Asset Management System Review Report

Electricity Generation and Retail Corporation (Synergy)
Electricity Generation Licence (EGL7)

May 2021
kpmg.com.au

235 St Georges Terrace
Perth WA 6000

GPO Box A29
Perth WA 6837
Australia

ABN: 51 194 660 183
Telephone: +61 8 9263 7171
Facsimile: +61 8 9263 7129
www.kpmg.com.au

Mr Simon Thackray
Manager Regulatory and Compliance
Synergy
219 St George's Terrace
PERTH WA 6000

26 May 2021

Dear Simon

Synergy – EGL7 Asset Management System Review – 2021

We have completed the Synergy EGL7 Asset Management System Review for the period 1 November 2016 to 31 October 2020 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 procedures.

If you have any questions or wish to discuss anything raised in the report, please contact me on 9263 7271.

Yours sincerely

[redacted]

Travis McAuliffe
Partner

Contents

Abbreviations and Terms

Abbreviation/Term	Definition
ACAP	Asset Criticality Analysis Procedure
ACF	Available Capacity Factor
AEMO	Australian Energy Market Operator
ALARP	As Low As Reasonably Practicable
ALCP	Asset Life Cycle Plan
AMP	Asset Management Plan
AMR	Asset Management Report
AMS	Asset Management System
ART	Average Run Time
AS	Australian Standards
ASAE	Australian Standard on Assurance Engagements
Authority	Economic Regulation Authority
BCP	Business Continuity Plan
BoM	Bill of Materials
BOP	Balance of Plant - the shared supporting services of a plant
BYOD	Bring Your Own Device
CAD	Computer Aided Design
CAPEX	Capital Expenditure
CBU	Commercial Business Unit
CMMS	Computerised Maintenance Management System
CMP	Crisis Management Plan
Covid-19	Novel Coronavirus
CRC	Certified Reserve Capacity
DBNGP	Dampier to Bunbury Natural Gas Pipeline
DFES	Department of Fire and Emergency Services
DMS	Document Management System
DR	Data Restoration
Ellipse	Synergy's previous enterprise resource planning software
EMP	Emergency Management Plan
Empower (GBU)	The governance system for managing production, environmental, health and safety incidents and hazards.
ERA	Economic Regulation Authority
ERP	Enterprise Resource Planning
ERS	Synergy's previous project management Engineering Request System
FAR	Fixed Asset Register
FMEA	Failure Mode and Effect Analysis
FOF	Forced Outage Factor
FY	Financial Year

GBU	Generation Business Unit
GN	Guideline
GTDG	Gas Turbines and Distributed Generation
GWh	Gigawatt-hours
H&S	Health and Safety
T&T	Transformation and Technology
Invest-right	Synergy's investment framework
ISO	International Organisation for Standardisation
IT	Information Technology
ITP	Inspection Test Plan
KPI	Key Performance Indicator
LAGS	Loss of Availability Generation System. Replaced by LEADS
LEADS	Loss of Energy Availability Data System
MFA	Multi-Factor Authentication
MIRR	Modified Internal Rate of Return
MOC-P	Management of Change - Personnel
MOC-T	Management of Change - Technical
MOF	Maintenance Outage Factor
MPI	Market Performance Interface
MS	Management System
MTB	Manage to Budget - Synergy's yearly budget process
MW	Megawatts
MWI	Maintenance Work Instruction
NPV	Net Present Value
OCGT	Open Cycle Gas Turbine
OPEX	Operational Expenditure
PI	Process Information (An application to record data from process control systems)
PLEXOS	Market simulation and modelling software
POF	Planned Outage Factor
POI	Plant Operating Instructions
Power BI	Business analytics service provided by Microsoft
Procure-it	Synergy's procurement framework
Project Online	Synergy's online project management software
Prophix	A static analysis tool for budgeting and project planning
PSAM	Process Safety and Asset Management
PSM	Process Safety Management
RCR	Reserve Capacity Refunds
SAMM	Synergy Asset Management Manual
SAP	Synergy's chosen Enterprise Resource Planning software
SCADA	Supervisory Control and Data Acquisition
SI	Station Instructions
SIF	Safety Integrity Function
SIL	Safety Integrity Level
SIM	Station Instructions Muja

SIMEX	Simulated Exercise
SWI	Safe Work Instruction
SWIS	South West Interconnected System
TG	Thermal Generation
TOM	Temporary Operating Memorandum
Triboss	MS Access based software used by Synergy as a statutory plant register. Currently being phased out.
WBU	Wholesale Business Unit
WEM	Wholesale Electricity Market
WEMMR	Wholesale Electricity Market - Market Reforms
WM	Work Management
WO	Work Order

1. Independent Limited Assurance Report

Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Electricity Generation and Retail Corporation ("Synergy") has not complied in all material respects, with the requirements of Section 14 of the Electricity Industry Act 2004 as evaluated against the criteria set out in Appendix 5 of the Economic Regulation Authority's 2019 Audit and Review Guidelines for the period 1 November 2016 to 31 October 2020.

Scope

The subject of our limited assurance engagement is whether anything has come to our attention that causes us to believe that Electricity Generation and Retail Corporation ("Synergy") has not complied, in all material respects, with the requirements of Section 14 of the Electricity Industry Act 2004 (the "Requirements") as evaluated against the criteria set out in Appendix 5 of the Economic Regulation Authority's (the Authority) 2019 Audit and Review Guidelines (the "Guidelines") for the period 1 November 2016 to 31 October 2020 (the "review period").

Section 14 of the Act that requires Synergy to provide the Authority with an Asset Management System (AMS) Review conducted by an independent third party acceptable to the Authority every 24 months (or any longer period that the Authority allows).

Basis of Our Conclusion

We conducted our engagement in accordance with Australian Standard on Assurance Engagements *ASAE 3100 Compliance Engagements* (ASAE 3100) issued by the Auditing and Assurance Standards Board. We believe that the assurance evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

In accordance with ASAE 3100 we have:

- Used our professional judgement to plan our procedures and assess the risks that may cause material non-compliance with each of the requirements to be concluded upon;
- Considered internal controls implemented to meet the compliance requirements; however, we do not express a conclusion on their effectiveness; and
- Ensured that the engagement team possess the appropriate knowledge, skills and professional competencies.

Summary of Procedures

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 non-compliance with the Requirements is likely to arise.

Our limited assurance conclusion is based on the evidence obtained from performing the following procedures:

- Utilising the Guidelines as a guide for development of a risk assessment and document review to assess controls.
- Development of a Review Plan for approval by the Authority and an associated work program, approved by the Authority on 15 March 2021.
- Interviews with and representations from relevant Synergy staff to gain an understanding of process controls.
- Review of documents and walkthrough of processes and controls to support the assessment of compliance with the requirement to maintain an effective Asset Management System.
- Physical site visits to Muja Power Station and Pinjar Power Station.
- Sample testing or walkthroughs based on the sample size guide in the approved Review Plan.

The procedures performed in a limited assurance engagement vary in nature and timing and are less in extent than for a reasonable assurance engagement. 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 compliance with the Requirements as evaluated against 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 non-compliance with the Requirements may occur and not be detected.

A limited assurance engagement covering the review period does not provide assurance on whether compliance with the Requirements will continue in the future.

Use of this Assurance Report

This report has been prepared for the Directors of Synergy and the Authority for the purpose set out in the Scope section above and may not be suitable for another purpose. We disclaim any assumption of responsibility for any reliance on this report, to any person other than the Directors of Synergy and the Authority, or for any other purpose than that for which it was prepared.

We acknowledge a copy of this report will be provided to the Authority for the purpose of reporting on the performance of the License. We agree that a copy of this report may be provided to the Authority in connection with this purpose, but only on the basis that we accept no duty, liability or responsibility to any party, other than Synergy and the Authority in connection with the report or this engagement.

Synergy Management's responsibility

Management is responsible for:

- The compliance activities undertaken to meet the Requirements;
- Identification of risks that threaten the Requirements identified above being met and identifying, designing and implementing controls to enable the compliance requirements to be met and, monitoring ongoing compliance;
- Ensuring that it has complied in all material respects with the requirements of the Licence;
- Establishing and maintaining an effective system of internal control over its systems designed to achieve its compliance with the Licence requirements;
- Implementing processes for assessing its compliance requirements and for reporting its level of compliance to the Authority;
- Implementing corrective actions for instances of non-compliance (if any).

KPMG's responsibility

Our responsibility is to perform a limited assurance engagement in relation to Synergy's compliance with the Requirements as evaluated against the Guidelines for the review period and to issue an assurance report that includes our conclusion.

Our Independence and Quality Control

We have complied with our independence and other relevant ethical requirements of the *Code of Ethics for Professional Accountants* issued by the Accounting Professional and Ethical Standards Board and complied with the applicable requirements of Australian Standard on Quality Control 1 to maintain a comprehensive system of quality control.

KPMG

26 May 2021

2. Executive Summary

2.1 Introduction

This document presents the findings from Electricity Generation and Retail Corporation T/A Synergy's ("Synergy") Asset Management Systems Review ("AMSR") (collectively referred to as "the Review"). The Review has been carried out in accordance with the Guidelines and encompasses those assets subject to Synergy's Electricity Generation Licence No. 7.

Synergy is Western Australia's largest electricity generator and retailer with more than one million residential, business and industrial customers. Synergy generates electricity using a range of non-renewable and renewable energy sources predominantly within the south west interconnected system, and its EGL7 generation portfolio is extensive and diverse.

The Review was undertaken in accordance with the Review Plan that was presented and approved by the Authority on 15 March 2021.

2.2 Objectives

The Review was conducted to assist Synergy in meeting its compliance requirements with Section 14 of the Electricity Industry Act 2004.

As per Section 14 of the Act, it is a requirement that Synergy provides the Authority with an AMSR conducted by an independent expert acceptable to the Authority not less than once in every 24 month period (or any longer period that the Authority allows). Synergy's current AMSR cycle is 48 months.

On 5 February 2021, the Authority approved the appointment of KPMG to undertake the AMSR for the review period.

2.3 Limited assurance engagement

The Review was conducted and reported as a limited assurance engagement in accordance with the Australian Standard on Assurance Engagements (ASAE 3100), the Audit and Review Guidelines and in consultation with the Authority where required.

Our responsibilities

KPMG's responsibility was to perform a limited assurance engagement in relation to Synergy's compliance with the requirements stipulated in the Electricity Generation Licence – Electricity Generation and Retail Corporation (t/a Synergy) EGL 7 Version 12, 1 July 2015 and the EGL 7 Version 13, 1 July 2018 (the "Requirements") as evaluated against the criteria set out in Appendix 5 of the Authority's 2019 Audit and Review Guidelines (the "Criteria") for the review period.

Applicable assurance standard

We conducted our engagement in accordance with ASAE 3100. The ASAE 3100 requirements are outlined below.

- We used our professional judgement to assess the risk of Synergy not meeting the Requirements and plan and perform the engagement to obtain limited assurance that we are not aware of any instances of material non-compliance with the Requirements as evaluated against the Criteria for the review period.
- We considered relevant internal controls when designing our assurance procedures, however we do not express a conclusion on their effectiveness.
- The KPMG team possessed the appropriate knowledge, skills and professional competencies.

Our engagement is not designed to and will not necessarily disclose all irregularities, errors or fraud related to the compliance requirements, should any exist. However, we will inform you of any such matters that come to our attention.

Limited assurance and material misstatement

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. 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.

Inherent limitations in assurance engagements

Because of the inherent limitations of an assurance engagement, together with the internal control structure it is possible that fraud, error, or non-compliance with the Requirements as evaluated against the Criteria may occur and not be detected.

A limited assurance engagement throughout the specified period does not provide assurance on whether compliance with the Requirements will continue in the future.

2.4 Scope

This limited assurance engagement was undertaken in order to report whether, based on the work performed, in all material respects, anything has come to our attention to indicate that Synergy has not complied in all material respects, with the requirements of Section 14 of the Electricity Industry Act 2004 as evaluated against the criteria set out in the Authority's Guidelines for the review period.

The scope required an assessment of the adequacy and effectiveness of Synergy's Asset Management System (AMS) for the period by evaluating the twelve asset management processes below and the effectiveness criteria outlined in Appendix 5 of the Authority's 2019 Audit and Review Guidelines:

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

Site visits

The scope of the Review included two regional site visits, with Muja Power Station and Pinjar Power Station selected. These were chosen due to their representativeness, given their size, economic relevance and supply capability in Synergy's overall physical generation assets portfolio. Work was also undertaken at the 219 Forrest Centre site.

2.5 Approach

In developing the Review Plan, KPMG adopted a risk-based approach, consistent with the Authority's methodology for assessing risk, which is based on the ISO 31000:2018.

The supporting tables to this risk based approach are shown at Appendix 3. We note the Authority did not identify any areas of special focus for this Review.

Risk based approach

The initial step involved a high level risk review of the AMS, in order to identify a suitable priority rating for each of the 58 AMS elements. The preliminary assessment allowed KPMG to determine focus areas to be prioritised during the actual Review.

The first step of the risk assessment was the rating of the potential consequences of Synergy not effectively maintaining an AMS for the assets subject to its licence, in the absence of mitigating controls. The consequence classification descriptions listed in Appendix 3 *Table 10*, provides the risk assessment with context to enable the appropriate consequence rating to be applied to each component of the AMS subject to review.

Once the consequence has been determined, the likelihood of Synergy not maintaining its AMS for assets subject to its license was then assessed using the likelihood ratings listed in *Table 11*. The combination of consequence and likelihood assessments then provided an overall inherent risk rating for each element of the AMS system as detailed in *Table 12*.

Next the strength of the existing internal controls that mitigate the inherent risks was assessed. Controls were assessed as weak, moderate or strong as detailed in *Table 13*. The inherent risk rating and existing controls assessments were then compared to the 2017 AMSR Report and supporting rationale documented for any changes.

KPMG also reviewed actions undertaken by Synergy during the review period to determine if any of the ratings should be amended. A number of documents have been supplied by Synergy to assist in this assessment including:

- An asset management audit completed by an independent expert, which was undertaken during the review period; and
- A detail of the actions undertaken in response to the 2017 AMSR.

The outcomes from this activity created a Priority Rating for each element of the AMS as outlined in *Table 14.*

Priority ratings

The detailed risk assessment for each effectiveness criteria element and priority ratings is attached in Appendix 4 and summarised in *Table 1* below.

Table 1: Summary of Review Priority Ratings

Asset Management Process	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
Asset planning	0	1	0	3	5
Asset creation / acquisition	0	1	0	4	0
Asset disposal	0	0	0	1	3
Environmental analysis	0	0	0	4	0
Asset operations	0	0	1	5	0
Asset maintenance	0	3	0	3	0
Asset management information system	0	1	0	2	5
Risk management	0	1	0	2	0
Contingency planning	0	1	0	0	0
Financial planning	0	0	0	3	3
Capital expenditure planning	0	0	0	2	2
Review of the asset management system	0	0	0	0	2
	0	**8**	**1**	**29**	**20**

2.6 Review Plan Approval

Following the completion of the risk workshops and supporting activities, each element was reviewed and prioritised according to its inherent risk rating using the Authority's methodology. The relevant management team members confirmed the applicable risk and control ratings prior to completion of the Review plan.

The final Review Plan was approved by the Authority on 15 March 2021.

2.7 Execution of the Review Plan

There were no deviations from the approved Review Plan in executing the fieldwork.

Based on the Review priority identified for each effectiveness criteria element we carried out specific assurance procedures in order to obtain sufficient and appropriate evidence. In selecting the assurance procedures, we used our judgment and assessment of the level of risk involved having regard to the example procedures below.

Table 2: Examples of possible procedures

Review Priority		Examples of audit procedures
1	High Priority	Interview supervisory and operational personnel Inspect relevant documents Obtain evidence policies, procedures and controls are in place and working effectively Examine compliance reports and breach register Obtain confirmations from third parties if applicable Examine reports and correspondence with other regulators (e.g. Building and Energy) Inspect applicable asset infrastructure Examine asset management system effectiveness criteria Sample, at a high level, output and timeliness procedures Recalculate a sample of relevant performance indicators
2		
3	Moderate Priority	Interview supervisory and operational personnel Inspect relevant documents Obtain evidence policies, procedures and controls are in place and controls are working effectively Examine compliance reports and breach register Physically examine applicable asset infrastructure Examine asset management system effectiveness criteria Sample output and timeliness procedures Walkthrough the process to calculate relevant performance indicators
4		
5	Low Priority	Interview supervisory or operational personnel Undertake a desktop review of relevant documents Undertake a desktop review of policies, procedures and controls in place View compliance reports and breach register Visit applicable asset infrastructure Undertake a desktop review of asset management system effectiveness criteria Sample, at a low level, output and timeliness procedures

A list of the licensee's representatives who participated in the Review is provided in Appendix 1.

A list of key documents and other information sources examined during the course of the Review is provided in Appendix 2.

2.8 Summary of action for previous review recommendations

The previous Review published in 2017 outlined a single recommendation regarding '6.5 – Risk management is applied to prioritise maintenance tasks' which was resolved during the current review period. Further details can be found in Section 3.

Table 3: Actions in Response to Previous Report Recommendations

	Resolved during current review period	Unresolved at the end of the current review period	Total
Total	**1**	**0**	**1**

2.9 Review Team Members and Time Undertaken to Complete Review

The following table outlines the auditor's personnel who undertook the review and time taken to complete the review procedures.

Fieldwork commenced on 15 March 2021 and was completed on 15 April 2021.

Fieldwork at Muja Power Station and Pinjar Power Station was conducted in March 2021.

Table 4: Audit Members and Hours

Position Title	Nominated Personnel	Hours
Engagement Partner	Travis McAuliffe	23
Engagement Director – Engineering & Asset Management	Ben Lambert	25
Associate Director – Engineering & Asset Management	Alex Cesa	110
Engagement Manager	Fish Sim	30
Consultant	Ankur Atri	251
	Total	**439**

2.10 Summary of outcomes from current review

While conducting the 2021 Asset Management System Review, it was observed that Synergy management and personnel had a positive and cooperative nature, were genuinely interested in continuous improvement of the Asset Management System and were well informed on current initiatives and projects being executed.

Substantial changes to the Asset Management System have occurred since the previous review. Based upon the outcome of independent reviews, Synergy's Generation Business Unit (GBU) started a journey to significantly integrate improved process safety and asset management practices into their organisation. This initiative is known within Synergy as the Process Safety Asset Management (PSAM) system. Synergy is currently still on the journey to redesign their Asset Management System and has developed:

- The newly introduced Synergy Asset Management Manual (SAMM), which aims to align with ISO 55001 Asset Management and describes Synergy's PSAM strategies to:
    - link asset management to stakeholder performance requirements and define asset management objectives,
    - develop risk-based asset management plans,
    - manage operations, maintenance, engineering, projects and materials,
    - carry out performance monitoring and continuous improvement.

- The newly introduced Process Safety Management (PSM) standard, which outlines the systems and controls to better identify, understand and control process hazards relating to injuries and accidents. It takes a risk based approach and aims to align with the UK Energy Institute framework, divided into the broad areas of process safety leadership, risk identification and assessment, risk management and continuous improvement.
- Newly introduced procedural documents guided by the standards, such as the Health and Safety Risk Management procedure and Critical Risk Control Management procedures. These outline risk assessment techniques such as bow ties for hazards leading to materially unwanted events, change management risk assessment, hazard identification, safe work instructions and individual's risk assessments.

It is noted that Synergy has also put in place the following improvement measures:

- A structured master data program begun outside the review period in November 2020 to identify, assess and rectify legacy issues stemming from transitioning from Ellipse to SAP. This includes reviews of inventories, which when completed will allow informed development of obsolescence and spares holdings strategies.
- Synergy is aware that a number of document reviews are overdue. The review of documents is risk prioritised and Synergy is actively tracking document reviews with weekly progress reports.

Where areas for potential improvement were identified, Synergy has highlighted the implementation of the above measures.

Synergy advised the Authority on 12 December 2017 that it had addressed the recommendation of the previous review by amending the maintenance metrics report to include priority 1 and 2 work orders. The actions taken and Synergy's subsequent re-evaluations of required metrics are further detailed in Section 3.

The tables below provides a high level summary of the outcomes from the current review for each of the 58 effectiveness criteria. Definitions of the rating scale and more details for each process and effectiveness criteria are contained in:

- Section 4 - Performance Summary; and
- Section 5 – Observations – Asset Management Review Details

In accordance with the Authority's Guidelines, no formal recommendations have been raised during this Review as there were no instances where asset management processes or effectiveness criteria were rated C, D (for process and policy rating) or 3, 4 (for performance rating). We have however identified opportunities for improvement (i.e. B and/or 2 ratings) and these fall under the following criteria:

- *5.3 – Asset are documented in an asset register - (A/2)* - Synergy identified legacy issues incurred during the transition from Ellipse to SAP. GTDG site personnel report that the Ellipse system had poor granularity and therefore this continued into the transition into SAP. Synergy is rectifying through its Master Data Program.
- *6.1 – Maintenance policies and procedures are documented and linked to service levels required. – (B/1)* – Sample testing noted that the Pinjar Frame 9 AMP, section *16.2 Spares for End of Life and Obsolete Major Equipment* and section *16.3 Spares Holdings Strategy* were incomplete as there was uncertainty that data contained in SAP reflected actual spares held at Pinjar Power Station. Synergy has planned a review of available spares at Pinjar Power Station which is to be completed prior to September 2021. Completion of the inventory review should trigger a revision of the Obsolescence and Spares Strategy for all relevant Pinjar assets. Until such a point, the Asset Management Plan should indicate that it will rely upon previously existing strategies for spares and these must be reviewed for currency.
- *6.5 – Risk management is applied to prioritise maintenance tasks. – (B/1)* - Sample testing of the maintenance metrics report (*Maintenance Metrics Reports.xlsx*) identified that for a period between approximately December 2018 to May 2020 Synergy did not track P1/P2 statistics as it was deemed to no longer be of value. Synergy executed this change to the maintenance metrics report in order to better match the changing focus of the business needs. In May 2020,

as part of the Process Safety and Asset Management (PSAM) program, Synergy re-introduced metrics tracking P1/P2 notifications raised through its PSAM dashboard.

- *12.1 – A review process is in place to ensure that the asset management plan and the asset management system described in it remain current. - (A/2)* - A significant percentage of Muja Power Station's document reviews are overdue as tracked in the document 'Muja Power Station - Document Control Index'. Synergy is aware of the situation and continues to review station documents based on safety criticality.

These are included in Section 5 with more detail provided directly to Synergy.

Table 5: Performance summary – by the 12 Asset Management process areas

Asset Management Process	Process & Policy Rating	Performance Rating
Asset planning	A	1
Asset creation / acquisition	A	1
Asset disposal	A	1
Environmental analysis	A	1
Asset operations	A	1
Asset maintenance	B	1
Asset management information system	A	1
Risk management	A	1
Contingency planning	A	1
Financial planning	A	1
Capital expenditure planning	A	1
Review of the asset management system	A	1

Table 6: Performance summary – by the 58 effectiveness criteria

EGL7 – Asset Management System Review		Process and policy rating			
		A – Adequately defined	B - Requires some improvement	C – Requires substantial improvement	D – Inadequate
Performance Rating	1 – Performing effectively	54	2	-	-
	2 – Improvement required	2	-	-	-
	3 – Corrective action required	-	-	-	-
	4 – Serious action required	-	-	-	-
	Total	**56**	**2**	**0**	**0**

3. Previous Review Recommendations

3.1 Previous recommendations resolved during current Review Period

Issue (no. / year)	Process and policy deficiency / Performance deficiency	Auditor's Recommendation	Date Synergy Advised Authority as Resolved	Further action required (Yes/No/Not Applicable) Details of further action required (including current recommendation reference if applicable)
01/2017	**6.5 Risk management is applied to prioritise maintenance tasks.** Adequacy rating: *Requires some improvement* ***(B)*** Performance rating: *Performing effectively* ***(1)***	Recommendation 1/2017: Synergy consider: (a) Updating its SAP Weekly Maintenance Measures report to highlight the relative priority of outstanding work orders, including summary statistics by priority rating (b) Using the report to review all open Priority 1 and Priority 2 Work Orders to determine whether they are appropriately categorised.	13/12/2017	Synergy Action Plan 1/2017: The SAP weekly maintenance measures report will be revised to include summary statistics of priority 1 and 2 work orders. Non-executed priority 1 and 2 work orders will be highlighted for review. Responsible person: Asset Performance Manager Target date: 30 June 2017 2021 Review Findings Synergy addressed recommendation 01/2017 (b) by reviewing priority ratings of work during daily morning priority meetings. This was observed to still be in effect when the review team attended a daily prioritisation meeting at Muja Power Station. Synergy addressed recommendation 01/2017 (a) by amending the maintenance metrics report to include priority 1 and priority 2 (P1/P2) work order statistics on 21 July 2017. Synergy advised the Authority of this on 13 December 2017. Random sampling of a maintenance metrics report compiled shortly after July 2017 (*Weekly Maintenance Measures_Week 54.xlsx*) confirmed that the maintenance metrics report contained data on P1/P2 work orders backlog. Random sampling of a later maintenance metrics report (*Maintenance Metrics Reports.xlsx*) shows that Synergy no longer tracked P1/P2 statistics. Correspondence with the current Asset Strategy Lead outlined their view that Synergy reviewed and changed the maintenance metrics report in approximately December 2018 to exclude statistics for P1/P2 work as it was deemed to no longer be of value. Therefore, for the period of approximately December 2018 to May 2020, Synergy did not address recommendation 01/2017 (a). In May 2020, as part of the Process Safety and Asset Management (PSAM) program, Synergy re-introduced metrics tracking P1/P2 notifications raised through its PSAM dashboard. Currently, Synergy tracks this metric for Thermal Generation (TG) and not Gas Turbines and Distributed Generation (GTDG). As explained by the Asset Management Lead, this is due to the majority of GTDG work being P1/P2 due to the nature of operation, therefore separating out this metric for review is of little value. *No further action required*

4. Performance summary

The overall effectiveness rating for each asset management process is based on the combination of the process and policy adequacy rating and the performance rating, as defined in *Table 7 and Table 8*.

Table 7: Asset management process and policy definition adequacy ratings

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

Table 8: Asset management performance ratings

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

Table 8 summarises KPMG's assessment of each of the twelve key asset management processes together with the effectiveness criteria for each key component.

Table 9: Asset management system effectiveness summary

4.1 Asset planning

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
1	**Asset planning**		**A**	**1**
1.1	Asset management plan covers the processes in this table	Priority 4	A	1
1.2	Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning	Priority 5	A	1
1.3	Service levels are defined in the asset management plan	Priority 5	A	1
1.4	Non-asset options (e.g. demand management) are considered	Priority 5	A	1
1.5	Lifecycle costs of owning and operating assets are assessed	Priority 4	A	1
1.6	Funding options are evaluated	Priority 5	A	1
1.7	Costs are justified and cost drivers identified	Priority 4	A	1
1.8	Likelihood and consequences of asset failure are predicted	Priority 2	A	1
1.9	Asset management plan is regularly reviewed and updated	Priority 5	A	1

4.2 Asset Creation and Acquisition

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
2	**Asset Creation and Acquisition**		**A**	**1**
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions	Priority 4	A	1
2.2	Evaluations include all life-cycle costs	Priority 4	A	1
2.3	Projects reflect sound engineering and business decisions	Priority 4	A	1
2.4	Commissioning tests are documented and completed	Priority 4	A	1
2.5	Ongoing legal/environmental/ safety obligations of the asset owner are assigned and understood	Priority 2	A	1

4.3 Asset Disposal

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
3	**Asset Disposal**		**A**	**1**
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process	Priority 5	A	1

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	Priority 5	A	1
3.3	Disposal alternatives are evaluated	Priority 5	A	1
3.4	There is a replacement strategy for assets	Priority 4	A	1

4.4 Environmental Analysis

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
4	**Environmental Analysis**		**A**	**1**
4.1	Opportunities and threats in the asset management system environment are assessed	Priority 4	A	1
4.2	Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved	Priority 4	A	1
4.3	Compliance with statutory and regulatory requirements	Priority 4	A	1
4.4	Service standard (customer service levels etc) are measured and achieved	Priority 4	A	1

4.5 Asset operations

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
5	**Asset operations**		**A**	**1**
5.1	Operational policies and procedures are documented and linked to service levels required	Priority 4	A	1
5.2	Risk management is applied to prioritise operations	Priority 4	A	1
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	Priority 3	A	2
5.4	Accounting data is documented for assets	Priority 4	A	1
5.5	Operational costs are measured and monitored	Priority 4	A	1
5.6	Staff resources are adequate and staff receive training commensurate with their responsibilities	Priority 4	A	1

4.6 Asset maintenance

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
6	**Asset maintenance**		**B**	**1**

6.1	Maintenance policies and procedures are documented and linked to service levels required	Priority 4	B	1
6.2	Regular inspections are undertaken of asset performance and condition	Priority 4	A	1
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	Priority 2	A	1
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary	Priority 2	A	1
6.5	Risk management is applied to prioritise maintenance tasks	Priority 2	B	1
6.6	Maintenance costs are measured and monitored	Priority 4	A	1

4.7 Asset Management Information System

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
7	**Asset Management Information System**		**A**	**1**
7.1	Adequate system documentation for users and IT operators	Priority 5	A	1
7.2	Input controls include appropriate verification and validation of data entered into the system	Priority 4	A	1
7.3	Security access controls appear adequate, such as passwords	Priority 5	A	1
7.4	Physical security access controls appear adequate	Priority 5	A	1
7.5	Data backup procedures appear adequate and backups are tested	Priority 4	A	1
7.6	Computations for licensee performance reporting are accurate	Priority 5	A	1
7.7	Management reports appear adequate for the licensee to monitor license obligations	Priority 5	A	1
7.8	Adequate measures to protect asset management data from unauthorized access or theft by persons outside the organisation	Priority 2	A	1

4.8 Risk Management

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
8	**Risk Management**		**A**	**1**
8.1	Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system	Priority 2	A	1
8.2	Risks are documented in a risk register and treatment plans are implemented and monitored	Priority 4	A	1

8.3	Probability and consequences of asset failure are regularly assessed	Priority 4	A	1

4.9 Contingency Planning

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
9	**Contingency Planning**		**A**	**1**
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	Priority 2	A	1

4.10 Financial Planning

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
10	**Financial Planning**		**A**	**1**
10.1	The financial plan states the financial objectives and strategies and actions to achieve the objectives	Priority 4	A	1
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs	Priority 5	A	1
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	Priority 5	A	1
10.4	The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period	Priority 5	A	1
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	Priority 4	A	1
10.6	Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	Priority 4	A	1

4.11 Capital Expenditure Planning

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
11	**Capital Expenditure Planning**		**A**	**1**
11.1	There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	Priority 4	A	1
11.2	The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	Priority 5	A	1

11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	Priority 4	A	1
11.4	There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned	Priority 5	A	1

4.12 Review of AMS

Ref	Asset Management process & effectiveness criteria	Review Priority	Process and policy definition adequacy rating	Performance rating
12	**Review of AMS**		**A**	**1**
12.1	A review process is in place to ensure that the asset management plan and the asset management system described in it remain current	Priority 5	A	2
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system	Priority 5	A	1

5. Observations - Asset Management Review Details

The observations, recommendations, opportunities for improvement, and overall level of effectiveness in relation to each key process area is provided in Sections 5.1 to 5.12.

5.1 Asset Planning

Key Process:	Asset planning strategies focuses on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price).
Outcome:	Asset Planning is integrated into operational or business plans, providing a framework for existing and new assets to be effectively utilised and their service optimised.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations
1.1	Asset management plan covers the processes in this table	Priority 4	Through enquiries held with the Asset Management Lead, Asset Performance Manager, Asset Optimisation Manager and a review of documents encompassing the asset management plan it was noted that Synergy preserves alignment from policy through to strategy, tactical and operations. Collectively, the documents reviewed demonstrate Synergy's: • aim to provide best value electricity generation for its customers • adaptation to the changing market and operating conditions • risk-based approach and consideration of the asset lifecycle • continuous improvement program and ongoing journey to align with ISO55001: Asset Management Synergy subdivides its individual Asset Management Plans (AMP) firstly by geographical site, then by generating unit. This is because individual units being retired require customised asset plans that take into account their service life and condition. These Asset Management Plans cover risk-based CAPEX, OPEX and inventory strategies to meet the asset's performance requirements. We note that the Generation Business Unit (GBU) established an improvement program during the review period to redesign the asset management system to more closely align with ISO55001: Asset Management and the UK Energy Institute and incorporate process safety. The gaps identified and improvements resulting from this program are outlined in the new Synergy Asset Management Manual (SAMM). Aims of the revised system include better managing top process safety risks, specific training for process safety, embedding defect elimination, improved management of safety critical devices and development of a Process Safety and Asset Management (PSAM) dashboard for better communication of performance. Synergy is currently still on its journey to align with ISO55001: Asset Management. Process and Policy Rating: A | Performance Rating: 1
1.2	Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning	Priority 5	Through enquiries held with the Asset Management Lead, Generation Business Unit (GBU) Asset Performance Manager, GBU Manager Asset Optimisation, Financial Planner, Group Financial Controller and a walkthrough of the development process for generation Asset Management Plans (AMPs), it was found that: • Development of the portfolio Asset Mission Statement (AMS) takes inputs from external stakeholders such as Department of Treasury funding availability, WA State Government goals and objectives, WA Government policy and reforms, Australian Energy Market Operator (AEMO) requirements, Wholesale Electricity Market – Market Reforms (WEMMR), regulatory and statutory requirements, coal, gas, diesel, water, spares and other suppliers and service providers. This input is two way and through open communication. • Development of the AMPs covering each generating asset occurs annually in line with the budgeting timeline. • Development of the AMP first examines the Asset Mission Statement and the process is iterative, peer reviewed through challenge sessions and takes feedback from internal stakeholders. The process takes inputs from site operations, maintenance, planners and

No.	Effectiveness Criteria	Review Priority	Observations
			requires approval of station managers for the development of outage and maintenance plans, operating strategy, renewal strategy, spares management, projects and approval from station managers. • The development of AMPs is integrated into the business process and corporate financial planning functions of Synergy.
			Process and Policy Rating: A — Performance Rating: 1
1.3	Service levels are defined in the asset management plan	Priority 5	Enquiries were held with the Asset Management Lead, Asset Performance Manager and Asset Optimisation Manager as well as a review of the Asset Mission Statement (AMS), Synergy Asset Management Manual (SAMM), and sampling of Weekly and Monthly Performance. This established that Synergy's service level requirements are translated into specific, measurable objectives in the annual Asset Mission Statement. Defined objectives take into account market rules, EGL7 and business requirements. In relation to required service levels, Key Performance Indicators and Portfolio Objectives defined by the Asset Mission Statement for each generating asset are: • electricity sent-out (GWh); • installed nameplate capacity (MW); • certified reserve capacity (MW) (CRC); • number of starts (average per unit); • net thermal efficiency (%); • Available Capacity Factor (%) (ACF) and 3-year rolling ACF; • Planned Outage Factor (%) (POF); • Maintenance Outage Factor (%) (MOF); • Forced Outage Factor (%) (FOF); • Planned retirement date; and • Estimated operating hours till retirement. The Portfolio Asset Mission Statement also outlines the need to meet Australian Energy Market Operator (AEMO) and Wholesale Energy Market (WEM) requirements regarding CRC, ACF and POF requirements. One, five and ten year forecasts of service levels based on scenario modelling and historic data are carried out in PLEXOS and incorporated into the Portfolio Objectives. Random sampling found that these objectives are then cascaded down into the Operational Requirements section of the Asset Management Plan for each generating asset along with requirements to meet changing market conditions dictated by the WEM Market Reform (WEMMR). Synergy then tracks performance of these objectives for each generating asset against defined targets based on internal or market rules. These are then reviewed in Weekly and Monthly Performance reports. Causes of outages which affect delivery of service levels are also outlined in the report.
			Process and Policy Rating: A — Performance Rating: 1
1.4	Non-asset options (e.g. demand management) are considered	Priority 5	Through enquiries with the Asset Performance Manager, Asset Optimisation Manager, Asset Management Lead, Manager of Strategic Analysis and review of Synergy's Asset Mission Statement, Asset Management Manual and Business Case Templates, it was determined that the primary non-asset option being considered to meet Synergy's operational requirements is to increase the generation portfolio's flexibility. Synergy recognises the increasing volatility in market demand, conducting forecasting studies of solar PV uptake and scenario modelling through Synergy's Commercial Business Unit (CBU). In response to the changing market conditions, Synergy has adopted the approach of increasing asset flexibility. Synergy's Generation Business Unit's (GBU) annual portfolio Asset Mission Statement outlines that coal units must be more flexible in low load operation and ancillary services to remain commercially viable. This is reflected in the Synergy Asset Management Manual (SAMM) which states one of the key asset management objectives is to optimise asset flexibility to respond to market volatility. The resulting actions initiated during the review period are CAPEX projects to investigate methods to improve Muja, Cockburn and Collie Power Plant's flexibility along with the involvement of external consultants to review whole of fleet operations with the aim of increasing fleet flexibility.

No.	Effectiveness Criteria	Review Priority	Observations	
			Furthermore, Synergy's Business Case Template requires the evaluation of a standard minimum of 3 options including a baseline 'do nothing' option. These options are then evaluated based on their advantages, disadvantages, corporate risks, project delivery risks, constraints and dependencies to decide upon one recommended and one alternative option.	
			Process and Policy Rating: A	Performance Rating: 1
1.5	Lifecycle costs of owning and operating assets are assessed	Priority 4	Enquiries were held with the Group Financial Controller, Financial Planner, Engineering Manager Gas Turbines and Distributed Generation (GTDG), Engineering Manager Muja Power Station and a review conducted of Synergy's Asset Management Manual, 'Procure-it' planning and procurement procedure, business case template and a sample Asset Management Plan. Through these enquiries and document reviews it was determined that lifecycle costs are assessed when evaluating the business case for individual investments and during the development of asset management plans. The Business Case Template document requires that for each proposed project the following be outlined: • Project OPEX, project CAPEX, contingency OPEX and CAPEX, ongoing yearly costs and total available funding. • Expected reduction in Capital and Operating costs over a given time period and the expected payback period. • Assessment in terms of Net Present Value (NPV) and Internal Rate of Return (IRR). • Non-cost factors must also be considered for the life of the asset, including fitness for purpose, technical and financial issues, contractor capability, sustainability, risk exposures, availability of maintenance, service and support, compliance with specifications, ease of inspection and communication and delivery. • The 'Procure-it' procedural document requires that cost factors should be calculated for the total cost over the life of the acquisition or service. Random sampling of business cases confirmed that the lifecycle costs are evaluated for each option presented in the business case. The SAMM states that one of the asset management objectives is to maintain and assure the performance and integrity of assets throughout their projected lifecycle, including ensuring the least operating cost and efficient use of capital. This is translated through to the current AMPs but is similarly present in the previous Asset Life Cycle Plans (ALCP). Random sampling of AMPs demonstrated that for each generating asset, Synergy examines the criticality and condition of electrical, control and mechanical systems, assesses years to end of life, identifies the need for a capital, operational, strategy, inventory or engineering project and compares value of extension of life projects vs replacement including a cost analysis. Discussion with site personnel confirmed that AMP and Business Case evaluations are carried out through an iterative process with the input of site engineering personnel, asset managers and planners to gather data on projected lifecycle costs.	
			Process and Policy Rating: A	Performance Rating: 1
1.6	Funding options are evaluated	Priority 5	Through discussions held with the Group Financial Controller and Financial Planner it was determined that funding options primarily comprise of: • Debt facility from the State Treasury; • Equity injection from Government; • Government programmes, agencies or external parties, e.g. Australian Renewable Energy Agency funding for the Alkimos Beach energy storage trial; • Internal funding options through budget offsets. A review of the Synergy Business Case Template demonstrated that it is the responsibility of the finance officer to endorse the completeness of financial assessment and funding impacts. This was demonstrated by random sampling of business cases. Furthermore, risk assessments are carried out on any budget reduction initiatives to ensure enterprise risk level does not exceed Synergy's threshold as demonstrated by the Budget Reduction Options and Risk document.	
			Process and Policy Rating: A	Performance Rating: 1

No.	Effectiveness Criteria	Review Priority	Observations	
1.7	Costs are justified and cost drivers identified	Priority 4	Through discussions held with the Group Financial Controller, Financial Planner, Asset Management Lead and consideration of Synergy's asset planning process, it was determined that Synergy takes a risk based approach to CAPEX and OPEX expenditure and links each project back to Synergy's strategic requirements and service levels required. Justification for how the project relates to Government and Synergy strategy targets is a requirement for the development of each business case and integrated into the Business Case Template. Furthermore, as outlined in the Synergy Asset Management Manual, the review process of each asset's AMP involves a challenge session of any low risk expenditures that incorporates feedback from planning, maintenance and operations personnel. As outlined in element 1.6 above, for projects with poor justification, the deferral of the project must undergo a risk assessment to ensure enterprise risk level does not exceed Synergy's threshold. This allows prioritisation of projects whilst minimising enterprise risk given limited funding. Monthly financial performance reports track expenditure against budgeted values, breaking down into employee, materials, contractor, consultant, allocation and administrative costs. The causes of any variation to planned budget is reported on and taken into account during future budgeting.	
			Process and Policy Rating: A	Performance Rating: 1
1.8	Likelihood and consequences of asset failure are predicted	Priority 2	Through enquiries held with the Asset Management Lead, Manager of Corporate Risk, GBU Process Safety Engineer, reviews and walkthroughs of Synergy's risk assessment process and documentation, it was determined that Synergy applied the following methods to predict likelihood and consequences of asset failure during the review period: • Risk management during asset planning utilises Synergy's risk management framework. This is covered in greater detail in criteria 8.1. • Synergy employs Empower, an information management software designed specifically for health, safety, environment and production to record risks associated with assets. • As described in the Synergy Asset Management Manual (SAMM), Synergy utilised an Asset Criticality Analysis Procedure (ACAP) to rank the asset criticalities of systems and equipment across the generating portfolio. By conducting Failure Mode and Effect Analysis (FMEA) style workshops, Synergy considered consequences of failure upon financial (including loss of production), health, safety and wellbeing, environmental, community, reputation, legal and compliance requirements. The ACAP determines residual criticality for plant systems, subsystems or components, considering the likelihood of failure, history of failure using data from LEADS, previous maintenance activities, previous CAPEX projects and OEM recommendations. • Synergy determines the likelihood, consequence, control effectiveness, materiality and tolerability of each risk, with set thresholds for each. Workshops conducted yearly as part of the development of the Asset Management Plan for each class of generating unit are used to determine the likelihood and consequences of failure. Random sampling of the AMP for Pinjar Frame 9, 10 and 11 found this to be the case. • Synergy has been developing bow ties for 14 identified process safety hazards. This is covered in greater detail in element *9.1 Contingency planning*. Random sampling and walkthrough of the Pinjar Frame 9 Asset Management Plan, Pinjar End of Life Roadmap and Kwinana Rehabilitation Project demonstrated that the likelihood and consequences of asset system, subsystem and/or component failure (as applicable) had been assessed taking into account available historical data. Risks were recorded in a risk register, outlining causes of failure, consequences, consequence rating, likelihood rating, existing controls, control effectiveness rating and residual risk level. The risk register also records current and possible future trends that may affect the risk level and required actions to reduce residual risk to acceptable levels.	
			Process and Policy Rating: A	Performance Rating: 1
1.9		Priority 5	Through enquiries held with the Asset Management Lead, Engineering Manager GTDG, Engineering Manager Muja Power Station, works planners, site maintenance managers, site operations managers, and a review of Synergy's asset management system, policies, standards, procedures and plans it was determined that:	

No.	Effectiveness Criteria	Review Priority	Observations	
	Asset management plan is regularly reviewed and updated		• The asset management policy states that Synergy will continuously review and regularly audit their asset management system; • The asset management system was reviewed periodically every 2 years with challenge sessions and input from site planning, maintenance and operations personnel; • An improvement program was established during the review period to redesign the system to more closely align with ISO55001: Asset Management and the UK Energy Institute. The improvements resulting from this program are outlined in the new Synergy Asset Management Manual (SAMM); • Synergy notified the Authority of the revised SAMM and improvements therein on 2 October 2020 and is currently in the process of implementing the improved Asset Management System; • The revised SAMM is to be reviewed every 2 years with continuous improvement procedures in place; The Portfolio Asset Mission Statement and each asset's Management Plan are reviewed yearly. Within each Asset Management Plan continuous improvement opportunities are identified, actions outlined and due dates set.	
			Process and Policy Rating: A	Performance Rating: 1

5.2 Asset Creation and Acquisition

Key Process:	Asset creation/acquisition is the provision or improvement of assets
Outcome:	The asset acquisition framework is economic, efficient and cost-effective; it reduces demand for new assets, lower service costs and improve service delivery.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions	Priority 4	Through enquiries with the Group Financial Controller, Financial Planner, Manager of Strategic Analysis, Asset Management Lead, and review of Synergy's Asset Mission Statement, Asset Management Manual, procurement procedures and Business Case Templates, it was determined that: • Synergy has migrated project management from Ellipse and the Engineering Request System (ERS) to SAP, Project Online and Prophix. • Project Online supports project initiation, business case development, procurement, project cost estimation (built using a bottom up approach from historic data) and delivery management. • Prophix is used as a static analysis tool for budgeting and project planning. • Business case templates are available to ensure all projects are developed and evaluated consistently. Business Case Templates require the evaluation of a standard minimum of 3 options including a baseline 'do nothing' option. • Business cases include an option comparison, project estimate, delivery schedule, risk assessment, financial evaluation workbook and benefits review. • Options are evaluated based on their advantages, disadvantages, corporate risks, project delivery risks, project interdependencies and alignment with Synergy's strategic pillars of sustainable and high performing operations, customer centricity, engaged and empowered people, and energy leadership. • The strategic value of each project is evaluated using Synergy's 'Project Online' project management tool and investment plan optimised to deliver highest strategic value. Certain projects can have a 'forced' rule if they are mandatory for regulatory or other reasons. • Non-asset solutions are considered to meet Synergy's strategic operational requirements. An example given was to improve flexibility of Synergy's coal-fired units in response to increasing volatility in market demand. • Synergy's Procurement Standard and Procure-It Contract framework outlines the guiding principles and performance requirements to encourage competition in tender processes and ensure procurement decisions achieve the best value for money. Random sampling of business cases including the 'Muja Turbine Hall Crane Replacement' and 'Muja Fly Ash Dam Lift Construct' confirmed project options are fully evaluated including any non-asset solutions. In the case of the 'Muja Fly Ash Dam Lift Construct' the non-asset option considered was to pump fly ash to an offsite void, though this option was discarded due environmental risks. Process and Policy Rating: A | Performance Rating: 1
2.2	Evaluations include all life-cycle costs	Priority 4	Through enquiries and walkthroughs with the Group Financial Controller, Financial Planner, Manager of Strategic Analysis, Asset Management Lead and review of Synergy's Asset Management Manual (SAMM), investment framework ('Invest-right'), procurement framework ('Procure-it'), and Business Case Templates, it was determined that: • Synergy's life cycle approach to asset management is outlined in the SAMM covering the planning, delivery, operation and maintenance and disposal phases. The SAMM states that one of the asset management objectives is to maintain and assure the

No.	Effectiveness Criteria	Review Priority	Observations
			performance and integrity of assets throughout their projected lifecycle, including ensuring the least operating cost and efficient use of capital. • The above asset management objective is cascaded through to the Asset Management Plans. As outlined in criteria 1.5, random sampling demonstrated that for each generating asset, Synergy examines the criticality and condition of electrical, control and mechanical systems, assesses years to end of life, identifies the need for a capital, operational, strategy, inventory or engineering project and compares value of extension of life projects vs replacement including a cost analysis. Discussion with site personnel confirmed that Asset Management Plans and Business Case evaluations are carried out through an iterative process with the input of site engineering personnel, asset managers and planners to gather data on projected lifecycle costs. Business Case approvals require cost factors to be calculated for the total cost over the life of the acquisition or service as outlined in the 'Procure-it' procedural document. Business cases include evaluation of project OPEX, CAPEX, contingencies, ongoing yearly costs, payback period and consideration of non-cost factors for the life of the asset. Random sampling of business cases confirmed that the lifecycle costs are evaluated.
			Process and Policy Rating: A — Performance Rating: 1
2.3	Projects reflect sound engineering and business decisions	Priority 4	Through enquiries and walkthroughs with the Group Financial Controller, Financial Planner, Asset Management Lead and review of Synergy's Asset Management Manual (SAMM), investment framework ('Invest-right'), procurement framework ('Procure-it'), Business Case Templates and project delivery dashboards it was determined that: • Project proposals are developed with input and final approval from multiple stakeholders, including engineering and technical site personnel as well as corporate financial planners and controllers. • As a requirement for project business case approval, the GBU line manager must endorse the technical proficiency of the proposed option. Further approvals are required from relevant site managers and the general manager for generation. • As a requirement for project business case approval, the capital planning analyst must endorse the financial assessment and funding impact. • Engineering resources are allocated to a project during the scoping stage prior to forming the business case. • Large projects greater than $10M have a steering committee. • At site, we noted that current, closed and future projects are documented on the 'Project Portfolio Management Tool'. Random sampling of 'EP10174 Lube Oil Vapour Extraction' showed documents covered governance, business case, project changes, outlined if the project was mandatory, business drivers, need, scope, financial evaluation, sign offs by Finance Department and highlighted whether or not it was in budget. It included an option analysis, standardised evaluation methodology from the business case template and engineering/financial rationale for the recommended option. Financial calculations were done in terms of NPV and CAPEX and OPEX defined across all financial years of project. Engineering analysis of options, drawings, calculations and contingency plans were documented. The Management of Change process to document change to plant was executed on the older paper system prior to Synergy's Management of Change – Technical process (MOC-T, implemented August 2020), Changes were captured in the 'Minor & Major Plant Modification Register' which contained information on asset identification, description, implementation completion and compliance notes. • Reviewing the business case for replacement of Muja Power Station turbine hall cranes, we noted that the document outlined engineering resources allocated to review the project, an assessment of current risks to the business, the project's relation to Synergy's strategic objectives, a comparison of options and a financial evaluation.
			Process and Policy Rating: A — Performance Rating: 1

No.	Effectiveness Criteria	Review Priority	Observations
2.4	Commissioning tests are documented and completed	Priority 4	Through enquiries held with the Asset Management Lead, the Muja Power Station Lead Asset Engineer, Pinjar Station Manager and examination of relevant documentation, we noted that: • The Process Safety Management (PSM) Standard states that Synergy expects a pre-commissioning review to be performed and documented to confirm that: construction is in accordance with specifications; required risk management actions have been undertaken; regulatory and permit requirements are met; emergency, operations and maintenance procedures are in place and adequate; required training of personnel and communication related to PSM aspects have been accomplished and necessary project documentation is readily available to those who need to use it. • Furthermore, Synergy requires that: o There is a systematic process for checking operational readiness and the integrity of systems before they are brought into service; o The checking process addresses: - new or modified plant and equipment; - return from maintenance, and - restart following system or full plant trip or planned shutdown. o There are defined criteria for operational readiness and they are regularly reviewed and updated; o The criteria cover hardware, control system and software, human and organisational factors, operating procedures and documentation; o System checks are carried out and documented by competent personnel; o Completed system checks are reviewed, approved and accepted by specific levels of management appropriate to the magnitude of the risk; o There are defined criteria for categorising and handling identified issues and outstanding work items; o Commissioning and start-up procedures have defined stages, hold/check points and progression criteria and review authorities; o Arrangements for operational readiness and process start-up are understood and followed; understanding of arrangements and compliance with them is regularly tested; and o Compliance and performance trends are reviewed by specified levels of management. • Random Sampling of "EP-10506 MPS Turbine Hall Crane Replacement" showed that each Inspection Test Plan was signed off and outstanding work was documented in a punch list. • Review of the "EP-10506 Replacement Turbine Hall Cranes" close out report showed that the following was documented and complete: o Close-out checklist; o Project financials; o Project schedule; o KPI's o SAP Project and WBS closure o Unfinished work, responsible personnel and target date o Asset creation form o Operating manuals

No.	Effectiveness Criteria	Review Priority	Observations	
			• It was noted that the Value/Benefit section and BAU OPEX Cost section of the "EP-10506 Replacement Turbine Hall Cranes" close out report was incomplete, however, these were documented in the original business case. • Specific assets have specific commissioning activities that are documented and held in Synergy's document management system. Random sampling of the "KWGT2 Commissioning Test Plan" and "SWI 5.26 - Boiler Outage Commissioning Testing" demonstrated that commissioning procedures and safe work instructions were developed for commissioning and the AEMO is informed of the impact of any commissioning testing. • Review of the "Project Handover Folder – Admin Building" for the GTDG Administration building showed that it contained links to management of change documents, operating procedures, maintenance procedures, safety and compliance certificates, closure punch list, handover walkthrough, electrical and mechanical isolation points, procurement details, construction details, quality assurance, quality control documents and training resources.	
			Process and Policy Rating: A	Performance Rating: 1
2.5	Ongoing legal/environmental/ safety obligations of the asset owner are assigned and understood	Priority 2	Through discussion with the GBU Asset Management Lead, GBU Process Safety Engineer, Muja Power Station Quality Statutory Teams Supervisor, GTDG Engineering Manager and consideration of relevant policies and procedures, we determined that Synergy conducts the following activities for identifying and managing legal/environmental/safety obligations relating to its assets: • Synergy manages awareness of key obligations imposed on the business through a register of environmental and related licences. • Synergy has developed a Process Safety Management (PSM) Standard to be used across the organisation as part of the Process Safety and Asset Management (PSAM) system. Each site has a designated Process Safety Management leader and committee whose assigned responsibilities include identifying, evaluating and documenting legislative and regulatory requirements pertaining to process safety. • Synergy maintains an environmental management system that it aims to align with ISO14001 in order to comply with its environmental and legal requirements. The environmental team is responsible for identifying, evaluating and documenting legislative and regulatory requirements pertaining to environmental obligations. • Incidents are recorded and managed to close out through Empower, an information management system for managing production, environmental, health and safety incidents and hazards. The owner, investigation lead, due date and review with incident learnings are assigned and documented. Synergy has a requirement for process safety incident investigations to be closed out within 30 days and this is a tracked and reported KPI. • Synergy has a Health & Safety performance dashboard that tracks KPIs related to incident and hazard investigations, corrective actions and lessons learnt. Learnings from one site are shared with other sites in regular meetings. • The Training Matrix outlines the Health, Safety and Environmental training courses available to Synergy personnel. These are designated as either mandatory, recommended or optional depending upon the role's relation to legal, environmental and safety obligations.	
			Process and Policy Rating: A	Performance Rating: 1

5.3 Asset Disposal

Key Process:	Asset disposal is the consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets.
Outcome:	The asset management framework minimizes holdings of surplus and under-performing assets and lowers service costs. The cost-benefits of disposal options are evaluated.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations	
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process	Priority 5	Through enquiries held with the Asset Management Lead, GBU Asset Performance Manager, GBU Asset Optimisation Manager, Muja Power Station Asset Optimisation Manager, Pinjar Station Manager and examination of relevant documentation, we noted that: • Synergy produces GBU Weekly Availability Reports, Monthly Report Packages and Monthly Business & Safety Reports. These reports contain required information on causes of outages, known plant issues, outage scheduling, Availability Capacity Factor (ACF), Planned Outage Factor (POF), Forced Outage Factor (FOF), Maintenance Outage Factors (MOF), Reserve Capacity Refunds (RCRs), MWh lost for each generation unit. • The reports also outline weekly and monthly trends and clearly show which units are underperforming against performance targets and AEMO set limits. These reports are discussed on an ongoing weekly and monthly basis by site and corporate managers. • Empower is used to track the progress of any incident investigations, corrective actions and lessons learnt that affect performance of the asset. • Annual development of a generating unit's Asset Management Plan examines the criticality and condition of asset subsystems, assesses years to end of life, identifies the need for improvement projects and compares value of extension of life vs replacement. • Short term asset retirement planning is outlined in each Asset Management Plan. • During the review period, independent experts were contracted to carry out long term asset retirement planning and decommissioning cost evaluations. • Synergy's Commercial Business Unit (CBU) evaluates the economic sustainability of each generation asset in the portfolio given the continued reduction in utilisation due to market conditions. • Historically, the primary trigger for generating asset disposal is a Government requirement to reduce generation.	
			Process and Policy Rating: A	Performance Rating: 1
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	Priority 5	Through enquiries held with the Commercial Business Unit (CBU) Manager of Strategic Analysis, GBU Asset Performance Manager, GBU Asset Optimisation Manager, Muja Power Station Asset Optimisation Manager, Pinjar Station Manager and examination of relevant documentation, we noted that: • Utilisation levels of assets are monitored by the CBU's analytical team and the merit of sustaining the underutilised unit is assessed. The CBU conducts scenario modelling in PLEXOS, taking into account Synergy's strategic goals, market shaping, future demand, the Distributed Energy Resource transition, WEM market reforms and stakeholders throughout the value chain to see if it is economically viable to keep a generating asset. Retirement dates are updated each financial year in a process to match Synergy's fleet to market requirements. These reviews have resulted in a decrease in Synergy's generation portfolio throughout the review period with the retirement of Kwinana GT1 and Mungarra 2 units and the moving of other assets off Synergy's books. • Corrective maintenance reports track bad actors by cost and work order count through the Reliability Dashboard and can drill down from plant, to unit, plant area then system. The AMP of each unit allocates funding for corrective maintenance (designated PM01)	

No.	Effectiveness Criteria	Review Priority	Observations	
			and outlines equipment retirement strategy as well as OPEX and CAPEX strategy over the next 5 financial years to either repair, replace, augment or add new equipment to rectify poor performance. • Sampling of an AMP showed that equipment known to cause forced outages and equipment considered obsolete or reaching obsolescence in the next 5 years is identified for each unit. This results in investigations and engineering studies of those particular equipment. • Incidents causing underperformance and outages are investigated, tracked in Empower and reported to site and corporate management in weekly and monthly performance reports. Examination of an Incidents Learning report shows that investigations determine root causes, contributing factors, trigger corrective actions and document key learnings. Inspections and necessary corrective work are also triggered in similar generation units. • Synergy has a defect elimination program in place. Random sampling of a defect elimination project ("HP Steam Chest WIPS Fault Defect Elimination") demonstrated that engineering investigation includes a business case and risk assessment to show value of the project, engineering analysis, root cause identification, recommended actions and an ease/benefit analysis to determine which action will result in the highest value for given resources. • Lines of communication exist between sections of GTDG and Thermal Generation for sharing knowledge regarding common issues.	
			Process and Policy Rating: A	Performance Rating: 1
3.3	Disposal alternatives are evaluated	Priority 5	Through discussions held with the Kwinana Closure Project Manager, Pinjar Station Manager, Financial Planner, Group Financial Controller and a review of Kwinana closure and rehabilitation documentation it was noted that: • All decommissioning and demolitions are required to go through a demolition planning activity to assess disposal options. • Specialised assets have limited disposal options as transportation and refurbishment of the generation equipment was assessed as not cost effective. • Land at the Kwinana site is currently designated as requiring contamination remediation and will remain so until generation ceases at the site. Alternative use for the land such as a site for new assets is being considered. • The Kwinana Turbine Hall is currently planned for demolition. Discussion is being held with Kwinana site as to the possibility of repurposing certain buildings. • Some buildings at the Kwinana site have been repurposed. For example, after assessment of condition, a business case was built, project executed and handover completed to repurpose a building as a boilermaker's workshop.	
			Process and Policy Rating: A	Performance Rating: 1
3.4	There is a replacement strategy for assets	Priority 4	Through enquiries held with the CBU Manager of Strategic Analysis, Financial Planner, Group Financial Controller and examination of the Portfolio Asset Mission Statement, AMPs and relevant documentation, it was found that: • Synergy recognises the increasing volatility in market demand, conducting forecasting studies of solar PV uptake and scenario modelling through Synergy's Commercial Business Unit. One, five and ten year forecasts of service levels based on scenario modelling and historic data are carried out in PLEXOS and incorporated into the Portfolio Objectives which are incorporated into the Portfolio Asset Mission Statement. • Due to the modelled market factors and Government dictated reduction in generation, Synergy's current strategy is to retire generating assets as opposed to replacement of assets in its generation portfolio. • The GBU maintains AMPs for retired Synergy assets until they are fully demolished and removed from site. This covers the Kwinana Rehabilitation project, Muja 1-4 and Muja 5 & 6 to be retired in 2022 and 2024 respectively.	
			Process and Policy Rating: A	Performance Rating: 1

5.4 Environmental Analysis

Key Process:	Environmental analysis examines the asset management system environment and assesses all external factors affecting the asset management system.
Outcome:	The asset management system regularly assesses external opportunities and threats and identifies corrective action to maintain performance requirements.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations	
4.1	Opportunities and threats in the asset management system environment are assessed	Priority 4	Through discussions and walkthroughs with the Asset Management Lead, CBU Manager of Strategic Analysis and examination of relevant documents it was found that: • As outlined in the Synergy Asset Management Manual, a 'PESTEL' analysis is used to evaluate external factors leading to opportunities or threats to the asset management system. This encompasses political, economic, social, technological, environmental and legal/regulatory influences on the asset management system. • Synergy considers the change in operating regime from continuous operation to intermittent or low load operation in the Synergy Asset Management Manual. This triggers a change in maintenance philosophy which is reflected in the individual Asset Management Plans. • Synergy recognises that continued growth of the "duck curve" means that continuous operation is no longer the norm. This change in operating conditions is reflected in the Portfolio Asset Mission Statement which in turn is reflected in the Asset Management Plan and influences maintenance strategies. One example sited was the development of a new outage type by GTDG known as "Package Inspections". These were developed after recognising that some hours driven inspections could be extended and some start/stop driven inspections needed to be increased in frequency. Another example is engineering studies being conducted to improve the flexibility of thermal generation assets. • The CBU strategic analysis team conducts scenario modelling in PLEXOS, taking into account external factors such as future demand, the Distributed Energy Resource (DER) transition and WEM market reforms. Currently, PLEXOS has limitations in modelling short run dispatch profiles (e.g. multiple starts in a single day). Synergy recognises the need to refine the current model. These models then influence the Portfolio Objectives defined by the Asset Mission Statement which in turn forms the basis of each Asset Management Plan. • The strategic analysis team carry out a formal base forecasting model in PLEXOS at least once a year to inform the State budget. This is corrected during the year as the market changes, for example, when Western Power informed Synergy on system instability which led to assumptions being changed about the model. These models extend into a high level 20 year outlook and influence investment and retirement decisions. Major decisions, such as asset retirements, are stress tested through several scenarios. • Synergy recognises current WEM Market Reforms (WEMMR) and has put in place a project, liaising directly with the market operator.	
			Process and Policy Rating: A	Performance Rating: 1
4.2	Performance standards (availability of service, capacity, continuity,	Priority 4	Enquiries were held with the Asset Management Lead, Asset Performance Manager and Asset Optimisation Manager as well as a review of the Asset Mission Statement (AMS), Synergy Asset Management Manual (SAMM) and sampling of Weekly and Monthly Performance reports. Performance standards are translated into specific, measurable objectives in the annual Asset Mission Statement. Defined objectives take into account market rules, EGL7 and business requirements.	

No.	Effectiveness Criteria	Review Priority	Observations
	emergency response, etc.) are measured and achieved		As mentioned in element 1.3, Key Performance Indicators and Portfolio Objectives defined by the Asset Mission Statement for each generating asset are: • electricity sent-out (GWh); • installed nameplate capacity (MW); • certified reserve capacity (MW) (CRC); • number of starts (average per unit); • net thermal efficiency (%); • Available Capacity Factor (%) (ACF) and 3-year rolling ACF; • Planned Outage Factor (%) (POF); • Maintenance Outage Factor (%) (MOF); • Forced Outage Factor (%) (FOF); • Planned retirement date; and • Estimated operating hours till retirement. The Portfolio Asset Mission Statement also outlines the need to meet Australian Energy Market Operator (AEMO) and Wholesale Energy Market (WEM) requirements regarding CRC, ACF and POF requirements. Synergy tracks performance of these objectives for each generating asset against defined targets based on internal or market rules. These are then reviewed by site and corporate management in Weekly and Monthly Performance reports. KPIs that vary from target greater than 5% are flagged and reviewed during management meetings at site to decide if corrective actions are sufficient. Causes of outages which affect delivery of service levels are outlined in the report. In terms of emergency response, the Crisis Management Plan, site Emergency Management Plan and site Business Continuity Plans are used collectively as Synergy's approach to contingency management and emergency preparedness as outlined in the Synergy Asset Management Manual. The details and evidence of testing for these emergency response measures are outlined in element 9.1 Contingency Planning.
			Process and Policy Rating: A | Performance Rating: 1
4.3	Compliance with statutory and regulatory requirements	Priority 4	Through discussion with the GBU Asset Management Lead, GBU Process Safety Engineer, Muja Power Station Quality Statutory Teams Supervisor, GTDG Engineering Manager and consideration of relevant policies and procedures, we determined that Synergy conducts the following activities to comply with statutory and regulatory requirements: • Synergy manages awareness of its statutory and regulatory requirements through a register of environmental and related licences. • Synergy has developed a Process Safety Management (PSM) Standard to be used across GBU as part of the Process Safety and Asset Management system. The PSM's purpose is to prevent serious, process related incidents that could affect plant personnel, off-site communities or the environment or result in significant asset damage or financial loss. Each site has a designated Process Safety Management leader and committee whose assigned responsibilities include identifying, evaluating and documenting legislative and regulatory requirements pertaining to process safety to help ensure compliance. • The statutory compliance team is responsible for development and execution of the compliance management plan and reviews requirements annually. Procedures to execute outage work for compliance are documented in Major Maintenance Outage Procedure – Quality and Compliance. Metallurgical officers with suitable technical knowledge carry out inspection work such as weld treatment and NDT. Random sample (Muja 8 M8-AS-SRV-18-1 Steam Valve) was able to produce a test certificate signed off by an accredited 3rd party spanning the entirety of review period. • Triboss (MS Access based software) is used as a classified plant record book at Muja Power Station. Site personnel report that during the Ellipse to SAP transition there were some items lost, however, the Triboss system provided a backup and allowed crosschecking using a spreadsheet. Triboss is now being phased out as it is being replaced by SAP. A project is currently in place to ensure data is fully transferred to SAP and data captured is as complete as practicable. • Regulatory compliance work is prioritised. Work such as statutory inspections are flagged to differentiate them from normal priority work. At site, the Quality Compliance Team carries out risk based inspections, reviews statutory scopes and modifies priority, frequency or type of work taking into account maintenance history.

No.	Effectiveness Criteria	Review Priority	Observations	
			• Random sampling from Muja projects "EP10506 MPS Turbine Hall Crane Replacement" demonstrated compliance with Worksafe, registered plant requirements with DMIRS, Safety Management Plan, Safety Certificates and Inspection Checklists. • As a Technology and Transformation initiative, Synergy has recently incorporated their Hazard Register with SAP. Work orders generated now highlight safety related hazards automatically. If a hazard is identified in one piece of equipment it is automatically flagged for similar equipment in Synergy's fleet. • Evidence was produced to show that at site, Synergy conducted HAZID workshops to identify environmental, process and health and safety hazards, documenting the residual risk assessment, effectiveness of controls, recommended actions and completion of actions. • Incidents are recorded and managed to close out through Empower. Production, environmental, health and safety incidents as well as hazards are identified in Empower. The owner, investigation lead, due date and review with incident learnings are assigned and documented. Synergy has a requirement for process safety incident investigations to be closed out within 30 days and this is tracked and reported as a KPI. • Synergy has a Health & Safety performance dashboard that tracks KPIs related to incident and hazard investigations, corrective actions and lessons learnt. Learnings from one site are shared with other sites in regular meetings. The Health & Safety Risk Management Procedure documents safety roles and responsibilities of each level of personnel in Synergy and provides guidance on development of process safety bow ties, change management risk assessment, hazard identification and risk assessment (HAZID/HAZOP), safe work instructions, task risk assessments and individual risk assessments (take 5s). Examination of sample work procedures showed these risk assessments were incorporated. At site, the morning meeting agenda included a review of new safety hazards such as increased probability of steam leaks, areas isolated due to safety risks, current high-risk work and high priority work being conducted. These are supplemented by monthly OH&S meetings. • As detailed in element 2.5, Synergy maintains an environmental management system that it aims to align with ISO14001 in order to comply with its environmental requirements. Walkthroughs with site personnel outlined procedures taken to ensure compliance with environmental regulations as outlined in the environmental management system. As an example, the Pinjar site is placed above a natural aquifer therefore all water on site is captured and sample tested with regular internal and external audits to ensure compliance. • Training is made available to Synergy personnel depending upon depending upon the role's relation to statutory and regulatory obligations.	
			Process and Policy Rating: A	Performance Rating: 1
4.4	Service standard (customer service levels etc) are measured and achieved	Priority 4	Through discussion with the Asset Management Lead, GBU Asset Performance Manager and a review Synergy's Asset Management policy it was determined that: • The Asset Management Policy states that one of its goal is to manage its power generation assets to deliver best value electricity for Western Australia. • Synergy's EGL7 licence applies directly to GBU's power generation operations. As such, the GBU's primary customer is internal to Synergy, the Wholesale Business Unit (WBU). In order to ensure that it is satisfying the requirements of the WBU, regular stakeholder management sessions are held between the GBU and WBU at a corporate management level. • Other obligations to the West Australian community are met through compliance with AEMO, statutory and regulatory requirements.	
			Process and Policy Rating: A	Performance Rating: 1

5.5 Asset Operations

Key Process:	Asset Operations is the day-to-day running of assets (where the asset is used for its intended purpose).
Outcome:	The asset operations plans adequately document the processes and knowledge of staff in the operation of assets so service levels can be consistently achieved.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations
5.1	Operational policies and procedures are documented and linked to service levels required	Priority 4	Through enquiries held with the Asset Management Lead, Muja Operations Manager, GTDG Station Manager, thermal generation and GTDG Planners, and examination of documented policies, standards, procedures and operating instructions, we observed that Synergy: • Has operational strategies and operational plans outlined for each site. • Has plant operational frameworks for each site which encompass: o specification of current operating requirements and nature of plant utilisation; o production planning including: (i) generation; (ii) resource usage (water, fuel, other); (iii) planned outages strategy; and (iv) operator requirements and shift planning. o recording and tracking plant availability; o managing operational flexibility and change in operating requirements; o operator training and certification; o procedures for plant isolations and management of permit to work system; o procedures for plant handover, commissioning, out of service and return to service/start up; o reporting operational incidents including investigations; and o operational performance reporting and statutory reporting. • Has daily production prioritisation meetings at site held by the operations supervisor who assesses the performance requirements dictated the market operator. • Has a range of operational instructions and guidelines as controlled documents concerning plant operations segregated by site. These include station instructions (SI), plant operating instructions (POI), temporary operating memorandums (TOM), safe work instructions (SWI), management systems (MS), guidelines and hazard registers (GN). • Operational documents can be accessed via a site Operations Portal which contains P&ID drawings by unit and operating instructions. • Currently, a significant percentage of controlled document reviews at Muja Power Station are overdue. Synergy is aware of the review backlog and continues to review station documents based on safety criticality and priority level with weekly progress reports. This is covered in further detail in element 12.1. • Currently, the AEMO dispatches generating units and Synergy ranks the assets on a dispatch merit list, demoting those assets with known issues and informing the AEMO through a communication. From 1 October 2022 Synergy will take control of turbine dispatch and have to respond to instructions from the AEMO within a 5 minute period. In anticipation of this, a project is underway to ensure all operational procedures and SCADA systems are able to comply with this requirement. • The Asset Management System and Portfolio Asset Mission Statement outlines overall organisation wide objectives (the "what"). Generating unit annually prepared AMPs provide descriptions of relevant operational activities and tasks to achieve the service levels required (the "how").

No.	Effectiveness Criteria	Review Priority	Observations	
			Process and Policy Rating: A	Performance Rating: 1
5.2	Risk management is applied to prioritise operations	Priority 4	Through enquiries held with the Asset Management Lead, Muja Operations Manager, GTDG Station Manager, Open Cycle Gas Turbine (OCGT) Manager, thermal generation and GTDG Planners and examination of documented policies, standards, procedures and operating instructions, we observed that Synergy: • Applies risk-based processes to rank operations tasks. One of the main elements of Synergy's Process Safety and Asset Management (PSAM) system is the prioritisation of work on a risk basis. Initial risk assessment is done by the lead production and performance engineer to see if there is a viable alternative to break-in to the schedule. A full risk assessment is carried out for critical components, for less critical components the risk assessment may be delayed. This decision is based on discussion with operations managers. Random sampling of such a risk assessment demonstrated documentation of likelihood, consequence, residual risk level, action plans and responsible persons. Also documented was the means by which the risk assessment was conducted, in this case by an experience committee discussion. • At site, a morning meeting is held by operators to discuss safety and production issues by asset. Findings from the operator's meeting are fed into the production daily prioritisation meeting held by the operations supervisor who also assesses the performance requirements dictated the market operator.	
			Process and Policy Rating: A	Performance Rating: 1
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	Priority 3	Through enquiries held with the Asset Management Lead, Muja Operations Manager, GTDG Station Manager, thermal generation and GTDG Planners, and examination of documented policies, standards, procedures and operating instructions, we determined that Synergy: • Has transitioned from Ellipse to SAP during the review period and is used to record details such as: 1. Functional location 2. Equipment, sub-assemblies and lower structure levels 3. Bill of Materials (BoMs) 4. Classification and characteristics of technical specifications including equipment risks, details and statutory requirements (e.g. safety integrity level) 5. Maintenance plans, maintenance items, task lists (preventative, corrective and outage tasks) and schedule 6. Document information records including manuals, drawings, work instructions, pictures, etc. 7. Measuring points to capture conditional or operational data 8. Material management containing descriptions of all items used in Synergy maintenance, procurement and inventory management processes. • Maintains significant master data standards and a work management blueprint regarding the functioning of SAP. • Changes to master data are completed using a 'D1 Notification' process. Any personnel can raise a D1 notification, however the change can only be executed by the master data specialist team after gaining the appropriate approvals. • Temporary equipment being used for less than 6 months is not required to be entered in SAP. • Random sampling of Asset Management Plans showed that for the Pinjar Frame 9 AMP, section *16.2 Spares for End of Life and Obsolete Major Equipment* and section *16.3 Spares Holdings Strategy* were incomplete as there was uncertainty that data contained in SAP reflected actual spares held at Pinjar Power Station. Synergy has planned a review of available spares at Pinjar Power Station which is to be completed prior to September 2021. • By speaking with site personnel and planners, it was recognised that Synergy self-identified legacy issues incurred during the transition from Ellipse to SAP. GTDG site personnel report that the Ellipse system had poor granularity and therefore this continued into the transition into SAP. Enquiries with site planners noted that general tasks lists were not standardised during transition which is an issue that was carried over from Ellipse. This is one area Synergy is attempting to rectify through its Master Data Program. The continuous improvement program has also resulted in improved recording for reasons of failure in SAP which greatly assists engineering studies and root cause analysis.	

No.	Effectiveness Criteria	Review Priority	Observations	
			As a random sample, we viewed the SAP records for the Muja Turbine Hall Crane replacement and noted the functions of the register, including the ability to view asset register hierarchy and maintenance items. We were also able to view project documentation including business case and closeout documents.	
			Process and Policy Rating: A	Performance Rating: 2
5.4	Accounting data is documented for assets	Priority 4	Through enquiries with the Asset Management Lead, Group Financial Controller and examination of the Finance Fixed Asset Register it was determined that Synergy: • As evidenced by screenshots, accounting data is documented in a fixed asset register in SAP and includes details such as capitalisation date, acquisition and production costs, posted and planned depreciation figures, write-ups, valuation adjustments and net book value. These details can be extracted into an Excel sheet which was provided as further evidence. • Documentation of accounting data follows standards published by the Australian Accounting Standards Board as evidenced by audited financial statements in Synergy's Annual Reports for FY18, FY19 and FY20. • Assets are capitalised and depreciated in line with Australian Accounting Standards Board recommendations. Depreciate rates are determined by firstly the nature of the asset (as advised by the project manager) and the estimated remaining useful life of the asset or plant it is being installed on. • Changes to accounting data are to be executed in accordance with accounting standards and are subject to external audit review. Any change to an asset's useful life is advised by the plant managers and checked against the Asset Management Plan. Plant managers and warehouse supervisors advise when assets are disposed of and finance team are to carry out checks to ensure cash is received in the account for sale.	
			Process and Policy Rating: A	Performance Rating: 1
5.5	Operational costs are measured and monitored	Priority 4	Through enquiries held with the Asset Management Lead, Muja Operations Manager and GTDG Station Manager and a review of documented policies, standards, procedures and performance reports it was established that: • Budget reviews are conducted monthly by management utilising dashboard reports. These examine actual vs planned costs and any significant variations, unbudgeted events and corrective maintenance. Individual causes of variations and alternative options are discussed and corrective actions determined by management. • The monthly GBU Portfolio Review tracks actual vs forecast expenditures and breaks down operational costs by operating units comprising of Thermal Generation, Gas Turbines and Distributed Generation (GTDG), Asset Optimisation and Portfolio Projects. • As outlined in the SAMM, the Manage to Budget (MTB) process is the method by which Synergy builds their 5 year Opex and Capex budgets and is conducted on an annual basis. The process considers past actual costs, updates to the 20 year outage plan (as evidenced by the Synergy Portfolio Overhaul Schedule), a review of PLEXOS financial modelling and AMS developments. • The OPEX budget is built by: 1. A review of the asset mission / asset management plans 2. Determining activities, e.g. shutdowns, maintenance 3. HR provides current people numbers (budget will be by position rather than person) 4. Financial Planning prepare Prophix (or equivalent) system and load rates per job band, allowances, etc. 5. Opex target range is set 6. Prophix system open for cost centre managers to confirm people numbers and enter all relevant costs including third party costs 7. Internal reviews within Synergy Business Units and Executive Leadership Team. • OPEX budgets are built from the bottom up using previous 5 year's historic data with an adjustment for planned future works. • Challenge sessions are conducted of any low risk expenditures and incorporate feedback from planning, maintenance and operations personnel.	
			Process and Policy Rating: A	Performance Rating: 1

No.	Effectiveness Criteria	Review Priority	Observations	
5.6	Staff resources are adequate and staff receive training commensurate with their responsibilities	Priority 4	Through enquiries held with the Asset Management Lead, Muja Operations Manager and GTDG Station Manager and a review of the Synergy training matrix, documented policies, standards and procedures it was established that: • The Synergy Process Safety Management (PSM) Standard outlines the importance of adequate job knowledge, training and knowledge management. Section 9.3 of the PSM encompasses the need for management to ensure that existing and new personnel are competent and fit for work including the retention of experience and knowledge, onboarding process, change management plan for critical personnel and training programmes. • The Synergy Training Matrix outlines required licences, diplomas, certificates, degrees and other qualifications required by each personnel type across GBU. It also covers mandatory, recommended and optional training requirements for each personnel type in the areas of technical courses, site inductions, fire and emergency response, first aid courses, safety courses, environmental courses, authorisations and GBU operational technology systems. • Qualifications, licences and training are recorded for all GBU staff and contractors. During site visits it was noted that the prestart meeting supervisor reminded individual technicians of their upcoming due dates for training. Face to face SAP training was also being made available to site personnel by SAP Master Data specialists. • For engineering personnel, Synergy has a career plan showing recommended knowledge base required for career progression but no mandatory professional development program. Only the internal graduate program has mandatory professional development requirements. Mentorship is through informal means and Synergy recognises that a potential area for improvement would be a formal mentorship program. • The Muja Power Station operations manager noted that the operations team has a high level of knowledge retention, citing that the last new hire was in 2007. All operators are expected to be multidisciplinary and all positions are rotated for exposure to different plant. The constantly overlapping roster allows plant condition information to be conveyed to the next operator in addition to the use of an electronic logbook. • Technician knowledge retention is achieved by documenting procedure instructions that now include pictures of how to carry out work. A feedback process is in place that allows modification of procedures to capture greater detail. • Thermal generation personnel are divided into boiler, turbine and balance of plant (shared and supporting services) maintainers and operators. GTDG personnel are divided into mechanical and electrical working groups. • As some generation sites, such as Pinjar Power Station, are only manned by technical personnel during weekday working hours, an on call roster known as the "Chance Availability Roster" comprising of 2 mechanical and 2 electrical personnel and has contingencies for leave/sickness. The roster and generation unit dispatch order is reviewed and issued on a weekly basis to the AEMO, WBU, trading partners and internal stakeholders. In the case of alarms triggering, on-call personnel can be contacted through a Synergy device or managed BYOD mobile. • Many engineers left Muja Power Station in 2016/17. The site engineering manager raised this issue with Perth corporate office, highlighting that this was causing a risk to health and safety. This was rectified by assembling a recruitment team which assessed reasons for engineers leaving, new salary packaging and significant rehiring. The Muja Power Station engineering manager now believes overhead engineering services are adequate and where they are lacking, these positions are filled with third party engineering services. • GTDG experienced a shortage of technicians for outage works due to COVID-19 preventing interstate travel. As a contingency, qualified technicians were taken from Muja Power Station and placed under Pinjar supervisors to complete work.	
			Process and Policy Rating: A	Performance Rating: 1

5.6 Asset Maintenance

Key Process:	Asset maintenance is the upkeep of assets.
Outcome:	The asset maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work can be done on time and on cost.
Process and policy definition rating	B
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations	
6.1	Maintenance policies and procedures are documented and linked to service levels required	Priority 4	Through enquiries held with the Asset Management Lead, GBU Asset Performance Manager, Manager Asset Optimisation, GTDG Station Manager, Muja Power Station Engineering Manager, a walkthrough of maintenance arrangements, attendance of maintenance planning and scheduling meetings and examination of documented policies, standards, procedures and work instructions, we determined that: • Maintenance policies are outlined by the Asset Management Policy in conjunction with the Synergy Asset Management Manual (SAMM) and Process Safety Management (PSM) Standard. • Synergy's service level requirements are translated into specific, measurable objectives in the annual Asset Mission Statement. Defined objectives take into account market rules, EGL7 and business requirements. Forecast dispatch requirements, Key Performance Indicators and Portfolio Objectives are defined in the Asset Mission Statement for each generating asset. • Inputs are taken from the Asset Mission Statement and SAMM to form the Asset Management Plan (AMP) for each asset which defines the operating, maintenance, obsolescence and spares, engineering, OPEX, CAPEX and retirement strategy for the next 5 years with a long-term outlook. Synergy has 12 AMPs for Thermal Generation (11 for Muja, 1 for Collie) and 13 AMPs for Gas Turbines and Distributed Generation (GTDG). New AMPs following the SAMM after redesign of the AMS are still currently being developed. • The AMPs are then used to influence the formation of operations and maintenance plans for each generating asset covering corrective maintenance, preventative maintenance, refurbishment and outage works. • As mentioned in element 5.3, random sampling showed that for the Pinjar Frame 9 AMP, section *16.2 Spares for End of Life and Obsolete Major Equipment* and section *16.3 Spares Holdings Strategy* were incomplete as there was uncertainty that data contained in SAP reflected actual spares held at Pinjar Power Station. Synergy has planned a review of available spares at Pinjar Power Station which is to be completed prior to September 2021. Completion of the inventory review should trigger a revision of the Obsolescence and Spares Strategy for all relevant Pinjar assets. Until such a point, the Asset Management Plan should indicate that it will rely upon previously existing strategies for spares and these must be reviewed for currency. • Condition data, information and analysis feeds back into planned engineering studies outlined in the AMP which then result in an improvement of the AMP and maintenance plans.	
			Process and Policy Rating: B	Performance Rating: 1
6.2	Regular inspections are undertaken of asset performance and condition	Priority 4	Through enquiries held with the Asset Management Lead, GBU Asset Performance Manager, Manager Asset Optimisation, GTDG Station Manager, Muja Power Station Engineering Manager, a walkthrough of maintenance arrangements, attendance of maintenance planning and scheduling meetings, examination of documented policies, standards, procedures and work instructions we determined that: • Scheduled frequency of condition and performance inspections of equipment is dictated on a risk based approach in the Asset Management Plan based on OEM data, criticality and equipment history. • The Synergy Portfolio Overhaul Schedule outlines the inspection activities to be conducted and outage plan for the next 10 financial years.	

No.	Effectiveness Criteria	Review Priority	Observations
			• Inspections are scheduled as 'PM02' preventative maintenance or 'PM06' outage works depending on when they are to be conducted. Any defect detected found during regular inspection will trigger a 'PM01' corrective maintenance work order. Overdue work orders are flagged and the weekly Maintenance Metrics Report covers schedule adherence and backlog of all work types. • Changing the frequency of inspections and maintenance works requires reasoning to be submitted, peer review and relevant approvals. • Engineering projects and studies based upon condition and operating data may result in altering the frequency of inspections. As an example for GTDG, package inspections were developed after recognising that some hours driven inspections could be extended and some start/stop driven inspections needed to be increased in frequency. An example given for thermal generation was the turbine trip lock at Muja. This was tested monthly, now the frequency has increased to weekly to ensure that it does not jam. • Asset performance data is logged in the Loss of Energy Availability Data System (LEADS) and previously in the Loss of Availability Generation System (LAGS). The LEADS system utilises streaming data, reports on outage causes and the information is verified by the responsible site personnel. Weekly and monthly performance reports are based on LEADS data and reviewed by management.
			Process and Policy Rating: A | Performance Rating: 1
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	Priority 2	Through enquiries held with the Asset Management Lead, GBU Asset Performance Manager, Manager Asset Optimisation, GTDG Station Manager, Muja Power Station Engineering Manager, a walkthrough of maintenance arrangements and examination of documented policies, standards, procedures, and work instructions, we determined that: • The Maintain Assets Blueprint covers the Synergy work management process including work identification, planning, scheduling, delivery, close out and continuous improvement. • The scheduled maintenance plans along with corrective maintenance, outage works and refurbishment works are held in Synergy's computerised maintenance management system, SAP. • Work is first identified by the raising of a maintenance notification. These notifications can either be 'M1' maintenance requests (including follow-up work required), 'M3' activity report (for small work, e.g. frontline maintenance, no work order required), 'M4' refurbishment (e.g. for equipment serviced with rotable spares) or 'M5' Management of Change – Technical (MoC-T) for technical change such as installation, decommissioning, replacement of plant or control/protection system changes. • Maintenance notifications must contain accurate details of justification, priorities, criticality and risk and be checked by authorised personnel. • Work scoping must be completed within 7 days and follow a standardised scoping sheet for Muja. GTDG scoping is conducted by the site planner. The transition for work notification to work order in SAP must be progressed within 7 days. This is a tracked metric by Synergy. • The supervisor or planner reviews and accepts or rejects all active notifications daily. The notification is given a priority level between 1 and 4, which defines the urgency of when it should be scheduled in. • Notifications converted into work orders are designated as either PM01 corrective maintenance, PM02 preventative maintenance, PM04 refurbishment or PM06 outage works. • For reasons such as limited access due to live plant, a number of works get pushed to outages. The procurement process for scheduled outages begins 18 months beforehand and planned inspection and maintenance works take into account condition data. Priority 1 works for high criticality and statutory equipment are given higher priority for execution. The project manager for the outage is responsible for optimising scheduling of work, producing a post-outage report and review to assess any continuing issues and improvement opportunities. • The reasons for a work order being on hold are documented in SAP and are divided into planning, engineering, finance, operations, purchasing or lack of technical information/scoping. • As stated in Synergy's Maintain Assets Blueprint, planning is divided into short-term (70 days) processes and long-term (greater than 70 days) processes.

No.	Effectiveness Criteria	Review Priority	Observations
			• For Muja, Collie and the whole of GTDG combined, Synergy tracks the following scheduling related KPIs against set targets in its weekly and monthly Maintenance Metrics Reports: o Schedule adherence o Work order backlog (all work order types) o Work order forward log (all work order types) o Work orders closed correctly o Notification failure codes for priority 1 and priority 2 notifications o Notification failure codes for all work o Work order hours planned vs actual o Notification created but not converted o Work orders completed with zero costs entered o Preventive work orders overdue • Maintenance Metrics Reports present work order backlog for all work order types. • Failure to meet performance targets results in the management team investigating the reasons behind the issue, putting in place corrective actions and following the trend in subsequent weeks. • In discussions with the Asset Management Lead and site planners, we were shown examples of work orders, work order revision schedules, planned maintenance works and major maintenance outage procedures. While at site we attended the daily prioritisation meeting where delaying lower priority work, shut down of plant (planned or forced), parts procurement, labour, materials, access and scheduling for break-in priority 1 corrective work was discussed while considering dispatch requirements. • Emergency and business continuity plans are documented and regularly tested as outlined in further detail in element *9.1 Contingency Planning*.
			Process and Policy Rating: A | Performance Rating: 1
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary	Priority 2	Through enquiries held with the Asset Management Lead, GBU Asset Performance Manager, Manager Asset Optimisation, GTDG Station Manager, Muja Power Station Engineering Manager, a walkthrough of investigation arrangements, examination of documented policies, standards, procedures, work instructions, investigation reports and bow ties we determined that: • Failures and incidences are investigated, tracked in Empower and reported to site and corporate management in weekly and monthly performance reports. Examination of an Incident Learning report (INC 6722) shows that investigations determine root causes, contributing factors, trigger corrective actions and document key learnings. These flow through to notifications and work orders generated in SAP. Inspections and necessary corrective work are also triggered in similar generation units. The Incident Summary report records immediate action, effect on safety, production, the environment, incident cause analysis, actions, SAP notifications and activity stream. It was noted that several incidents listed triggered similar actions for sister units. • Synergy has a defect elimination program in place. Analysis from reported data is used to identify bad actors. These are reviewed by a central committee working with each site and decisions are made on which engineering projects need to be prioritised and progressed. This is done on a monthly basis. Random sampling of a defect elimination project ("HP Steam Chest WIPS Fault Defect Elimination") demonstrated that engineering investigation includes a business case and risk assessment to show value of the project, engineering analysis, root cause identification, recommended actions and an ease/benefit analysis to determine which action will result in the highest value for given resources. • Synergy has been developing bow ties for 14 identified process safety hazards. This is covered in greater detail in element *9.1 Contingency planning*.

No.	Effectiveness Criteria	Review Priority	Observations	
			Process and Policy Rating: A	Performance Rating: 1
6.5	Risk management is applied to prioritise maintenance tasks	Priority 2	Through enquiries held with the Asset Management Lead, Muja Operations Manager, GTDG Station Manager, Open Cycle Gas Turbine (OCGT) Manager, thermal generation and GTDG Planners, a walkthrough of maintenance arrangements, attendance of maintenance planning and scheduling meetings and examination of documented policies, standards, procedures and site visits, we determined that: • Synergy applies risk-based processes to rank maintenance tasks. The PSAM system requires the prioritisation of work on a risk basis. This cascades through the SAMM and to the individual AMPs which assess the generating asset's condition. This includes assignment of residual criticality ranking to electrical, mechanical and control equipment for each generating asset. A workshop team comprising of site maintenance, operations and planning personnel examine likelihood of failure, history of failure, previous maintenance activities and CAPEX projects when assessing asset condition. This then alters the maintenance strategy applied to each piece of equipment for each generating asset upon receiving approval from site management. Random sampling of the Pinjar Frame 9 AMP demonstrated that risk management had been applied to change a particular maintenance strategy. • As outlined in the Maintain Assets Blueprint, work orders are designated as either PM01 corrective maintenance, PM02 preventative maintenance, PM04 refurbishment or PM06 outage works. Maintenance notifications raised in SAP for required work are ranked by priority 1-4. Priority 1 notifications are to rectify unacceptable risks and require immediate action and break-in to the schedule; Priority 2 tasks are entered into the current schedule cycle; Priority 3 tasks can be postponed to the next schedule cycle and Priority 4 tasks are scheduled for when an opportunity (such as an outage) arises. • Random sampling of Thermal Generation and GTDG maintenance schedules, outage procedures and work instructions showed they were risk prioritised and demonstrated continuous line of sight from policies through to procedures. • Initial risk assessment is done by the Lead Production and Performance Engineer to see if there is a viable alternative to break-in to the schedule. A full risk assessment is carried out for critical components, for less critical components the risk assessment may be delayed. This decision is based on discussion with Operations Managers. • Random sampling of such a risk assessment (M5 Reheater standby corrosion risk assessment 2019) demonstrated documentation of likelihood, consequence, residual risk level, action plans and responsible persons. Also documented was the means by which the risk assessment was conducted, in this case by an experience committee discussion. • As outlined in the Maintain Assets Blueprint, a daily prioritisation meeting held by the Operations Supervisor reschedules work if high priority tasks have been identified while also considering the performance requirements dictated by the market operator. • As detailed in Section 3, Synergy modified the Weekly Maintenance Metrics report to meet the recommendations of the 2017 Review on 21 July 2017. However, during the period of approximately December 2018 to May 2020, Synergy updated the report to match the changing focus of the business needs. Therefore, the maintenance metrics report no longer addressed recommendation 01/2017 (a) "Updating its SAP Weekly Maintenance Measures report to highlight the relative priority of outstanding work orders, including summary statistics by priority rating." Since May 2020, Synergy has re-introduced the tracking of P1/P2 metrics as part of the PSAM program. Further details are outlined in Section 3. While conducting a site visit at Muja Power Station, we observed the scheduling of a priority 1 corrective works regarding two out of specification air injectors valves raised during the previous evening by the engineering team (notification 100057508, Functional location MS-AS-MOV-289 Valve). The valves had been installed previously and had been functioning acceptably till now, however, this was rightly flagged as a PSAM Hazard by the engineering team and raised to priority 1. The daily prioritisation meeting discussed delaying lower priority work, the shutdown of plant (either planned or forced), the planning of work activities, organisation of resources and logistics, and scheduling.	
			Process and Policy Rating: B	Performance Rating: 1
6.6	Maintenance costs are measured and monitored	Priority 4	Through enquiries held with the Asset Management Lead, Muja Operations Manager and GTDG Station Manager, attendance of yearly budgeting meetings and a review of documented policies, standards, procedures and performance reports it was determined that: • Budget reviews are conducted monthly by management utilising dashboard reports. These examine actual vs planned costs and any significant variations, unbudgeted events and corrective maintenance. Individual causes of variations and alternative options are discussed and corrective actions determined by management.	

No.	Effectiveness Criteria	Review Priority	Observations	
			• The monthly GBU Portfolio Review tracks actual vs forecast expenditures and breaks down maintenance costs by operating units comprising of Thermal Generation, Gas Turbines and Distributed Generation (GTDG), Asset Optimisation and Portfolio Projects. • Monthly cost analysis identifies top corrective maintenance, preventative maintenance, outage work and functional locations for each site as evidenced by random sampling (2019-02 Reliability and Defect Elimination Report – KWGT). • Work orders that do not have a cost recorded are flagged in SAP for the accountable personnel to rectify. • As outlined in the SAMM, the manage to budget (MTB) process is the method by which Synergy builds their 5 year OPEX and CAPEX budgets and is conducted on an annual basis. The process considers past actual costs, updates to the 20 year outage plan (as evidenced by the Synergy Portfolio Overhaul Schedule), a review of PLEXOS financial modelling and AMS developments. • The process by which the budget is built is outlined in element 11.3. Maintenance budgets are built from the bottom up using historic data with an adjustment for planned future works. This is covered in greater detail by element 10.5.	
			Process and Policy Rating: A	Performance Rating: 1

5.7 Asset Management Information System

Key Process:	An asset management information system is a combination of processes, data and software that support the asset management functions.
Outcome:	The asset management information system provides authorised, complete and accurate information for the day-to-date running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations	
7.1	Adequate system documentation for users and IT operators	Priority 5	Through interviews with the Information and Communication Technologies Infrastructure Manager, Applications Support Lead and SAP Analyst as well as a review of Synergy's SAP Standards, online training portal and training matrix it was determined that: • Guidance for the use of SAP is documented • Guidance and training for the use of Empower HSE is mandatory across the Generation Business Unit (GBU) • Guidance and training for the use of PI data management is available and mandatory for some personnel • Guidance and training for the use of CAD software is available and mandatory for some personnel • T&T support is available for users and specific SMEs available for SAP and PI • Documents are tracked and managed in a Document Management System and a Document Control Index is used to prioritise and manage the timely review of controlled documents at site. During site visits it was noted that face to face SAP training was being made available to site personnel by the SAP Master Data specialist. At Muja Power Station it was noted by site personnel that Document Management can be across multiple legacy platforms and they have built an in-house search engine called Information Portal to pool these together.	
			Process and Policy Rating: A	Performance Rating: 1
7.2	Input controls include appropriate verification and validation of data entered into the system	Priority 4	Through interviews with the Applications Support Lead, SAP Security Access Analyst, Asset Management Lead and a review of Synergy's Master Data Standards and Management of Change – Technical processes we determined that Synergy has the following verification and validation controls: • Access to input data is limited by role-based user profiles allocated to each employee. • Role profiles are linked to an employee's position and granulated to the individual plant level. • Role profiles assign only the relevant transaction codes to the employee and access is tested by the SAP Security and Access Analyst. • The approval of role profiles is centralised and the accountable business process owner is the Asset Management Lead. Role profiles are manually reviewed twice a year to find discrepancies in access. • Input or change of data is centralised through the Master Data Team through a 'D1 Notification' Change Process. Input data must follow the Master Data Template and/or the Material Cataloguing Form. This is then verified and validated by the centralised Master Data Team. Complex changes that affect the budget or maintenance strategy require additional approval from site engineers or managers who verify and validate the data. Upon attaining all required approvals, the central Master Data Team executes the change. • Inputted data and changes to data can be traced back to the individual who requested the change. • The process to input, validate and verify data is outlined in the document "GBU – SAP Master Data Change Procedure" and is reviewed annually.	
			Process and Policy Rating: A	Performance Rating: 1

No.	Effectiveness Criteria	Review Priority	Observations
7.3	Security access controls appear adequate, such as passwords	Priority 5	By interviewing the T&T Infrastructure Manager, Applications Support Lead, SAP Security Access Analyst, Asset Management Lead and a review of Synergy's and reviewing excerpts from Synergy's T&T Security Manual, it was noted that: • Access to applications containing privacy or other sensitive information requires the user to enter their user authentication ID, passphrase and have the correct access level assigned. • User IDs and passphrases are unique and complex. • Synergy has increased the length and complexity requirement for passphrases during the review period. • Passphrases expire and must be renewed periodically. Users must not reuse one of their previous 10 passphrases. • The passphrase expiry period has been increased significantly as T&T believes that risk has been reduced with increase length and complexity of passphrases. • A certain number of incorrect consecutive login attempts results in a timed lockout. • Banner messages remind Staff and Contractors of their personal accountability concerning the use of their user IDs and passphrases. • Geoblocking, intranet DMZ and RSA code token required for OT access. • Mandatory online training for cyber security and device safety is provided during onboarding as evidenced by the document "Copy of Synergy Training Matrix Process Safety_BVS.xlsm". Synergy utilises Multi-Factor Authentication (MFA) to reduce risk as evidenced by the document "Guide to setting up MFA & Intune". Access controls for mobile devices are outlined in the Synergy Mobile Device Compliance Guideline. Synergy requirements for Bring Your Own Device (BYOD) mobile applications are: • Touch ID or a PIN with specified length and character types • A maximum number of PIN attempts • Automatic timeout after a specified length of inactivity • Minimum Operating System requirements • Blocking access or wiping data after an offline grace period has elapsed Synergy requirements for managed BYOD mobile devices are: • Complex passwords of a specified length and character type • A maximum number of PIN attempts • Re-entering the password after a specified length of inactivity • Encryption of data stored on device • Blocking apps from unknown sources During the review period, Synergy carried out ad-hoc penetration tests to identify weaknesses in access controls as evidenced by the document "Synergy Cyber IA - Tech Addendum". It is planned to increase the number of penetration tests in a year as evidenced in the communication "RE_ KPMG Generation license audit - T&T.msg".
			Process and Policy Rating: A | Performance Rating: 1
7.4	Physical security access controls appear adequate	Priority 5	Through discussions with the T&T Infrastructure Manager, the Muja Power Station Lead Electrical, Control & Instruments Asset Engineer, examination of the T&T Security Manual and Cyber Security Strategy and observations during site visits it was noted that the physical security controls consist of: At site: • A perimeter fence with boom gate • Manned security guard house • CCTV • Card swipe access to administration buildings

No.	Effectiveness Criteria	Review Priority	Observations
			• Equipment rooms have restricted swipe card entry based on assigned role profiles. One embedded contractor has unescorted access to the equipment room, all others must be escorted. • All visitors enter through the security guard house • All visitors are registered and escorted • Visitors are given a temporary access pass • RSA token required for OT access At Synergy's head office: • All visitors are registered and escorted • CCTV • Swipe card access • Visitors were given a temporary pass and were required to sign-in and sign-out At data centres: • All visitation requires approval from the T&T Infrastructure Manager • ID checks and site inductions • Visitors must be escorted depending on their security profile • Individual server consoles locked at all times unless being used • CCTV network • Doors are alarmed and connected to a 24 hour manned station. Doors must be secured at all times and never propped open unless fully supervised. • Any access points in the Work Area are secured to not allow human physical access • Each rack opening is registered • Multi-layered access system with individual authentication using combined biometric fingerprint technology and ID access cards • Dual authentication access with biometric scanner and proximity card access control It was also noted that audits are conducted regularly to assess physical and wireless security risks and training on cybersecurity and device security is provided during onboarding.
			Process and Policy Rating: A | Performance Rating: 1
7.5	Data backup procedures appear adequate and backups are tested	Priority 4	Through discussions with the T&T Infrastructure Manager, the Muja Power Station Lead Electrical, Control & Instruments Asset Engineer, examination of the T&T Security Manual and T&T Backup Policy it was determined that: • Data is held at two onshore data centres. • Production data backup occurs every 30 seconds with a 5 minute execution time. • Data backups occur daily with weekly fills. • Verification of data restoration occurs through Business As Usual requests
			Process and Policy Rating: A | Performance Rating: 1
7.6	Computations for licensee performance reporting are accurate	Priority 5	Discussions with the PI System Specialist, Manager of Strategic Analysis and a review of policies, practices and performance reports yielded an understanding of the controls and compliance to these controls to ensure accuracy of computations for licensee performance reporting. Weekly and monthly performance reports are based on data inputted into the Loss of Energy Availability Data System (LEADS). Data inputted into LEADS has an associated timestamp and user information for traceability. The data is verified by weekly cross-referencing of LEADS against the Market Performance Interface (MPI) which is used by the AEMO to monitor regulatory requirements. The reported data is sense

No.	Effectiveness Criteria	Review Priority	Observations
			checked by engineering site representatives who validate what has been computed. Forecast models are verified with historical data and recalibrated to suit, particularly regarding operational data (for future investments and retirements). During the review period, Synergy transitioned to the LEADS system from the previous system known as Loss of Availability Generation System (LAGS). The LAGS system did not report on causation of outages as this was not a requirement for the Regulator and data for reporting was collated in a static spreadsheet. The LEADS system utilises streaming data, reports on outage causes and the information is verified by the responsible site personnel. Process and Policy Rating: A — Performance Rating: 1
7.7	Management reports appear adequate for the licensee to monitor license obligations	Priority 5	Through enquiries held with the PI System Specialist, Asset Management Lead, Manager of Strategic Analysis and examination of report documents, it was noted that Synergy produces Generation Business Unit (GBU) Weekly Availability Reports and GBU Monthly Report Packages and Monthly Business & Safety Reports. These reports contain required information on Thermal Generation and Gas Turbines and Distributed Generation (GTDG) Availability Capacity Factor (ACF), Planned Outage Factor (POF), Forced Outage Factor (FOF), Maintenance Outage Factors (MOF), Reserve Capacity Refunds (RCRs), MWh lost for each generation unit, causes of outages, known plant issues and outage scheduling. The reports also outline weekly and monthly trends and clearly show which units are meeting targets and AEMO set limits. Additional information has been added to reports to consider the changing operating environment and its effect on the Asset Management System to meet organisational goals. This includes data and trends on the number of starts, plant load profiles, SWIS demand, negatively priced trading intervals and generation fuel mix. Process and Policy Rating: A — Performance Rating: 1
7.8	Adequate measures to protect asset management data from unauthorized access or theft by persons outside the organisation	Priority 2	Through enquiries and walkthroughs held with the T&T Infrastructure Manager, Senior Infrastructure Officer, SAP Security and Access Analyst, Applications Support Lead, Muja Power Station Lead Electrical, Control and Instruments Asset Engineer and a review of excerpts from Synergy's T&T Security Manual and sampling of security incident exercise reports, it was determined that: • Three layers of defence are in place to prevent unauthorised external access: controls and limitations on internet access into the system, controlling data flow through Demilitarized Zones and a human control with an RSA token. • Access to applications containing privacy or other sensitive information is based on access level assigned to the user profile and requires the user to enter their user authentication ID, passphrase and in some cases requires multifactor authentication. • Synergy uses geoblocking technologies to prevent access to data from certain global regions. Only particular locations are whitelisted based on threat level and requirement. • Third party penetration testing is carried out at the Perth headquarters and on site to identify threats such as wi-fi network access security, physical access security and maintenance of critical hardware and software such as vulnerability/patch management, change management and release processes. • The Synergy Incident Response Plan and playbooks outline the roles, responsibilities and actions to be undertaken by members of the response team. Yearly exercises are conducted to test the Incident Response Plan, playbooks and execution by team members to identify and rectify issues. The last such exercise was the Synergy Ransomware Exercise conducted on 6 October 2020. An allowance is made for penetration tests and simulated exercises in the OPEX budget. Synergy plans to increase the number of exercises conducted per year. • There is a security boundary limiting data transfer between corporate IT and the OT network. • The Muja Power Station has developed site-specific IT security policies and procedures that capture key elements of cyber security, such as remote access procedures and password policies. • Any new OT device attempting to connect to the site system must first go through a Management of Change – Technical request process before the device is authorised to connect. During the review period, Synergy has introduced mandatory online training for cyber security and device safety during onboarding as evidenced by the document "Copy of Synergy Training Matrix Process Safety_BVS.xlsm".

No.	Effectiveness Criteria	Review Priority	Observations	
			Based on sample testing of the security incident exercise reports for the review period (i.e. Synergy Cyber IA - Tech Addendum, GridEx V Australia - Exercise Report and [2019-07] Synergy - Ransomware Exercise - Report (FINAL)), Synergy carried out ad-hoc incident exercises to identify weaknesses in access controls. It is planned to increase the number of penetration tests in a year as evidenced in the communication "RE_ KPMG Generation license audit - T&T.msg".	
			Process and Policy Rating: A	Performance Rating: 1

5.8 Risk Management

Key Process:	Risk management involves the identification of risks and their management within an acceptable level of risk.
Outcome:	The risk management framework effectively manages the risk that the licensee does not maintain effective service standards.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations
8.1	Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system	Priority 2	Through enquiries held with the Asset Management Lead, Manager of Risk, Process Safety Engineer, a review of Synergy's risk management policy, standard, system, procedure, reports and a walkthrough of Synergy's risk management program it was observed that a risk based approach is central to Synergy's asset management system and reflected across a suite of Synergy's asset management documentation such as Asset Management Plan, Business Continuity Plans, Business Cases, Emergency Management Plans, Defect Elimination Projects and engineering studies. Through walkthroughs of the risk management process we found that Synergy has the following mechanisms for assessing causes, consequences, likelihood, controls and control effectiveness relating to risks associated with the risk management system: • During the review period, Synergy's risk management method was outlined in the risk management policy, standard, system, procedure, Health and Safety Risk Management Procedure and Critical Risk Control Management document. • Synergy takes an As Low As Reasonably Practicable (ALARP) approach to risk management and meets the system's intent is to meet fundamental requirements of ISO 31000 Risk Management, good governance guidance for public sector agencies principle 9 and ASX good governance principle 7. • Internal and External risks are divided into 4 categories: o Category 1 Strategic Risks addresses the macro environment, strategic imperatives and game plans with a 5 year outlook. Each register in this category is reviewed at least once per annum. o Category 2 Value chain risks addresses business as usual and budget cycle risks with an outlook of 12-18 months. Each register in this category is reviewed at least once per annum. o Category 3 Sustainability and Resilience risks addresses critical safety, process safety, compliance, ethics, environmental, community, business continuity and insurable risks with varying outlooks. The minimum review period for each register in this category varies from annually to two yearly. o Category 4 Non-enterprise risk addresses localised, specific activity based risk reviews. • Prior to July 2020, the Generation Business Unit utilised risk tables that were common across Synergy. As part of the Process Safety and Asset Management (PSAM) program, new risk tables have been developed that are more specific and applicable to the Generation Business Unit (GBU) as described in the Health and Safety Risk Management Procedure. Synergy determines the likelihood, consequence, control effectiveness, materiality and tolerability of each risk, with set thresholds for each. These thresholds determine the required effectiveness rating of controls. Random sampling of the 'M5 Reheater standby corrosion risk assessment 2019' found it to follow the described risk assessment process. • Workshops conducted yearly as part of the development of the Asset Management Plan for each class of generating unit are used to determine the likelihood and consequences of failure. Random sampling of the AMP for Pinjar Frame 9, 10 & 11 demonstrated the output of such a workshop. • As outlined in the Critical Risk Control Management document, Synergy has been developing bow ties for 14 identified process safety hazards. This is covered in greater detail in element *9.1 Contingency planning*. • Roles and responsibilities of personnel in the risk management programme are clearly outlined by the Risk Management System document.

No.	Effectiveness Criteria	Review Priority	Observations	
			Process and Policy Rating: A	Performance Rating: 1
8.2	Risks are documented in a risk register and treatment plans are implemented and monitored	Priority 4	Through enquiries held with the Asset Management Lead, Manager of Risk, Process Safety Engineer and a review of Synergy's risk documentation and reports, it was determined that: • Risk registers are divided into 4 categories as stated in criteria *8.1 Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the Asset Management System.* • Category 1-3 risk registers must be recorded on Empower. Category 4 risk registers may be held in Empower as well, but this is at the discretion of the register owner. • As outlined in the Synergy Health and Safety Risk Management Procedure, a risk register must be developed and maintained for all Synergy operational sites, along with specific projects, using the Synergy risk register template. • Random sampling showed the risk register contained a description of the risk, cause, impact, designated risk owner, inherent consequence rating, inherent likelihood rating, inherent risk level, existing controls, judgement of control effectiveness and residual consequence, likelihood and risk level. It also outlined the risk trend, treatment plan, target residual risk level, action plan, person responsible, date to be actioned by and actions completed. • Risk assessments must include a schedule for regular review of control effectiveness. The minimum time period allowed for each category of risk is outlined in criteria *8.1 Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the Asset Management System*. Review of the risk assessment is carried out with relevant stakeholders, risk owner, control owner and communicated to senior leadership.	
			Process and Policy Rating: A	Performance Rating: 1
8.3	Probability and consequences of asset failure are regularly assessed	Priority 4	Through enquiries held with the Asset Management Lead, Manager of Corporate Risk, GBU Process Safety Engineer, reviews and walkthroughs of Synergy's risk assessment process and documentation, it was determined that Synergy applied the following methods to regularly assess probability and consequences of asset failure: • During annual development of the Asset Management Plan, Synergy reviews the likelihood of failure taking into consideration the history of failure, previous maintenance activities, previous CAPEX projects and any OEM notifications. • The consequences of failure are then assessed by conducting FMEA style workshops. Consequences are categorised by impact on financial, health and safety, environmental, community, reputation, legal and compliance requirements. • Any physical asset risk determined to be material (Level 3 High or Level 4 Extreme) is reviewed annually. Earlier reviews can be triggered by a change in asset management strategy that may impact on operational risk such as extending time in service past nominated service life, changes in financial targets, discovery of new risks or plant issues, assessment of loss of availability trends and changes to safety/environmental management of systems or equipment. Random sampling and walkthrough of the Pinjar Frame 9 Asset Management Plan, Pinjar End of Life Roadmap and Kwinana Rehabilitation Project demonstrated that the likelihood and consequences of asset system, subsystem and/or component failure (as applicable) had been regularly assessed taking into account available historical data.	
			Process and Policy Rating: A	Performance Rating: 1

5.9 Contingency Planning

Key Process:	Contingency plans document the steps to deal with the unexpected failure of an asset.
Outcome:	Contingency plans have been developed and tested to minimise any major disruptions to service standards.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	Priority 2	Through enquiries and walkthroughs held with the Muja Power Station Operations Manager, Muja Power Station Quality Statutory Teams Supervisor, (GTDG) Engineering Manager, GTDG Pinjar Station Manager, GBU Process Safety Engineer, examination of supporting documents, sampling Synergy's Emergency Management Plans, Business Continuity Plans and simulated incident exercise reports, it was found that Synergy has developed: 1. An overarching Crisis Management Plan (CMP) 2. Site specific Emergency Management Plans (EMP) 3. Site specific Business Continuity Plans (BCP) **Crisis Management, Emergency Management and Business Continuity** The Crisis Management Plan (CMP) specifies the crisis management processes and designates roles and responsibilities to the Crisis Management Team. The aim of the Emergency Management Plan (EMP) is to provide governance, tactical management and an overall plan of action during crises or extreme events. EMPs divide their approach to emergency management into four sections: Prevention, Preparedness, Response and Recovery. EMPs also identify roles and responsibilities of teams during emergencies. The Crisis Management Plan, site Emergency Management Plan and site Business Continuity Plans are used collectively as Synergy's approach to contingency management and emergency preparedness as outlined in the Synergy Asset Management Manual. Critical assets are identified on a site by site basis through risk based analysis. Business Continuity Plans are formed for these assets with the aim of either: 1. Recovering the lost critical asset to its pre-incident condition within the shortest possible timeframe; or 2. Executing a work around strategy to minimise the impact of the loss of the critical asset, while the asset is being recovered. The Business Continuity Plans (BCPs) outline the prerequisites and tasks for reducing the impact of an event. Each BCP outlines the method to: 1. Inspect the issue and liaise with the response team; 2. Plan and implement a work around; 3. Plan recovery. For each event the BCPs define: • Persons responsible for the BCP • Likely causes of the event • A recovery strategy • A work around strategy (to safely return some level of function) • Internal and external stakeholders • Required equipment and source • Business Risk Analysis • Internal and external stakeholders • Identified hazards • Required permits, approvals, competencies and special skills

No.	Effectiveness Criteria	Review Priority	Observations
			• A step by step procedural response • Completion/closeout tasks **Covid-19 Business Continuity Plans** Sampling of site specific BCPs showed that Muja Power Station has developed a specific BCP for a Pandemic or Infectious Disease event in response to, but not exclusively for Covid-19. Examination of the Pandemic Event BCP showed that the Muja site had identified possible scenarios in which: 1. A Regional/State/Federal pandemic is declared; 2. Exposure of critical and/or non-critical personnel to a confirmed carrier; 3. Infection of critical and/or non-critical personnel; 4. Site quarantine and facility closure. The Pandemic Event BCP then identifies critical and non-critical personnel roles, minimum number of each type of critical personnel required, the use of a risk assessment tool and the Recovery and Work Around Strategies. The documented strategies outline shift rotations, isolation requirements, onsite accommodation, catering and medical supplies, etc. In the event of an infectious case being confirmed at Muja, the immediate work around outlines the short-term reduction of: 1. Site personnel to critical members only; 2. Generation output to 2 unit operation or as required to accommodate available critical personnel. This is followed by the Recovery plan which prioritises relief personnel for critical staff and informs the AEMO as unit availability increases. **Generating Asset Contingencies** Further sampling of the Muja Power Station Loss of Coal Supply System BCP demonstrated that Synergy had developed work around strategies for each of the identified likely causes, responsible persons, hazards, equipment sources, permits and competencies/skills required. Muja Power Station has 4 separate generating units (Units 5-8), providing contingencies in generating unit availability with redundancy in shared support systems such as cooling towers. The short-term fuel contingencies are to burn liquid fuel stores and/or truck and crane in coal or use a secondary conveyor system. 800 tonnes of coal, approximating 3 months of continuous operation, is stockpiled along with sufficient fuel oil for numerous restarts. Water supplied through bores is stored onsite and provides 18 hours of continuous operation with public works water providing a contingency supply. Walkthroughs and examination of documents outlined that in the event of complete loss of 132kV supply, procedural instructions are in place and tested on how to support the site with stored resources. Discussions with Muja Power Station personnel highlighted that the site cannot undertake a black start through its own installed plant capabilities. Exercises are run in which site personnel work with Western Power and the AEMO to test a complex black start procedure utilising Kemerton Power Station. Currently there is a project underway to install a package boiler that will allow black start functionality in the plant. Backup power for sustaining lubrication, control and emergency systems is supplied by onsite diesel generators. Discussions with personnel, site walkthroughs and examination of relevant documentation at Pinjar Power Station demonstrated that Frame 6 turbines onsite are dual fuel capable with the ability to operate on natural gas sourced from the Dampier to Bunbury Natural Gas Pipeline (DBNGP) and diesel. Sufficient diesel for 14 hours of full load operation is stored onsite and an emergency supply clause is contained in the fuel supply contract. Functionality of diesel operation is tested every 6 months as part of market requirements. 2 of the 9 generating units are black start capable with function testing on an annual basis. Batteries installed onsite provide backup power to maintain lubrication systems in the event of loss of power. Backup batteries are discharge tested every 2 years. Surplus demineralised water for cooling systems is stored on site with an additional 800kL of bore water for fire suppression.

No.	Effectiveness Criteria	Review Priority	Observations	
			Contingency Plan Stress Testing Discussion and walkthroughs with site personnel at Muja and Pinjar Power Stations indicated that they understood the Emergency Management Plans and Business Continuity Plans. This is evidenced by a test exercise of the Emergency Management Plan conducted on an annual basis through a Simulated Exercise (SIMEX). The exercise tests and identifies areas for improvement in Synergy's notification procedures, site access, effectiveness of the Emergency Response Team, Incident Management Team, Crisis Management Team and supporting external agencies. **Critical Spares** For critical spares, as outlined in the Synergy Asset Management Manual (SAMM), it is the accountability of the Inventory Management team to recommend improvements in inventory holdings, for example manage obsolescence and risk of future stock-outs. Critical spares strategies based on mitigating production risks are addressed in individual Asset Management Plans (AMP) which outlines: 1. Spares for equipment reaching End of Life and Obsolescence 2. Spares holdings levels 3. Spares for high criticality equipment identified as unreliable Random sampling of Asset Management Plans showed that for the Pinjar Frame 9 AMP, section *16.2 Spares for End of Life and Obsolete Major Equipment* and section *16.3 Spares Holdings Strategy* were incomplete as there was uncertainty that data contained in SAP reflected actual spares held at Pinjar Power Station. The issue is covered in criteria *6.1 – Maintenance policies and procedures are documented and linked to service levels required*. **Process Safety Bow Ties** Synergy is currently developing bow ties for 14 identified process safety hazards that may lead to a materially unwanted event, i.e. an event resulting in a high-level health, safety, environmental, compliance, financial or reputation consequence. The outcome of these bow ties is to ensure that existing preventative controls, mitigating critical controls and required future controls are in place and effective in managing risk. Discussion with site personnel demonstrated an understanding and involvement with the development of bow ties for specific, high-consequence process safety events. Process safety bow ties are to be periodically reviewed every 5 years, however an issue identified through underperforming KPIs or issues raised by site can trigger an earlier review.	
			Process and Policy Rating: A	Performance Rating: 1

5.10 Financial Planning

Key Process:	Financial planning brings together the financial elements of the service delivery to ensure its financial viability over the long term.
Outcome:	The financial plan is reliable and provides for the long-term financial viability of the services.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations	
10.1	The financial plan states the financial objectives and strategies and actions to achieve the objectives	Priority 4	Through enquiries held with the Manager of Financial Planning and Performance and examination of Synergy's financial planning and reporting documentation, we determined that: • The Statement of Corporate Intent (SCI), which is prepared on an annual basis for submission to the Minister for Energy, encompasses Synergy's financial objectives, strategies to achieve them and KPI targets to measure them. • The Manage to Budget process is the one major budget exercise of the year, approved by the board in June. The Board delegates expenditure authority through this approval. The budget is built on a site by site basis, from the bottom-up in relation to individual plant budgets and then top-down in relation to overall financial allocation by the Department of Treasury. • The State Budget Forecast looks forward 5 years and is the key financial plan developed annually, submitted to the State in December and approved in May. A mid-year review is submitted to the State in October and approved in December. • The GBU submits a full financial plan yearly detailing projections for OPEX and CAPEX spends divided into Thermal Generation, Gas Turbines and Distributed Generation, portfolio projects and asset optimisation projects. • Monthly forecasting is being introduced across Synergy.	
			Process and Policy Rating: A	Performance Rating: 1
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs	Priority 5	Through discussions held with the Group Financial Controller and Financial Planner and examination of Synergy's financial planning and reporting documentation, it was determined that funding options for capital expenditure and recurrent costs comprise of: • Debt facility from the State Treasury; • Equity injection from Government; • Government programmes, agencies or external parties, e.g. Australian Renewable Energy Agency funding for the Alkimos Beach energy storage trial; • Internal funding options through budget offsets. Within the GBU, CAPEX and recurring costs must be sponsored by one of 4 divisions: thermal generation, GTDG, asset optimisation or portfolio projects. A review of the Synergy Business Case Template and sample business cases demonstrated that the evaluation of funding options is incorporated into the framework.	
			Process and Policy Rating: A	Performance Rating: 1
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	Priority 5	Through enquiries held with the Manager of Financial Planning and examination of Synergy's financial planning and reporting documentation, we determined that: • The yearly Manage to Budget process contains a Gross Margin calculation process in which the Commercial Business Unit utilises PLEXOS market simulation software to generate long term market projections for various market scenarios. This assists in generating projections of profit and loss and balance sheets for Thermal Generation and GTDG contained in the financial plan. • Quarterly Reports and the Annual Report presented to the State outline the actual financial positions.	

No.	Effectiveness Criteria	Review Priority	Observations	
			• Monthly Financial Performance updates for Thermal Generation and GTDG cover actual vs forecast costs by division with large variances highlighted and reasoning provided. • The Monthly GBU Portfolio Reviews track CAPEX and OPEX expenditures against forecast figures and break down costs by individual project. • The Asset Management Plan provides a financial summary of the previous 9 month's revenue after fuel cost, operations and maintenance cost, overhead costs and profit for each generating asset.	
			Process and Policy Rating: A	Performance Rating: 1
10.4	The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period	Priority 5	Through enquiries held with the Manager of Strategic Analysis, Manager of Financial Planning and examination of Synergy's financial planning and reporting documentation, we determined that: • The Commercial Business Unit utilises PLEXOS market simulation software to generate long term market projections for various market scenarios. • This assists in providing supply, demand and pricing predictions. These are in turn used for income predictions for Thermal Generation and GTDG for the next five years. • Market assumptions governing the model such as potential new market entrants, the DER transition, changing market rules and tariffs are outlined for the base case. • The base scenario modelling is carried out yearly as part of the Manage to Budget process. This is corrected during the year as market changes or new information become known. • The 5 year income predictions for each asset are collated and entered into the State Budget Forecast, which is submitted for review by the Department of Treasury. • A long term 20 year outlook is also carried out with indicative predictions of income.	
			Process and Policy Rating: A	Performance Rating: 1
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	Priority 4	Through enquiries held with the Asset Management Lead, Engineering Manager GTDG, Engineering Manager Muja Power Station, works planners, site maintenance managers, site operations managers and examination of Synergy's financial planning and reporting documentation, it was determined that: • Budgets are built from the bottom up at each site for each generating unit using historic data with an adjustment for planned future works. While at Muja Power Station we attended part of the 5 year maintenance budget planning meeting. While present, we observed that: o The meeting involved all maintenance managers on site and included a representative from Collie. o Labour costs were broken down by individual personnel for the full 5 years in terms of full time equivalent. o Labour division between maintenance teams was allocated by month based on historical data. o Planned hours per month for preventative and corrective maintenance were based on the past 5 year's data from SAP. Adjustments were made for future outages and closures of plant that will affect FY23 month 4 and individual works by unit. • A similar process is used to determine required maintenance funds for materials, contractors, consultants, allocations and administrative costs. • The process is conducted for each division: maintenance, operations, engineering projects, outage manager projects and Thermal Generation management. • Engineering and capital expenditure projects identified in the Asset Management Plan are included in the budget building exercise. • Individual budgets are collated during the Manage to Budget process to build the portfolio financial plan.	

No.	Effectiveness Criteria	Review Priority	Observations	
			Process and Policy Rating: A	Performance Rating: 1
10.6	Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	Priority 4	Through enquiries held with the Asset Management Lead, Engineering Manager GTDG, Engineering Manager Muja Power Station, works planners, site maintenance managers, site operations managers and examination of Synergy's financial planning and reporting documentation, it was determined that: • The monthly GBU Portfolio Review tracks actual vs forecast expenditures and breaks down costs by individual project. • Progress against planned budget is tracked by Thermal Generation and GTDG during monthly Financial Performance Updates. These review financial performance by generating asset and individual department. These departments are maintenance, operations, engineering, outage managers and thermal managers. • Reasons for large variations for that month and the year to date are clearly highlighted in the monthly Financial Performance Update. These are discussed during the meeting and corrective action assigned to the responsible person, with updates provided in following reviews. • The Quarterly Report also outlines large variances in actual/budget income and expenses and identifies the internal and external reasons leading to these variations. • Random sampling of the Kwinana Rehabilitation Project showed that financials tracked actual vs budgeted expenses by month with ongoing forecasts of any change to budget. Changes to budget are challenged and require a Project Change Form to be submitted outlining the reason for the variation.	
			Process and Policy Rating: A	Performance Rating: 1

5.11 Capital Expenditure Planning

Key Process:	The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure on each over the next five or more years. Since capital investments tend to be large and lumpy, projections would normally be expected to cover at least 10 years, preferably longer. Projections over the next five years would usually be based on firm estimates.
Outcome:	The capital expenditure plan provides reliable forward estimates of capital expenditure and asset disposal income. Reasons for the decisions and for the evaluation of alternatives and options are documented.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations	
11.1	There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	Priority 4	Through enquiries held with the Manager of Financial Planning and examination of Synergy's financial planning and reporting documentation, we determined that: • The capital expenditure plan can be viewed through the financial dashboard. • The CAPEX plan outlines work to be undertaken and actions proposed. These are divided into Asset Optimisation, Portfolio Projects, GTDG projects or Thermal Generation projects and can also be viewed by site or by project manager. • The financial dashboard allows the user to view responsible persons, project status (e.g. deferred, not started, etc.) and allocated funds by month or financial year. • The assigned project manager, project dates, detailed scope of actions proposed and allocated funds are recorded in the business case for each project. • The delivery status and financial tracking of projects is reviewed in the monthly GBU Portfolio Review. • The GBU Portfolio Review also captures projects still in the business case development stage and any proposed changes to projects with attached reasoning for variation.	
			Process and Policy Rating: A	Performance Rating: 1
11.2	The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	Priority 5	Through enquiries held with the Manager of Financial Planning, Asset Management Lead and examination of Synergy's CAPEX planning process, we determined that: • The CAPEX strategy for each generating unit and the risk associated with the hazard being addressed by a capital expenditure is outlined in the Asset Management Plan. • Challenge sessions are conducted addressing project scope, timing and justifications. Projects addressing low risk issues are heavily scrutinised. These challenge sessions incorporate feedback from planning, maintenance and operations personnel. • Each business case outlines the opportunity/problem reasoning behind the project and the investment driver. • The strategic value of each project is evaluated using Synergy's 'Project Online' project management tool and investment plan optimised to deliver highest strategic value. Certain projects can have a 'forced' rule if they are mandatory for regulatory or other reasons. • The deferral of projects and any budget reduction initiatives must also undergo a risk assessment to ensure enterprise risk level does not exceed Synergy's threshold. This allows prioritisation of projects whilst minimising enterprise risk given limited funding.	
			Process and Policy Rating: A	Performance Rating: 1

No.	Effectiveness Criteria	Review Priority	Observations	
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	Priority 4	Through enquiries held with the Manager of Financial Planning, Asset Management Lead and examination of Synergy's CAPEX planning process, we determined that: • The review of the Asset Management Plans preceding CAPEX planning includes a review of asset life and condition. • The Asset Management Plan itself can trigger the creation of capital expenditure projects. • The CAPEX budget is built during the Manage to Budget process by: o A review of Asset Mission Statements / Asset Management Plans for each generating asset o Determining activities of the generation business unit o Ground up build of CAPEX plan by asset o The CAPEX target range is provided by the finance department o GBU reviews and approvals from relevant stakeholders o Internal reviews within Synergy Business Units and Executive Leadership Team o The capital investment projects outlined in the Asset Management Plan are assessed to determine the level of risk posed if the project is not undertaken. o A challenge session is held to ensure the proposed scope of each project appropriately addresses the risk posed given the current and future condition of the asset.	
			Process and Policy Rating: A	Performance Rating: 1
11.4	There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned	Priority 5	Through enquiries held with the Manager of Financial Planning, Asset Management Lead and examination of Synergy's CAPEX reporting documents, we determined that • The monthly GBU Portfolio Review is used to track and discuss progress of projects in the capital expenditure plan. The GBU Portfolio Review encompasses updates and changes to projects, projects not started, projects in business case/planning stage, monthly CAPEX spend forecast, yearly CAPEX spend forecast, top expenditure projects and individual project expenditure by division or programme. • Synergy's 'Project Online' project management tool supports project initiation, business case development, procurement, project cost estimation and delivery. The progress status of individual project expenditure and delivery can be tracked.	
			Process and Policy Rating: A	Performance Rating: 1

5.12 Review of AMS

Key Process:	The asset management system is regularly reviewed and updated.
Outcome:	The asset management system is regularly reviewed and updated.
Process and policy definition rating	A
Performance rating	1

No.	Effectiveness Criteria	Review Priority	Observations	
12.1	A review process is in place to ensure that the asset management plan and the asset management system described in it remain current	Priority 5	Through enquiries held with the Asset Management Lead, Engineering Manager GTDG, Engineering Manager Muja Power Station, works planners, site maintenance managers, site operations managers, and a review of Synergy's asset management system, policies, standards, guidelines, procedures, and plans, it was found that: • The asset management policy states that Synergy will continuously review and regularly audit their asset management system; • The asset management system was reviewed periodically every 2 years with challenge sessions and input from site planning, maintenance and operations personnel; • An improvement program was established during the review period to redesign the system to more closely align with ISO55001: Asset Management and the UK Energy Institute. The improvements resulting from this program are outlined in the new Synergy Asset Management Manual (SAMM); • Synergy notified the Authority of the revised SAMM and improvements therein on 2 October 2020 and is currently in the process of implementing the improved asset management system; • The revised SAMM is to be reviewed every 2 years with continuous improvement procedures in place; • The Portfolio Asset Mission Statement and each asset's Management Plan to meet its strategic requirements are reviewed yearly. • Within each Asset Management Plan continuous improvement opportunities are identified, actions outlined and due dates set. • At Muja Power Station, document reviews are scheduled to be carried out on a periodic basis with varying frequency for each document. Muja tracks the review process of Station Instructions, Plant Operating Instructions (POI), Temporary Operating Memorandums (TOM), Safe Work Instructions (SWI), Management Systems, Guidelines, Maintenance Work Instructions and Document Change Requests including the cancellation and superseding of documents. The review of documents is risk prioritised. Currently, a significant percentage of these document reviews are overdue as tracked in the document 'Muja Power Station - Document Control Index'. Synergy is aware of the situation and continues to review station documents based on safety criticality and priority level with weekly progress reports.	
			Process and Policy Rating: A	Performance Rating: 2
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system	Priority 5	Through enquiries held with the Asset Management Lead, Engineering Manager GTDG, Engineering Manager Muja Power Station, works planners, site maintenance managers, site operations managers, and a review of Synergy's asset management system, policies, standards, guidelines, procedures, and plans it was found that: • As per the asset management policy, Synergy continuously reviews and regularly audits their asset management system. Internal audits were formulated in consultation with the Audit and Compliance Committee on a risk-based approach. Audits were conducted annually with individual audits for specific areas and ad hoc reviews; • Synergy requires the AMS to be reviewed by an acceptable independent expert; • Synergy commissioned Covaris to review the asset management system and Dupont to review the process safety system between January and March 2019.	

No.	Effectiveness Criteria	Review Priority	Observations	
			• Based upon the findings of these independent reviews, an improvement program was established during the review period to redesign the system to more closely align with ISO55001: Asset Management and the UK Energy Institute. The improvements resulting from this program are outlined in the new Synergy Asset Management Manual (SAMM); • Synergy notified the Authority of the revised SAMM and improvements therein on 2 October 2020 and is currently in the process of implementing the improved asset management system.	
			Process and Policy Rating: A	Performance Rating: 1

Appendix 1

Licensee's representatives who participated in the review

The list below outlines key personnel who were involved in discussions and contributed to the findings detailed in this Review Report.

Name	Position/Title
Adam Graves	Manager Asset Services
Andre Pratama	Asset Strategy Lead, GBU
Adam Perry	GT Mechanical Technical Officer, Gas Turbines and Distributed Generation
Anthony Price	Open Cycle Gas Turbines Operations Manager, Gas Turbines and Distributed Generation
Brad Mitchell	Manager of Strategic Analysis
Brendan Fidock	Senior Asset Engineer, GBU
Brent Italiano	Operations Manager Muja Power Station
Bryan Deans	Planner/Product Owner, Muja Power Station
Darren Hodkin	Asset Performance Manager, GBU Leadership Team
Greg Deangelis	Planner, Gas Turbines and Distributed Generation
Jason Young	PI System Specialist
Jay Teo	Applications Officer
Lloyd Green	T&T Infrastructure Manager
Matthew Rooney	Engineering Manager, Muja Power Station
Michael Rose	SAP Security and Access Officer
Natie Victor	Risk Management Advisor – Corporate Services
Paul Chaperon	Manager Asset Optimisation, Generation Business Unit (GBU)
Paul Laurenson	Power and Control Group Manager Muja Power Station
Richard Luke	Kwinana Closure Project Manager
Salem Talib	Asset Strategy Engineer
Simon Thackray	Manager, Regulation and Compliance
Tom Ajala	Process Safety Engineer
Tony Balloch	Engineering Manager, Gas Turbines and Distributed Generation
Yanqiu Lou	Portfolio Manager, GBU Leadership Team

Appendix 2

Key Documentation and information sources

The list below outlines all documents used in this Review Report. These were provided to KPMG by Synergy.

#	Document Title
1.	**Asset Planning**
	7.3 Risk Management Report
	Availability and Outage (LEADS)
	Business Case LITE
	Business Case Template (Agile WFall)
	Business Case Template FULL
	CP2 - Muja AMP Structure Presentation
	Enterprise Risk Management framework final
	EP-10266 Muja station fly ash dam lift construct - Business case
	EP-10266 Muja station fly ash dam lift construct - Business case.docx
	EP-10506 - Business Case - MPS Turbine Hall Crane Replacement
	EP-10506 - FINANCIAL WOOKBOOK MPS Replacement Turbine Hall Cranes
	GBU Monthly Report Package April 2019
	GBU Portfolio Asset Mission Statement
	GBU-PLN-ASM-0004_0 CP2 Pinjar Frame 9 Asset Management Plan 2020-2021
	GENERATION BUSINESS UNIT ASSET MANAGEMENT SYSTEM (Prior to SAMM)
	Pinjar - End of Life Road Map Study
	Pinjar Power Station – End of Life Roadmap
	Procurement Standard - effective 1 Oct 2018
	Risk Management Policy
	Risk Management Standard
	Risk Management System
	SBU-PRC-RSK-0001_1 Critical Risk Control Management
	Synergy ISO 55001 2019 Review ver 2-0 (Self Assessment)
	SYN-MAN-ASM-0001_0 Synergy Asset Management Manual
	SYN-POL-ASM-0001_0 Asset Management Policy
	TG Financial Performance - January 2021 – Final
2.	**Asset creation and acquisition**
	2020-01-31T09_03_06_08_00_Incident_Summary_Report
	7. Project Online Data Capture
	Budget Reduction Options & Risk 190702 Board Approved Budget
	Business Case LITE
	Business Case Template (Agile WFall)

Business Case Template FULL

Cockburn WTP – Workshops – HAZID – Switchroom.xlsx

Copy of Synergy Training Matrix Process Safety_BVS

CW2233439 - Demolition Phase 4 - McMahon Services Australia

Environmental_policy_August_2017

EP-10266 Muja station fly ash dam lift construct - Business case

EP-10506 - Business Case - MPS Turbine Hall Crane Replacement

EP-10506 - FINANCIAL WOOKBOOK MPS Replacement Turbine Hall Cranes

EP-10506 Replacement Turbine Hall Cranes - Close Out Report.docx

EP-10506 Replacement Turbine Hall Cranes - WBS Close out and Asset Creation .docx

GBU-STD-ASM-0001_2 Process Safety Management (PSM) Standard

GENERATION BUSINESS UNIT ASSET MANAGEMENT SYSTEM (Prior to SAMM)

GTDG Monthly Business & Safety Report - October 2020

Incident Learnings INC6722

KWGT2 Commissioning Test Plan DEC_2020 V2

PMO_QRG000_Synergy_Project_Portfolio_Framework

PMO_QRG002_PPMT_Add_and_Update_Project_Idea_ver_4

Procure-it - Contract Framework Procedure

Procurement Standard - effective 1 Oct 2018

Project Handover Folder - Admin Building

Regulatory Compliance Policy

SWI 5.26 - Boiler Outage Commissioning Testing

SYN-MAN-ASM-0001_0 Synergy Asset Management Manual

3. Asset disposal

2019-02 Reliability & Defect Elimination Report – KWGT
EGL7 Nameplate Capacity.xlsx
GBU Monthly Report Package April 2019
GBU Monthly Report Package February 2019
GBU Portfolio Asset Mission Statement
GBU Weekly Availability Report
GBU_Monthly_Report_Package_Generator (post coal adjustment incorporated into Variance Analysis).xlsm
GBU-PLN-ASM-0004_0 CP2 Pinjar Frame 9 Asset Management Plan 2020-2021
GHD - Asset decommissioning Costs - 2019 Cost Update
GTDG Monthly Business & Safety Report - December 2016
GTDG Monthly Business & Safety Report - December 2020
HP Steam Chest WIPS Fault DE Report
Incident Learnings INC6722
KWINANA REHABILITATION PROJECT - COST - FY21 - ACTUALS AND FORECASTING v1
Kwinana Rehabilitation Project - Risk Register
KWINANA REHABILITATION PROJECT - SCHEDULE - FULL CURRENT PROJECT SCHEDULE
LEADS Screenshot
Pinjar - End of Life Road Map Study
Reliability Dashboard screenshot
Scrap Recycling.jpg
SYN-MAN-ASM-0001_0 Synergy Asset Management Manual

4. Environmental analysis (all external factors that affect the system)

Copy of Synergy Training Matrix Process Safety_BVS

Environmental_policy_August_2017

GBU Monthly Report Package April 2019

GBU Monthly Report Package Generator February 2019

GBU Portfolio Asset Mission Statement

GBU-PLN-ASM-0004_0 CP2 Pinjar Frame 9 Asset Management Plan 2020-2021

GBU-STD-ASM-0001_2 Process Safety Management (PSM) Standard

GENERATION BUSINESS UNIT ASSET MANAGEMENT SYSTEM (Prior to SAMM)

GTDG Monthly Business & Safety Report - December 2016

GTDG Monthly Business & Safety Report - October 2020

Maintenance Metrics Reports

Muja - M7-M8 - Outage Quality - Compliance Procedure 2020

RE Synergy AMS Review - Addressing 2016 Review Recommendations.msg
Regulatory Compliance Policy

SWI 5.11 - Emergency Operational DCS Assistance
SWI 5.26 - Boiler Outage Commissioning Testing

SYNERGY PORTFOLIO OVERHAUL SCHEDULE
SYN-MAN-ASM-0001_0 Synergy Asset Management Manual

SYN-POL-ASM-0001_0 Asset Management Policy

SYN-PRC-HSA-0001_0 Health & Safety Risk Management Procedure

5. Asset Operations

10 FY21 GBU Portfolio Review January 2021
2020-21 MTB Timetable

7.3 Risk Management Report
Asset Register by Region.jpg

Asset Register by Region-2.jpg

Copy of Muja Power Station - Document Control Index (1)

Copy of Synergy Training Matrix Process Safety_BVS

Enterprise Risk Management framework final

EP-10506 Replacement Turbine Hall Cranes - Close Out Report.docx
EP-10506 Replacement Turbine Hall Cranes - WBS Close out and Asset Creation .docx

GBU Monthly Report Package April 2019

GBU Monthly Report Package Generator February 2019

GBU-STD-ASM-0001_2 Process Safety Management (PSM) Standard

GENERATION BUSINESS UNIT ASSET MANAGEMENT SYSTEM (Prior to SAMM)

GTDG PLANT PROGRAMME

GTDG PLANT PROGRAMME_ Saturday 15-09-2018 to Friday 21-09-2018

GTDG PLANT PROGRAMME_ Saturday 26-9-2020 to Friday 2-10-2020

GTDG PLANT PROGRAMME_ Saturday 28-9-2019 to Friday 4-10-2019

Log book Unit 8 16.03.2021
M5 Reheater standby corrosion risk assessment 2019

RE EGL7 AMS Review.msg

RE EGL7 Synergy AMS Review - discussion of key findings

Risk Management Policy

Risk Management Standard

Risk Management System

SAP Master Data Standard - Bill of Materials

SAP Master Data Standard - Change Process Flow Chart

SAP Master Data Standard - Change Process Procedure

SAP Master Data Standard - Document Information Records

SAP Master Data Standard - Functional Location

SAP Master Data Standard – Item

SAP Master Data Standard – Plan

SAP Master Data Standard - Revision

Standard FAR FY20

SWI 5.11 - Emergency Operational DCS Assistance

Synergy 2020 Annual Report

Synergy Annual Report 2019

Synergy Annual Report Final 2018 - 18 September 2018

Synergy Portfolio Overhaul Schedule

SYN-MAN-ASM-0001_0 Synergy Asset Management Manual

Temporary dispatch variation for Kwinana GT3

Temporary dispatch variation for LFAS Provision

Temporary dispatch variation for Pinjar GT10

Temporary dispatch variation for Pinjar_GT10

Temporary Dispatch Variation for Pinjar_GT4

Temporary Dispatch Variation for Pinjar_GT5

TG Financial Performance - January 2021 – Final

Turbine Hall Crane SAP Record

6. Asset Maintenance

2019-02 Reliability and Defect Elimination Report – KWGT

2020-01-31T09_03_06_08_00_Incident_Summary_Report

2020-21 MTB Timetable

7.3 Risk Management Report

BATTERY_MAINTENANCE_PROCEDURE - MI 80000264

Bowtie Risk Summary

Empower Screenshot - 2021-03-31_10-52-06

Enterprise Risk Management framework final

GAS TURBINES - MAINTENANCE HISTORY- MECHANICAL OUTAGES_

GBU Monthly Report Package April 2019

GBU Monthly Report Package Generator February 2019

GBU Portfolio Asset Mission Statement

GBU-PLN-ASM-0004_0 CP2 Pinjar Frame 9 Asset Management Plan 2020-2021

GBU-STD-ASM-0001_2 Process Safety Management (PSM) Standard

GENERATION BUSINESS UNIT ASSET MANAGEMENT SYSTEM (Prior to SAMM)

GTDG Monthly Business & Safety Report - December 2016

GTDG Monthly Business & Safety Report - October 2020

HP Steam Chest WIPS Fault DE Report

Incident Learnings INC6722

M5 Reheater standby corrosion risk assessment 2019

Maintain Assets Blueprint V2.0 - Rev2-6

Maintenance Metrics Reports.xlsx

Muja - M7-M8 - Outage Quality - Compliance Procedure 2020

Outage Framework Gate Schedule

Outage Framework MME build Information - 2020 Version

RE EGL7 Synergy AMS Review - discussion of key findings

Risk Management Policy

Risk Management Standard

Risk Management System

SWI 5.26 - Boiler Outage Commissioning Testing

SYNERGY PORTFOLIO OVERHAUL SCHEDULE

SYN-MAN-ASM-0001_0 Synergy Asset Management Manual

SYN-POL-ASM-0001_0 Asset Management Policy

SYN-PRC-HSA-0001_0 Health & Safety Risk Management Procedure

TEST_HP_FW_PUMPS_PERFORMANCE - MI 80001064

TG Financial Performance - January 2021 – Final

Turbine Hall Crane SAP Record

WO Revision Schedule

WO Snapshot

7. Asset management information system

[2019-07] Synergy - Ransomware Exercise - Report (FINAL)

Copy of Muja Power Station – Document Control Index

Copy of Synergy Training Matrix Process Safety_BVS

Copy of Synergy Training Matrix Process Safety_BVS.xlsm

Cyber Security Strategy

GBU Monthly Report Package

GBU Monthly Report Package April 2019

GBU Monthly Report Package February 2019

GBU Weekly Availability Report

GBU_Monthly_Report_Package_Generator (post coal adjustment incorporated into Variance Analysis).xlsm

Generation Business Unit – SAP Change Process Flow Chart

Generation Business Unit – SAP Master Data Change Procedure

GridEx V Australia - Exercise Report

GTDG Monthly Business & Safety Report - December 2016

GTDG Monthly Business & Safety Report - December 2020

Guide to setting up MFA & Intune

ICT Security Manual

Item 08.3 (attachment) Cyber security policy

LEADS Screenshot

Online Training Screenshot

Password Standard excerpt from ICT Security Manual

RE Asset Management System Review - Additional Questions and Document Request

RE Asset Management System Review - Additional Questions and Document Request.msg

RE_ KPMG Generation license audit - T&T
RE_ KPMG Generation license audit - T&T.msg

SWI 5.11 - Emergency Operational DCS Assistance
Synergy Bring Your Own Device Standard (TOU Version)

Synergy Cyber IA - Tech Addendum

Synergy Mobile Device Compliance Guideline

8. Risk Management

2020-01-31T09_03_06_08_00_Incident_Summary_Report

7.3 Risk Management Report

Bowtie Risk Summary

Business Case Template FULL

Enterprise Risk Management framework final

HP Steam Chest WIPS Fault DE Report

Incident Learnings INC6722

Kwinana Rehabilitation Project - Risk Register

M5 Reheater standby corrosion risk assessment 2019

Risk Management Policy

Risk Management Standard

Risk Management System

SBU-PRC-RSK-0001_1 Critical Risk Control Management

Synergy RISK MATRIX

SYN-MAN-ASM-0001_0 Synergy Asset Management Manual
SYN-PRC-HSA-0001_0 Health & Safety Risk Management Procedure

9. Contingency planning

20200320 SYN_BCP_Muja Pandemic event

Bowtie Risk Summary

Emergency Management Plan – Station Instruction Manual Muja Power Station

GBU-PLN-ASM-0004_0 CP2 Pinjar Frame 9 Asset Management Plan 2020-2021

GBU-STD-ASM-0001_2 Process Safety Management (PSM) Standard
SBU-PRC-RSK-0001_1 Critical Risk Control Management

SWI 5.11 - Emergency Operational DCS Assistance

SYN_BCP_Muja Loss of CCN4 System_060518

Synergy Crisis Management Plan

SYN-MAN-ASM-0001_0 Synergy Asset Management Manual

10. Financial planning

10 FY21 GBU Portfolio Review January 2021
Business Case LITE
Business Case Template (Agile WFall)
Business Case Template FULL
EP-10266 Muja station fly ash dam lift construct - Business case.docx
EP-10506 - Business Case - MPS Turbine Hall Crane Replacement
GBU Monthly Report Package April 2019
GBU Monthly Report Package Generator February 2019
GBU_Monthly_Report_Package_Generator
GBU-PLN-ASM-0004_0 CP2 Pinjar Frame 9 Asset Management Plan 2020-2021
KWINANA REHABILITATION PROJECT - COST - FY21 - ACTUALS AND FORECASTING v1
Quarter ending 30 September 2020
Statement of Corporate Intent 2018-19
Statement of Corporate Intent 2019-20
Synergy 2020 Annual Report

Synergy Annual Report 2019
Synergy Annual Report Final 2018 - 18 September 2018
SYN-MAN-ASM-0001_0 Synergy Asset Management Manual
TG Financial Performance - Final

11. Capital expenditure planning

10 FY21 GBU Portfolio Review January 2021
2020-21 MTB Timetable
3. Full Business Case Template (Agile WFall)
5. EP-10920 - Stage CD 440V supply to Stage AB Business Case
7. Project Online Data Capture
8. Prioritisation questions- entry Capture
9. GBU Prioritisation Output Capture
Budget Reduction Options & Risk 190702 Board Approved Budget
Business Case LITE
Business Case Template FULL
EP-10506 - Business Case - MPS Turbine Hall Crane Replacement
GBU Portfolio Asset Mission Statement
GBU-PLN-ASM-0004_0 CP2 Pinjar Frame 9 Asset Management Plan 2020-2021
SYN-MAN-ASM-0001_0 Synergy Asset Management Manual

12. Review of AMS

Copy of Muja Power Station - Document Control Index (1)
GBU Portfolio Asset Mission Statement
GBU-PLN-ASM-0004_0 CP2 Pinjar Frame 9 Asset Management Plan 2020-2021
GENERATION BUSINESS UNIT ASSET MANAGEMENT SYSTEM (Prior to SAMM)
RE EGL7 Synergy AMS Review - discussion of key findings
Synergy ISO 55001 2019 Review ver 2-0 (Self Assessment)
SYN-MAN-ASM-0001_0 Synergy Asset Management Manual

Appendix 3

Risk Assessment supporting tables

The consequences of the risk occurring was assessed using the 3-point rating scale described in the table below. The more significant the consequences, the higher the rating value allocated.

Table 10: Consequences

Classification of non-compliance	Criteria for classification
Major	Classified on the basis that: • the consequences of non-compliance would cause major damage, loss or disruption to customers; or • the consequences of non-compliance would endanger or threaten to endanger the safety or health of a person.
Moderate	Classified on the basis that the consequences of non-compliance affect the efficiency and effectiveness of the licensee's operations or service provision, but do not cause major damage, loss or disruption to customers.
Minor	Classified on the basis that: • the consequences of non-compliance are relatively minor – i.e. non-compliance will have minimal effect on the licensee's operations or service provision and do not cause damage, loss or disruption to customers; • assessment of non-compliance against the obligation is immeasurable; • the matter of non-compliance is required to be reported to the Authority under another instrument, guideline or code; • the matter of non-compliance is identified by a party other than the licensee; or • the licensee only needs to use its reasonable or best endeavours to achieve compliance, or where the obligation does not otherwise impose a firm obligation on the licensee.

The likelihood was assessed using the 3-point rating scale described in the table below:

Table 11: Likelihood

	Level	Criteria
A	Likely	Non-compliance is expected to occur at least once or twice a year
B	Probable	Non-compliance is expected to occur once every three years
C	Unlikely	Non-compliance is expected to occur once every 10 years or longer

The inherent risk was arrived through the combination of the consequence rating and the likelihood rating. The inherent risk rating that was used is depicted in the table below:

Table 12: Inherent risk rating

Likelihood	Consequence		
	1. Minor	2. Moderate	3. Major
A. Likely	Medium	High	High
B. Probable	Low	Medium	High
C. Unlikely	Low	Medium	High

Described below are the inherent risk ratings:

Level	Description
High	Likely to cause major damage, disruption or breach of licence obligations
Medium	Unlikely to cause major damage but may threaten the efficiency and effectiveness of service
Low	Unlikely to occur and consequences are relatively minor

Once the inherent risks were identified and classified, KPMG undertook a high level assessment of the internal controls that are in place to mitigate each inherent risk.

The table below describes the preliminary adequacy rating for existing controls:

Table 13: Adequacy of existing controls

Level	Description
Strong	Controls that mitigate the identified risks to a suitable level
Moderate	Controls that only cover material risks; improvement required
Weak	Controls are weak or non-existent and do little to mitigate the risks

The next stage in the planning process was to determine review priorities for each of the licence conditions based on the combined rating for inherent risk and control adequacy. The prescribed 5 - level audit priority scale was used:

Table 14: Priority Rating

		Preliminary Adequacy of Existing Controls		
		Weak	Moderate	Strong
Inherent Risk	High	Review priority 1	Review priority 2	
	Medium	Review priority 3	Review priority 4	
	Low	Review priority 5		

Appendix 4

Priority ratings

1	Asset Planning
Key Process:	Asset planning strategies focuses on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price).
Outcome:	Asset Planning is integrated into operational or business plans, providing a framework for existing and new assets to be effectively utilised and their service optimised.

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
1.1	Asset management plan covers the processes in this table	Moderate	Probable	Medium	Moderate	Priority 4
1.2	Planning process and objectives reflect the needs of all stakeholders and are integrated with business planning	Minor	Probable	Low	Moderate	Priority 5
1.3	Service levels are defined in the asset management plan	Minor	Unlikely	Low	Moderate	Priority 5
1.4	Non-asset options (e.g. demand management) are considered	Minor	Probable	Low	Moderate	Priority 5
1.5	Lifecycle costs of owning and operating assets are assessed	Moderate	Probable	Medium	Moderate	Priority 4
1.6	Funding options are evaluated	Minor	Probable	Low	Moderate	Priority 5
1.7	Costs are justified and cost drivers identified	Moderate	Probable	Medium	Moderate	Priority 4
1.8	Likelihood and consequences of asset failure are predicted	Major	Probable	High	Moderate	Priority 2
1.9	Asset management plan is regularly reviewed and updated	Minor	Unlikely	Low	Moderate	Priority 5

2	Asset Creation and Acquisition
Key Process:	Asset creation/acquisition is the provision or improvement of assets
Outcome:	The asset acquisition framework is economic, efficient and cost-effective; it reduces demand for new assets, lower service costs and improve service delivery.

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options	Moderate	Unlikely	Medium	Moderate	Priority 4
2.2	Evaluations include all life-cycle costs	Moderate	Unlikely	Medium	Moderate	Priority 4
2.3	Projects reflect sound engineering and business decisions	Moderate	Unlikely	Medium	Moderate	Priority 4
2.4	Commissioning tests are documented and completed	Moderate	Unlikely	Medium	Moderate	Priority 4
2.5	Ongoing legal/environmental/ safety obligations of the asset owner are assigned and understood	Major	Unlikely	High	Moderate	Priority 2

3	Asset Disposal
Key Process:	Asset disposal is the consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets.
Outcome:	The asset management framework minimizes holdings of surplus and under-performing assets and lowers service costs. The cost-benefits of disposal options are evaluated.

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process	Minor	Probable	Low	Moderate	Priority 5
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	Minor	Probable	Low	Moderate	Priority 5
3.3	Disposal alternatives are evaluated	Minor	Probable	Low	Moderate	Priority 5
3.4	There is a replacement strategy for assets	Moderate	Probable	Medium	Moderate	Priority 4

4	Environmental analysis
Key Process:	Environmental analysis examines the asset management system environment and assesses all external factors affecting the asset management system.
Outcome:	The asset management system regularly assesses external opportunities and threats and identifies corrective action to maintain performance requirements.

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
4.1	Opportunities and threats in the asset management system environment are assessed	Moderate	Probable	Medium	Moderate	Priority 4
4.2	Performance standards (availability of service, capacity, continuity, emergency	Moderate	Probable	Medium	Moderate	Priority 4
4.3	Compliance with statutory and regulatory requirements	Moderate	Probable	Medium	Moderate	Priority 4
4.4	Service standard (customer service levels etc) are measured and achieved	Moderate	Probable	Medium	Moderate	Priority 4

5	Asset operations
Key Process:	Asset Operations is the day-to-day running of assets (where the asset is used for its intended purpose).
Outcome:	The asset operations plans adequately document the processes and knowledge of staff in the operation of assets so service levels can be consistently achieved.

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
5.1	Operational policies and procedures are documented and linked to service levels required	Moderate	Probable	Medium	Moderate	Priority 4
5.2	Risk management is applied to prioritise operations	Moderate	Probable	Medium	Moderate	Priority 4
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	Moderate	Probable	Medium	Weak	Priority 3
5.4	Accounting data is documented for assets	Moderate	Probable	Medium	Moderate	Priority 4
5.5	Operational costs are measured and monitored	Moderate	Probable	Medium	Moderate	Priority 4
5.6	Staff resources are adequate and staff receive training commensurate with their responsibilities	Moderate	Probable	Medium	Moderate	Priority 4

6	Asset maintenance
Key Process:	Asset maintenance is the upkeep of assets.
Outcome:	The asset maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work can be done on time and on cost.

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
6.1	Maintenance policies and procedures are documented and linked to service levels required	Moderate	Unlikely	Medium	Moderate	Priority 4
6.2	Regular inspections are undertaken of asset performance and condition	Moderate	Unlikely	Medium	Moderate	Priority 4
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	Major	Probable	High	Moderate	Priority 2
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary	Major	Probable	High	Moderate	Priority 2
6.5	Risk management is applied to prioritise maintenance tasks	Major	Probable	High	Moderate	Priority 2
6.6	Maintenance costs are measured and monitored	Moderate	Probable	Medium	Moderate	Priority 4

7	Asset Management Information System
Key Process:	An asset management information system is a combination of processes, data and software that support the asset management functions.
Outcome:	The asset management information system provides authorised, complete and accurate information for the day-to-date running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards.

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
7.1	Adequate system documentation for users and IT operators	Minor	Probable	Low	Moderate	Priority 5
7.2	Input controls include appropriate verification and validation of data entered into the system	Moderate	Probable	Medium	Moderate	Priority 4
7.3	Security access controls appear adequate, such as passwords	Minor	Probable	Low	Moderate	Priority 5
7.4	Physical security access controls appear adequate	Minor	Probable	Low	Moderate	Priority 5
7.5	Data backup procedures appear adequate and backups are tested	Moderate	Probable	Medium	Moderate	Priority 4
7.6	Computations for licensee performance reporting are accurate	Minor	Probable	Low	Moderate	Priority 5
7.7	Management reports appear adequate for the licensee to monitor license obligations	Minor	Probable	Low	Moderate	Priority 5
7.8	Adequate measures to protect asset management data from unauthorized access or theft by persons outside the organisation	Major	Probable	High	Moderate	Priority 2

8	Risk Management
Key Process:	Risk management involves the identification of risks and their management within an acceptable level of risk.
Outcome:	The risk management framework effectively manages the risk that the licensee does not maintain effective service standards

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
8.1	Risk management policies and procedures exist and are being applied to minimise internal and external risks	Major	Probable	High	Moderate	Priority 2
8.2	Risks are documented in a risk register and treatment plans are implemented and monitored	Moderate	Probable	Medium	Moderate	Priority 4
8.3	Probability and consequences of asset failure are regularly assessed	Moderate	Probable	Medium	Moderate	Priority 4

9	Contingency Planning
Key Process:	Contingency plans document the steps to deal with the unexpected failure of an asset.
Outcome:	Contingency plans have been developed and tested to minimise any major disruptions to service standards.

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	Major	Probable	High	Moderate	Priority 2

10	Financial Planning
Key Process:	Financial planning brings together the financial elements of the service delivery to ensure its financial viability over the long term.
Outcome:	The financial plan is reliable and provides for the long-term financial viability of the services.

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
10.1	The financial plan states the financial objectives and strategies and actions to achieve the objectives	Moderate	Probable	Medium	Moderate	Priority 4
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs	Minor	Probable	Low	Moderate	Priority 5
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	Minor	Probable	Low	Moderate	Priority 5
10.4	The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period	Minor	Probable	Low	Moderate	Priority 5
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	Moderate	Probable	Medium	Moderate	Priority 4
10.6	Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	Moderate	Probable	Medium	Moderate	Priority 4

11	Capital expenditure planning
Key Process:	The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure on each over the next five or more years. Since capital investments tend to be large and lumpy, projections would normally be expected to cover at least 10 years, preferably longer. Projections over the next five years would usually be based on firm estimates
Outcome:	The capital expenditure plan provides reliable forward estimates of capital expenditure and asset disposal income. Reasons for the decisions and for the evaluation of alternatives and options are documented.

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
11.1	There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	Moderate	Probable	Medium	Moderate	Priority 4
11.2	The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	Minor	Probable	Low	Moderate	Priority 5
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	Moderate	Probable	Medium	Moderate	Priority 4
11.4	There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned	Minor	Probable	Low	Moderate	Priority 5

12	Review of AMS
Key Process:	The asset management system is regularly reviewed and updated.
Outcome:	The asset management system is regularly reviewed and updated

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent Risk Rating	Controls Assessment	Review Priority
12.1	A review process is in place to ensure that the asset management plan and the asset management system described in it remain current	Minor	Probable	Low	Moderate	Priority 5
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system	Minor	Probable	Low	Strong	Priority 5

Contact us

Travis McAuliffe
Partner
(08) 9263 7271
tmcauliffe@kpmg.com.au

Ben Lambert
Director
(08) 9263 7146
blambert@kpmg.com.au

KPMG.com.au