funding options are evaluated | 2 | C | MEDIUM | M | | | | 4 | |

| Ref | Details/Requirements | Consequence 1=minor, 2=moderate, 3=major | Risk Likelihood A=likely, B=probable, C=unlikely | Inherent Risk low, medium, high | Adequacy of existing controls S=strong, M=moderate, W=weak | Review Priority | | | | |
|------------------------------------|---|---|---|---|--|-----------------|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| 1.7 | Costs are justified and cost drivers identified | 2 | C | MEDIUM | M | | | | 4 | |
| 1.8 | Likelihood and consequences of asset failure are predicted | 2 | C | MEDIUM | M | | | | 4 | |
| 1.9 | Plans are regularly reviewed and updated | 1 | C | LOW | M | | | | | 5 |
| 2 Asset creation/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. | | | | | 0 | 0 | 0 | 4 | 1 |
| 2.1 | Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions | 2 | C | MEDIUM | M | | | | 4 | |
| 2.2 | Evaluations include all life-cycle costs | 1 | C | LOW | M | | | | | 5 |
| 2.3 | Projects reflect sound engineering and business decisions | 2 | C | MEDIUM | M | | | | 4 | |
| 2.4 | Commissioning tests are documented and completed | 2 | C | MEDIUM | M | | | | 4 | |
| 2.5 | Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood | 2 | C | MEDIUM | M | | | | 4 | |

| Ref | Details/Requirements | Consequence 1=minor, 2=moderate, 3=major | Risk Likelihood A=likely, B=probable, C=unlikely | Inherent Risk low, medium, high | Adequacy of existing controls S=strong, M=moderate, W=weak | Review Priority | | | | |
|-----------------------------|---|---|---|---|--|-----------------|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| 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 | | | | | 0 | 0 | 0 | 2 | 2 |
| 3.1 | Under-utilised and under-performing assets are identified as part of a regular systematic review process | 1 | C | LOW | M | | | | | 5 |
| 3.2 | The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken | 2 | C | MEDIUM | M | | | | 4 | |
| 3.3 | Disposal alternatives are evaluated | 1 | C | LOW | M | | | | | 5 |
| 3.4 | There is a replacement strategy for assets | 2 | C | MEDIUM | M | | | | 4 | |
| 4 Environmental analysis | Environmental analysis examines the asset system environment and assesses all external factors affecting the asset system. | | | | | 0 | 0 | 0 | 4 | 0 |
| 4.1 | Opportunities and threats in the system environment are assessed | 2 | B | MEDIUM | M | | | | 4 | |
| 4.2 | Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved | 2 | B | MEDIUM | M | | | | 4 | |

| Ref | Details/Requirements | Consequence 1=minor, 2=moderate, 3=major | Risk Likelihood A=likely, B=probable, C=unlikely | Inherent Risk low, medium, high | Adequacy of existing controls S=strong, M=moderate, W=weak | Review Priority | | | | |
|-----------------------|--|---|---|---|--|-----------------|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| 4.3 | Compliance with statutory and regulatory requirements | 2 | C | MEDIUM | M | | | | 4 | |
| 4.4 | Achievement of customer service levels | 2 | C | MEDIUM | M | | | | 4 | |
| 5 Asset operations | Operations functions relate to the day-to-day running of assets and directly affect service levels and costs. | | | | | 0 | 0 | 0 | 5 | 0 |
| 5.1 | Operational policies and procedures are documented and linked to service levels required | 2 | C | MEDIUM | M | | | | 4 | |
| 5.2 | Risk management is applied to prioritise operations tasks | 2 | C | MEDIUM | M | | | | 4 | |
| 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 | 2 | C | MEDIUM | M | | | | 4 | |

| Ref | Details/Requirements | Consequence 1=minor, 2=moderate, 3=major | Risk Likelihood A=likely, B=probable, C=unlikely | Inherent Risk low, medium, high | Adequacy of existing controls S=strong, M=moderate, W=weak | Review Priority | | | | |
|------------------------|---|---|---|---|--|-----------------|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| 5.4 | Operational costs are measured and monitored | 2 | C | MEDIUM | M | | | | 4 | |
| 5.5 | Staff receive training commensurate with their responsibilities | 2 | C | MEDIUM | M | | | | 4 | |
| 6 Asset maintenance | Maintenance functions relate to the upkeep of assets and directly affect service levels and costs. | | | | | 0 | 0 | 0 | 6 | 0 |
| 6.1 | Maintenance policies and procedures are documented and linked to service levels required | 2 | C | MEDIUM | M | | | | 4 | |
| 6.2 | Regular inspections are undertaken of asset performance and condition | 2 | C | MEDIUM | M | | | | 4 | |
| 6.3 | Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule | 2 | C | MEDIUM | M | | | | 4 | |
| 6.4 | Failures are analysed and operational/maintenance plans adjusted where necessary | 2 | C | MEDIUM | M | | | | 4 | |

| Ref | Details/Requirements | Consequence 1=minor, 2=moderate, 3=major | Risk Likelihood A=likely, B=probable, C=unlikely | Inherent Risk low, medium, high | Adequacy of existing controls S=strong, M=moderate, W=weak | Review Priority | | | | |
|---|--|---|---|---|--|-----------------|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| 6.5 | Risk management is applied to prioritise maintenance tasks | 2 | C | MEDIUM | M | | | | 4 | |
| 6.6 | Maintenance costs are measured and monitored | 2 | C | MEDIUM | M | | | | 4 | |
| 7 Asset Management Information System | An asset management information system is a combination of processes, data and software that support the asset management functions. | | | | | 0 | 0 | 0 | 7 | 0 |
| 7.1 | Adequate system documentation for users and IT operators | 2 | C | MEDIUM | M | | | | 4 | |
| 7.2 | Input controls include appropriate verification and validation of data entered into the system | 2 | C | MEDIUM | M | | | | 4 | |
| 7.3 | Logical security access controls appear adequate, such as passwords | 2 | C | MEDIUM | M | | | | 4 | |
| 7.4 | Physical security access controls appear adequate | 2 | C | MEDIUM | M | | | | 4 | |
| 7.5 | Data backup procedures appear adequate and backups are tested | 2 | C | MEDIUM | M | | | | 4 | |
| 7.6 | Key computations related to licensee performance reporting are materially accurate | 2 | C | MEDIUM | M | | | | 4 | |

| Ref | Details/Requirements | Consequence 1=minor, 2=moderate, 3=major | Risk Likelihood A=likely, B=probable, C=unlikely | Inherent Risk low, medium, high | Adequacy of existing controls S=strong, M=moderate, W=weak | Review Priority | | | | |
|---------------------------|---|---|---|---|--|-----------------|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| 7.7 | Management reports appear adequate for the licensee to monitor licence obligations | 2 | C | MEDIUM | M | | | | 4 | |
| 8 Risk Management | Risk management involves the identification of risks and their management within an acceptable level of risk. | | | | | 0 | 1 | 0 | 2 | 0 |
| 8.1 | Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system | 2 | B | MEDIUM | M | | | | 4 | |
| 8.2 | Risks are documented in a risk register and treatment plans are actioned and monitored | 2 | C | MEDIUM | M | | | | 4 | |
| 8.3 | The probability and consequences of asset failure are regularly assessed | 3 | B | HIGH | M | | 2 | | | |
| 9 Contingency Planning | Contingency plans document the steps to deal with the unexpected failure of an asset. | | | | | 0 | 1 | 0 | 0 | 0 |
| 9.1 | Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks | 3 | C | HIGH | M | | 2 | | | |

| Ref | Details/Requirements | Consequence 1=minor, 2=moderate, 3=major | Risk Likelihood A=likely, B=probable, C=unlikely | Inherent Risk low, medium, high | Adequacy of existing controls S=strong, M=moderate, W=weak | Review Priority | | | | |
|--------------------------|--|---|---|---|--|-----------------|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| 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. | | | | | 0 | 0 | 0 | 6 | 0 |
| 10.1 | The financial plan states the financial objectives and strategies and actions to achieve the objectives | 2 | C | MEDIUM | M | | | | 4 | |
| 10.2 | The financial plan identifies the source of funds for capital expenditure and recurrent costs | 2 | C | MEDIUM | M | | | | 4 | |
| 10.3 | The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) | 2 | C | MEDIUM | M | | | | 4 | |
| 10.4 | The financial plan provide firm predictions on income for the next five years and reasonable indicative predictions beyond this period | 2 | C | MEDIUM | M | | | | 4 | |
| 10.5 | The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services | 2 | C | MEDIUM | M | | | | 4 | |
| 10.6 | Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary | 2 | C | MEDIUM | M | | | | 4 | |

| Ref | Details/Requirements | Consequence 1=minor, 2=moderate, 3=major | Risk Likelihood A=likely, B=probable, C=unlikely | Inherent Risk low, medium, high | Adequacy of existing controls S=strong, M=moderate, W=weak | Review Priority | | | | |
|---------------------------------------|---|---|---|---|--|-----------------|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| 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 | | | | | 0 | 0 | 0 | 3 | 1 |
| 11.1 | There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates | 2 | C | MEDIUM | M | | | | 4 | |
| 11.2 | The plan provide reasons for capital expenditure and timing of expenditure | 2 | C | MEDIUM | M | | | | 4 | |
| 11.3 | The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan | 2 | C | MEDIUM | M | | | | 4 | |
| 11.4 | There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned | 1 | C | LOW | M | | | | | 5 |
| 12 Review of AMS | The asset management system is regularly reviewed and updated. | | | | | 0 | 0 | 0 | 2 | 0 |

| Ref | Details/Requirements | Consequence 1=minor, 2=moderate, 3=major | Risk Likelihood A=likely, B=probable, C=unlikely | Inherent Risk low, medium, high | Adequacy of existing controls S=strong, M=moderate, W=weak | Review Priority | | | | |
|------|--|---|---|---|--|-----------------|---|---|---|---|
| | | | | | | 1 | 2 | 3 | 4 | 5 |
| 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 | 2 | C | MEDIUM | M | | | | 4 | |
| 12.2 | Independent reviews (e.g. internal audit) are performed of the asset management system | 2 | C | MEDIUM | M | | | | 4 | |