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Independent Assurance Report

Asset Management System (AMS) Review 2019

Rottnest Island Authority

October 2019

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Mr Shane Kearney
A/Director Environment Heritage and Parks
Rottnest Island Authority
PO Box 693
Fremantle, WA 6959

31 October 2019

Subject: Rottnest Island Authority – Asset Management System Review 2019

As stated in request DBCARIAQ1619, our offer submission and the acceptance of offer on 7 March 2019, we have completed the Asset Management System Review for the Rottnest Island Authority for the period 1 April 2017 – 31 March 2019 and are pleased to submit our report to you.

I confirm that this report is an accurate presentation of the findings and conclusions from our audit procedures.

If you have any questions or wish to discuss anything raised in the report, please contact on me on +61 422 002 354.

Yours sincerely

[redacted]

Justin Eve

Partner

PricewaterhouseCoopers, ABN 52 780 433 757
Brookfield Place, 125 St Georges Terrace, PERTH WA 6000, GPO Box D198, PERTH WA 6840
T: +61 8 9238 3000, F: +61 8 9238 3999, www.pwc.com.au

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To Shane Kearney, A/Director Environment Heritage and Parks:

Qualified Conclusion

Per requirements of Sections 14(1)(c) and 14(2) of the Electricity Industry Act 2004, we have undertaken a limited assurance engagement on the adequacy and effectiveness of the Rottnest Island Authority's (RIA) asset management system, in all material respects, as evaluated against the criteria defined in Table 23 of the "Economic Regulation Authority (ERA or the Authority) Audit and Review Guidelines: Electricity and Gas Licences (March 2019)" (the Guidelines) for the period 1 April 2017 to 31 March 2019.

Based on the procedures we have performed and the evidence we have obtained, except for the matters outlined in our Basis for Qualified Conclusion paragraph, nothing has come to our attention that causes us to believe that RIA's asset management system is not adequate and effective, in all material respects, as evaluated against the Guidelines throughout the period 1 April 2017 to 31 March 2019.

Basis for Qualified Conclusion

During the period 1 April 2017 to 31 March 2019, RIA did not have elements of an adequate and effective asset management system in the following instances (rated as 'C- requiring significant improvement' and '3- corrective action required'), as evaluated against the Guidelines:

Asset management process or effectiveness criterion (and ref #)		Issue
1.4	Non-asset options (e.g. demand management) are considered	No evidence was found on RIA formally considering non-asset options in its asset planning processes, i.e. demand side management instead of assets to increase the supply side capacity
1.5	Lifecycle costs of owning and operating assets are assessed	The life cycle costing (LCC) model does not provide detailed and actual lifecycle costing to operate individual assets at an engineering level
2.5	Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	No evidence was found on the identification, monitoring and reporting of ongoing legal / environmental and safety obligations from an asset management level
4.3	Compliance with statutory and regulatory requirements	No evidence was found on the identification, monitoring and reporting of ongoing regulatory obligations
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	The LCC does not provide detailed and actual lifecycle costing to operate individual assets to inform accurate CAPEX planning for the future years based on the asset age and condition

Refer to section 6 and section 7 of this report for further detail.

We conducted our engagement in accordance with Standard on Assurance Engagements ASAE 3500 *Performance Engagements* issued by the Auditing and Assurance Standards Board.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our qualified conclusion.

Rottnest Island Authority's responsibilities

Rottnest Island Authority's management is responsible for:

a) Establishing and maintaining an adequate and effective asset management system, in accordance with the criteria defined in Table 23 of the Guidelines.
b) Identification of risks that threaten the adequacy, effectiveness of RIA's asset management system against the criteria defined in the Guidelines, and controls which will mitigate those risks and monitoring ongoing progress.

Our independence and quality control

We have complied with the independence and other relevant ethical requirements relating to assurance engagements, and apply Auditing Standard ASQC 1 Quality Control for Firms that Perform Audits and Reviews of Financial Reports and Other Financial Information, and Other Assurance Engagements in undertaking this assurance engagement.

Our responsibilities

Our responsibility is to express a limited assurance conclusion on whether anything has come to our attention that RIA does not have an adequate and effective asset management system, as evaluated against the Guidelines throughout the specified period.

In a limited assurance engagement, the assurance practitioner performs procedures, primarily consisting of discussion and enquiries of management and others within the entity, as appropriate, and observation and walk-throughs and evaluates the evidence obtained. The procedures selected depend on our judgement, including identifying areas where the risk of material inadequacy or ineffectiveness, as evaluated against the Guidelines, are likely to arise.

Given the circumstances of the engagement, in performing the procedures listed above, we:

- Through discussion, enquiries and observation, obtained an understanding of the RIA's asset management framework and internal control environment as evaluated against the effectiveness criteria's defined in ERA's Guidelines
- Through discussion, enquiries, observation and walk-throughs, obtained an understanding of relevant activities that are undertaken as evaluated against the effectiveness criteria's defined in ERA's Guidelines

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement and consequently the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Accordingly, we do not express a reasonable assurance opinion on whether the RIA has an adequate and effective asset management system in accordance with the Guidelines.

Inherent limitations

Because of the inherent limitations of an assurance engagement, together with the internal control structure it is possible that fraud, error, or inadequacy and ineffectiveness of the asset management system in accordance with the Guidelines may occur and not be detected.

A limited assurance engagement throughout the specified period does not provide assurance on the adequacy and effectiveness of the assessment management system, in accordance with the Guidelines, will continue in the future.

Use of report

This report has been prepared for use by the Rottnest Island Authority, for the purpose of Sections 14(1)(c) and 14(2) of the Electricity Industry Act 2004 (WA). We disclaim any assumption of responsibility for any reliance on this report to any person other than the Rottnest Island Authority, or for any other purpose than that for which it was prepared.

[redacted]

PricewaterhouseCoopers

[redacted]

Justin Eve
Partner

31 October 2019

2 Executive summary

2.1 Introduction and background

The Rottnest Island Authority (RIA or the licensee) holds an Electricity Integrated Regional Licence (EIRL3) issued by the Economic Regulation Authority (ERA or the Authority) under Sections 9 and 19 of the Electricity Industry Act 2004 (WA) (the Act).

Under Sections 14(1)(c) and 14(2) of the Electricity Industry Act 2004 (WA), the RIA is required to provide to the Authority an Asset Management System Review of the Rottnest Island EIRL3 Licence. Under the conditions of the licence, RIA's systems are subject to independent asset management system reviews at 24 month intervals or other period as determined by the Authority. The asset management system review is to determine the effectiveness of the licensee's asset management system.

The licence has been granted for the area covering Rottnest Island, 18 km offshore of Fremantle, Western Australia and applies to the generation, retail and distribution services provided by RIA. The generation, transmission and distribution facilities are operated by Programmed Facility Management (PFM) which have been contracted to provide the operation and maintenance services under a service availability agreement.

The power station consists of seven diesel generators providing 2040 kW, one wind turbine generator operationally rated at 600 kW and a solar farm operationally rated at 600 kW for a total generating capacity of 3240 kW. Section 3 of the Act defines a distribution system as infrastructure associated with the transportation of electricity at nominal voltages less than 66kV. The Act goes further to define a transmission system as infrastructure associated with the transportation of electricity at nominal voltages of 66kV or higher. Electricity on Rottnest Island is supplied over an 11kV high voltage (HV) distribution system, both underground and overhead, and number of substations and a 415V low voltage (LV) distribution system.

The generation assets are below the requisite thresholds (30 MW) that require the generation elements of RIA's integrated regional licence to be licenced. However, the RIA wishes to retain the generation elements of its integrated regional licence.

It was noted that there have been no substantial or material changes to the assets and the business (RIA) since the previous review in 2017.

PricewaterhouseCoopers (PwC) was engaged by RIA to conduct the asset management system review in accordance with the Authority's "Audit and Review Guidelines: Electricity and Gas Licences (March 2019)" (the Guidelines) for the period 1 April 2017 to 31 March 2019. The Authority approved PricewaterhouseCoopers to undertake the audit and review on 7 March 2019.

2.2 Summary of actions taken by RIA in response to previous review recommendations

This Audit considered RIA's progress in completing the action plans detailed in the 2017 asset management system review report and post review implementation plan.

Based on our examination of the relevant documents, discussion with staff and consideration of the results of this review's observations against the associated asset management system review components, we have determined that RIA has completed ten (10) action plans detailed in the 2017 asset management system review report and post review implementation plan.

However, there are fourteen (14) action plans still outstanding at the end of the review period. These are either currently still in progress or we were unable to obtain sufficient evidence to support the completion of the relevant action plans.

Refer to section 5 of this report for further detail.

2.3 *Summary of findings and recommendations arising from current review*

A total number of eleven (11) individual recommendations against asset management system review components were raised in this review, which fall with a performance rating of 3, or a process and policy rating of C.

A key finding and recommendation which was applicable to a number of asset management system components was on the need for detailed life cycle costing on a key individual asset level (e.g. generator No 1), capturing actual operational and maintenance costs of the assets which can then be regularly reviewed against forecasted values. This helps to inform RIA's capital expenditure planning for the future years on assets requiring increased maintenance.

Refer to section 6 and section 7 of this report for further detail.

Table 1 below sets out the rating scales used to rate the adequacy of a RIA's processes and policies; and Table 2 sets out the rating scales used to rate RIA's performance. These rating scales are defined by the ERA in the Audit and Review Guidelines (2019).

Table 1: Process and policy rating scale (reviews)

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

Table 2: Performance rating scale (reviews)

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

2.4 *Overall assessment*

In considering the RIA's internal controls procedures, structure and environment, its compliance culture and its information systems specifically relevant to asset management system components relevant to the review, except for the matters outlined in the table below, nothing has come to our attention that causes us to believe that RIA has not established and maintained an effective asset management system, as evaluated by the effectiveness criteria defined in Table 23 of the Guidelines, throughout the period 1 April 2017 to 31 March 2019:

Asset management process or effectiveness criterion (and ref #)		Issue
1.4	Non-asset options (e.g. demand management) are considered	No evidence was found on RIA formally considering non-asset options in its asset planning processes, i.e. demand side management instead of assets to increase the supply side capacity
1.5	Lifecycle costs of owning and operating assets are assessed	The life cycle costing (LCC) model does not provide detailed and actual lifecycle costing to operate individual assets at an engineering level
2.5	Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	No evidence was found on the identification, monitoring and reporting of ongoing legal / environmental and safety obligations from an asset management level
4.3	Compliance with statutory and regulatory requirements	No evidence was found on the identification, monitoring and reporting of ongoing regulatory obligations
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	The LCC does not provide detailed and actual lifecycle costing to operate individual assets to inform accurate CAPEX planning for the future years based on the asset age and condition

The review also noted a number of improvement opportunities, and in accordance with the Guidelines, these opportunities have been directly communicated to RIA due to their lower risk effectiveness rating.

3 Scope of work

3.1 Scope and Objective

The purpose of the asset management system review was to:

- Assess the effectiveness of the licensee's asset management system, which includes the assessment management plan, and the staff and IT resources that support the plan. The review is a limited assurance engagement.

The scope of the review included an assessment of the adequacy and effectiveness of the asset management system by evaluating the following asset management processes that are stipulated in the Guidelines:

- asset planning
- asset creation/acquisition
- asset disposal
- environmental analysis
- asset operations
- asset maintenance
- asset management information system
- risk management
- contingency planning
- financial planning
- capital expenditure planning
- review of the asset management system.

Each of the system processes was evaluated against effectiveness criteria defined in the ERA Audit and Review Guidelines (2019).

3.2 Review period

The asset management system review covered the period 1 April 2017 to 31 March 2019.

3.3 This report

The report includes:

- A summary of the objectives and scope of the review

- Key observations and recommendations from the review
- Separately, a post audit and review implementation plan prepared by the licensee listing the review recommendations and the responses and actions proposed by RIA to the asset management deficiencies identified in this review (including those carried forward from the 2017 review). The plan does not form part of the report and is provided separately by the licensee.

3.4 Approach

A risk-based approach was applied to planning and conducting the review. PwC determined the review priority for each asset management process by assessing the relevant risk factors and controls in place. The focus of the review was on higher priorities, with less extensive coverage of medium and lower priorities.

To achieve consistency of risk assessment across the different utility sectors and licences, a risk evaluation model was applied, per Appendix 3 in ERA Audit and Review Guidelines (2019).

3.5 Site visits

The following facilities were visited during the review:

- RIA head office, Fremantle
- RIA Power utility facilities at Rottnest Island
- McGees head-office, West Perth

3.6 Personnel and documentation

Key contacts and Audit Team

On behalf of the licensee, key contacts for the performance audit and asset management system review were:

RIA Fremantle head office:

- Michael Seitz, Environment, Public Health and Compliance Coordinator

At the Rottnest Island Power utility facility, the operator, Programmed Facilities Management:

- Jodie Mott, Island Operations Manager

McGees West Perth head office:

- *Tiarne Wyatt, Property Manager*

The Audit and Review team comprised the following key personnel:

- Justin Eve - Engagement Leader
- Sian Ashdown - Engagement Director
- Matthew Quinn – Asset Management Systems SME

- Sham Sikander – Engagement Manager
- Mily Foeng Vergel - Senior Consultant
- Madeline Avis – Senior Consultant

Documentation

Key documents that were reviewed as part of the review included the following:

1. Rottnest Multi Utility Asset Management Plan (MUAMP)
2. GHD - ERA Electricity Licence Performance Audit and Asset Management System Review Audit Report
3. Strategic Asset Management Plan
4. Rottnest Multi Utility Asset Management Plan
5. RIA - Electrical - Service Recovery and Contingency Plan
6. Emergency Response Management Plan
7. FUSS Rottnest Facilities Utilities and Support Services Contract
8. Outage Registers 2017 - 2019
9. FUSS KPI Report - May 2019
10. FUSS Service Report May 2019_Combined
11. CAPEX Strategic Asset Plan - SAP 2019 - Final
12. RMC-RNI-F04-002-1 Rottnest Island Power Risk Register (formerly Power Risk Matrix)
13. PFM Operational Risk Assessment - Mechanical, Jan 17
14. PFM Operational Risk Assessment - Powerhouse, Jan 17
15. RIA Assets - Disposal Form
16. Restoration Priority Register Electrical Services Procedure
17. FUSS Enterprise Risk Management Plan v1 May 2015
18. SAGE - FMIS Access Request Form
19. Operational_Procedure_-_Identity_and_access_management_8DkeEGJ (1)
20. Operational_Procedure_-_Information_security_management_framework (1)
21. PFM-Risk Management Plan-Rottnest Island v2
22. Power Risk Register
23. Risk Management Procedure
24. GDE-RNI-B12b-001-5 Emergency Generator Installation

25. Strategic Asset Plan (2018-2019)

26. Budget papers for the Department of Biodiversity, Conservation and Attractions

3.7 Work schedule

Activity	Team Member	Start Date	Completion Date	Actual Time (hrs)
Project start		11/03/2019		
Preliminary Assessment	Justin Eve, Partner Sian Ashdown, Director Sham Sikander, Manager Mily Foeng Vergel, Senior Consultant		8/04/2019	20
Audit and Review Plan – Issued First Draft to RIA	Sian Ashdown, Director Sham Sikander, Manager		1/05/2019	10
Audit and Review meetings at Rottnest Island office and visit of RIA Fremantle head office and documentation review	Matthew Quinn – Asset Management Systems SME Sham Sikander, Manager Madeline Avis, Senior Consultant	6/05/2019	14/06/2019	40
Report – First Draft to RIA and Post Audit Review Implementation Plan	Justin Eve, Partner Sian Ashdown, Director Sham Sikander, Manager		1/07/2019	20
Report – Final Issue to RIA	Justin Eve, Partner Sian Ashdown, Director Sham Sikander, Manager		31/07/2019	20

4 Recommendations from previous review

Table below outlines RIA's progress in completing the action plans detailed in the 2017 asset management system review report and post review implementation plan

Table 3: Status of recommendations from previous review

A. Resolved during current review period				
Recommendation reference	**Process and policy deficiency / Performance deficiency**	**Auditor's recommendation**	**Date resolved**	**Further action required / Detail of Further action required**
8/2015	C2 Asset operations - Assets are documented in an Asset Register including asset type, location, material, plans of components, and assessment of assets' physical/structural condition and accounting data. At present the asset register is not complete. Work is still ongoing and some assets are not included (all of the HV system). A preventative maintenance plan has not been issued at this point At present due to the asset management system database being in progress there is no link to asset drawings as drawings are out of date; there is a disconnect between drawings and physical installation. There is insufficient information to verify the link between the operational asset register (Maximo) and the current fixed accounting asset register (RIA).	The link between the Physical Asset Register and the Accounting Asset Register should be documented.	November 2017	**No Further Action required** Management disagreed with auditor recommendation and decided to take no further action. No issues were noted on this area in the current 2019 review. As of 2018 onwards, new assets are set up with Hyperlinks to any documentation and drawings and manuals supplied in the asset handover and the asset handover procedure has been documented and implemented. The RIA through Facilities Manager is in the process of reviewing the current system and compiling all

A. Resolved during current review period				
	There is insufficient information to verify the link between the operational asset register (Maximo) and the current fixed accounting asset register (RIA).			information for all electrical assets; will continue to input all data into the AMS, including pre 2018 (includes pre 2008). The intention is to have 100% of electrical assets in the system with hyperlinks to documents within the next two years.
01/2017	B2 Asset Planning - Does the planning process and objectives reflect the need of all stakeholders and is it integrated with business planning? There are no document control procedures identified.	Apply document control procedures.	November 2017	**No Further Action required**
03/2017	B2 Asset Planning - Have non-asset options (e.g. demand management) been considered? No evidence of actively considered non-asset initiatives, related to electricity demand management at the consumer end, was presented to the Auditors.	Establish electricity demand management strategies for the major consumers of energy.	March 2019	**No Further Action required**
09/2017	B2 Asset Creation & Acquisition – Have the ongoing legal/environmental/safety obligations of the asset owner been assigned and understood? During the review period, it was found the breach register was not kept up to date	RIA to ensure the operations and maintenance contractor keeps the breach register up to date.	March 2019	**No Further Action required**
12/2017	B2 Asset Operations – Is risk management applied to prioritise operations tasks? PFM maintain a "Power Risk Matrix" for the Powerhouse. The review noted however that no document control procedures are applied to this document e.g. previous visions, author, reviewer, dates or endorsements etc.	Apply document control procedures to "Power Risk Matrix".	November 2017	**No Further Action required**

A. Resolved during current review period				
13/2017	B2 Asset Operations – Are assets documented in an Asset Register including asset type, location, material, plans of components, an assessment assets' physical/structural condition and accounting data? Accounting data is maintained in a separate accounting system called "Sage". There is no direct interface between the asset management system (Maximo) and Sage. Assets are linked between registers through a unique asset identifier nominated by Sage and manually assigned to the corresponding asset in Maximo	1. The link between the physical asset register and accounting asset register is not documented. 2. Software program to be developed to create a unique asset identification numbers	November 2017	**No Further Action** Management disagreed with auditor recommendation and decided to take no further action. No issues were noted on this area in the current 2019 review.
15/2017	B2 Asset Operations - Are staff receiving training commensurate with their responsibilities? It is unclear what specific training requirements are required by staff. A training register is not maintained.	Develop a training register capturing staff's training requirements and verification of competency where applicable	January 2018	**No Further Action required**
18/2017	B2 Risk Management – Do risk management policies and procedures exist and are they being applied to minimise internal and external risks associated with the asset management system?	Establish and document a review period for Risk Management Framework (RMF) document. Undertake a review of the RMF to verify its currency.	May 2018	**No Further Action required**
20/2017	B2 Contingency Planning - Are contingency plans documented, understood and tested to confirm their operability and to cover higher risks? Disaster contingency plans (electricity) had not been reviewed and may not be current. There was no evidence of undertaking electricity disaster scenario drills and the electricity restoration priority list, in the opinion of the auditor, did not place restoration of communications and lighthouse in appropriate priority	1. For the loss of power station, or loss of electrical busbar scenario, clarify how the 5 day outage estimate was determined? 2. Electrical contingency plan to be updated with likelihood of existing and eventually new generators being immediately available and contingencies if they are not available.	November 2017	**No Further Action required**

A. Resolved during current review period				
		3. Undertake selected electrical emergency scenario drills and record findings. 4. Establish a review period for the Electrical Disaster Recovery Plan document and elevate the 3rd listed priority of electrical restoration to first priority. (Restore electricity to communications and lighthouse) 5. RIA to investigate options to reduce estimated power outage downtime from 5 days.		
21/2017	B2 Contingency Planning - Is there a contingency plan for the unavailability or loss of key operational staff (including third party contract staff)? No particular written contingency plan was available, however, comprehensive operation and management data is available for reasonable ongoing operations should a key staff member cease duties.	Develop a plan to manage for the unplanned loss of key people. It is suggested that the plan be incorporated into Business Continuity Planning	November 2017	**No Further Action required**

B. Unresolved at end of current review period			
Recommendation reference	**Process and policy deficiency / Performance deficiency**	**Auditor's recommendation**	**Further action required / Detail of Further action required**
02/2017 (01/2019)	B2 Asset Planning – Does the asset management plan cover all key requirements? The Multi Utility Asset Management Plan (MUAMP) is review each year and is a very comprehensive and large document. For	1. Agree and get sign off on the proposed extended frequency of review and document accordingly. 2. Determine and action accordingly if it is more efficient to break the MUAMP document out into separated documents for respective utility assets.	July 2023- RIA are heading towards a dedicated asset manager to produce a policy, plan, LOS, criticality, CAPEX and OPEX plans for a sustainable business.

B. Unresolved at end of current review period			
	efficiency reasons RIA propose to extend the review period from 1 year to 2 years.		
04/2017 (02/2019)	B2 Asset Planning - Have the lifecycle costs of owning and operating assets been assessed? The Life Cycle Costing (LCC) model uses predicted costs and actual costs are not always recorded	Capture actual operational and maintenance costs of electricity production and regularly review against forecasted values	July 2023- RIA are heading towards a dedicated asset manager to produce a policy, plan, LOS, criticality, CAPEX and OPEX plans for a sustainable business.
05/2017 (03/2019)	B2 Asset Planning - Have the likelihood and consequences of asset failure been predicted? The Enterprise Risk Management Plan (ERMP) does not report residual risk after the application of controls	Assess and document the residual risk for risks identified in the ERMP	December 2019- In 2016, RIA commissioned the "Rottnest Island Electrical Distribution System (RIEDS)" to provide industry and the community with information on Network Operator (Facility Manager) standards to assist in applying for and establishing a connection to their distribution or stand-alone networks. RIA is scheduling a review of the RIEDS.
06/2017 (04/2019)	B2 Asset Planning – Are the plans being regularly reviewed and updated? The MUAMP does not clearly articulate the review cycle of every 2 years	Develop a document review program and articulate the process in respective management plans.	December 2019- In 2016, RIA commissioned the "Rottnest Island Electrical Distribution System (RIEDS)" to provide industry and the community with information on Network Operator (Facility Manager) standards to assist in applying for and establishing a connection to their distribution or stand-alone networks. RIA is scheduling a review of the RIEDS.
07/2017 (05/2019)	B2 Asset Planning - Is the capability of the plant adequate to meet future demand? The review found that the network is not N-1 compliant. N-1 refers to an abnormal situation in which one asset that otherwise contributes to the system is out-of-service; the analysis is conducted under the assumption that the asset with the largest	1. Develop a software model of the electricity network. 2. Prioritise a risk review of the power system reliability and capacity requirements. 3. Consider larger transformers in future asset replacement plans	November 2019- The RIA commenced developing a power system model. In regard to the replacement of Tx1 to 3 being 1 MVA, Ria are looking into the future capacity and network distribution at 11Kv and 415V whilst reducing the need to reticulate through

B. Unresolved at end of current review period			
	impact is out-of-service, thereby identifying the most conservative outcome.		these transformers, other than low voltage generation by closing the network at 11kV. The RIA intend to return the 11KV line from the Wind Turbine back to the powerhouse.
08/2017 (06/2019)	A2 Asset Creation & Acquisition - Do evaluations include all life-cycle costs? Actual operational and maintenance cost are not always captured.	Capture actual operational and maintenance cost of electricity production and regularly review against forecasted values.	May 2021- This is a major capital investment which is under review currently. The new Asset Management System will be capable of performing this function.
10/2017 (07/2019)	B2 Asset Disposal - Are underutilised and underperforming assets identified as part of a regular systematic review process? The LCC model only focuses on the assets in the Power House. No other evidence of other underutilised and underperforming assets processes were provided.	1. Continue with identification of legacy cable and joint locations. 2. Update network drawings to show cable and joint locations.	Ongoing- As B2 05/2017 and 07/2017 Above A dedicated project manager has been appointed to identify and update underground network services. There have been 4 HV cable failures in the past 3 years, all failing at joints in the cables. The intention is to replace the HV cables.
11/2017 (08/2019)	B2 Asset Disposal - Is there a replacement strategy for assets? There is an active program to replace wooden poles but no documented plan to replace aged underground legacy cables	Develop a program to identify underground legacy cables and joints and plan for their replacement.	Ongoing- As B2 05/2017 and 07/2017 Above A dedicated project manager has been appointed to identify and update underground network services. There have been 4 HV cable failures in the past 3 years, all failing at joints in the cables. The intention is to replace the HV cables.
14/2017 (09/2019)	B2 Asset Operations - Are operational costs measured and monitored? Some operational costs are monitored and captured on separate spreadsheets with in some cases predicted values used.	Capture actual operational costs of electricity production.	Ongoing- RIA will further develop the capture of operating costs of production.

B. Unresolved at end of current review period			
16/2017 (10/2019)	B2 Asset Maintenance - Are the maintenance costs measured and monitored? Some maintenance costs are captured and noted in a separate spreadsheet. Information on labour hours and parts is entered into Navision, a system that is separate from Maximo	Capture actual maintenance costs of electricity production.	Ongoing- When labour costs are captured in Maximo RIA will measure and monitor these costs.
17/2017 (11/2019)	B3 Asset Management Information System - Does the physical security access control appear adequate? All assets inspected had mechanical devices fitted for locking. A main switchboard outer cabinet was found to be unlocked, all others were secure.	1. Formal notification to be sent to PFM from RIA highlighting non-compliance to electricity safety standards (maintain the security of assets with reference to unlocked main switchboard). 2. Appropriate training to be provided to relevant personnel regarding asset security.	October 2019- As B2 05/2017 and 07/2017 Above Safety review of switchboard cabinets underway currently. The review was to include all switchboards however with many containing meters and main switches, both As3000 and the metering code 2012 was considered. PFM has installed seals on both the SPDs and electricity meters to ensure the meters were protected against unauthorised access and the main switches were accessible.
19/2017 (12/2019)	B1 Risk Management - Are risks documented in a risk register and are treatment plans actioned and monitored? Appropriate high level risk were identified and treatments listed in the Power Risk Matrix. Risk ratings were determined however future action and risk owner were not clearly defined which may lead to confusion of implementation.	Provide clear single responsible person or position as being responsible for the implementation of hazard treatments in the Power Risk Matrix register	July 2021- Commence risk workshop after the review of 07/2017, 06/2017, 03/2017.
22/2017 (13/2019)	B2 Capital Expenditure Planning - Is the capital expenditure plan consistent with the asset life and condition identified in the asset	1. RIA to interrogate the PFM provided detailed condition reports including estimated remaining operating life to support in confirming asset capital replacement planning, including the paper-lead	July 2021- Commence risk workshop after the review of 07/2017, 06/2017, 03/2017.

B. Unresolved at end of current review period			
	management plan? The underground paper-lead cables are legacy technology and are subject to failure at the joints. This ageing asset may not be adequately reflected in the capital expenditure plan, however, it will get assigned to capital expenditure if RIA align with PFM. Clear supporting evidence of the plan being supported by current asset condition reports with future asset life expectancy was not sighted A high level of reliance on emergency back-up (mainly portable generators) was evident	cables. 2. RIA to revise their capital expenditure plan and commence actions to secure appropriate future capital expenditure to meet the requirements of the updated plan	
23/2017 (14/2019)	B1 Review of AMS - Is there a review process in place to ensure that the asset management plan and the asset management system described therein are kept? The MUAMP does not mandate a set review period.	Insert requirement in MUAMP that this document is reviewed every 2 years.	July 2021- Commence risk workshop after the review of 07/2017, 06/2017, 03/2017.

5 Performance Summary

Table below outlines the performance summary table listing our ratings to each asset management process and effectiveness criterion arising from the current review.

The ratings were assigned in accordance to the rating scales defined by the ERA in the Audit and Review Guidelines (2019).

Table 4: Performance summary table - ratings

Reference no.	Asset management process or effectiveness criterion	Process and policy rating	Performance rating
1	**Asset Planning**	B	2
1.1	Asset management plan covers the processes in this table	A	1
1.2	Planning processes and objectives reflect the needs of all stakeholders and are integrated with business planning	B	2
1.3	Service levels are defined in the asset management plan	A	1
1.4	Non-asset options (e.g. demand management) are considered	C	3
1.5	Lifecycle costs of owning and operating assets are assessed	C	3
1.6	Funding options are evaluated	A	1
1.7	Costs are justified and cost drivers identified	A	1
1.8	Likelihood and consequences of asset failure are predicted	B	2

Reference no.	Asset management process or effectiveness criterion	Process and policy rating	Performance rating
1.9	Asset management plan is regularly reviewed and updated	B	3
2	**Asset creation and acquisition**	B	2
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options	A	1
2.2	Evaluations include all life-cycle costs	B	3
2.3	Projects reflect sound engineering and business decisions	A	1
2.4	Commissioning tests are documented and completed	A	1
2.5	Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	C	3
3	**Asset disposal**	B	2
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process	B	2
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	A	1
3.3	Disposal alternatives are evaluated	B	3
3.4	There is a replacement strategy for assets	B	2
4	**Environmental analysis**	B	2
4.1	Opportunities and threats in the asset management system environment are assessed	A	1

Reference no.	Asset management process or effectiveness criterion	Process and policy rating	Performance rating
4.2	Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved	A	1
4.3	Compliance with statutory and regulatory requirements	C	3
4.4	Service standard (customer service levels etc) are measured and achieved	A	1
5	**Asset operation**	B	1
5.1	Operational policies and procedures are documented and linked to service levels required	A	1
5.2	Risk management is applied to prioritise operations tasks	B	2
5.3	Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition	A	1
5.4	Accounting data is documented for assets	A	1
5.5	Operational costs are measured and monitored	B	1
5.6	Staff resources are adequate and staff receive training commensurate with their responsibilities	A	1
6	**Asset maintenance**	B	1
6.1	Maintenance policies and procedures are documented and linked to service levels required	A	1
6.2	Regular inspections are undertaken of asset performance and condition	A	1
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	A	1

Reference no.	Asset management process or effectiveness criterion	Process and policy rating	Performance rating
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary	A	1
6.5	Risk management is applied to prioritise maintenance tasks	B	2
6.6	Maintenance costs are measured and monitored	B	2
7	**Asset management information system**	A	1
7.1	Adequate system documentation for users and IT operators	A	1
7.2	Input controls include suitable verification and validation of data entered into the system	A	1
7.3	Security access controls appear adequate, such as passwords	A	1
7.4	Physical security access controls appear adequate	A	1
7.5	Data backup procedures appear adequate and backups are tested	A	1
7.6	Computations for licensee performance reporting are accurate	A	1
7.7	Management reports appear adequate for the licensee to monitor licence obligations	B	2
7.8	Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation	A	1
8	**Risk Management**	B	2
8.1	Risk management policies and procedures exist and are applied to minimise internal and external risks	B	2

Reference no.	Asset management process or effectiveness criterion	Process and policy rating	Performance rating
8.2	Risks are documented in a risk register and treatment plans are implemented and monitored	B	3
8.3	Probability and consequences of asset failure are regularly assessed	B	2
9	**Contingency planning**	A	1
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	A	1
10	**Financial planning**	A	1
10.1	The financial plan states the financial objectives and identifies strategies and actions to achieve those	A	1
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs	A	1
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	A	1
10.4	The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period	A	1
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	A	1
10.6	Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	A	1
11	**Capital expenditure planning**	B	2
11.1	There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	A	1
11.2	The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	A	1

Reference no.	Asset management process or effectiveness criterion	Process and policy rating	Performance rating
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	C	3
11.4	There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented	A	1
12	**Review of AMS**	B	3
12.1	A review process is in place to ensure the asset management plan and the asset management system described in it remain current	B	3
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system	A	1

6 Auditors observations

Table below outlines the observations and recommendations arising from the current review. When assessing the effectiveness of the licensee's asset management system, both the adequacy of the licensee's processes and policies (process and policy rating) and the licensee's performance (performance rating) were rated for each asset management process and effectiveness criterion. The ratings were assigned in accordance to the rating scales defined by the ERA in the Audit and Review Guidelines (2019).

Table 5: Observations and recommendations

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
1	**Asset Planning**	**2**		B	2
1.1	Asset management plan covers the processes in this table	3	Multi Utility Asset Management Plan (MUAMP), supported by Strategic Asset Management Plan (SAMP) generally covers the processes in this table.	A	1
1.2	Planning processes and objectives reflect the needs of all stakeholders and are integrated with business planning	3	Multi Utility Asset Management Plan (MUAMP) is in place, supported by Strategic Asset Management Plan (SAMP), Strategic Asset Investment Plan 2016-17 to 2026-27 (SAP) and the Asset Management Policy. These documents outline short-term and long-term planning processes and objectives and outline key asset management processes and strategies. However, it was noted from inquiry and walkthrough that there is a fair amount of deferred asset maintenance leading to asset deterioration rates on key asset classes (HV switchgear and Generators). Furthermore, number of capital works have also been deferred with replacements required on a number of assets. Auditor is of the opinion that this could be due to lack of detailed lifecycle costing and CAPEX funding in place, as outlined further within document. This leads to the risk that planning processes and objectives may not reflect the needs of all stakeholders.	B	2

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
			Improvement opportunity: Consider including risk modelling and detailed lifecycle costing into asset planning processes and objectives.		
1.3	Service levels are defined in the asset management plan	3	The Rottnest Island Facilities Utilities and Support Services (FUSS) contract between RIA and PFM defines service levels which are measured to KPI's and reported on a monthly basis as required by the PFM KPI Performance Reporting Manual. Furthermore, the monthly FUSS service report outlines utilities performance such as planned and unplanned outages, trips, capacity, availability and outputs, updates, innovations and risk and opportunities. **Recommendations:** N/A. None noted.	A	1
1.4	Non-asset options (e.g. demand management) are considered	4	Through inquiry and walkthrough with the Asset Manager, it was noted that PFM has implemented a system called COMEC which monitors power usage and demand, and controls engines and power supply on Rottnest Island. Therefore, the site has an active system in place automatically controlling assets to dynamically adjust the system to site demand levels. No evidence was found on RIA formally considering non-asset options in its asset planning processes, i.e. demand side management instead of assets to increase the supply side capacity. **Recommendations:** RIA should formally considering non-asset options in its asset planning processes, i.e. demand side management instead of assets to increase the supply side capacity.	C	3
1.5	Lifecycle costs of owning and operating assets are assessed	4	A Life cycle costing (LCC) model is maintained by PFM and reviewed on a quarterly basis. This model details asset information, risk assessment and serviceability on major assets e.g. Generators, HV Power distribution, Wind Turbine. However, it was noted that the LCC does not provide detailed and actual lifecycle costing to operate individual assets at an engineering level. **Recommendations:** It is recommended that life cycle costing of assets are prepared and reviewed on a key individual asset level (e.g. generator No 1). This should capture actual operational and maintenance costs of the assets which can then be regularly reviewed against forecasted values. This would inform planning for the future years on assets requiring increased maintenance due to	C	3

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
			age or network changes e.g. renewable solutions (wind and solar) added to the network, which in turn impact the load of existing assets.		
1.6	Funding options are evaluated	4	The Rottnest Island Management Plan (RIMP) 2014-2019 outline the high level options available to the RIA for funding operations and capital expenditure. Furthermore, Business cases for large expenditure projects are included in the Strategic Asset Investment Plan 2016-17 to 2026-27. PFM develops the cyclical asset management plans and macro-level lifecycle costings and determines budgets for replacements and works, which are supported by business cases presented to RIA for review and approval. **Recommendations:** N/A. None noted.	A	1
1.7	Costs are justified and cost drivers identified	4	PFM develops the cyclical asset management plans and macro-level lifecycle costings and determines budgets for replacements and works, which are supported by business cases presented to RIA for review and approval. **Recommendations:** N/A. None noted.	A	1
1.8	Likelihood and consequences of asset failure are predicted	3	The Rottnest Island Power Risk Register outlines detailed risks on an individual asset level. The Programmed Risk Management Framework is applied to this register which includes assessing the severity, likelihood, inherent risk, mitigation options, action plan and responsible parties of each individual asset risk. The most recent risk assessment was performed in April 2019. Furthermore, risk management on an asset level is available and conducted within the asset management system (Maximo) which lists each asset's likelihood and consequence of asset failure. However, it appears that ongoing review and risk management of the assets are not being conducted on a routine basis as it was noted through our walkthrough that some assets had missing or inappropriate risk ratings. **Improvement opportunity:** Consider conducting asset risk reviews on Maximo asset data on a routine basis to ensure risk ratings are allocated to all key assets and are reviewed in a timely manner by the Asset Manager.	B	2

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
1.9	Asset management plan is regularly reviewed and updated	4	It was noted that the Multi Utility Asset Management Plan 2016-2010 (finalised December 2016) has not been reviewed for over two and a half years at the time of review. It was also noted that the expectation on the frequency of review is not outlined. Furthermore, the Strategic Asset Management Plan 2016-2017 (authorised September 2016) is outdated and some minor content within the document was noted to be outdated at the time of review. **Recommendations:** 1. The review frequency should be established and documented on the Multi Utility Asset Management Plan. 2. The Strategic Asset Management Plan and MUAMP should be updated in 2019.	B	3
2	**Asset creation and acquisition**	**3**		B	2
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options	4	PFM prepares capital expenditure (CAPEX plans) on an annual basis for RIA review, who then identify and prioritise projects based on risk evaluations (low priority projects, high priority projects). Business Cases are then prepared by PFM for review and approval of RIA. Two RIA Business Case templates are available for use; Project short form ($50k - $250k) and Project long form (over $250k). The two Business Cases sighted include areas such as strategic justification, service impacts, investment proposal, project assumptions, solution options, scope, and procurement/finance plan. If non-asset options are available, these are outlined within the business case under "solution options" to enable a comparative assessment against other options presented. **Recommendations:** N/A. None noted.	A	1
2.2	Evaluations include all life-cycle costs	4	Two RIA Business Case templates are available for use; Project short form ($50k - $250k) and Project long form (over $250k). The two Business Cases sighted include areas such as investment proposal, scope (including cost benefit analysis) and a finance plan. However, no evidence was sighted on consideration of detailed break-down of lifecycle costs on operations and maintenance. **Recommendations:** Consider capturing actual operational and maintenance cost of electricity production and regularly review against forecasted values.	B	3

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
2.3	Projects reflect sound engineering and business decisions	5	Business cases for asset replacement, modifications or acquisition are typically prepared by the Island Engineer, this includes justification and options analysis. When required, third party engineering expertise is obtained. RIA project prioritisation model follows a risk evaluation model. **Recommendations:** N/A. None noted.	A	1
2.4	Commissioning tests are documented and completed	4	Through walkthrough with the Asset Manager, it was noted that commissioning is conducted of new assets with assistance from PFM. Results of commissioning tests are recorded within PFM's asset management system in Maximo. Documents are held electronically in Maximo, and sometimes physically. There were a number of new assets commissioned during the review period and it was observed on a sample that commissioning documents were hyperlinked to the asset number on Maximo. **Recommendations:** N/A. None noted.	A	1
2.5	Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	3	RIA maintains an Electrical, Water, Gas Licence Compliance Register which lists high-level compliance requirements and timing. However, no evidence was found on the identification, monitoring and reporting of ongoing legal / environmental and safety obligations from an asset management level. **Recommendations:** Consider identification, monitoring and reporting of ongoing legal / environmental and safety obligations from an asset management level.	C	3
3	**Asset disposal**	**3**		B	2
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process	4	Underutilised and underperforming assets are identified as part of the Life Cycle Costing (LCC) process and the need for disposal/replacement justified in the Strategic Asset Investment Plan. Operationally, routine maintenance and inspection is performed by PFM staff. This allows PFM to identify assets (by visual observation) that are under performing and/or underutilised. That individual asset is then monitored more closely over a time period. Once	B	2

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
			deemed appropriate, the asset is then reported for replacement or action per company process. However, the LCC process does not clearly articulate the end of life of assets and economic end of life of assets, in conjunction with the pre-existing ongoing routine asset inspections. **Improvement opportunity:** It is recommended that the creation of detailed life cycle costings on individual assets should more clearly articulate the end of life of assets and economic end of life of assets, in conjunction with the pre-existing ongoing routine inspections. With particular respect to the diesel generation system as a whole, we believe that this should be formally reviewed on a routine basis to determine if the installation is under-utilised i.e. Too many generators in place and whether appropriate redundancy and reliability can still be achieved through the reduction of generator capacity.		
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	4	It was discussed and advised that when an asset is/was under-performing a formal report is arranged to review and report on the issue. The most recent example of this is the desalination plant. The appropriate corrective action is then considered and, if deemed appropriate (financially and practically) then addressed after appropriate approvals from RIA through either the asset disposal or business case process. With respect to disposal, a formal process is in place with RIA. This includes Asset Disposal Form and Asset Disposal Procedure documents. Furthermore, all observations on poor performance or under-utilised assets are documented in monthly performance reports and incorporated into annual risk assessments. **Recommendations:** N/A. None noted.	A	1
3.3	Disposal alternatives are evaluated	4	PFM's Asset Disposal Procedure outlines the options available to dispose of assets, including sale by tender, auction or direct sale, salvage parts to use as spares, scrapping or donations. Professional valuation is performed to determine market value of an item before disposal. However, based on inquiries with the Asset Manager, it was noted that disposal alternatives are assessed on an ad-hoc, as needs basis by PFM staff, depending on the asset type. **Recommendations:** PFM's Project Disposal Form should include at least one or two disposal alternatives, and the advantages or disadvantages of these	B	3

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
			alternatives. This will ensure that due diligence has been taken when disposing of assets.		
3.4	There is a replacement strategy for assets	3	The Strategic Asset Investment Plan (SAIP) presents a high-level strategy and estimated capital spend required to replace and maintain assets. Through inquiries with the Asset Manager, it was noted that PFM conducts routine and regular inspections of assets. PFM core staff on the Island are familiar with assets, which assists them in identifying any assets which are damaged or require replacement in a timely manner. However, a detailed strategy focussing on the end of life replacement for all fixed assets based on detailed asset life-cycle costing is not in place. This is important and would require regular (annual) reviews as some assets on the Island will reach their end of life faster than others based on the asset management system environment. **Improvement opportunity:** A formal detailed strategy needs to be implemented and this may be best undertaken via the life cycle costing asset register of individual assets. In particular, the end of life replacement for fixed assets should be identified. Any replacement strategy for assets must be continually reviewed as it is anticipated that some assets will reach their end of life faster than others assets.	B	2
4	**Environmental analysis**	**4**		B	2
4.1	Opportunities and threats in the asset management system environment are assessed	4	The Multi Utility Asset Management Plan (MUAMP) identifies opportunities and threats in the asset management system environment through identifying aged condition of electrical infrastructure, financial constraints, customer trends, replacements with key asset risks quantified and strategies formulated to address the issues including recommendation of capital projects. **Recommendations:** N/A. None noted.	A	1
4.2	Performance standards (availability of service, capacity, continuity,	4	The Rottnest Island Facilities Utilities and Support Services (FUSS) contract between RIA and PFM defines service levels which are measured to KPI's and reported on a monthly basis as required by the PFM KPI Performance Reporting Manual. Furthermore, the monthly FUSS service report outlines utilities	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
	emergency response, etc.) are measured and achieved		performance such as planned and unplanned outages, trips, capacity, availability and outputs, updates, innovations and risk and opportunities. **Recommendations:** N/A None Noted.		
4.3	Compliance with statutory and regulatory requirements	4	RIA maintains an Electrical, Water, Gas Licence Compliance Register which lists high-level compliance requirements and timing. However, no evidence was found on the identification, monitoring and reporting of ongoing regulatory obligations. **Recommendations:** Consider identification, monitoring and reporting of ongoing regulatory obligations.	C	3
4.4	Service standard (customer service levels etc) are measured and achieved	3	Service standard (including customer service levels) are measured, reported by PFM and verified annually by a third party service provider. It was noted through inquiry with the Asset Manager that in the event of loss of service to a customer, and subsequent re-energisation, the duration and lower level of service is recorded within the work order created. The above is logged electronically in Maximo and available for reporting when needed. **Recommendations:** N/A None Noted.	A	1
5	**Asset operation**	**2**		B	1
5.1	Operational policies and procedures are documented and linked to service levels required	2	The Facilities, Utilities and Support Services (FUSS) contract provides governance and expectations on support services provided by PFM to RIA. Through walkthrough with the Asset Manager, it was noted that operating manuals and procedures for all major plant and equipment exist. These operating manuals are either attached to the Maximo system, are from the Library at the Power House or are at the various trade buildings. Appropriate induction and training of all PFM staff and contactors is provided before allowing access to the equipment. Permission must be obtained from RIA via a formal notification process and approval/agreement obtained. The asset management system (Maximo) creates a job plan at a set frequency, which details operational procedures for the particular asset and is in line with the applicable operational manual.	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
			On a higher-level, PFM maintains operational procedures such as the Restoration priority register and the Planned outage notification procedure, which details timelines and service levels to maintain e.g. 72 hours advance notifications to customers prior to planned outages. **Recommendations:** N/A. None noted.		
5.2	Risk management is applied to prioritise operations tasks	3	The Rottnest Island Power Risk Register outlines detailed risks on an individual asset level. The Programmed Risk Management Framework is applied to this register which includes assessing the severity, likelihood, inherent risk, mitigation options, action plan and action owners of each individual asset risk. The most recent risk assessment was performed in April 2019. Furthermore, risk management on an asset level is available and conducted within the asset management system (Maximo) which lists each asset's likelihood and consequence of asset failure. However, it appears that ongoing review and risk management of the assets are not being conducted on a routine basis as some assets had missing or inappropriate risk ratings. Through walkthrough with the Asset Manager, it was observed that informal risk management appears to have been conducted in the power house through the redundancy applied to the diesel generator capacity. However no formal evidence has been provided that the reliability and availability levels of the generators in relation to the load being managed. i.e. is the appropriate redundancy within the diesel generators reasonable? It is the auditor's opinion that there are minimal other instances within the electrical installation that require operation during day to day tasks. Therefore there is little requirement in respect to risk management as it is generally only in place for functions such as isolating diesel spills or other incidents. **Improvement opportunity:** PFM should create and provides detailed risk modelling in relation to the capacity, availability and load of the diesel generators, to ensure that operational tasks are prioritised in terms of risk.	B	2
5.3	Assets are documented in an asset register including asset type, location,	3	Through system walkthrough, it was noted that the asset register for all assets is maintained in the Maximo system. This database includes details such as maintenance history, asset type and location, maintenance and operational plans and condition assessments.	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
	material, plans of components, and an assessment of assets' physical/structural condition		**Recommendations:** N/A. None noted.		
5.4	Accounting data is documented for assets	5	Accounting data is maintained in the Sage accounting system. Assets are linked between registers through a unique asset identifier nominated by Sage and manually assigned to the corresponding asset in Maximo. **Recommendations:** N/A. None noted.	A	1
5.5	Operational costs are measured and monitored	4	It was noted through enquiry with the Asset Manager that operational costs such as diesel fuel costs are recorded in Maximo through an electronic monitoring system. However, it was noted that actual operational costs of electricity production are not separately captured. **Improvement opportunity:** Consider capturing actual operational and maintenance cost of electricity production and regularly review against forecasted values.	B	1
5.6	Staff resources are adequate and staff receive training commensurate with their responsibilities	2	PFM seem to be adequately resourced to operate the electricity network. The team consists of: - 1 electrical Engineer - 4 Electricians Including one specialist operator - 2 Mechanics - 1 Fitter - 1 Asset Manager - 2 Scheduler Planner Services that cannot be provided by the team are outsourced to suitable third party suppliers and managed by the Island Engineer. For example, Mechanical engineering support is provided by PFMs external consultant (Mechanical engineer). This is mostly for water services. PFM maintain a Competency Matrix that details the training status of all staff members.	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
			Recommendations: N/A. None noted.		
6	**Asset maintenance**	**2**		B	1
6.1	Maintenance policies and procedures are documented and linked to service levels required	4	The Rottnest Island Facilities Utilities and Support Services (FUSS) contract between RIA and PFM defines service levels which are measured to KPI's and reported on a monthly basis as required by the PFM KPI Performance Reporting Manual. Furthermore, the monthly FUSS service report outlines utilities performance such as planned and unplanned outages, trips, capacity, availability and outputs, updates, innovations and risk and opportunities. The Multi Utility Asset Management Plan (MUAMP) details the maintenance strategy for key assets. A Preventative Maintenance Plan is assigned to each asset and a Job Plan created with a Work Order on the required maintenance frequency. **Recommendations:** N/A No Issues Noted.	A	1
6.2	Regular inspections are undertaken of asset performance and condition	3	At a minimum key assets are inspected on a six monthly basis. Maximo issues out alerts prior to when inspections are due and Maximo is also used to obtain the look ahead report for asset inspections due. Asset inspections are performed on asset condition and upon completion, a work log is submitted through Maximo with the asset condition logged into the Maximo database. All new work logs submitted into Maximo are reviewed by the Asset Manager to ensure any issues are addressed and managed. **Recommendations:** N/A No Issues Noted.	A	1
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	3	PFM maintains an overall program of scheduled maintenance - Utilities KPI 5 Forecast 2018/19. There is a mandatory field on Maximo which specifies if the work is completed on time - Asset Manager performs monitoring/reporting of completion to schedule via Maximo and this is also tracked as part of overall KPI. An "Open Work Order Report" is generated monthly and included in PFM Monthly Reports to the RIA. Jobs not completed on time receive a penalty rating and a negative KPI.	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
			Maintenance plan (Emergency) - Maintenance Plan procedures are held in power house network drive folders with documented plans (e.g. Generator 6 failure requiring emergency generator). Maintenance plan (Preventative)- Maintenance Plans are tracked and triggered by Maximo, where appropriate alerts and reports sent through to Asset Manager. Alerts are also sent through to technical supervisor of particular department. Maintenance plan (Corrective)- These are reported via routine site inspections, inspector logs the maintenance work required, the date to be completed and priority on the work order (work log component) on Maximo. **Recommendations:** N/A No Issues Noted.		
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary	4	RIA has processes in place through Maximo to analyse failures and adjust operational/maintenance plans where necessary. Where assets are deemed to be at point of failure (e.g. Generator 6 failure) work orders are raised and the appropriate personnel (maintenance providers, asset manufacturers, technicians/engineers) are engaged through the Maximo work order to review and analyse the situation and provide recommendations. This is then logged back into Maximo (e.g. changes to risk assessment and asset condition). Reporting is provided to management and the decision making occurs and appropriate action taken. Notice of Works Procedure is in place which requires PFM to notify RIA when asset has failed or is at end of life. Failures are also recorded in the Outage Register and incident reports are completed for each failure. There was a generator failure due to cam shaft issue during the review period. Investigation revealed that there was a diesel leak beside the high wear area of the cam bearing. Using recorded history on Maximo, RIA found the engine has low oil viscosity early in its life and decision made to monitor this in future on new engines and force warranty replacement of leaking injectors early, through adjustments of maintenance plans. **Recommendations:** N/A No Issues Noted.	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
6.5	Risk management is applied to prioritise maintenance tasks	2	Refer to observation 5.2. Risk management on an asset level is conducted within the asset management system (Maximo) which lists each asset's likelihood and consequence of asset failure and applied to prioritise maintenance planning and scheduling. However, it appears that ongoing review and risk management of the assets are not being conducted on a routine basis as some assets on Maximo had missing or inappropriate risk ratings. **Improvement opportunity:** PFM should create and provides detailed risk modelling in relation to the capacity, availability and load of the diesel generators, to ensure that maintenance tasks are prioritised in terms of risk.	B	2
6.6	Maintenance costs are measured and monitored	4	Maintenance costs are reportable as a whole, however there is currently no ability to report maintenance costs on a system (e.g. electrical, mechanical, generators) or asset (e.g. Generator No 1) level. Maintenance costs are monitored by division (i.e. utilities) and monitored against the budget set by RIA. Actual maintenance costs of electricity production are currently not being captured and reported. **Improvement opportunity:** 1. It is recommended that life cycle costing of assets are prepared and reviewed on a key individual asset level (e.g. generator No 1). This should capture actual operational and maintenance costs of the assets which can then be regularly reviewed against forecasted values. 2. Capture actual operational and maintenance cost of electricity production and regularly review against forecasted values	B	2
7	**Asset management information system**	**3**		A	1
7.1	Adequate system documentation for users and IT operators	4	The two key asset management systems used at RIA are Maximo and Promap for asset operations by PFM. There is sufficient documentation available at PFM for users and operators of Maximo and Promap at PFM, with system support services also available through PFM's ICT service desk in Melbourne. System documentation governing the use and access of IT systems is available through RIA and these include: • RIA Corporate policy statement – Information security management • New user account identity and access request • Operational Procedure – Identity and access management	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
			• Operational Procedure – Information security management framework • Operational Procedure – Acceptable use of IT • Operational Procedure – Information security awareness • Operational Procedure – IT logging and monitoring **Recommendations:** N/A. None Noted.		
7.2	Input controls include suitable verification and validation of data entered into the system	3	Key input controls on the Maximo Asset Management system include verification and validation of data manually entered data through fixed option fields (as opposed to open ended fields) on key areas such as asset classification, maintenance plans and due dates. A Data Quality Assurance system is in place at PFM to validate and verify a sample of work orders via random selection. **Recommendations:** N/A. None Noted.	A	1
7.3	Security access controls appear adequate, such as passwords	4	Access to RIA and PFM ICT systems are controlled by user generated password security systems. The ICT security system allows for tiered access depending on the individual's level of authority. The depth of access is established when the employee is on boarded and strictly controlled through the ICT Access Request Form and Remote Access Request From. **Recommendations:** N/A. None Noted.	A	1
7.4	Physical security access controls appear adequate	4	Physical access controls around the Power House and key electrical assets at Rottnest Island appear adequate. General access to the Power House is strictly restricted to authorised personnel only. PFM and RIA offices and warehouse are secured with locks or security number pads. Key assets (e.g. LV switchgear) are secured by locks with keys held only by authorised personnel. The gates to the powerhouse are secured by padlocks, with keys held only by authorised personnel. **Recommendations:** N/A. None Noted.	A	1
7.5	Data backup procedures appear adequate and backups are tested	4	PFM servers for Maximo are supported by local disk redundancy (RAID) and there is a backup available of the Maximo installation directory and the Maximo Asset Management database and authentication server. RIA servers are mirrored to a location in Malaga, preventing system downtime in the event there is a failure at the East Perth location. Multiple backups are taken of each	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
			site including the Power house with back-up testing procedures performed regularly. Evidence was reviewed for scheduled backups and restoration testing on Maximo database server and web server during the review period. **Recommendations:** Ensure back-up/restoration testing is performed on PFM and RIA servers in a timely manner.		
7.6	Computations for licensee performance reporting are accurate	2	The monthly FUSS service report issued by PFM to RIA outlines utilities performance such as planned and unplanned outages, trips, capacity, availability and outputs, updates, innovations and risk and opportunities. An independent Network Quality and Reliability of Supply Report (1 July 2017 - 30 June 2018) is also prepared and published on the RIA website annually. These reports rely on performance data on Maximo, which appears adequately setup to report key performance data required for accurate and complete reporting. Annual datasheets are also provided to the ERA (and uploaded on RIA website) on the distribution system. **Recommendations:** N/A. None Noted.	A	1
7.7	Management reports appear adequate for the licensee to monitor licence obligations	4	RIA maintains an Electrical, Water, Gas Licence Compliance Register which lists high-level compliance requirements and timing. The monthly FUSS service report issued by PFM to RIA outlines utilities performance such as planned and unplanned outages, trips, capacity, availability and outputs, updates, innovations and risk and opportunities. An independent Network Quality and Reliability of Supply Report (1 July 2017 - 30 June 2018) is also prepared and published on the RIA website annually. However, no evidence was found on the identification, monitoring and reporting of ongoing license obligations on a detailed obligation/clause level. **Improvement opportunity:** RIA should consider implementing a compliance system/framework to identify, monitor and report ongoing license obligations on a detailed obligation/clause level.	B	2

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
7.8	Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation	3	Users need to request system access to RIA's ICT department and ICT reviews and approves applications before granting access. All users require a username and password to access systems such as Maximo and Promap. Ongoing monitoring and information security management is performed through RIA ICT department in line with operational procedures such as IT logging and monitoring and information security management. Furthermore, policies and procedures are in place to govern information security and protect asset data from unauthorised access by persons outside the organisation, such as: • RIA Corporate policy statement – Information security management • Operational Procedure – Information security management framework • Operational Procedure – Information security awareness **Recommendations:** N/A. None Noted.	A	1
8	**Risk Management**	**3**		B	2
8.1	Risk management policies and procedures exist and are applied to minimise internal and external risks	3	The Rottnest Island Power Risk Register outlines detailed risks on an individual asset level. The Programmed Risk Management Framework is applied to this register which includes assessing the severity, likelihood, inherent risk, mitigation options, action plan and responsible owners of each individual asset risk. The most recent risk assessment was performed in April 2019. Furthermore, RIA have a Risk Management Policy and a Risk Management Framework in place. PFM also have a detailed Risk Management Plan and conduct operational risk assessments on key areas (e.g. power house). Documents available include: • PFM Risk Management Plan (2018) • Power Risk Register (2019) • PFM Risk Management Procedure (2018) • PFM Operational Risk Assessment - Mechanical (2017) • PFM Operational Risk Assessment - Powerhouse (2017) **Improvement opportunity:** PFM should create and provides detailed risk modelling in relation to the capacity, availability and load of the diesel generators, to ensure that operational tasks are prioritised in terms of risk.	B	2

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
8.2	Risks are documented in a risk register and treatment plans are implemented and monitored	3	The Rottnest Island Power Risk Register outlines detailed risks on an individual asset level. The Programmed Risk Management Framework is applied to this register which includes assessing the severity, likelihood, inherent risk, mitigation options, action plan and responsible owners of each individual asset risk. The most recent risk assessment was performed in April 2019. However, no evidence could be sighted on the Power risk register of individual action owners being assigned and treatment plans being implemented and monitored. **Recommendations:** Assign individual action owners to the risks on the Power Risk Register and document evidence of regular monitoring of treatment plans.	B	3
8.3	Probability and consequences of asset failure are regularly assessed	3	The Rottnest Island Power Risk Register outlines detailed risks on an individual asset level. The Programmed Risk Management Framework is applied to this register which includes assessing the severity, likelihood, inherent risk, mitigation options, action plan and responsible owners of each individual asset risk. The most recent risk assessment was performed in April 2019. Furthermore, risk management on an asset level is available and conducted within the asset management system (Maximo) which lists each asset's likelihood and consequence of asset failure. However, it appears that ongoing review and risk management of the assets are not being conducted on a routine basis as it was noted through our walkthrough that some assets had missing or inappropriate risk ratings. **Improvement opportunity:** Consider conducting asset risk reviews on Maximo asset data on a routine basis to ensure risk ratings are allocated to all key assets and are reviewed in a timely manner by the Asset Manager.	B	2
9	**Contingency planning**	**3**		A	1
9.1	Contingency plans are documented, understood and tested to confirm their operability	3	The Electrical Service Recovery and Contingency Plan outlines in detail scenarios and associated action plans and restoration plans for all types of power failures, list of key plant inventory and an annual schedule for electrical services recovery plan drill. In the event of a catastrophic electrical system failure, power is to be supplied in accordance with the restoration priority register. There are seven distribution feeders that provide power to various	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
	and to cover higher risks		areas and these can be isolated individually. In this event and when power cannot be restored via the LV feeders, back-up power is to be supplied by mobile generators in accordance with the generator restoration priority register. The Emergency generator installation procedure outlines the implementation procedures. Contingency planning documents for electrical services at Rottnest Island available include: • Electrical Service Recovery and Contingency Plan (2019) • Restoration Priority Register Electrical Services Procedure (2019) • Emergency Response Management Plan (2019) • Emergency Generator Installation (2019) Evidence of recent (May 2019) electricity business continuity drill testing of the contingency plans was obtained. **Recommendations:** N/A. None Noted.		
10	**Financial planning**	**4**		A	1
10.1	The financial plan states the financial objectives and identifies strategies and actions to achieve those	5	The Strategic Asset Plan (2018-2019) and Budget papers for the Department of Biodiversity, Conservation and Attractions, which RIA is a component were reviewed as the 'Financial Plan'. From the Budget papers, Service 2 has the majority of RIA budgets/costs, with some also included in the Department's overall Service 5 budgets/costs. Financial objectives and strategies are stated in the plan and actions to achieve the objectives are developed. **Recommendations:** NA. None Noted.	A	1
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs	5	The source of funds are identified for capital expenditure and recurrent costs. A contingency fund is available should extraordinary costs impact. **Recommendations:** NA. None Noted.	A	1
10.3	The financial plan provides projections of operating	4	The financial plan includes projections of operating costs. A financial statement is reported yearly and a monthly balance sheet maintained. **Recommendations:** NA. None Noted.	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
	statements (profit and loss) and statement of financial position (balance sheets)				
10.4	The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period	4	The financial plan states firm predictions on income until 2022-2023 (forward estimates). **Recommendations:** NA. None Noted.	A	1
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	4	The financial plan provides for the operational, maintenance, administration expenses and capital expenditure requirements of the services. **Recommendations:** NA. None Noted.	A	1
10.6	Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	4	Variance analysis is performed on actual to budget income and expenses and corrective actions taken on variances. **Recommendations:** NA. None Noted.	A	1
11	**Capital expenditure planning**	**3**		B	2
11.1	There is a capital expenditure plan covering works to be undertaken, actions proposed,	3	The Strategic Asset Plan (2018-2019) which includes financial capital requirements 2019-2029 was reviewed as the 'CAPEX plan'. CAPEX plan is in place which covers works to be undertaken, actions proposed to current issues, responsibilities and due dates.	A	1

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
	responsibilities and dates		**Recommendations:** NA. None Noted.		
11.2	The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	4	CAPEX plan provides the reasons and timing of capital expenditure. **Recommendations:** NA. None Noted.	A	1
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	4	A Life cycle costing (LCC) model is maintained by PFM and reviewed on a quarterly basis. This model details asset information, risk assessment and serviceability on major assets e.g. Generators, HV Power distribution, Wind Turbine. However, it was noted that the LCC does not provide detailed and actual lifecycle costing to operate individual assets to inform accurate CAPEX planning for the future years based on the asset age and condition. **Recommendations:** It is recommended that life cycle costing of assets are prepared and reviewed on a key individual asset level (e.g. generator No 1). This should capture actual operational and maintenance costs of the assets which can then be regularly reviewed against forecasted values. This would inform CAPEX planning for the future years on assets requiring increased maintenance due to age or network changes e.g. renewable solutions (wind and solar) added to the network, which in turn impact the load of existing assets.	C	3
11.4	There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented	3	The CAPEX Plan is reviewed, updated and implemented annually. RIA is currently in the process of preparing the Rottnest Island Management Plan (RIMP) for 2020-24. The 2018-2019 CAPEX Plan has been aligned to the draft RIMP 2020-24. Each RIMP identifies the priorities that will be pursued during the five-year planning period and this helps determine the CAPEX requirements. **Recommendations:** NA. None Noted.	A	1
12	**Review of AMS**	**4**		B	3
12.1	A review process is in place to ensure the asset management plan and the asset	3	MUAMP 2016-2020 was last updated in December 2016. SAMP was last updated in July 2016.	B	3

Reference no.	Asset management process or effectiveness criterion	Review priority	Observations & Recommendations	Process and policy rating	Performance rating
	management system described in it remain current		**Recommendations:** Timely review and update (e.g. every two years) of the MUAMP and SAMP to ensure information described in these documents remains current.		
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system	4	Internal review of AMS are performed by independent auditors every 24 months. The last review was performed by GHD in 2017 and the current review by PwC in 2019. There was also an independent internal audit performed on Asset Management in April 2018. **Recommendations:** NA. None Noted.	A	1

7 Recommendations

Table below outlines RIA's current status on review recommendations to address asset system deficiencies.

Table 5: Status of recommendations

A. Resolved during current review period			
Recommendation reference	**Process and policy deficiency / Performance deficiency**	**Date resolved and action taken by licensee**	**Auditors comments**
8/2015	C2 Asset operations - Assets are documented in an Asset Register including asset type, location, material, plans of components, and assessment of assets' physical/structural condition and accounting data. At present the asset register is not complete. Work is still ongoing and some assets are not included (all of the HV system). A preventative maintenance plan has not been issued at this point At present due to the asset management system database being in progress there is no link to asset drawings as drawings are out of date; there is a disconnect between drawings and physical installation. There is insufficient information to verify the link between the operational asset register (Maximo) and the current fixed accounting asset register (RIA). There is insufficient information to verify the link between the operational asset register (Maximo) and the current fixed accounting asset register (RIA).	November 2017. Management disagreed with auditor recommendation and decided to take no further action. No issues were noted on this area in the current 2019 review. As of 2018 onwards, new assets are set up with Hyperlinks to any documentation and drawings and manuals supplied in the asset handover and the asset handover procedure has been documented and implemented. The RIA through Facilities Manager is in the process of reviewing the current system and compiling all information for all electrical assets; will continue to input all data into the AMS, including pre 2018 (includes pre 2008). The intention is to have 100% of electrical assets in the system with hyperlinks to documents within the next two years.	**No Further Action required**
01/2017	B2 Asset Planning - Does the planning process and objectives reflect the need of all stakeholders and is it integrated with business planning? There are no document control procedures identified.	November 2017. Applied document control procedures.	**No Further Action required**
03/2017	B2 Asset Planning - Have non-asset options (e.g. demand management) been considered? No evidence of actively considered non-asset initiatives, related to electricity demand management at the consumer end, was presented to the Auditors.	March 2019. Established electricity demand management strategies for the major consumers of energy.	**No Further Action required**

A. Resolved during current review period			
09/2017	B2 Asset Creation & Acquisition – Have the ongoing legal/environmental/safety obligations of the asset owner been assigned and understood? During the review period, it was found the breach register was not kept up to date	March 2019. RIA ensured the operations and maintenance contractor kept the breach register up to date.	**No Further Action required**
12/2017	B2 Asset Operations – Is risk management applied to prioritise operations tasks? PFM maintain a "Power Risk Matrix" for the Powerhouse. The review noted however that no document control procedures are applied to this document e.g. previous visions, author, reviewer, dates or endorsements etc.	November 2017. Applied document control procedures to "Power Risk Matrix".	**No Further Action required**
13/2017	B2 Asset Operations – Are assets documented in an Asset Register including asset type, location, material, plans of components, an assessment assets' physical/structural condition and accounting data? Accounting data is maintained in a separate accounting system called "Sage". There is no direct interface between the asset management system (Maximo) and Sage. Assets are linked between registers through a unique asset identifier nominated by Sage and manually assigned to the corresponding asset in Maximo	November 2017. Management disagreed with auditor recommendation and decided to take no further action. No issues were noted on this area in the current 2019 review.	**No Further Action required**
15/2017	B2 Asset Operations - Are staff receiving training commensurate with their responsibilities? It is unclear what specific training requirements are required by staff. A training register is not maintained.	January 2018. Developed a training register capturing staff's training requirements and verification of competency where applicable	**No Further Action required**
18/2017	B2 Risk Management – Do risk management policies and procedures exist and are they being applied to minimise internal and external risks associated with the asset management system?	May 2018. Established and documented a review period for Risk Management Framework (RMF) document and undertook a review of the RMF to verify its currency.	**No Further Action required**
20/2017	B2 Contingency Planning - Are contingency plans documented, understood and tested to confirm their operability and to cover higher risks?	November 2017. For the loss of power station, or loss of electrical busbar scenario, 5 day outage was estimated as the worst case scenario where hire generators are not available in the Perth metro region. In the event of a	**No Further Action required**

A. Resolved during current review period			
	Disaster contingency plans (electricity) had not been reviewed and may not be current. There was no evidence of undertaking electricity disaster scenario drills and the electricity restoration priority list, in the opinion of the auditor, did not place restoration of communications and lighthouse in appropriate priority	busbar failure, emergency generators are mobilised from the mainland and connected throughout the network. Two new emergency generators were purchased by RIA in December 2017. Electrical contingency plan was updated with likelihood of existing and eventually new generators being immediately available and contingencies if they are not available. Electrical emergency scenario drills are conducted periodically with recording of findings. Electrical Disaster Recovery Plan is now obsolete and was replaced by the Service Recovery and Contingency Plan and Emergency Generator Installation Procedure attached - reviewed annually (2015, 2016, 2017, 2018, 2019).	
21/2017	B2 Contingency Planning - Is there a contingency plan for the unavailability or loss of key operational staff (including third party contract staff)? No particular written contingency plan was available, however, comprehensive operation and management data is available for reasonable ongoing operations should a key staff member cease duties.	November 2017. Developed a plan to manage for the unplanned loss of key people as part of Business Continuity Planning documentation.	**No Further Action required**

B. Unresolved at end of current review period			
Recommendation reference	**Process and policy deficiency / Performance deficiency**	**Auditor's recommendation**	**Action taken by the licensee by end of review period**
01/2019	**B2** **Asset Planning – Does the asset management plan cover all key requirements?** The Multi Utility Asset Management Plan (MUAMP) is review each year and is a very comprehensive and large document. For	1. Agree and get sign off on the proposed extended frequency of review and document accordingly. 2. Determine and action accordingly if it is more efficient to break the MUAMP document out into separated documents for respective utility assets.	June 2020- RIA are heading towards a dedicated asset manager to produce a policy, plan, LOS, criticality, CAPEX and OPEX plans for a sustainable business.

B. Unresolved at end of current review period			
	efficiency reasons RIA propose to extend the review period from 1 year to 2 years.		
02/2019	**B2** **Asset Planning - Have the lifecycle costs of owning and operating assets been assessed?** The Life Cycle Costing (LCC) model uses predicted costs and actual costs are not always recorded	Capture actual operational and maintenance costs of electricity production and regularly review against forecasted values	June 2020- RIA are heading towards a dedicated asset manager to produce a policy, plan, LOS, criticality, CAPEX and OPEX plans for a sustainable business.
03/2019	**B2** **Asset Planning - Have the likelihood and consequences of asset failure been predicted?** The Enterprise Risk Management Plan (ERMP) does not report residual risk after the application of controls	Assess and document the residual risk for risks identified in the ERMP	December 2019- In 2016, RIA commissioned the "Rottnest Island Electrical Distribution System (RIEDS)" to provide industry and the community with information on Network Operator (Facility Manager) standards to assist in applying for and establishing a connection to their distribution or stand-alone networks. RIA is scheduling a review of the RIEDS.
04/2019	**B2** **Asset Planning – Are the plans being regularly reviewed and updated?** The MUAMP does not clearly articulate the review cycle of every 2 years	Develop a document review program and articulate the process in respective management plans.	December 2019- In 2016, RIA commissioned the "Rottnest Island Electrical Distribution System (RIEDS)" to provide industry and the community with information on Network Operator (Facility Manager) standards to assist in applying for and establishing a connection to their distribution or stand-alone networks. RIA is scheduling a review of the RIEDS.
05/2019	**B2** **Asset Planning - Is the capability of the plant adequate to meet future demand?** The review found that the network is not N-1 compliant. N-1 refers to an abnormal situation in which one asset that otherwise contributes to the system is out-of-service; the analysis is conducted under the assumption that the asset with the largest impact is out-of-service, thereby identifying the most conservative outcome.	1. Develop a software model of the electricity network. 2. Prioritise a risk review of the power system reliability and capacity requirements. 3. Consider larger transformers in future asset replacement plans	Nov ember 2019- The RIA commenced developing a power system model. In regard to the replacement of Tx1 to 3 being 1 MVA, Ria are looking into the future capacity and network distribution at 11Kv and 415V whilst reducing the need to reticulate through these transformers, other than low voltage generation by closing the network at 11kV. The RIA intend to return the 11KV line from the Wind Turbine back to the powerhouse.

B. Unresolved at end of current review period			
06/2019	**A2** **Asset Creation & Acquisition - Do evaluations include all life-cycle costs?** Actual operational and maintenance cost are not always captured.	Capture actual operational and maintenance cost of electricity production and regularly review against forecasted values.	May 2021- This is a major capital investment which is under review currently. The new Asset Management System will be capable of performing this function.
07/2019	**B2** **Asset Disposal - Are underutilised and underperforming assets identified as part of a regular systematic review process?** The LCC model only focuses on the assets in the Power House. No other evidence of other underutilised and underperforming assets processes were provided.	1. Continue with identification of legacy cable and joint locations. 2. Update network drawings to show cable and joint locations.	Ongoing- As B2 05/2017 and 07/2017 Above A dedicated project manager has been appointed to identify and update underground network services. There have been 4 HV cable failures in the past 3 years, all failing at joints in the cables. The intention is to replace the HV cables.
08/2019	**B2** **Asset Disposal - Is there a replacement strategy for assets?** There is an active program to replace wooden poles but no documented plan to replace aged underground legacy cables	Develop a program to identify underground legacy cables and joints and plan for their replacement.	Ongoing- As B2 05/2017 and 07/2017 Above A dedicated project manager has been appointed to identify and update underground network services. There have been 4 HV cable failures in the past 3 years, all failing at joints in the cables. The intention is to replace the HV cables.
09/2019	**B2** **Asset Operations - Are operational costs measured and monitored?** Some operational costs are monitored and captured on separate spreadsheets within some cases predicted values used.	Capture actual operational costs of electricity production.	Ongoing- RIA will further develop the capture of operating costs of production.
10/2019	**B2** **Asset Maintenance - Are the maintenance costs measured and monitored?** Some maintenance costs are captured and noted in a separate spreadsheet. Information on labour hours and parts is entered into Navision, a system that is separate from Maximo	Capture actual maintenance costs of electricity production.	Ongoing- When labour costs are captured in Maximo RIA will measure and monitor these costs.

B. Unresolved at end of current review period			
11/2019	**B3** **Asset Management Information System - Does the physical security access control appear adequate?** All assets inspected had mechanical devices fitted for locking. A main switchboard outer cabinet was found to be unlocked, all others were secure.	1. Formal notification to be sent to PFM from RIA highlighting non-compliance to electricity safety standards (maintain the security of assets with reference to unlocked main switchboard). 2. Appropriate training to be provided to relevant personnel regarding asset security.	October 2019- As B2 05/2017 and 07/2017 Above Safety review of switchboard cabinets underway currently. The review was to include all switchboards however with many containing meters and main switches, both As3000 and the metering code 2012 was considered. PFM has installed seals on both the SPDs and electricity meters to ensure the meters were protected against unauthorised access and the main switches were accessible.
12/2019	**B1** **Risk Management - Are risks documented in a risk register and are treatment plans actioned and monitored?** Appropriate high level risk were identified and treatments listed in the Power Risk Matrix. Risk ratings were determined however future action and risk owner were not clearly defined which may lead to confusion of implementation.	Provide clear single responsible person or position as being responsible for the implementation of hazard treatments in the Power Risk Matrix register	June 2020- The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.
13/2019	**B2** **Capital Expenditure Planning - Is the capital expenditure plan consistent with the asset life and condition identified in the asset management plan?** The underground paper-lead cables are legacy technology and are subject to failure at the joints. This ageing asset may not be adequately reflected in the capital expenditure plan, however, it will get assigned to capital expenditure if RIA align with PFM. Clear supporting evidence of the plan being supported by current asset condition reports with future asset life expectancy was not sighted	1. RIA to interrogate the PFM provided detailed condition reports including estimated remaining operating life to support in confirming asset capital replacement planning, including the paper-lead cables. 2. RIA to revise their capital expenditure plan and commence actions to secure appropriate future capital expenditure to meet the requirements of the updated plan	June 2020- The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.

B. Unresolved at end of current review period			
	A high level of reliance on emergency back-up (mainly portable generators) was evident		
14/2019	**B1** **Review of AMS - Is there a review process in place to ensure that the asset management plan and the asset management system described therein are kept?** The MUAMP does not mandate a set review period.	Insert requirement in MUAMP that this document is reviewed every 2 years.	June 2020- The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.
15/2019	**C3** **(1.4) Asset Planning - Non asset options (E.g. demand management) are considered** Through inquiry and walkthrough with the Asset Manager, it was noted that PFM has implemented a system called COMEC which monitors power usage and demand, and controls engines and power supply on Rottnest Island. Therefore, the site has an active system in place automatically controlling assets to dynamically adjust the system to site demand levels. No evidence was found on RIA formally considering non-asset options in its asset planning processes, i.e. demand side management instead of assets to increase the supply side capacity.	RIA should formally considering non-asset options in its asset planning processes, i.e. demand side management instead of assets to increase the supply side capacity.	June 2020- The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.
16/2019	**C3** **(1.5) Asset Planning - Lifecycle costs of owning and operating assets are assessed** A Life cycle costing (LCC) model is maintained by PFM and reviewed on a quarterly basis. This model details asset information, risk assessment and serviceability on major assets e.g. Generators, HV Power distribution, Wind Turbine. However, it was noted that the	It is recommended that life cycle costing of assets are prepared and reviewed on a key individual asset level (e.g. generator No 1). This should capture actual operational and maintenance costs of the assets which can then be regularly reviewed against forecasted values. This would inform planning for the future years on assets requiring increased maintenance due to age or network changes e.g. renewable solutions (wind and solar) added to the network, which in turn impact the load of existing assets.	June 2020- The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.

B. Unresolved at end of current review period			
	LCC does not provide detailed and actual lifecycle costing to operate individual assets at an engineering level.		
17/2019	**B3** **(1.9) Asset Planning - Asset management plan is regularly reviewed and updated** It was noted that the Multi Utility Asset Management Plan 2016-2010 (finalised December 2016) has not been reviewed for over two and a half years at the time of review. It was also noted that the expectation on the frequency of review is not outlined. Furthermore, the Strategic Asset Management Plan 2016-2017 (authorised September 2016) is outdated and some minor content within the document was noted to be outdated at the time of review.	1. The review frequency should be established and documented on the Multi Utility Asset Management Plan. 2. The Strategic Asset Management Plan and MUAMP should be updated in 2019.	June 2020- The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.
18/2019	**B3** **(2.2) Asset creation and acquisition - Evaluations include all life-cycle costs** Two RIA Business Case templates are available for use; Project short form ($50k - $250k) and Project long form (over $250k). The two Business Cases sighted include areas such as investment proposal, scope (including cost benefit analysis) and a finance plan. However, no evidence was sighted on consideration of detailed break-down of lifecycle costs on operations and maintenance.	Consider capturing actual operational and maintenance cost of electricity production and regularly review against forecasted values.	June 2020- The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.
19/2019	**C3** **(2.5) Asset creation and acquisition - Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood** RIA maintains an Electrical, Water, Gas Licence Compliance Register which lists high-level compliance requirements and	Consider identification, monitoring and reporting of ongoing legal / environmental and safety obligations from an asset management level.	June 2020- The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.

B. Unresolved at end of current review period			
	timing. However, no evidence was found on the identification, monitoring and reporting of ongoing legal / environmental and safety obligations from an asset management level.		
20/2019	**B3** **(3.3) Asset Disposal - Disposal alternatives are evaluated** PFM's Asset Disposal Procedure outlines the options available to dispose of assets, including sale by tender, auction or direct sale, salvage parts to use as spares, scrapping or donations. Professional valuation is performed to determine market value of an item before disposal. However, based on inquiries with the Asset Manager, it was noted that disposal alternatives are assessed on an ad-hoc, as needs basis by PFM staff, depending on the asset type.	PFM's Project Disposal Form should include at least one or two disposal alternatives, and the advantages or disadvantages of these alternatives. This will ensure that due diligence has been taken when disposing of assets.	June 2020 - The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.
21/2019	**C3** **(4.3) Environmental Analysis - Compliance with statutory and regulatory requirements** RIA maintains an Electrical, Water, Gas Licence Compliance Register which lists high-level compliance requirements and timing. However, no evidence was found on the identification, monitoring and reporting of ongoing regulatory obligations.	Consider identification, monitoring and reporting of ongoing regulatory obligations.	December 2020 - Compliance Management System to incorporate identification, monitoring and reporting of ongoing license obligations on a detailed obligation/clause level.
22/2019	**B3** **(8.2) Risk management - Risks are documented in a risk register and treatment plans are implemented and monitored** The Rottnest Island Power Risk Register outlines detailed risks on an individual asset level. The Programmed Risk Management Framework is applied to this register which includes assessing the severity, likelihood, inherent risk, mitigation options, action plan and responsible owners of each individual	Assign individual action owners to the risks on the Power Risk Register and document evidence of regular monitoring of treatment plans.	June 2020 - The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.

B. Unresolved at end of current review period			
	asset risk. The most recent risk assessment was performed in April 2019. However, no evidence could be sighted on the Power risk register of individual action owners being assigned and treatment plans being implemented and monitored.		
23/2019	**C3** **(11.3) Capital expenditure planning- The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan** A Life cycle costing (LCC) model is maintained by PFM and reviewed on a quarterly basis. This model details asset information, risk assessment and serviceability on major assets e.g. Generators, HV Power distribution, Wind Turbine. However, it was noted that the LCC does not provide detailed and actual lifecycle costing to operate individual assets to inform accurate CAPEX planning for the future years based on the asset age and condition.	It is recommended that life cycle costing of assets are prepared and reviewed on a key individual asset level (e.g. generator No 1). This should capture actual operational and maintenance costs of the assets which can then be regularly reviewed against forecasted values. This would inform CAPEX planning for the future years on assets requiring increased maintenance due to age or network changes e.g. renewable solutions (wind and solar) added to the network, which in turn impact the load of existing assets.	June 2020- The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.
24/2019	**B3** **(12.1) AMS Review- A review process is in place to ensure the asset management plan and the asset management system described in it remain current** MUAMP 2016-2020 was last updated in December 2016. SAMP was last updated in July 2016.	Timely review and update (e.g. every two years) of the MUAMP and SAMP to ensure information described in these documents remains current.	June 2020- The RIA is recruiting for Enterprise Asset Management System Project Manager who will require some time to familiarise and learn the islands systems, practices and processes and to establish to new role. This role will conduct risk workshops after review of 07/2017, 06/2017, 03/2017, 02/2017 and address the recommendation.