NewGen Power Kwinana Pty Ltd

Asset Management System

Review Report 2022 – EGL3

Audit Report	Authorisation	Name	Position	Date
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GLOSSARY

AEMO – Australian Energy Market Operator

AESCSF - Australian Energy Sector Cyber Security Framework

AMS – Asset Management System

AS/NZS ISO - Australian and New Zealand International Standards Organisation

BOP – Balance of Plant

EBITDA – Earnings Before Interest, Taxes, Depreciation, and Amortization

EIT - Energy Infrastructure Trust

ERA – Economic Regulation Authority

ERAP – Engineering Risk Assessment Process

FG – Fuel Gas

GES – Geographe Environmental Services

GT – Gas Turbine

HRSG - Heat Recovery Steam Generator

HP/IP/LP – High Pressure/Intermediate Pressure/Low Pressure

IAW – In Accordance With

I&C – Instrument & Control

ICG - Infrastructure Capital Group Limited

KPIs – Key Performance Indicators

PLCM – Life Plan Cost Model

MEX – Maintenance Computerized Maintenance Management System (CMMS)

MW – Megawatt

MYOSH – Cloud based software for risk management, incident reporting, audits, etc

NPK – NewGen Power Kwinana

NewGen Kwinana Partnership – The Licensee

O & M – Operate and Maintain

OSA – Operator Services Agreement

PD – Power Distribution

SAMP – Strategic Asset Management Plan

SSCP - Summit Southern Cross Power (Corporate Office)

SSCPH - Summit Southern Cross Power Holdings Pty Ltd

ST – Steam Turbine

SWIN – South West Interconnected Network

TX Plant Area – 330kV and Transformer System

WPN – Western Power Networks

WSC – Water Steam Cycle

This report was prepared by representatives of GES Pty Ltd in relation to the above named client's conformance to the nominated audit standard(s). Audits were undertaken using a sampling process and the report and its recommendations were reflective only of activities and records sighted during this audit process. GES Pty Ltd shall not be liable for loss or damage caused to or actions taken by third parties as a consequence of reliance on the information contained within this report or its accompanying documentation. The client had the opportunity for review to ensure no commercially sensitive information was disclosed.

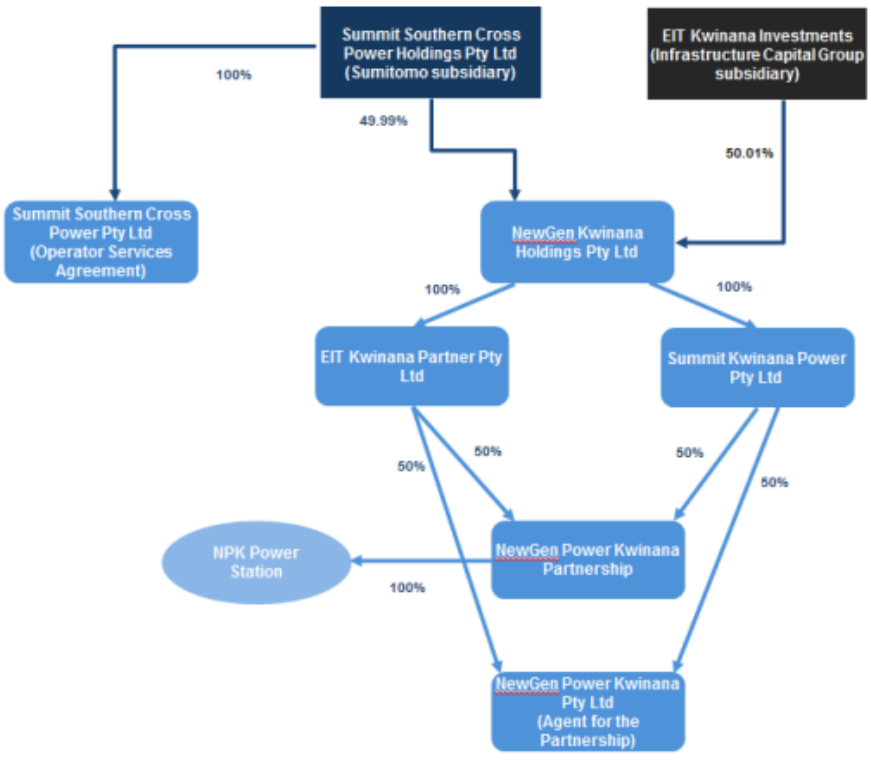
1. EXECUTIVE SUMMARY

NewGen Power Kwinana Pty Ltd is the holder of an Electricity Generation Licence issued by the Economic Regulation Authority (**ERA**). For the purposes of this Asset Management System Review Report, the Power Station owned by NewGen Power Kwinana Pty Ltd will be referred to as "NewGen Power Station" throughout this report.

NewGen Power Station (**NPK**) is jointly owned by Energy Infrastructure Trust (which is managed by Infrastructure Capital Group (**ICG**)) and Sumitomo Corporation.

Sumitomo has invested in the Kwinana Project through its wholly owned subsidiary, Summit Southern Cross Power Holdings Pty Ltd (**SSCPH**). Summit Southern Cross Power (**SSCP**) are responsible for corporate processes including but not limited to IT systems, cyber security, document management, NPK Management Committee and budget approvals.

DIAGRAM 1 NPK Entity Relationship Structure



NewGen Kwinana Pty Ltd holds an Electricity Generation Licence (**EGL3**) issued by the Economic Regulation Authority under the *Electricity Industry Act 2004*. This asset management review is the 5th review and was conducted in accordance with the 2019 Audit and Review Guidelines – Electricity and Gas Licences (the **Guidelines**) issued by the ERA to assess the effectiveness of the licensee's Asset Management System (**AMS**).

Section 14 of the *Electricity Industry Act 2004* requires as a condition of every licence that the licensee must, not less than once in every period of 24 months (or any longer period that the Authority allows) calculated from the grant of the licence, provide the Authority with an asset management system review report by an independent expert acceptable to the Authority. Geographe Environmental Services has been approved by the Authority to undertake the works subject to a review plan approved by the Authority.

The ERA decided to increase the period covered by the current review from 36 to 60 months. As such, the period for the review is 1 August 2017 to 31 July 2022 (**review period**), and the report is due to be submitted to the Authority on or before 31 October 2022.

Asset Overview

The Kwinana Power Station is a 327.8 MW combined-cycle, gas-fired power station located at the Kwinana industrial estate, 30km south of Perth, Western Australia.

The installed plant primarily consists of;

- One Alstom 13E2-MXL 165MW Gas Turbine fired on Natural Gas
- Associated GT Air Inlet and Exhaust Gas structures
- One Heat Recovery Steam Generator (**HRSG**) complete with Supplementary Gas Firing
- One Alstom 160MW integral Intermediate Pressure/Low Pressure (**IP/LP**) and High Pressure (**HP**) Steam Turbine
- Natural Gas conditioning and metering station
- Water Treatment Plant
- Associated Balance of Plant required for effective operation
- The Main Cooling Water System is Sea Water supplied from the Cooling Water Intake located adjacent to NPK at the Synergy Kwinana Power Station.

Previous Asset Management Review Report (2017)

The previous AMS review report was for the review period 1st August 2014 to 31st July 2017 and was conducted in accordance with the Audit and Review Guidelines – Electricity and Gas Licences April 2014.

The licensee confirmed that there have been no substantial changes to the assets or the business since the previous AMS review.

The 2017 AMS review is available on the ERA website and was conducted in accordance with the 2014 Guidelines. There were no asset management process deficiencies identified within the review report (i.e. rated C, D, 3 or 4 – refer Table 1). It was noted that the 2014 Guidelines left to the discretion of the licensee the need to determine whether to also include in the post-review implementation plan actions to address recommendations made by the auditor that represent opportunities to improve asset management effectiveness (i.e. rated A, B, 1 or 2 – Refer Table 1). The process and policy and performance rating scales are further defined in Tables 4 & 5.

TABLE 1 Rating Scale Reviews - Process & Policy and Performance

Rating	Process And Policy Rating Description	Rating	Performance Rating Description
A	Adequately defined	1	Performing effectively
B	Requires some improvement	2	Improvement required
C	Requires substantial improvement	3	Corrective action required
D	Inadequate	4	Serious action required
NR	Not rated	NR	Not rated

Although not required by the 2014 Guidelines, in an effort to drive internal improvement processes, the licensee developed a post review implementation plan (**PRIP**) to address asset management effectiveness criteria (refer table 1A) that were rated A, B, 1 or 2 for the following asset management criteria:

TABLE 1A Summary of Asset Management Criteria & Ratings included in 2017 PRIP

Ref	Asset Management Criteria	Process Rating	Performance Rating
01/2017	1.5 - Lifecycle costs of owning and operating assets are assessed	B	1
02/2017	Adequate system documentation for users and IT operators	B	2
03/2017	Data backup procedures appear adequate and backups are tested	B	2
04/2017	Risks are documented in a risk register and treatment plans are actioned and monitor	B	1
05/2017	Contingency plans document the steps to deal with the unexpected failure of an asset.	B	2
06/2017	A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current	B	1
07/2017	1 to 12 - Formally issue revised AMP documentation.	NR	NR

These recommendations contained in the 2017 PRIP were reviewed for effectiveness and implementation in the scope of the review (refer Appendix 1), however, in line with the Section 5.1.8 of the 2019 Guidelines, which states Auditors who wish to make recommendations for asset management processes or effectiveness criteria that received a rating other than those rated C, D, 3 or 4 should provide those recommendations directly to the licensee. As such, they should not be included in the audit or review report. Subsequently, there were no actions taken by the licensee in response to recommendations for asset management deficiencies in the previous review report that require to be assessed in Section 4 of the current review report.

1.1 Review Conclusion

As specified in the approved Review Plan, we have undertaken a limited assurance engagement on NewGen Kwinana's Asset Management System (**AMS**), relating to it's the Electricity Generation Licence (EGL3) for the period from 1 August 2017 to 31 July 2022.

In our opinion, based on the procedures we have performed and the evidence we have obtained, the Audit Team determined that NewGen Kwinana has established and maintained, an effective asset management system with processes that meet the required levels of performance for the duration of the review period.

The licensee's AMS has matured since the previous review, notably the development of the eleven Plant Area Asset Management Plans (**AMPs**). The Audit Team note that while comprehensive and detailed they are onerous to maintain from an administrative perspective, and this could potentially reduce the effectiveness of the AMPs in providing an efficient plan in managing the asset. The licensee could consider rationalising the information contained in the AMPs could improve its effectiveness.

1.2 Summary of Findings

An overall effectiveness rating for an asset management process was determined by the Audit Team, based on a combination of the process and policy adequacy rating and the performance rating for each effectiveness criterion.

There were no asset management deficiencies (i.e. rated C, D, 3 or 4) identified in the current review and as such, there are no recommendations arising from the review. An explanation of the review findings is detailed in Appendix 2 and further summarised in Table 6.

TABLE 2 Summary of Asset Management Process Overall Rating

ASSET MANAGEMENT SYSTEM	PROCESS & POLICY OVERALL RATING	PERFORMANCE OVERALL RATING
1. ASSET PLANNING	A	1
2. ASSET CREATION AND ACQUISITION	A	2
3. ASSET DISPOSAL	A	1
4. ENVIRONMENTAL ANALYSIS	B	1
5. ASSET OPERATIONS	B	1
6. ASSET MAINTENANCE	A	1
7. ASSET MANAGEMENT INFORMATION SYSTEM	A	1
8. RISK MANAGEMENT	B	2
9. CONTINGENCY PLANNING	B	1
10. FINANCIAL PLANNING	A	1
11. CAPITAL EXPENDITURE PLANNING	A	1
12. REVIEW OF AMS	B	2

2. ASSET MANAGEMENT REVIEW SCOPE & OBJECTIVES

The Asset Management System Review has been carried out as a 'limited assurance engagement'. A limited assurance engagement conducted in accordance with ASAE 3500 required identifying areas where the AMS is likely to be materially ineffective, addressing the areas identified and considering the process used to prepare the AMS. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

2.1 Asset Management System Review Scope

The asset management review was conducted in accordance with (**IAW**) the following guidance documentation:

- 2019 Audit and Review Guidelines – Electricity and Gas Licences
- the ERA approved Review Plan
- Electricity Generation Licence EGL3
- ISO 31000:2018 (risk based approach to auditing using the risk evaluation model)
- ASAE 3000 Standard on Assurance Engagements - Assurance Engagements Other than Audits or Reviews of Historical Financial Information
- ASAE 3100 Standard on Assurance Engagements - Compliance Engagements
- ASAE 3500 Standard on Assurance Engagements - Performance Engagements

In accordance with the Review Guidelines, the scope of the review considered the effectiveness of NewGen Kwinana's existing control procedures within the 12 key processes in the asset management life cycle (refer Table 2) and their associated effectiveness criterion (Refer Table 6 for detail) as outlined as detailed in Table 23 of the 2019 Guidelines.

Each key process and effectiveness criteria were applicable to of NewGen Kwinana's AMS and was individually considered in this review for the duration of the review period. Specifically, the scope for the AMS review included:

- Site visit to the NewGen Kwinana Power Station located Naval Base Road, Kwinana.
- Interviews with key NPK staff.
- Review, testing and assessment of relevant documents and systems.
- Review of the licensee's understanding and compliance with legal / environmental / safety obligations
- Preparation of a review report in accordance with the format outlined in the Guidelines.
- Consideration of the recommendations from the previous review report and PRIP and assessment of the actions taken by the licensee to address the recommendations (Refer Appendix 1, as determined not required for inclusion in Table 7 of this review report).

In order to meet their legal and other obligations, NPK has established several material commercial agreements, approvals and compliance requirements associated with the asset management for the NewGen Power Station and these requirements were considered within the scope of the AMS review.

- Commercial Agreements
  - Operator Services Agreement (**OSA**) (**SSCP**)
  - Gas Supply and Purchase Agreements
  - Power Purchase Agreement (Synergy)
  - Insurance Agreements
  - Finance Agreements
  - Site Water Supply Agreement
  - Shared Services Agreement (Synergy)
  - Connection and Access Agreement (Western Power)
  - Dampier to Bunbury Pipeline (**DBP**) Agreement
  - Site Access Agreement
- Licences and Permits
  - Electricity Generation Licence ELG3
  - Ministerial Statement 698
  - Dangerous Goods Licence
  - Gas Fitting Authorisation
  - DER Licence L8271
- Management Plans with Compliance Requirements
  - Electricity Compliance Reporting Manual (ERA)
  - Stack Emissions Monitoring Plan (**SEMPO**)
  - Greenhouse Gas Abate Programme (**GGAP**)
  - Marine environment Temper Elevation Management Plan (**METEMP**)
- Statutory Compliance
  - Acts (for example *Electricity Industry Act 2004, Work Health and Safety Act 2020 etc).*
  - Regulations *(for example Economic Regulation Authority (Licensing Funding) Regulations 2014, Work Health and Safety (General) Regulations 2022, etc*)
  - Rules (for example, Technical Rules, Wholesale Electricity Market Rules)
  - Codes (for example, Electricity Industry (Metering) Code 2012)
  - Mandatory Standards

2.2 Asset Management System Review Objective

The objective of the review was to provide to the Authority an independent assessment of performance against each asset management process and determined the effectiveness NewGen Kwinana Power Station's AMS in relation to EGL3 and to provide recommendations to address any asset management system deficiencies observed.

Additionally, in relation to the previous review the objective was to provide an assessment of findings from the last review the actions taken to address the recommendations from the previous review (if applicable).

2.3 Asset Management System Review Methodology

The review methodology detailed in the Audit and Review Guidelines – Electricity and Gas Licences (March 2019) was used in the execution of the Asset Management System Review and its application to this review was detailed in the Review Plan. The were no deviations from the Review Plan.

A risk-based approach, using the risk model described in the Appendix 3 of 2019 Guideline, was applied to planning and conducting the review by the Audit Team. The review priority was determined for each of the 12 asset management processes by assessing the relevant risk factors and controls in place.

The review procedures included review, testing and assessment of relevant documents and systems in relation to financial management and planning, service performance standards, compliance, asset management, operations and maintenance functions and reporting determine effectiveness through:

- Interview supervisory personnel and operational personnel
- 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
- Review of key process control and management systems

The NPK's review priorities determined in the development of the review plan ranged from priority 4 to 5 (refer Appendix 1 for detail). The review procedures focussed on higher priorities, with less extensive coverage of lower priorities. There was no requirement to adjust the review priority determined in the review plan.

TABLE 3 List of Personnel Who Participated in the Review

ITEM	NAME	COMPANY	POSITION
1	Mark Hammond	NewGen Kwinana	Kwinana Power Station Manager
2	Kris Roots	NewGen Kwinana	Production Manager
3	Ralph Lochbuehler	NewGen Kwinana	Engineering Manager
4	Dan Gitsham	NewGen Kwinana	Technical Service Manager

The AMS Review was conducted during September - October 2022 and included desktop review and one day site visit to execute the review plan, conduct interview sessions and report writing. In total, the review required a combined total of 90 hours of the Audit Team member's time.

2.4 Asset Management Review Summary of Ratings

The licensee's asset management system was found to be effective and met the requirements of the Audit and Review Guidelines – Electricity and Gas Licences (2019). There were no asset management criteria rated in the review where the performance rating or process and policy rating required recommendations to be made (i.e. rated C, D, 3 or 4).

When assessing the effectiveness of the NPK's asset management system, the Audit Team rated both the adequacy of the licensee's processes and policies (process and policy rating) and the licensee's performance (performance rating) for each asset management process and its associated effectiveness criterion.

The rating scales used by the Audit Team to rate the adequacy of a licensee's processes and policies and to rate the licensee's performance are further defined in Tables 4 and 5.

TABLE 4 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 being managed.
B	Requires some improvement	• Processes and policies require improvement. • Processes and policies do not adequately document the required performance of the assets. • Reviews of processes and policies are not conducted regularly enough. • The asset management information system(s) requires minor improvements (taking into consideration the assets being managed).
C	Requires substantial improvement	• Processes and policies are incomplete and require substantial improvement. • Processes and policies do not document the required performance of the assets. • Reviews of processes and policies are considerably out of date. • The asset management information system(s) requires substantial improvements (taking into consideration the assets being managed)
D	Inadequate	• Processes and policies are not documented. • The asset management information system(s) is not fit for purpose (taking into consideration the assets being managed).

TABLE 5 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	Improvement required	• The performance of the process requires some improvement to meet the required level. • Process effectiveness reviews are not performed regularly enough. • Recommended process improvements are not implemented
3	Corrective action required	• The performance of the process requires substantial improvement to meet the required level. • Process effectiveness reviews are performed irregularly or not at all. • Recommended process improvements are not implemented
4	Serious action required	• Process is not performed or the performance is so poor the process is considered to be ineffective.

As required by section 5.1.6.2 of the Audit & Review Guidelines (March 2019) Table 6 summarises the auditor's assessment of the overall process and policy rating and the performance rating for each key process and the associated asset management criterion in the licensee's asset management system, using the scales described in Table 4 & 5. The justification for the outcome of the overall asset management process rating is summarised in Table 6 and further detailed in Appendix 1.

TABLE 6 Asset Management System Effectiveness Summary

ASSET MANAGEMENT SYSTEM	PROCESS & POLICY RATING	PERFORMANCE RATING
1. ASSET PLANNING	**A**	**1**
Outcome: Asset planning was integrated into the Asset Life Plan Cost Model, Site Asset Management 5 Year Outlook, Business Plan, Annual Budgets and Annual Operating Plans providing a framework for existing and new assets to be effectively utilised and their service optimised. The OSA was considered in the review and update of the documentation.		
1.1 Asset management plan covers the processes in this table	A	1
1.2 Planning processes and objectives reflect the needs of all stakeholders and are integrated with business planning	A	1
1.3 Service levels are defined in the asset management plan	A	1
1.4 Non-asset options (e.g. demand management) are considered	A	1
1.5 Lifecycle costs of owning and operating assets are assessed	A	1
1.6 Funding options are evaluated	A	1
1.7 Costs are justified and cost drivers identified	A	1
1.8 Likelihood and consequences of asset failure are predicted	A	1
1.9 Asset management plan is regularly reviewed and updated	B	2
2. ASSET CREATION AND ACQUISITION	**A**	**1**
Outcome: The asset acquisition framework was economic, efficient and cost-effective; it reduced demand for new assets, lowered service costs and improved service delivery where possible. The cost of compliance with legal and other requirements was considered by the Licensee.		
2.1 Full project evaluations are undertaken for new assets, including comparative assessment of non- asset options	A	1
2.2 Evaluations include all life-cycle costs	A	1

ASSET MANAGEMENT SYSTEM	PROCESS & POLICY RATING	PERFORMANCE RATING
2.3 Projects reflect sound engineering and business decisions	A	1
2.4 Commissioning tests are documented and completed	A	1
2.5 Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	A	2
3. ASSET DISPOSAL	**A**	**1**
Outcome: The Licensee's asset management framework minimised holdings of surplus and underperforming assets and lowered service costs where possible.		
3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process	A	1
3.2 The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	A	1
3.3 Disposal alternatives are evaluated	B	1
3.4 There is a replacement strategy for assets	A	1
4. ENVIRONMENTAL ANALYSIS	**B**	**1**
Outcome: The Licensee's Asset Management System was risk based and regularly assessed external opportunities and threats and identified corrective action to maintain performance requirements. The use of third party expertise was undertaken where required.		
4.1 Opportunities and threats in the asset management system environment are assessed	A	1
4.2 Performance standards (availability of service Capacity, continuity, emergency response, etc.) are measured and achieved	A	1
4.3 Compliance with statutory and regulatory requirements	B	2
4.4 Service standard (customer service levels etc) are measured and achieved.	A	1
5. ASSET OPERATIONS	**B**	**1**
Outcome: The AMS inclusive of the annual Operating Plans adequately documented the processes and knowledge of staff in the operation of assets so service levels could be consistently achieved. Workshops were utilised to ensure collaborative output by Technical Staff.		
5.1 Operational policies and procedures are documented and linked to service levels required	A	1
5.2 Risk management is applied to prioritise operations tasks	B	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	B	1
5.4 Accounting data is documented for assets	A	1
5.5 Operational costs are measured and monitored	A	1
5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities.	B	2
6. ASSET MAINTENANCE	**A**	**1**
Outcome: The asset maintenance plans covered the scheduling and resourcing of the maintenance tasks to ensure work could be done on time and within budget.. Risk management was applied to asset maintenance activities and the expertise of third parties was sought where required.		
6.1 Maintenance policies and procedures are documented and linked to service levels required	A	1

ASSET MANAGEMENT SYSTEM	PROCESS & POLICY RATING	PERFORMANCE RATING
6.2 Regular inspections are undertaken of asset performance and condition	A	1
6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	A	1
6.4 Failures are analysed and operational / maintenance plans adjusted where necessary	A	1
6.5 Risk management is applied to prioritise maintenance tasks	B	1
6.6 Maintenance costs are measured and monitored	A	1
7. ASSET MANAGEMENT INFORMATION SYSTEM	**A**	**1**
Outcome: The asset management information system provided authorised, complete and accurate information for the day-to-day running of the asset management system. The focus of the review was the accuracy of performance information used by the licensee to monitor and report on service standards. The provisions for Cyber Security were also reviewed and the extent of the backup and data recovery processes.		
7.1 Adequate system documentation for users and IT operators	B	1
7.2 Input controls include suitable verification and validation of data entered into the system	A	1
7.3 Security access controls appear adequate such as passwords	A	1
7.4 Physical security access controls appear adequate	A	1
7.5 Data backup procedures appear adequate and backups are tested	A	1
7.6 Computations for licensee performance reporting are accurate	A	1
7.7 Management reports appear adequate for the licensee to monitor licence obligations	A	1
7.8 Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation	A	1
8. RISK MANAGEMENT	**B**	**2**
Outcome: The risk management framework effectively managed the risk that the licensee does not maintain effective service standards. Evident from operational reports for the duration of the review period,		
8.1 Risk management policies and procedures exist and are applied to minimise internal and external risks	B	2
8.2 Risks are documented in a risk register and treatment plans are implemented and monitored	B	2
8.3 Probability and consequences of asset failure are regularly assessed	A	1
9. CONTINGENCY PLANNING	**B**	**1**
Outcome: Contingency plans have been developed and tested to minimise any major disruptions to service standards.		
9.1 Contingency plans are documented understood and tested to confirm their operability and to cover higher	B	1
10. FINANCIAL PLANNING	**A**	**1**
Outcome: The financial plan was reliable and provided for the long term financial viability of the services.		
10.1 The financial plan states the financial objectives and identifies strategies and actions to achieve those	A	1
10.2 The financial plan identifies the source of funds for capital expenditure and recurrent costs	A	1
10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	A	1

ASSET MANAGEMENT SYSTEM	PROCESS & POLICY RATING	PERFORMANCE RATING
10.4 The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period	A	1
10.5 The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	A	1
10.6 Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	A	1
11. CAPITAL EXPENDITURE PLANNING	**A**	**1**
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.		
11.1 There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	A	1
11.2 The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	A	1
11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	A	1
11.4 There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented	A	1
12. REVIEW OF AMS	**B**	**2**
Outcome: The asset management system was regularly reviewed and updated.		
12.1 A review process is in place to ensure the asset management plan and the asset management system described in it remain current	B	2
12.2 Independent reviews (e.g. internal audit) are performed of the asset management system	B	2

3. ASSET MANAGEMENT SYSTEM REVIEW RECOMMENDATIONS

3.1 Asset Management Review Follow-Up from Previous Review Findings

The previous review found several opportunities for improvement, however, no AMS deficiencies were identified as defined by the 2019 Guidelines, as such, there were no recommendations from the previous review.

TABLE 7 Ineffective Components Recommendations, Previous Review Implementation Plan

A Resolved during current review period				
Recommendation Reference (no./year)	**Rating** **Asset Management Process and Effectiveness Criterion** **Details of Deficiency** **Details of Inadequate Controls and/or Non-Compliance**	**Auditors' Recommendation**	**Date Resolved**	**Further Action Required (Yes/No/Not Applicable)** **Details of Further Action Required (Including Current Recommendation Reference, if Applicable)**
	The previous Review found no AMS deficiencies. There were minor recommendations made from the previous review in relation to OFI.			
B Unresolved at end of current review period				
	The previous Review found no AMS deficiencies. There were minor recommendations made from the previous review in relation to OFI.			

3.2 Asset Management System Recommendations and Action Plans

As stipulated in section 5.3 of the Audit and Review Guidelines – Electricity and Gas Licences (March 2019), the Audit Team noted that the Asset Management Review Post Implementation Plan does not form part of the Audit Opinion. There were no recommendations made to address AMS deficiencies from the current review that required post review implementation plans.

3.3 Review Asset System Deficiencies/Recommendations

TABLE 8 Recommendations to Address Current Asset System Deficiencies

A Resolved during current review period				
Recommendation Reference (no./year)	**Rating** **Asset Management Process and Effectiveness Criterion** **Details of Deficiency** **Details of Inadequate Controls and/or Non-Compliance**	**Action Taken by Licensee**	**Date Resolved**	**Auditor's Comments**
The current Review found no AMS deficiencies. There were no recommendations made from the current review.				
B Unresolved during current review period				
The current Review found no AMS deficiencies. There were no recommendations made from the current review.				

APPENDIX 1 – NEWGEN KWINANA POWER STATION ASSET MANAGEMENT REVIEW

SEPTEMBER 2022

TABLE 9 Audit Review Ratings and Recommendations

1. ASSET PLANNING ☒ Assess the adequacy of the asset planning process ☒ Assess the adequacy of the asset management plan ☒ Assess whether the asset management plan is up-to-date and implemented in practice ☒ Assess whether the asset management plan clearly assigns responsibilities and whether these have been applied in practice **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.*			OVERALL EFFECTIVENESS RATING	
			PROCESS & POLICY RATING* **A**	PERFORMANCE RATING **1**
No.	**2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION**			
1.1	**OBLIGATION: Asset management plan covers the processes in this table**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – The Strategic Asset Management Plan (SAMP), the Asset Management System Manual and the individual plan AMPs were comprehensive and addressed the ERA Guidelines. The Asset Management Manual addressed stakeholder requirements and specified KPIs. Operational and maintenance risks were identified, plans and strategies were documented and in place to mitigate the risks. Plant Area AMPs were established for: ▪ Instrumentation and Control ▪ Gas Turbine (GT) ▪ Steam Turbine (ST) ▪ Generator System ▪ Fuel Gas Plant and Fire System ▪ Power Distribution System ▪ Heat Recovery Steam Generator (HRSG) ▪ Steam and Water Cycle ▪ Transformers and 330kV System ▪ Balance of Plant (BoP) **Documents/Evidence** – Appendix 2 – 1, 2, 3, 4, 5.1-5, 12.2, 21, 17.1-17.3, 26.1-26.6, Site Interviews **Observations:** • The asset management system documentation and the plant area AMPs were very detailed and adequate for the Licensee's operational and maintenance requirements.			

	• A SAMP was developed in accordance with the AM Policy and outlined the role of the asset management system in achievement of the business goals and requirements. • The SAMP included a NPK Asset Management Five Year Outlook, which documented asset requirements and associated budget estimates. • NPK Asset Life Plan Cost Model (PLCM) was developed and detailed whole of life performance assumptions and forecasts for input to the business plans. • AMS manual addressed all requirements in the Audit Guidelines • The AMS Manual and AMP clearly delineated the roles, responsibilities, and KPIs for management, operations and maintenance and IT. • A RASCI Matrix was established which aligned with the plant area AMPs. Noted reference to the MEX KKS number was defined within the RASCI Matrix. • AMPs were developed at each plant area and detailed specifically how different areas of plant and equipment were managed. • The plant specific AMPs were very detailed and included references that increased the maintenance of the documents, for example, links and references to MEX PMs associated with FMECA mitigations. • AMS documentation was reviewed and updated throughout the review period. However, it was noted, the specific plant area AMPs included some obsolete references that were superfluous to the needs of the documents. Noted the Licensee intended to review these in future updates. • Noted the Asset Management Policy specified NPK alignment with ISO 55001 Asset Management – Management Systems – Requirements			
	Recommendation: None		**Action: Nil**	
1.2	**OBLIGATION: Planning processes and objectives reflect the needs of all stakeholders and are integrated with business planning**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings – Asset Planning was incorporated into operational and business planning processes and was clearly described in the SAMP. The annual Asset Management Planning cycle comprised a series of workshops and other planning activities to confirm the currency of the asset management objectives and update them as required. A number of other outputs were produced, including updates to the asset management framework documents. There was comprehensive engagement with stakeholders from the operational to management level. **Documents/Evidence** – 1, 2, 3, 5.1-5.21, 17.1-17.3, 26.1-26.6, Site Interviews **Observations:** • The SAMP identified internal and external Stakeholders inclusive of regulators (i.e., ERA), WPC, investors, financiers, customers, and suppliers. • Continual condition monitoring of critical assets used OEM and internally conducted inspections to determine equipment condition. Plant Performance was continually monitored using customised PI data • NPK have adopted a risk based approach in the operation and maintenance of their assets. Outages were planned wherever possible to ensure minimal downtime occurred and performance was closely monitored. • The asset planning processes were detailed, comprehensive and adequate for the licensee operational and maintenance requirements. • Key inputs to the Plant Area Asset Planning Reviews included: ➢ Asset management plans ➢ Lifecycle cost model			

	➢ FMECA ➢ Budget Tracker ➢ CMMS maintenance history report			
	Recommendation: None		**Action: Nil**	
1.3	**OBLIGATION: Service levels are defined in the Asset Management Plan**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings – The Power Station Manager confirmed that major commercial agreements, including, Operator Services Agreement (OSA), Western Power Connection and Access Agreement, were considered as part of the business planning, annual budget preparation, Annual Operating Plan development and subsequently incorporated into the Plant Area specific AMPs. **Documents/Evidence** – 1, 2, 3, 5.1-5.21, 17.1-17.3, 26.1-26.6, Site Interviews **Observations:** • Service levels were well defined in the contracts and reported on in monthly NPK Business Services and quarterly Business Performance Summary reports. • Operational performance reports compared budget, actual and variance in performance on key performance parameters such as availability, and capacity factor. • The development of the asset management plans (for each area of plant) considered risk, levels of service and cost and specified KPIs for the asset. • Key stakeholders were identified in the SAMP and their level of interest. • Service agreements were discussed during the site meeting but were not provided for review. • AMP's defined the Key Performance Requirements for each area of plant and expected performance. • Responsibility for delivery against the KPIs were defined in the Annual Operating Plan and were assigned to the Power Station Manager. • Note the Annual Operating Plan was not provided for review.			
	Recommendation: None		**Action: Nil**	
1.4	**OBLIGATION: Non-asset options (e.g. demand management) are considered**	**Review Priority 5**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings –. The Station Manager confirmed non-asset options such as efficiency management, pursuit of innovative processes and other service delivery solutions to improve efficiency and reduce costs were routinely considered during the review period. The projects subject to consideration were noted to be commercially sensitive and some were referenced in the Opportunity Matrix of the 2022 Budget Presentation. **Documents/Evidence** – 1, 2, 3, 5.1-5.21, 17.1-17.3, 26.1-26.6, Site Interviews			

	Observations: • The Station Manager confirmed NPK regularly considered business improvement opportunities and evaluated business cases. • Noted the licensee developed the Asset Management framework on the requirements of ISO 55000 • Comprehensive processes established for asset planning were evidenced, responsibilities were well defined, • Asset Management System documentation reinforced the Asset Management Policy objectives with respect to stakeholder requirements specifically shareholders, regulators and customers. • AMPs reinforced the need to monitor operation of the wind farm and work closely with Vestas to optimize its operational capacity.			
	Recommendation: None		**Action: Nil**	
1.5	**OBLIGATION: Lifecycle costs of owning and operating assets are assessed**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings – Life cycle costs were considered and maintained in the Kwinana Asset Life Cycle Model (PLCM). The PLCM tool defined current assets condition, and captured future costs for ongoing inspections and maintenance, major overhauls, refurbishment or replacement. A 5 Year look Ahead for Operating forecasts till end of life was also captured **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 26.1-26.6, Site Interviews **Observations:** • The Asset Life Plan Cost Model (PLCM) recorded historical and forecast expenditure, performance and inspection schedule information. • The PLCM fed information and data into the SAMP, 5 year outlook and Asset plans for consideration in the development the budgets and plans for the Power Station. • The Asset Life Plan Cost Model was an integral part of the licensee's Asset Management System. It was updated as part of the Asset planning process. • Inputs to the life cycle cost model were derived from various Strategic and site based Asset planning processes. • The received PLCM inputs were used to update key site planning documents, for example, the SAMP and 5 year outlook. • The model was maintained in excel database and maintained data integrity throughout the review period.			
	Recommendation: None		**Action: Nil**	
1.6	**OBLIGATION: Funding options are evaluated**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings – The Asset Management Policy referenced the objective of the Licensee to deliver value for the shareholders and understand life cycle implications including cost, risk and performance. AMS documentation clearly articulated the financial models. The Board was responsible for approval of cost and performance budgets, forecasts for the financial year and operating budget forecasts and alignment with trading forecasts. Revenue was allocated to a Maintenance Reserve Account (MRA) for operating and capital works.			

	Documents/Evidence – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 26.1-26.6, Site Interviews **Observations:** • PLCM provided base case, alternate case and project case operating scenarios (forecast EOH) which enabled discussions within the business and between operations, trading and finance groups to better understand the full lifecycle impact of decisions relating to change in operating profiles. • In addition to the financial modelling, there was an annual operating budget update and business plan review that was approved by the Board. • Specific details of the financial plans were commercial in confidence			
	Recommendation: None		**Action: Nil**	
1.7	**OBLIGATION: Costs are justified, and cost drivers identified**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings - Costs were well identified and justified. Costs and cost drivers were monitored vigilantly and reported through to the Board. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 26.1-26.6, Site Interviews **Observations:** • Service contracts were established and budgeted. • Gas contracts were part of the process established to ensure long term supply. • Business cases for major investments were developed and submitted for consideration and approval at board level. These detailed multiple scenarios (i.e. base, alternate and project cases) to included the costs of operating without investment being made. Approved operating and maintenance plans were put out to tender to multiple contractors to achieve most competitive price.			
	Recommendation: None		**Action: Nil**	
1.8	**OBLIGATION: Likelihood and consequences of asset failure are predicted**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings – Asset failure risks were covered by the Plant Area Asset Management Plans which contained detailed failure mode, effects and criticality analysis (FMECA) for the specific area of plant. The FMECA's provided the risk and reliability basis for the maintenance plans, test, and inspection and service strategies for each major plant item to meet the performance objectives. Additionally, risk registers were maintained at a Corporate Risk level and aligned to Business Units. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 18, 26.1-26.6, Site Interviews			

	Observations: • Robust inspection plans including OEM inspections and NDT's were in place to provide early warning of issues and monitor asset condition. • Asset performance was continually monitored. • Operational risks and potential failures were captured and mitigations strategies were implemented to reduce the risks. • FMECA analysis were carried out to predict failures. • Detailed risk assessments are maintained and contingency plans in place. • Plant Operational contingency as the plant can be operated at reduced output in GT mode only. • Loss of production insurance was in place. • The Licensee actively participated in GT, HRSG and ST user forums to keep abreast of plant failures and improvements • NPK's spares strategy was based on an assessment of equipment criticality through the FMECA analysis, with different approaches adopted depending on the criticality of equipment and the lead time from suppliers. Consideration of impacts from COVID were noted. • Spares holdings were part of the Operate/Maintenance strategy in the specific plant AMPs. • RWE Kwinana ERAP Report commissioned in 2020 which assessed the level of Engineering Risk at the Kwinana Power Station, based on "scoring" the plant against a standard set of plant failure scenarios. Output of the ERAP was incorporated into the Life Cycle Planning Process.			
	Recommendation: None		**Action: Nil**	
1.9	**OBLIGATION: Asset management plan is regularly reviewed and updated**	**Review Priority 5**	**P&P* Rating: B**	**Performance Rating: 2**
	Findings – The Station Manager confirmed the plant specific AMPs were reviewed annually as part of the Asset Management Planning Cycle. Copies of the Annual AMP Plant Areas Asset Planning presentations were provided, and it was understood where required the AMP was updated. With the exception of the ST and the BoP AMPs, the remaining Plant Area specific AMPs were not revised during the review period. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 26.1-26.6, Site Interviews **Observations**: • The plan specific AMPs were in draft during the previous review period and were approved in during the current review period (Note: Approved dates ranged from Jun 2019 to May 2020. Refer Appendix 2 for specific details) • The review of the Plant Area AMP was not formally documented. Only one copy of the Asset Planning presentations were provided and they were not dated as such unable to confirm process had been undertaken for the duration of the review period. However, the asset planning review cascaded actions to MEX and the PLCM, and these AMS components were noted to be updated throughout the review period. • Annual AMP Plant Areas Asset Planning presentations were prepared and where required the AMP updated. With the exception of the ST and the BoP AMPs, the remaining Plant Area specific AMPs were not updated during the review period. • PLCM was up to date and had an up to date 5 year look ahead. Monthly business reports continually monitored asset performance and detailed operational issues and future plans.			

	• The Plant Area AMPs were very detailed and included references that increased the maintenance of the documents, for example, links and references to MEX PMs associated with FMECA mitigations). • There was no internal audit process established for the AMS. The use of external contractors was noted, for example the RWE asset management review.	
	Recommendation: None	**Action: Nil**

2. ASSET CREATION AND ACQUISITION ☒ Assess the adequacy of policies and procedures covering the creation and acquisition of assets ☒ Select a sample of asset creations/ acquisitions over the review period and confirm adequate procedures have been followed and actual costs are as predicted **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, lowers service costs and improves service delivery.*	**OVERALL EFFECTIVENESS RATING** **PROCESS & POLICY RATING*** **A** **PERFORMANCE RATING** **1**

No.	**2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION**			
2.1	**OBLIGATION: Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Sighted HRSG Tube Bank Replacement Project Proposal. The proposal showed detailed assessment of all options that were considered feasible. Multiple options (5) each considering capital costs, commercial costs, capacity increases and operational constraints of each option, Plant currently capped due to tube bank issues, however, no other feasible non asset options were considered in this proposal. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 16, 17.1-17.3, 26.1-26.6, Site Interviews **Observations:** • During the review period, NPK had in place a full project evaluations and comparative financial model for projects which were presented to Board for approval. • The Station Manager confirmed NPK had an established Management of Change Procedure which applied to all scales of modification to existing operational plant and systems operated at NPK (including refurbishments, new additions, and major modifications).			
	Recommendation: None		**Action: Nil**	
2.2	**OBLIGATION: Evaluations include all life-cycle costs**	**Review Priority** **5**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – The Licensee required project evaluation forms for capital and major operational expenditures, and these were required to be completed for all major budgeted project expenditures. The project evaluation form was utilised to predict and detail the complete scope of the project. It included a project risk assessment and detailed financial returns for the project. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 26.1-26.6, Site Interviews			

	Observations: • AMS Manual detailed the process for capital investment decision making. • Unbudgeted projects must be approved by the CEO or NPK Management Committee dependent on value. • Detailed life cycle costs formed the basis of comprehensive financial planning, reporting and monitoring. • Detailed life cycle costs were projected to end of life.			
	Recommendation: None		**Action: Nil**	
2.3	**OBLIGATION: Projects reflect sound engineering and business decisions**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings – The Licensee has developed a well embedded capital planning process in the Asset Management Planning Cycle. Central to the process was the asst life planning workshops which involved technical staff and were performance based as such decision making process took into consideration engineering, business and risk aspects of the projects. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 26.1-26.6, Site Interviews **Observations:** • Projects sighted during the site visit included HRSG tube replacement and Steam Generator windings brazed connections repairs. Both projects demonstrated a high level of engineering understanding and application. The solutions agreed were reviewed and independently evaluated. Various contractors (including the OEM for generator winding) provided quotations for the work. • AMS Manual detailed the process for the asset life planning workshops, undertaken at an optimal point in of the Asset Management Planning Cycle, which were supported by planned and sequenced condition assessments, investigations, or engineering studies. • The process was critical in reviewing and filtering work into the 5 year outlook, to ensure sufficient time was available to plan and execute the studies and work without undue risk to operations. • The life cycle cost model was developed as a tool to assist operations at the site to undertake integrated planning and forecasting of inspections and sustaining capital expenditure such that reliable cost estimate and performance information can be fed into the various documents forming the asset management system. • The process was critical in reviewing and filtering work into the 5 year outlook, to ensure sufficient time was available to plan and execute the studies and work without undue risk to operations.			
	Recommendation: None		**Action: Nil**	
2.4	**OBLIGATION: Commissioning tests are documented and completed**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**

	Findings – The Power Station Manager confirmed when required commissioning tests were completed and documentation was maintained. The process was managed via the Management of Change process and specified scope of works for external contractors. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 26.1-26.6, Site Interviews **Observations:** • Scope of works was incorporated in the Asset Life Cycle Planning process. • All work being carried out on site were supervised by NPK engineering to ensure completed as per scope of works including commissioning tests. • During the review period any critical work carried out offsite required an NPK engineer to be deployed to monitor and approve work being carried out. • It was noted during COVID the Licensee used of remote surveillance technology to ensure plant maintenance and operational activities were performed as required. • Performance testing was done on an as-required basis (e.g. following an upgrade of equipment) and in accordance with the performance warranties agreed in the commercial contracts for the work. • The Station Manager confirmed Capacity tests were carried out twice a year to meet System Management requirements.			
	Recommendation: None		**Action: Nil**	
2.5	**OBLIGATION: Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood**	**Review Priority 4**	**P&P* Rating: B**	**Performance Rating: 2**
	Findings – During the review period the Licensee monitored and reported compliance with its legal, environmental and safety obligations including via the NPK monthly business reports and the Legal & Compliance Register. The use of internal and external audits was also noted. The Licensee was aware of legal/environmental and safety obligations and proactively managed these requirements. In addition, regulatory requirements and mandatory standards associated with Statutory Plant were included in the Plant Area AMPs where required. Inspections of pressure vessels, gas appliances and safety valves were conducted IAW legal requirements. These assets have Planned Maintenance schedules in the CMMS to track and record all required inspections and record the results. For example, KKS No 11HAD10AA011 HRSG AMP SAFETY VALVE (LP Drum SV No. 2). PPM Np 1129. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 18, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • The AMS Manual section 8.1.1 stated that NPK's Compliance Manual provided a single point of reference for the compliance obligations directly related to the operations, maintenance and asset management of NewGen Kwinana Power Station. It considered: ➢ Statutory obligations by way of Acts, and Regulations ➢ *Occupational Safety and Health Act 1984* (Note repealed 31 March 2022) ➢ *Occupational Safety and Health Regulations 1986* (Note repealed 31 March 2022)			

	➢ Licenses and permits; ➢ Commercial / Contractual Agreements for key consumables and services; ➢ Key sub plan obligations; ➢ Internal compliance obligations captured in policies, processes or guidelines; and ➢ How changes in Statutory Requirements and Standards are monitored. • NPK Monthly Business reports included environmental, safety and operational statistics. • Noted the SAMP and the Legal & Compliance Register were not revised in response to change in legislative requirements, for example repeal of *Occupational Safety and Health Act 1984* and *Occupational Safety and Health Regulations 1986.* However, it was noted the Station Manager was aware of the changes to legislation. • Noted the Legal & Compliance Register did not reference Cyber Security or the Australian Energy Sector Cyber Security Framework (AESCSF). However, it was noted that the Licensee was aware of requirements and had been actively implementing Cyber security measures. • Noted some PPM references in the Plant Area AMPs were obsolete. The Audit Team considered this level of detail within the AMP superfluous to the intent of the document as the MEX system should be used as the point of reference and the MOC process established by the Licensee used to maintain history of plant within MEX • Application of the MOC process was not always demonstrated in some instances.	
	Recommendation: None	**Action: Nil**

3. ASSET DISPOSAL	OVERALL EFFECTIVENESS RATING	
☒Assess the adequacy of policies and procedures covering the identification of under-performing assets, disposal of assets and replacement strategy ☒ Determine whether a regular review of the performance of assets is undertaken ☒ Select a sample of disposals over the review period and confirm adequate procedures have been followed **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 minimises holdings of surplus and underperforming assets and lowers service costs.* *The cost-benefits of disposal options are evaluated.*	**PROCESS & POLICY RATING***	**PERFORMANCE RATING**
	A	**1**

No.	2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION			
3.1	**OBLIGATION: Under-utilised and under-performing assets are identified as part of a regular systematic review process**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings –. The Asset Management Life Cycle Planning process was risk based and considered capital investments through a risk based assessment. In addition, PI Vision has been implemented on site and provided a comprehensive view of the assets and their performance. Customised pages have been created by the Engineers which monitored and tracked the equipment and generated charts and graphs to show the performance of the assets. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • The AMS Policy specified prioritisation of investments based on risk, value, and alignment with electricity market forecasts. The objective highlighted investments, such as sustaining capital or plant improvements and emphasised the need for risk to be main consideration when prioritising them. • Plant performance was monitored by the DCS and reported in the NPK Monthly Business Reports with variances to Key Result Areas specified. • Plant Area AMPs incorporated major risk management plans, which included ongoing management plans to manage known issues resulting from events or latent conditions. • It was also noted the Engineering team were active in several ST & GT forums and kept abreast of any evidence and mitigation strategies of similar or same type of Gas or Steam Turbines underperforming elsewhere in the world.			
	Recommendation: None		**Action: Nil**	
3.2	**OBLIGATION: The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**

	Findings – Operational performance was closely monitored and reported. Monthly reports documented performance PI Vision enabled visualisation and trending of plant performance. Third party expertise was sought in relation to the replacement/refurbishment or upgrade faulty or poorly performing plant. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • NPK was in process of replacing the HRSG tubes due to continual issues with tubes leaking requiring tubes to be blocked and affecting their performance. • RWE Kwinana ERAP Report commissioned in 2020 which assessed the level of Engineering Risk at the Kwinana Power Station, based on "scoring" the plant against a standard set of plant failure scenarios. Output of the ERAP was incorporated into the Life Cycle Planning Process.			
	Recommendation: None		**Action: Nil**	
3.3	**OBLIGATION: Disposal alternatives are evaluated**	**Review Priority 5**	**P&P* Rating: B**	**Performance Rating: 1**
	Findings – The Power Station Manager confirmed alternatives to disposal were routinely evaluated. Opportunities for repair or refurbishment were considered as part of the Asset Management Life Cycle Planning process. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • The AMS Manual detailed the undertaking of a comprehensive an end of life cost estimate, during the review period only minor parts were disposed of, mostly they were exchanged or refurbished. • The Plant Area AMPs provided for review did not refer to disposal.			
	Recommendation: None		**Action: Nil**	
3.4	**OBLIGATION: There is a replacement strategy for assets**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**

	Findings –. The Licensee has developed a comprehensive life cycle financial model and have made provisions for OPEX and CAPEX expenditure during the Power Stations operational life. Specific responsibilities in relation to replacement strategies of assets were specified in the AMS Manual. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • PLCM identified and predicted equipment end of life and plans overhaul or replacement of the items • NPK has developed comprehensive maintenance strategies within MEX for the Power Station, • Operation and maintenance of the power station and any replacement of plant was incorporated in the annual budgets, where possible and reported on monthly. • Spares were maintained • The AMS Manual specified that Operations and Maintenance department were responsible for: ➢ Identification of all spare parts and consumables required for the performance of the operation and maintenance of a schedule for overhauls and replacements, and those parts required to be replaced ➢ Recommending major repairs, replacements, and capital improvements for the Power Station.	
	Recommendation: None	**Action: Nil**

4. ENVIRONMENTAL ANALYSIS ☒ Review achievement of performance and service standards over the review period ☒ Investigate any statutory or regulatory breaches and assess corrective action taken ☒ Review the adequacy of reporting and monitoring tools **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.*			OVERALL EFFECTIVENESS RATING	
			PROCESS & POLICY RATING*	PERFORMANCE RATING
			B	**1**
No.	**2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION**			
4.1	**OBLIGATION: Opportunities and threats in the asset management system environment are assessed**	**Review Priority 5**	**P&P* Rating: A**	**Performance Rating: 1**

Findings – The AMS Policy, SAMP and the AMS Manual detailed the risk management approach undertaken by the Licensee. The risk appetite of the Licensee considered asset management life cycle in relation to cost, risk and performance. The use of FMECA in the Plant Area AMPs was also evidenced and a third party was engaged in 2020 to provide a comprehensive Kwinana ERAP Report..

Documents/Evidence – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 21, 26.1-26.6, 28.1-28.6, Site Interviews

Observations:

- Opportunities and Threats (or Key Risks and Upsides) were reflected in the budget presentations. The 2022-2027 Budget Presentation included a Critical Issues Matrix.
- Aligned with the Risk Management Framework, the Business Continuity and Disaster Recovery (BCDR) framework was developed by the Licensee to ensure delivery of critical services continued in the event of disruption to any NewGen Power Kwinana Pty Ltd (NPK) facilities, suppliers or systems. The BCDR framework developed under a Business Continuity Policy encompassed:
  - Business Continuity Plan
  - Disaster Recovery Plan
  - Crisis Management Plan
- Risk assessments were generated via a facilitated and systematic workshop review involving staff at the NewGen Kwinana Power Station and were used to underpin the main content in the NPK risk register where the key mitigation actions are outlined.
- The Kwinana ERAP Report was used as an input to the Asset Management Planning Cycle.
- Licensee used MYOSH as a computerised risk management system,
- Each Asset Management Plan contained detailed failure mode, effects and criticality analysis for the specific area of plant.
- The SAMP identified stakeholders and assessed past performance in relation to each interest category and identified opportunities for improvement. Intertest Categories assessed included:

	➢ Availability and Reliability ➢ Asset Sustainability ➢ Return on Investment ➢ Achieving Revenue Targets ➢ Delivery Efficiency ➢ Compliance with Obligations			
	Recommendation: None		**Action: Nil**	
4.2	**OBLIGATION: Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings.- The Operator Services Agreement (OSA) were considered during the development of Business Plans, Annual Budgets and the Annual Operating Plan (which included KPIs). Performance Measures (i.e., KPIs) were also defined in the Plant Area AMPs and the Power Station Manager was responsible for delivery. Performance measures were monitored and reported in NPK Monthly Business reports. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • The AMS Manual (refer Section 8.7.4 Obligations) specified Operating Services Agreement (OSA) provided the contractual and commercial terms for operation and maintenance of the NewGen Kwinana Power Station. • NPK defined performance measures against each asset management objective. • Responsibilities and accountabilities for the delivery of the asset management objectives were defined in the SAMP Implementation Plan. The Implementation Plan was developed as a high level implementation schedule. • KPIs were included in the Plant Area AMPs and were measurable. • NPK had established reporting frameworks, plans and systems to ensure performance standards were achieved, measured, monitored and any disruptions to the continuity of performance minimised. • The SAMP included a risk matrix assessing the level of interest of Stakeholders on performance standards for example, Availability and Reliability.			
	Recommendation: None		**Action: Nil**	

4.3	**OBLIGATION: Compliance with statutory and regulatory requirements**	**Review Priority 4**	**P&P* Rating: B**	**Performance Rating: 2**
	Findings - Compliance with Legal, statutory, and regulatory was monitored and reported to NPK Management Committee. The Licensee had a well-established compliance system and culture and organisational controls were established to ensure compliance. There were no major non-compliances with statutory and regulatory requirements noted during the review period. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Material commercial agreements, approvals and compliance requirements for the NewGen Kwinana Power Station were included within the SAMP. • The SAMP included a risk matrix assessing the level of interest of Stakeholders on Compliance with Obligations. • The Legal & Compliance Register was noted to include some obsolete references. However, when discussed with the Power Station Manager awareness to the requirements was noted. • During the review period there was one environmental incident reported in the March 2022 Operations Section of the NPK Business Services Report concerning VOC testing which was missed during stack emissions testing for the environmental reporting period (Oct 2020 to Oct 2021). This was discovered during a compliance audit for the Ministerial Statement 698. An incident report was raised as part of the investigation with several actions raised from the investigation. • Fitness for work breaches were reported in the monthly NPK Business Services Report.			
	Recommendation: None		**Action: Nil**	
4.4	**OBLIGATION: Service standard (customer service levels etc.) are measured and achieved.**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings – Service standards were monitored internally and by System Management to ensure they were measured and achieved. The DCS system was used for controlled plant operations and the SCADA systems collected monitoring data. PI Vision was used to interrogate the SCADA data and provided visual representations, facilitate correlations, and enable trending analysis. Customer services levels were well defined and had not been met by the Licensee as an unscheduled generator. Customer service levels were measured and documented in the monthly NPK Business Services Reports and annual reports. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Service Levels were specified in contract documentation with service providers and customers (i.e., Operating Services Agreement)			

	• The AMS Manual (refer Section 8.7.4 Obligations) specified Operating Services Agreement (OSA) provided the contractual and commercial terms for operation and maintenance of the NewGen Kwinana Power Station • Service levels were well defined in the contracts and reported on in monthly reports	
	Recommendation: None	**Action: Nil**

5. ASSET OPERATIONS	**OVERALL EFFECTIVENESS RATING**	
☒ Assess the adequacy of policies and procedures covering operations functions ☒ Assess the adequacy of staff resourcing and training ☒ Confirm the policies and procedures have been followed during the review period by examining the asset register, observing operational procedures, analysing costs, etc. ☒ Assess the significance of exceptions identified and whether adequate corrective action has been taken **Key Process** – *Asset operations is the day-to-day running of assets (where the asset is used for its intended purpose).* **Outcome** – *The asset operation plans adequately document the processes and knowledge of staff in the operation of assets so service levels can be consistently achieved.*	**PROCESS & POLICY RATING***	**PERFORMANCE RATING**
	A	**1**

No.	**2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION**			
5.1	**OBLIGATION: Operational policies and procedures are documented and linked to service levels required**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – NPKs operating strategy focused on availability as a key performance measure. Operational objectives were established to ensure the plant was maintained such that at any time it was available to start or respond to load changes up to its full capacity. Operational policies and procedures were well documented, easily accessed and reviewed. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • NPK provided a comprehensive suite of operational policies and procedures, linked to service levels set for the business through the strategic and business planning processes of the company. Examples of documentation reviewed: ➢ Strategic Asset Management Plan 5 Year Outlook 2018 – 2023 ➢ PLCM 5 Year Outlook 2022 – 2026 ➢ Asset Management System Manual ➢ Plant Area AMP's ➢ Annual Budget • The Licensee planned major inspections to avoid summer peak electricity demand periods. • Operating forecast for KPIs were include in the SAMP forecast through to End of Life. • AMP detailed EPC Contractual Performance Guarantee with monthly reporting details operational statistics • Inputs to the development of the Operating Plans included: ➢ Asset Life Planning Workshops			

	➢ Strategic Planning Workshop ➢ Asset condition information ➢ Condition and investigation reports ➢ Updated SAMP and asset management objectives ➢ PLCM inclusive of Updated 5 Year Outlook – Cost and Performance Targets ➢ Updated Plant AMPs ➢ Site Risk Register Review ➢ Compliance Manual ➢ External statutory changes			
	Recommendation: None		**Action: Nil**	
5.2	**OBLIGATION: Risk management is applied to prioritise operations tasks**	**Review Priority 5**	**P&P* Rating: B**	**Performance Rating: 1**
	Findings – Risk management was applied comprehensively and demonstrated at the operational, and management levels. During the site visit the Licensee demonstrated the used of risk management framework for the assessment of operational risks. The operational risk associated with the plant were being well managed and was reflected in the Plant Availability and Capacity Factor data in the NPK Business Services Report. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • MYOSH was used as a Corporate Risk Register. • The Plant Area AMPs comprehensively identified major risks through communications with OEM's, and FMECA studies. The MEX plans were continually updated to align with the mitigation strategies agreed to reduce operational risks. • Operational risks were assessed using spreadsheets and later loaded into MYOSH. • It was noted there were some discrepancies in the risk assessment methodology between Corporate Risks and Operational risks identified in the Plant Area AMP, for example MYOSH risk 000090 - Failure of critical equipment vs HRSG failure in the HRSG AMP. • The Audit Team determined the MYOSH Risk Register discrepancy identified was related to documentation process error rather than a deficiency in the risk management framework • OEM manufacturers and GT users group provided regular updates on similar GT's performance. • RCA was routinely undertaken in response to operational incidents.			
	Recommendation: None		**Action: Nil**	

5.3	**OBLIGATION: Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition**	**Review Priority 4**	**P&P* Rating: B**	**Performance Rating: 1**
	Findings – The asset inventory (i.e Asset Register) for the plant was stored and managed in the site CMMS (MEX) utilising individual asset numbers as per the KKS Power Plant Identification System. Basic information was detailed in the CMMS for each asset including drawings and inspection reports. P&IDs for the plant were stored on the site server. Version control and revision of the Drawings and P&IDs was managed in the site documents control system. Revisions were controlled under the management of change system as changes to drawings are undertaken. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • MEX has been comprehensively loaded with all assets, including KKS number, description, plant system. Assets conditions were continually monitored and assessed which were comprehensively described in each of the Plant Area AMP's. • MEX has functionality to determine Asset Type based on KKS numbering system and materials based on P&IDs. • MEX maintained records of assets, history, documentation and maintenance requirements. New assets were added to MEX. • The KKS Power Plant Identification System was used. Drawings were stored on the server. The system was noted to work effectively.			
	Recommendation: None		**Action: Nil**	
5.4	**OBLIGATION: Accounting data is documented for assets**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings - Assets were well documented in the accounts and financial reports summarised monthly to NPK Management Committee. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Financial information well recorded by Licensee. • Annual audited accounts and accompanying notes were not provided. • The PLCM included OPEX and CAPEX for Plant Area and was at a high level of plant description.			
	Recommendation: None		**Action: Nil**	
5.5	**OBLIGATION: Operational costs are measured and monitored**	**Review Priority**	**P&P* Rating:**	**Performance Rating:**

		4	**A**	**1**
	Findings – Operational costs were measured, recorded, monitored and reported on a monthly basis. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • PLCM and Annual Budget demonstrated that these costs are measured and reviewed Unscheduled O&M costs were monitored and reported in monthly and annual reports • Cost of operation and maintenance was detailed in the monthly reports. • Initial capital investment costs were financed and approved by management dependent on value. • Financials were reported and budgeted annually. • The financial reports were also compared to the Project Case Financial Model and monitored for variations.			
	Recommendation: None		**Action: Nil**	
5.6	**OBLIGATION: Staff resources are adequate, and staff receive training commensurate with their responsibilities**	**Review Priority 4**	**P&P* Rating: B**	**Performance Rating: 2**
	Findings – Employees and Contractors were competent and familiar with the operations and plant requirements. Training and resourcing considerations were evident. Training records were provided. The complexity and duplication of the AMS required significant investment of time by the Engineering personnel. Tacit knowledge of the technical personnel was noted and the Licensee was actively undertaking succession planning. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Sighted staff Performance and Agreement Review forms and Training and Competency Records. Staff were being continually trained, and development reviews ensured their aspirations were also being considered. • Described in audit meeting that staff (project contractors specifically) retention had been issue to the extent it had become a risk. This resulted in a staff retention bonus to ensure contractors were retained to completion of projects. • New resources recently employed for the Engineering Department.			
	Recommendation: None		**Action: Nil**	

6. ASSET MAINTENANCE □ Assess the adequacy of policies and procedures covering maintenance functions □ Confirm the policies and procedures have been followed during the review period by examining maintenance schedules, analysing costs, etc. □ Assess the significance of exceptions identified and whether adequate corrective action has been taken **Key Process** – *Asset maintenance is the upkeep of assets.* **Outcome** – *The asset maintenance plans cover the scheduling and resourcing of the maintenance tasks so work can be done on time and on cost.*			OVERALL EFFECTIVENESS RATING	
			PROCESS & POLICY RATING*	PERFORMANCE RATING
			A	**1**

No.	2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION			
6.1	**OBLIGATION: Maintenance policies and procedures are documented and linked to service levels required**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Maintenance policies and procedures were well documented, Comprehensive monthly reports were prepared. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Planned maintenance routines were developed and loaded into MEX • Maintenance plans were initially based on OEM recommendations but were optimised based on OEM Technical Information Letters (**TILs**). • WO's were planned and scheduled to minimise off load periods to enhance availability and commercial performance, while completing the necessary maintenance activities • Maintenance strategy was designed for the life of the plant in the PLCM.			
	Recommendation: None		**Action: Nil**	
6.2	**OBLIGATION: Regular inspections are undertaken of asset performance and condition**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**

	Findings – During the review period, regular inspections were undertaken, and performance reported on in monthly reports. These were recorded in MEX. Asset performance was monitored with SCADA and PI Vision utilised for tending and data analysis. Asset performance and condition was reported in monthly reports. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • MEX was loaded with PM scheduled inspections. • OEM and specialist vendor inspections were planned on regular intervals. • Asset condition was extensively detailed in the Plant Area AMP's. • Kwinana ERAP Report undertaken in 2020 and assessed the level of Engineering Risk at a power station, based on "scoring" the plant against a standard set of plant failure scenarios. • Regular on-site inspections and continuous condition and performance monitoring ensured performance. • Continuous monitoring by the DCS tracks performance of the GT, ST, HRSG and balance of plant. • Maintenance activities rescheduled to maximise generation capacity. • Maintenance schedules for inspections were scheduled to end of life,			
	Recommendation: None		**Action: Nil**	
6.3	**OBLIGATION: Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Maintenance was well documented and processes for the continuous review of maintenance practices were established. Maintenance activities were monitored daily and reported monthly to NPK Management Committee. MEX was used to ensure maintenance plans were executed in a timely manner. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • MEX was loaded with 399 Planned Maintenance routines in the CMMS with approximately 2893 annual work requests released. • Corrective and emergency maintenance was raised through MEX. • The generated WO's were closed out and details of work saved in MEX. • MOC procedures were required for obsolete maintenance pans.			
	Recommendation: None		**Action: Nil**	

6.4	**OBLIGATION: Failures are analysed, and operational/maintenance plans adjusted where necessary**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings –. Failures were extensively analysed and the Operating Plans and the Plant Area AMP adjusted as required. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Kwinana ERAP Report undertaken in 2020 and assessed the level of Engineering Risk at a power station, based on "scoring" the plant against a standard set of plant failure scenarios. • The Licensee actively participated in GT, HRSG and ST user forums to keep abreast of similar plant failures and improvements • FMECA have been developed to identify and mitigate known or potential failures. • AMP detailed actions arising from most current FMECA Review. • RCA's conducted for any major outage to improve defect elimination. • Scheduled works aligned with WPC outages times.			
	Recommendation: None		**Action: Nil**	
6.5	**OBLIGATION: Risk management is applied to prioritise maintenance tasks**	**Review Priority 4**	**P&P* Rating: B**	**Performance Rating: 1**
	Findings – Risk management processes for the prioritisation of maintenance tasks were applied comprehensively. Day to day maintenance tasks were programmed and monitored via MEX. Corrective maintenance was prioritised on a risk basis **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • All corrective work was prioritised and scheduled based on urgency of the work, importance to the plant of the equipment and the availability or plant conditions required to undertake the work • Major inspections were planned well ahead to allow for procurement of parts. • The MEX maintenance system used by Maintenance Planners to prioritise the maintenance tasks accordingly. • The priority is listed in the CMMS on the relevant WO for the works required. Priorities are assigned as Category 1, 2 or 3 • Planned Maintenance Routines "float period" ➢ Cat 1 PM Float period – 10% of PM cycle			

	➢ Cat 2 PM Float period – 20% of PM cycle ➢ Cat 3 PM Float period – 30% of PM cycle • The Licensee utilised risk management to prioritise maintenance tasks: Turbine breakdowns, scheduled maintenance. CIMS, Contract schedule maintenance as per O&M and technical and engineering expertise tasks (in that order) • Pre-start meetings detailed work tasks for the day as per the Maintenance Planning Board and these were recorded in MEX			
	Recommendation: None		**Action: Nil**	
6.6	**OBLIGATION: Maintenance costs are measured and monitored**	**Review Priority 4**	**P&P* Rating: A**	**Performance Rating: 1**
	Findings – Maintenance costs were measured, recorded, monitored, and reported monthly. Maintenance Reserve Account (MRA) **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1,16, 17.1-17.3, 18, 19, 20, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Unscheduled O&M costs were monitored and approved as per authority levels. • O&M costs are captured in PLCM and the Annual Budget. • AMP details expenditure to end of life for each of the assets			
	Recommendation: None		**Action: Nil**	

7. ASSET MANAGEMENT INFORMATION SYSTEM	**OVERALL EFFECTIVENESS RATING**	
☒ Assess the adequacy of policies and procedures covering the general control and security of the computer systems used to provide management information on compliance with service standards / licence obligations ☒ Confirm management reports on service standards / licence obligations are reviewed and substantial exceptions to service standards / licence obligations are promptly followed up and implemented **Key Process** – *An asset management information system is a combination of processes, data and software supporting the asset management functions.* **Outcome** – *The asset management information system provides authorised, complete and accurate information for the day-to-day 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 & POLICY RATING***	**PERFORMANCE RATING**
	A	**1**

No.	**2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION**			
7.1	**OBLIGATION: Adequate system documentation for users and IT operators**	**Review Priority** **4**	**P&P* Rating:** **B**	**Performance Rating:** **1**
	Findings – The Licensee has established adequate system document for users and had detailed well understood IT systems in place. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 11, 12.1,15, 17.1-17.3, 18, 21-25, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Staff were conversant with systems in place and training was noted in the Training & Competency Records. • SCADA and DCS were automated. • System Management had remote access capabilities. • PI Vision established to enable visualization of SCADA • OEMS manual for equipment is available within SharePoint. • Engineers are members of ABHUB and other Gas Turbine Groups that are worldwide groups where other Power Station Operatives collaborate and share knowledge. • NPK's corporate information strategy was noted as under development in the AMS Manual. • Document management system was not replaced with HPRM during the review period. A cost effective and corporate endorsed solution has not yet been determined. • Installation of new Optus fibre optic network link connection required for compatibility with the Corporate server was undertaken.			
	Recommendation: None		**Action: Nil**	
7.2	**OBLIGATION: Input controls include suitable verification and validation of data entered into the system**	**Review Priority**	**P&P* Rating:**	**Performance Rating:**

		5	**A**	**1**
	Findings –. Data entry, acquisition and reporting was automated by the SCADA & DCS and cross checked by other parties **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 11, 12.1,15, 17.1-17.3, 18, 21-25, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Reporting based on outputs from SCADA systems • The protection relays provided electrical protection functions, local control intelligence, monitoring abilities and communications to the SCADA System. • MEX data entry controlled by access settings, change access was limited and a process was in place to request changes. • Data was collected by the DCS and reported. • Availability and capacity was broadcast to System Management via the DCS			
	Recommendation: None		**Action: Nil**	
7.3	**OBLIGATION: Security access controls appear adequate, such as passwords**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Security controls were adequate. Multiple authentication process required to access IT Systems. SCADA and DCS were islanded. PI was internet based but is monitoring only **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 11, 12.1,15, 17.1-17.3, 18, 21-25, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Firewall and password protections in place. • The Licensee has developed and implemented a Cyber Security Policy and procedures as per Australian Energy Sector Cyber Security Framework (AESCSF). Subsequently the all-user level and system level passwords must conform to the Password Protection Standards as per AESCSF practices. • Demonstrated effective resilience analysis and contingency planning with the aim of preventing disruption from cyber-attacks to the business-as-usual.			
	Recommendation: None		**Action: Nil**	
7.4	**OBLIGATION: Physical security access controls appear adequate**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**

	Findings –. Manned security gate on entrance to site. Then multiple turnstile gates requiring card access to enter site. Entire site was fenced off and site was permanently manned. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 11, 12.1,15, 17.1-17.3, 18, 21-25, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Entry to site was gate controlled. • Comprehensive induction training on site entry for contractors. • Card Access ID.			
	Recommendation: None		**Action: Nil**	
7.5	**OBLIGATION: Data backup procedures appear adequate, and backups are tested**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Back-ups were carried out on site and/or at Corporate Offices. The Power Station Manager confirmed the IT Department (SSCP) ensured backup systems and disaster recovery systems were available to provide submission of Market Rules related data. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 11, 12.1,15, 17.1-17.3, 18, 21-25, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Data was stored at the head office or the onsite server, which was backed up to an external hard drive nightly. • Corporate server tested on a regular basis • The DCS (the historian and report writer) data was managed, protected and the information was automatically backed up every evening to a local external hard drive. • A copy of this is also backed up and stored at the corporate head office on a monthly basis. • NPK Cyber security was managed by SSCP Corporate services. • Business Continuity and Disaster Recovery Framework developed.			
	Recommendation: None		**Action: Nil**	
7.6	**OBLIGATION: Computations for licensee performance reporting are accurate**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings –. Computations for licensee performance reporting were mainly automated via the DCS and proven. There were no disputes detailed with respect to performance standards.			

	Documents/Evidence – 1, 2, 3, 4.1-4.2, 5.1-5.21, 11, 12.1,15, 17.1-17.3, 18, 21-25, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Monitoring of availability and capacity to AEMO was via the DCS. • Electrical energy transfer between NPK and the SWIS was with Western Power calibrated duplicate metering			
	Recommendation: None		**Action: Nil**	
7.7	**OBLIGATION: Management reports appear adequate for the licensee to monitor licence obligations**	**Review Priority** **5**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Reporting was adequate with monthly NPK Business Services Reports for management. Exception reports were alarmed and investigated via SCADA. Compliance reporting processes were established. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 11, 12.1,15, 17.1-17.3, 18, 21-25, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • The reporting requirements were clearly detailed in the Licensee's AMS. • Monthly report and quarterly budget reports provided demonstrate site safety, and operational performance			
	Recommendation: None		**Action: Nil**	
7.8	**OBLIGATION: Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – SSCP Corporate services had undertaken cyber security measures to protect asset management data from external threats. Cyber Security was included in the Strategic Business Plan through to FY25. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 11, 12.1,15, 17.1-17.3, 18, 21-25, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Personnel have all been provided NPK Cybersec Awareness Course to address and reduce risk of cyber-attacks. • Documentation provided for recovering from Cyber Attacks, but none sighted on the prevention. • Budgets and PLCM referenced cyber security requirements.			
	Recommendation: None		**Action: Nil**	

8. RISK MANAGEMENT			**OVERALL EFFECTIVENESS RATING**	
☒ Assess whether the risks that most affect the management and performance of the assets have been identified ☒ Assess the adequacy of policies and procedures covering risk management ☒ Assess whether the risk management policies and procedures have been applied in practice ☒ Assess the adequacy of staff understanding and training on 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 & POLICY RATING*** **B**	**PERFORMANCE RATING** **2**
No.	**2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION**			
8.1	**OBLIGATION: Risk management policies and procedures exist and are applied to minimise internal and external risks**	**Review Priority** **4**	**P&P* Rating:** **B**	**Performance Rating:** **2**
	Findings — Risk management policies and procedures were established by the Licensee. Risk management systems utilised were evident for Legal, Compliance, Strategic and Operational Risks and assessed to determine the level of risk and develop mitigation strategies to reduce the risk **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 18, 26.1-26.6, Site Interviews **Observations:** • Operational risks were being initially assessed using spreadsheets and then uploaded to MYOSH. Discrepancy in the application of the risk matrix was noted. • Legal, Compliance, Strategic and Operational Risks are identified and assessed to understand the level of risk and develop mitigation strategies to reduce the risk • Asset failure risks were covered by the Plant Area Asset Management Plans which contained detailed failure mode, effects and criticality analysis (FMECA) for the specific area of plant. • The FMECA's provided the risk and reliability basis for the maintenance plans, test, and inspection and service strategies for each major plant item to meet the performance objectives • The Licensee actively participated in GT, HRSG and ST user forums to keep abreast of plant failures and improvements • NPK's spares strategy was based on an assessment of equipment criticality through the FMECA analysis, with different approaches adopted depending on the criticality of equipment and the lead time from suppliers. Consideration of impacts from COVID were noted. • Spares holdings were part of the Operate/Maintenance strategy in the specific plant AMPs. • RWE Kwinana ERAP Report commissioned in 2020 which assessed the level of Engineering Risk at the Kwinana Power Station, based on "scoring" the plant against a standard set of plant failure scenarios. Output of the ERAP was incorporated into the Life Cycle Planning Process. • Noted the SAMP and the Legal & Compliance Register were not revised in response to change in legislative requirements, for example repeal of *Occupational Safety and Health Act 1984* and *Occupational Safety and Health Regulations 1986.* However, it was noted the Station Manager was aware of the changes to legislation.			

	• Noted the Legal & Compliance Register did not reference Cyber Security or the Australian Energy Sector Cyber Security Framework (AESCSF). However, it was noted that the Licensee was aware of requirements and had been actively implementing Cyber security measures. Refer budget provisions for cyber security audit and mitigation plans.			
	Recommendation: None		**Action: Nil**	
8.2	**OBLIGATION: Risks are documented in a risk register and treatment plans are implemented and monitored**	**Review Priority** **4**	**P&P* Rating:** **B**	**Performance Rating:** **2**
	Findings – Risk registers and treatment plans viewed on site for each Plant Area. Effectively used to identify and mitigate risks. In addition, MYOSH utilised to maintain a corporate risk register. There was some discrepancy in the application of risk matrix between the corporate and site register, primarily due to the user of the information risk appetite. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 18, 26.1-26.6, Site Interviews **Observations:** • Risks were documented in a Corporate Risk Register and maintenance plans have been developed and implemented to mitigate the risks. • The risks were entered into MYOSH which prompted for each incident to be periodically reviewed • The Plant Area AMPs comprehensively identified major risks through communications with OEM's, and FMECA studies. The MEX plans were continually updated to align with the mitigation strategies agreed to reduce operational risks. The ratings were not consistently aligned to Corporate risk ratings. • Noted some PPM references in the Plant Area AMPs were obsolete. The Audit Team considered this level of detail within the AMP superfluous to the intents of the document as the MEX system should be used as the point of reference and the MOC process established by the Licensee used to maintain history of plant within MEX			
	Recommendation: None		**Action: Nil**	
8.3	**OBLIGATION: Probability and consequences of asset failure are regularly assessed**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Licensee established annual Asset Life Planning workshops audits for which updated risk registers were an input. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 18, 26.1-26.6, Site Interviews **Observations:** • Asset failure risks were covered by the Plant Area Asset Management Plans which contained detailed failure mode, effects and criticality analysis (FMECA) for the specific area of plant. • The FMECA's provided the risk and reliability basis for the maintenance plans, test, and inspection and service strategies for each major plant item to meet the performance objectives			

	• The Licensee actively participated in GT, HRSG and ST user forums to keep abreast of plant failures and improvements • NPK's spares strategy was based on an assessment of equipment criticality through the FMECA analysis, with different approaches adopted depending on the criticality of equipment and the lead time from suppliers. • Spares holdings were part of the Operate/Maintenance strategy in the specific plant AMPs. • RWE Kwinana ERAP Report commissioned in 2020 which assessed the level of Engineering Risk at the Kwinana Power Station, based on "scoring" the plant against a standard set of plant failure scenarios. Output of the ERAP was incorporated into the Life Cycle Planning Process. • MYOSH prompted for the risk owner to periodically review the risk and update any changes	
	Recommendation: None	**Action: Nil**

9. CONTINGENCY PLANNING ☒ Determine whether contingency plans have been developed and are current ☒ Determine whether contingency plans have been tested. If so, review the results to confirm any improvements identified have been implemented. **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.*			**OVERALL EFFECTIVENESS RATING** **PROCESS & POLICY RATING*** **B** **PERFORMANCE RATING** **1**
No.	**2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION**		
9.1	**OBLIGATION: Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks**	**Review Priority** **4**	**P&P* Rating:** **B** / **Performance Rating:** **1**
	Findings – Business continuity framework documentation was developed to ensure the delivery of critical services could continue in the event of disruption to any NewGen Power Kwinana Pty Ltd (NPK) facilities, suppliers or systems **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 17.1-17.3, 18, 26.1-26.6, Site Interviews . **Observations:** • Only contingency plan reviewed was the IT Disaster Recovery Plan, other continuity planning that have been developed. ➢ Safe plant shutdown due to site evacuation ➢ Site can be occupied but plant not operated ➢ Loss of potable water supply ➢ Generator transformer failure ➢ Loss of IT systems ➢ Extreme Weather events ➢ Pandemic • The Power Station Manager confirmed that Loss of IT systems, pandemic contingency plans were tested during the review period. Scheduling of contingency plans was managed by the Power Station Manager.		
	Recommendation: None		**Action: Nil**

10. FINANCIAL PLANNING ☒ Obtain a copy of the financial planning, budgeting and reporting process and assess its effectiveness ☒ Obtain a copy of the current financial plan (including budget/actual) and assess whether the process is followed **Key Process** – *Financial 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.*			**OVERALL EFFECTIVENESS RATING** **PROCESS & POLICY RATING*** **A** **PERFORMANCE RATING** **1**
No.	**2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION**		
10.1	**OBLIGATION: The financial plan states the financial objectives and identifies strategies and actions to achieve those**	**Review Priority** **5**	**P&P* Rating:** **A** **Performance Rating:** **1**
	Findings – The Licensee has established an effective financial planning process, that included Annual Budget, PLCM, Plant Area AMPs, Operating Plan and Updated 5 Year Outlook, Expenditure, Generation and Inspection Plans. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Confidential information full financials not provided but performance to date has proved satisfactory. • AMS Manual and SAMP detailed financial planning, budgeting and reporting process • The budget presentations were provided for review (financials including budget vs actual were included) • Financial planning process was undertaken each year and set budgets for future cash flow.		
	Recommendation: None		**Action: Nil**
10.2	**OBLIGATION: The financial plan identifies the source of funds for capital expenditure and recurrent costs**	**Review Priority** **5**	**P&P* Rating:** **A** **Performance Rating:** **1**
	Findings – Budget Presentations indicted capital expenditure was provided for via the Maintenance Reserve Account that was funded from earnings. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews		

	Observations: • All financial plans and forecasts for the operation of the NewGen Kwinana Power Station were modelled on an agreed set of assumptions, • These were documented at a corporate level during strategic planning and relevant matters that influence the forecasts for the power station were documented in the SAMP. • The purpose of the operating scenarios was to model the life cycle performance and cost outcomes for the asset management strategies that may be required (i.e Base Case, Alternate Case and Project Case).			
	Recommendation: None		**Action: Nil**	
10.3	**OBLIGATION: The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)**	**Review Priority** **5**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Financials were reported in Monthly NPK Business Services Reports with operating costs, P&L and Balance actuals compared against budgeted. Any variances were investigated. Budget Plan was prepared annually with a 5 Year Look Ahead, PLCM, risks, strategies, and past performance. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Budget presentations provided projections and a statement of financial position. • Confirmed by Licensee that the financial plan budgeted for life of assets, financial information was commercial in confidence.			
	Recommendation: None		**Action: Nil**	
10.4	**OBLIGATION: The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period**	**Review Priority** **5**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Budget prepared annually with a forward budget based on 5 years as basis. Revenue based on reserve capacity rate set by AEMO. Gas derived from various sources. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Noted AEMO published NewGen Kwinana Capacity Credits increase from 327.800MW for 2020-21 to 334.800 MW for 2023-24. • The outage undertaken was delayed from within the Review Period to being undertaken in September 2022 and was a 45 day outage which impacted revenues. Previous budget had only a 10 day outage. MRA was sufficient which confirmed effective financial planning.			

	Recommendation: None		**Action: Nil**	
10.5	**OBLIGATION: The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services**	**Review Priority** **5**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Detailed Financial Modelling has been undertaken by the licensee, including all costs associated with operating, maintaining the assets, administration, and CAPEX to end of life. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Operational and Maintenance costs, admin and overheads were incorporated in the financial plan together with forecast capital expenditure. • Major services were costed through to the end of the project. • The PLCM included comprehensive cost and expenditure forecast information that was directly in the control of the site management team.			
	Recommendation: None		**Action: Nil**	
10.6	**OBLIGATION: Large variances in actual/budget income and expenses are identified and corrective action taken where necessary**	**Review Priority** **4**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Budgets were tracked through a monthly budget meeting to review the performance and variances of the admin, Opex and Capex budgets. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • A Finance Management report was prepared monthly The AMS Manual specified the report broadly covered; ➢ Profit and Loss statement including actual and budget and explanation for variances. ➢ Balance sheet statement and variance explanation. ➢ Cash Flow statement for the financial year including actual and budget and explanation for variances. • Variances to forecast for the current year and performance to date were reviewed monthly at the site-based budget review meeting. • Prior to raising a PO# the budget is checked to ensure the amount is budgeted for. Where a large unbudgeted item is identified, an AFE is raised and authorised by the appropriate person, prior to the purchase order being raised and issued.			
	Recommendation: None		**Action: Nil**	

11. CAPITAL EXPENDITURE PLANNING			OVERALL EFFECTIVENESS RATING	
☒ Understand the capital expenditure planning process and assess its effectiveness ☒ Obtain a copy of the capital expenditure plan for the current year and assess whether the process is being followed **Key Process** – *The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure for these works 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 & POLICY RATING* **A**	PERFORMANCE RATING **1**
No.	**2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION**			
11.1	**OBLIGATION: There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates**	**Review Priority** **5**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Capital expenditure plans detailed all relevant AMS documents. Major inspections, overhauls and replacement strategies were identified, budgeted and planned to ensure continued reliable operation. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Licensee had carried out extensive and diligent financial modelling of assets to end of asset life, inclusive of capital expenditure. • Licensee had in place a board endorsed budgeting cycle and inclusion of CAPEX projection on an annual basis as part of its budget process			
	Recommendation: None		**Action: Nil**	
11.2	**OBLIGATION: The capital expenditure plan provides reasons for capital expenditure and timing of expenditure**	**Review Priority** **5**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – The Annual Budget presentation detailed the CAPEX priorities and the monthly NPK Business Services reports were used monitor progress and implementation. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews			

	Observations: • Capital expenditure assessed in the annual PLCM and Plant Area AMPs detailed the capital expenditure and expected timing through assets end of life. • Maintenance Reserve Account (MRA) maintained. Planning processes were evident as the MRA was substantial in the lead up to the extended outage in October 2022 as per the PLCM.			
	Recommendation: None		**Action: Nil**	
11.3	**OBLIGATION: The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan**	**Review Priority** **5**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings - The Budget presentations primarily focussed on the Revenue, OPEX and EBITDA. Other considerations included critical issues and opportunities assessment and Strategic Business Plan Objectives. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Plant Area AMPs were reviewed as part of Asset Management Life Cycle process, and Annual Budgets, PLCM and Business Plans were updated accordingly. • Allowances were made for annual CAPEX expenditure in line with Plant Area AMPs. • All CAPEX and OPEX was in line with the assets detailed financial modelling to its asset life end date			
	Recommendation: None		**Action: Nil**	
11.4	**OBLIGATION: There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented**	**Review Priority** **5**	**P&P* Rating:** **A**	**Performance Rating:** **1**
	Findings – Capital expenditure processes were detailed in the AMS Manual and updated in the yearly Plant Area AMPs and monitored via the monthly budget meetings, these were then reported monthly to the NPK Management Committee. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • Annual Asset Management Life Cycle Modelling, Annual Budgets and SAMP 5 yearly outlook conducted to monitor and control expenditure plan. • There was a comprehensive OPEX and CAPEX cost reporting system in place. These were also outlined in the PLCM and the Business Plan. • Monthly budget meeting undertaken to review the performance ad variances of the admin, OPEX and CAPEX budgets.			
	Recommendation: None		**Action: Nil**	

12. REVIEW OF AMS ☒ Determine when the asset management plan was last updated and assess whether any substantial changes have occurred ☒ Determine whether any independent reviews have been performed. If so, review the results and action taken ☒ Consider the need to update the asset management plan based on the results of this review ☒ Determine when the asset management system was last reviewed. **Key Process** – *The asset management system is regularly reviewed and updated.* **Outcome** – *The asset management system is regularly reviewed and updated.*	**OVERALL EFFECTIVENESS RATING**	
	PROCESS & POLICY RATING*	**PERFORMANCE RATING**
	B	**2**

No.	**2022 REVIEW REPORT EVIDENCE/ /VERIFICATION/FINDING/ACTION**			
12.1	**OBLIGATION: A review process is in place to ensure the asset management plan and the asset management system described in it remain current**	**Review Priority** **4**	**P&P* Rating:** **B**	**Performance Rating:** **2**
	Findings – The annual Asset Management Planning cycle comprises a series of workshops and other planning activities to confirm the currency of corporate objectives and asset management objectives and update them as required. A number of other outputs were produced, including updates to the asset management system documents, primarily the PLCM, the Business Plan and the Operating Plans. The Plant Area AMPs were not routinely updated but were reviewed and supporting documentation and systems such as MEX and PLCM were updated. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews **Observations:** • The asset management plans provided show that most the AMP's latest update was in 2019 or 2020. • Monthly business reports were maintained which monitored the assets conditions, maintenance PM compliance any major incidents and outages and plant performance.			
	Recommendation: None		**Action: Nil**	
12.2	**OBLIGATION: Independent reviews (e.g., internal audit) are performed of the asset management system**	**Review Priority** **4**	**P&P* Rating:** **B**	**Performance Rating:** **2**
	Findings – The SAMP committed to conducting Internal Audits on and off site to evaluate compliance to the AMP, and required ITP's, Procedures and Work Instructions as a quality objective. **Documents/Evidence** – 1, 2, 3, 4.1-4.2, 5.1-5.21, 12.1, 17.1-17.3, 26.1-26.6, 28.1-28.6, Site Interviews			

	Observations: • The AMPs have not been updated since 2020 but were reviewed as part of the Asset Management Life Cycle Planning Process. It was noted a number of references were made in the AMS documentation that there should be an annual review. They did not specify that the review be recorded in updating the Plant Area AMPs. • Due to size, complexity, and amount of Plant Area AMP's (i.e., 11 AMP's) the review of the AMP has become burdensome. Effectiveness of the process may be impacted if simplification not considered. • The use of external resources to undertake internal audit was noted during the review period. • The licensee indicated the intention to develop a risk based internal audit plan.	
	Recommendation: None	**Action: Nil**

APPENDIX 2 – AUDIT & REVIEW DOCUMENT LISTING

Documents Reviewed

TABLE 10 Documents Reviewed and Assessment of Effectiveness

Number	**NewGen Power Kwinana** Electricity Generation Licence – EGL3	ASSET PLANNING	ASSET CREATION & AQUISITION	ASSET DISPOSAL	ENVIRONENTAL ANALYSIS	ASSET OPERATIONS	ASSET MAINTENANCE	A M INFORMATION SYSTEM	RISK MANAGEMENT	CONTINGENCY PLLANNING	FINANCIAL PLANNING	CAPITAL EXPENDITURE PLANNING	REVIEW OF AMS
1	Asset Management Policy NPK-AM-POL-001 (1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Strategic Asset Management Plan NPK-AM-PLN-002 (2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Asset Management System Manual NPK-AM-MAN-001 (3)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.1	NewGen Kwinana PLCM- Master_Ver10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.2	Asset Lifecycle Cost Model Instructions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5.1	01 I&C Plant Area Asset Planning Review	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.2	Instrumentation and Control Asset Management Plan NPK-AM-PLN-010 (MAY 20)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.3	02 GT Plant Area Asset Planning Review 20062022revd	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.4	Gas Turbine Asset Management Plan NPK-AM-PLN-004 (JUN 19)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.5	02 ST Plant Area Asset Planning Review 0322revdPres	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.6	Steam Turbine Asset Management Plan NPK-AM-PLN-001 (SEPT 17, JUL 19 & AUG 20)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.7	01 Gen Sys Plant Area Asset Planning Review 29012021uptd	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.8	Generator System Asset Management Plan NPK-AM-PLN-012 (JUN 20)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.9	01 FG Plant Area Asset Planning Review rev	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.10	Fuel Gas and Fire System Asset Management Plan NPK-AM-PLN-007 (FEB 20)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.11	01 PD Plant Area Asset Planning Reviewrevd1	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.13	Power Distribution System Asset Management Plan NPK-AM-PLN-008 (FEB 20)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.14	01 HRSG Plant Area Asset Planning Reviewrevd2022	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.15	Heat Recovery Steam Generator (HRSG) - Asset Management Plan NPK-AM-PLN-009 (MAY 20)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.16	02 WSC & BOP Plant Area Asset Planning Review 08072022	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.17	Water Steam Cycle - Asset Management Plan NPK-AM-PLN-006 (AUG 19)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.18	01 Tx Plant Area Asset Planning Reviewrevd1	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.19	Transformers and 330 KV System Asset Management Plan NPK-AM-PLN-011 (June 20)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.20	02 2022 BOP Plant Area Asset Planning Review 26072022	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
5.21	Balance Of Plant Asset Management Plan NPK-AM-PLN-005 (JUL 19 & AUG 20)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
6	RANDALL Carl - Performance & Development Agreement Review 27022019					✓							
7	RANDALL Carl - Development Agreement 30062019					✓							

Number	**NewGen Power Kwinana** Electricity Generation Licence – EGL3	ASSET PLANNING	ASSET CREATION & AQUISITION	ASSET DISPOSAL	ENVIRONENTAL ANALYSIS	ASSET OPERATIONS	ASSET MAINTENANCE	A M INFORMATION SYSTEM	RISK MANAGEMENT	CONTINGENCY PLLANNING	FINANCIAL PLANNING	CAPITAL EXPENDITURE PLANNING	REVIEW OF AMS
8	PARAGAS Raul - Performance and Development Agreement review 03022020					✓							
9	PARAGAS Raul - Development Agreement 21092018					✓							
10	NPK_SystemDrawing_NPK_Version							✓	✓	✓			
11	NPK Risk Register	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12.1	Legal and Compliance - Register	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12.2	190401 NPK MAT MAI RASCI Matrix 2020 January	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	AGUSPINA Manny - Performance and Development Agreement Review Form 20200203						✓						
14	AGUSPINA Manny - Development Agreement Form 20200622						✓						
15	Training & Competency Records						✓						
16	2005C2 HRSG Tube Bank Replacement	✓	✓	✓	✓	✓	✓						
17.1	2005C3 Budget Final	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17.2	2105C2 Budget	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17.3	2205C2 Budget	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
18	Kwinana ERAP Report Issue 2 10-6-2020	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19	Newgen Kwinana STG - Engineering Aspects of Connections Repair R1 (Draft)	✓											
20	Newgen Kwinana STG - Survey of As Found Brazed Joints for ST Generator R2	✓											
21	Business Continuity and Disaster Recovery Framework NPK-COR-FWK-004							✓	✓	✓			✓
22	Cyber Incident Response Plan NPK-IT-PLN-001							✓	✓	✓			✓
23	Cyber Security Policy NPK-IT-POL-001 (2)							✓	✓	✓			✓
24	IT Disaster Recovery Plan NPK-IT-PLN-002							✓	✓	✓			✓
25	Virus Prevention for Control Systems Procedure NPK-IT-PRO-001							✓	✓	✓			✓
26.1	NPK Business Services Reports 2017	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
26.2	NPK Business Services Reports 2018	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
26.3	NPK Business Services Reports 2019	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
26.4	NPK Business Services Reports 2020	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
26.5	NPK Business Services Reports 2021	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
26.6	NPK Business Services Reports 2022	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
27	NewGen Power Organisation Chart NPK-HR-FRM-001	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
28.1	EPA Licence 7408_L8271_2008_1f	✓			✓		✓		✓	✓	✓		
28.2	L8271-2008-1_-_01JAN21-31DEC21_Redacted	✓			✓		✓		✓	✓	✓		

Number	**NewGen Power Kwinana** Electricity Generation Licence – EGL3	ASSET PLANNING	ASSET CREATION & AQUISITION	ASSET DISPOSAL	ENVIRONENTAL ANALYSIS	ASSET OPERATIONS	ASSET MAINTENANCE	A M INFORMATION SYSTEM	RISK MANAGEMENT	CONTINGENCY PLLANNING	FINANCIAL PLANNING	CAPITAL EXPENDITURE PLANNING	REVIEW OF AMS
28.3	L8271-2008-1_01JAN19-31DEC19	✓			✓		✓		✓	✓	✓		
28.4	L8271-2008-1_01JAN20-31DEC20_Redacted	✓			✓		✓		✓	✓	✓		
28.5	L8271-2008-1a	✓			✓		✓		✓	✓	✓		
28.6	Statement 698	✓			✓		✓		✓	✓	✓		