

Alinta Cogeneration (Wagerup) Pty Ltd

Electricity Generation Licence (EGL6)

2022 Asset Management System Review

Final report

6 October 2022



ASSURANCE
ADVISORY
GROUP

Level 11, 251 Adelaide Terrace
PERTH WA 6000

6 October 2022

Catherine Rousch
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Alinta Energy
Level 18 Raine Square, 300 Murray Street
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Dear Catherine

Electricity Generation Licence (EGL6) – 2022 Asset Management System Review report

We have completed the Electricity Generation Licence Asset Management System Review for Alinta Cogeneration (Wagerup) Pty Ltd for the period 1 July 2017 to 30 June 2022 and are pleased to submit our report to you.

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

If you have any questions or wish to discuss anything raised in the report, please contact Andrew Baldwin at abaldwin@assuranceadvisory.com.au or myself at slinden@assuranceadvisory.com.au.

Yours sincerely

Assurance Advisory Group



Stephen Linden

Director

www.assuranceadvisory.com.au

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1. Independent assurance practitioner's report

Conclusion

We have undertaken a limited assurance engagement on the effectiveness of Alinta Cogeneration (Wagerup) Pty Ltd's Asset Management System (**AMS**), relating to its Electricity Generation Licence (EGL6 (the **Licence**)) for the period 1 July 2017 to 30 June 2022 (**review period**).

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Alinta Wagerup has not established and maintained, in all material respects, an effective AMS for assets subject to the Licence, as measured by the effectiveness criteria in the March 2019 issue of the *Audit and Review Guidelines: Electricity and Gas Licences* (**the Guidelines**) issued by the Economic Regulation Authority (the **ERA**) and that the systems have not operated effectively for the review period.

Basis for conclusion

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

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

Alinta Wagerup's responsibility for the AMS

Alinta Wagerup is responsible for ensuring that it has:

- Complied in all material respects with the requirements of the Licence as specified by the Review Guidelines
- Established and maintained an effective AMS for assets subject to the Licence, as measured by the effectiveness criteria detailed in the Guidelines.

Our independence and quality control

We have complied with the independence and other relevant ethical requirements relating to assurance engagements, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour. We applied Auditing Standard ASQC 1 *Quality Control for Firms that Perform Audits and Reviews of Financial Reports and Other Financial Information, and Other Assurance Engagements* in undertaking this assurance engagement.

Our responsibilities

Our responsibility is to express a limited assurance conclusion on the effectiveness of Alinta Wagerup's AMS for assets subject to the Licence, based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with ASAE 3500, in order to express a conclusion whether, based on the procedures performed and the evidence obtained, anything has come to our attention that causes us to believe that Alinta Wagerup's AMS for assets subject to the Licence, have not been established and maintained, in all material respects. That standard requires that we plan and perform this engagement to obtain limited assurance about whether the AMS for assets subject to the Licence is materially ineffective.

A limited assurance engagement conducted in accordance with ASAE 3500 involves identifying areas where the AMS for assets subject to a Licence is likely to be materially ineffective, addressing the areas identified and considering the process used to prepare the AMS for assets subject to the Licence. 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.

Our procedures included:

- Utilising the Review Guidelines as a guide for development of a risk assessment, which involved discussions with key staff and review of documents to perform a preliminary controls assessment
- Development of a Review Plan for approval by the ERA, and an associated work program
- Interviews with and representations from Alinta Wagerup representatives and key operational and administrative staff to gain an understanding of the development and maintenance of policies and procedural type documentation. A full list of staff engaged has been provided at Appendix B
- Examination of documented policies and procedures for key functional requirements and consideration of their relevance to Alinta Wagerup's AMS requirements and standards
- Physical visit to operations located at Wagerup
- Consideration of reports and references evidencing activity
- Consideration of activities performed by Alinta Wagerup that relate to operation of the assets.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance opinion on the effectiveness of Alinta Wagerup's AMS for assets subject to the Licence.

Inherent Limitations

Because of the inherent limitations of an assurance engagement, together with the inherent limitation of any system of controls it is possible that fraud, error or non-compliance with the requirements of the Guidelines may occur and not be detected.

A limited assurance engagement relating to the period from 1 July 2017 to 30 June 2022 does not provide assurance on whether the effectiveness of Alinta Wagerup's AMS for assets subject to the Licence will continue in the future.

Restricted use

This report has been prepared for use by Alinta Wagerup for the purpose of satisfying its obligation under Section 14 of the Electricity Industry Act 2004. We disclaim any assumption of responsibility for any reliance on this report to any person other than Alinta Wagerup, or for any other purpose other than that for which it was prepared. We understand that a copy of the report will be provided to the ERA for the purpose of reporting on the effectiveness of Alinta Wagerup's AMS. We agree that a copy of this report will be given to the ERA in connection with this purpose, however we accept no responsibility to the ERA or to anyone who is provided with or obtains a copy of our report.

Assurance Advisory Group


Stephen Linden
Director

6 October 2022

2. Executive Summary

2.1 Introduction and Background

The Economic Regulation Authority (the **ERA**) has under the provisions of the Electricity Industry Act 2004 (the **Act**), issued to Alinta Cogeneration (Wagerup) Pty Ltd (**Alinta Wagerup**) an Electricity Generation Licence (EGL6) (the **Licence**).

The Licences relate to Alinta's operation of electricity generation works at its Wagerup cogeneration facility which provides electricity to the South West Interconnected System (**SWIS**).

The Wagerup Power Station is a 351MW (nameplate capacity) dual fuel (gas and distillate) power station in the Shire of Waroona approximately 100kms south of Perth. The electricity generated is dispatched to the SWIS during peak periods.

Until May 2017 (immediately prior to the commencement of this review period), Alcoa managed, operated and maintained the power station on Alinta Wagerup's behalf under an Operations and Maintenance Agreement. Although Alinta Wagerup took up the responsibility for managing, operating and maintaining the power station from May 2017, the transition from Alcoa processes and documentation continued throughout 2017.

Section 14 of the Act requires Alinta Wagerup to provide to the ERA an asset management system review (the **review**) report conducted by an independent expert acceptable to the ERA not less than once in every 24-month period unless otherwise approved by the ERA. With the ERA's approval, Assurance Advisory Group (**AAG**) has been appointed to conduct the review for the period 1 July 2017 to 30 June 2022 (**review period**).

The review has been conducted in accordance with the ERA's March 2019 issue of the *Audit and Review Guidelines: Electricity and Gas Licences* (**Review Guidelines**), which set out 12 key processes in the asset management life-cycle.

2.2 Findings

In considering Alinta Wagerup's internal control procedures, structure and environment, compliance arrangements and information systems specifically relevant to those effectiveness criteria subject to review, we observed that:

- Throughout the period subject to review, Alinta Wagerup had maintained an appropriate level of resourcing and an appropriate suite of procedures and controls within its AMS
- Alinta Wagerup staff appeared to have a good understanding of their roles, particularly displaying an understanding of the asset management processes within their area of responsibility
- Alinta Wagerup has effectively completed all action plans resulting from recommendations raised by the 2017 review
- Alinta Wagerup has four minor improvement opportunities to strengthen aspects of its asset management practices, as described throughout this report (where criteria are rated as "B" or "2").

This review assessed that, of the 58 elements of Alinta Wagerup's AMS:

- For the asset management process and policy definition ratings:
 - 55 is/are rated as "Adequately defined"
 - 1 is rated as "Requires some improvement"
 - 2 are not rated.
- For the asset management performance ratings:
 - 51 are rated as "Performing effectively"
 - 4 are rated as "Improvement required"
 - 3 are not rated.

2.3 Alinta Wagerup's response to previous review recommendations

A. Resolved during current review period

This review considered Alinta Wagerup's progress against the five outstanding action items from the 2017 review. Note that the other two of a total of seven recommendations made by the 2017 review had been actioned and closed out prior to the issue of the final 2017 review report.

Based on our examination of relevant documents, discussion with staff and consideration of the results of this review's testing against the criteria, we confirmed that all five outstanding recommendations and action plans raised by the 2017 review were actioned and effectively closed out throughout 2018. No further recommendations are made in relation to these matters.

Refer to section 5 "Status of recommendations addressing asset system deficiencies from the previous review" for further detail.

B. Unresolved at end of current review period - Not applicable.

2.4 Recommendations to address current asset system deficiencies

A. Resolved during current review period

Not applicable - this review does not make any recommendations to address asset system deficiencies.

B. Unresolved at end of current review period

Not applicable - this review does not make any recommendations to address asset system deficiencies.

2.5 Scope and objectives

We have conducted a limited assurance engagement in order to express a conclusion whether, based on the procedures performed and the evidence obtained, anything has come to our attention that causes us to believe that Alinta Wagerup's AMS for assets subject to the Licence, have not been established and maintained, in all material respects for the period 1 July 2017 to 30 June 2022.

Our engagement was conducted in accordance with Australian Standard on Assurance Engagements ASAE 3500 Performance Engagements, issued by the Australian Auditing and Assurance Standards Board and provides limited assurance as defined in ASAE 3500. The procedures we performed are described in more detail in section 2.6 below.

A limited assurance engagement in accordance with ASAE 3500, to report on the effectiveness of Alinta Wagerup's AMS for assets subject to the Licence involves performing procedures to obtain evidence about processes and controls designed and implemented within Alinta Wagerup's AMS for assets subject to the Licence. The procedures selected depend on our judgement, including the

identification and assessment of risks of Alinta Wagerup's AMS for assets subject to a Licence being materially ineffective.

ASAE 3500 also requires us to comply with the relevant ethical requirements of the Australian professional accounting bodies.

In accordance with the Review Guidelines, the review considered the effectiveness of Alinta Wagerup's existing control procedures within the following 12 key processes in the asset management life cycle:

Key processes	Effectiveness criteria
1. Asset Planning	1.1 Asset management plan covers the processes in this table 1.2 Planning processes and objectives reflect the needs of all stakeholders and are integrated with business planning 1.3 Service levels are defined in the asset management plan 1.4 Non-asset operations (e.g. demand management) are considered 1.5 Lifecycle costs of owning and operating assets are assessed 1.6 Funding options are evaluated 1.7 Costs are justified and cost drivers identified 1.8 Likelihood and consequences of asset failure are predicted 1.9 Asset management plan is regularly reviewed and updated.
2. Asset creation and acquisition	2.1 Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options 2.2 Evaluations include all life-cycle costs 2.3 Projects reflect sound engineering and business decisions 2.4 Commissioning tests are documented and completed 2.5 Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood
3. Asset disposal	3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process 3.2 The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken 3.3 Disposal alternatives are evaluated 3.4 There is a replacement strategy for assets
4. Environmental analysis	4.1 Opportunities and threats in the asset management system environment are assessed 4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved 4.3 Compliance with statutory and regulatory requirements 4.4 Service standard (customer service levels etc) are measured and achieved.
5. Asset operations	5.1 Operational policies and procedures are documented and linked to service levels required 5.2 Risk management is applied to prioritise operations tasks 5.3 Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition 5.4 Accounting data is documented for assets [new criteria] 5.5 Operational costs are measured and monitored 5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities

Key processes	Effectiveness criteria
6. Asset maintenance	6.1 Maintenance policies and procedures are documented and linked to service levels required 6.2 Regular inspections are undertaken of asset performance and condition 6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule 6.4 Failures are analysed and operational/maintenance plans adjusted where necessary 6.5 Risk management is applied to prioritise maintenance tasks 6.6 Maintenance costs are measured and monitored
7. Asset management information systems	7.1 Adequate system documentation for users and IT operators 7.2 Input controls include suitable verification and validation of data entered into the system 7.3 Security access controls appear adequate, such as passwords 7.4 Physical security access controls appear adequate 7.5 Data backup procedures appear adequate and backups are tested 7.6 Computations for licensee performance reporting are accurate 7.7 Management reports appear adequate for the licensee to monitor licence obligations 7.8 Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation [new criteria]
8. Risk management	8.1 Risk management policies and procedures exist and are applied to minimise internal and external risks 8.2 Risks are documented in a risk register and treatment plans are implemented and monitored 8.3 Probability and consequences of asset failure are regularly assessed
9. Contingency planning	9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks
10. Financial planning	10.1 The financial plan states the financial objectives and identifies strategies and actions to achieve those 10.2 The financial plan identifies the source of funds for capital expenditure and recurrent costs 10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) 10.4 The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period 10.5 The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services 10.6 Large variances in actual/budget income and expenses are identified and corrective action taken where necessary

Key processes	Effectiveness criteria
11. Capital expenditure planning	11.1 There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates 11.2 The capital expenditure plan provides reasons for capital expenditure and timing of expenditure 11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan 11.4 There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented
12. Review of asset management system	12.1 A review process is in place to ensure the asset management plan and the asset management system described in it remain current 12.2 Independent reviews (e.g. internal audit) are performed of the asset management system

Each key process and effectiveness criterion is applicable to Alinta Wagerup's Licence and as such was individually considered as part of the review. The Review Plan, set out at Appendix A, details the risk assessments made for and review priority assigned to each key process and effectiveness criterion.

2.6 Approach

Our approach for this review involved the following activities, which were undertaken during the period July to September 2022:

- Utilising the Guidelines, development of a risk assessment, which involved discussions with key staff and review of documents to undertake a preliminary assessment of relevant controls
- Development of a Review Plan (see Appendix A) for approval by the ERA
- Correspondence and interviews with Alinta Wagerup staff to gain an understanding of process controls in place (see Appendix B for staff involved)
- Site visit to the Wagerup power station facility with a focus on understanding the generation assets, their function, normal mode of operation, age and an assessment of the facilities against the AMS review criteria
- Review of documents, processes and controls to assess the overall effectiveness of Alinta Wagerup's AMS (see Appendix B for reference listing)
- Consideration of the resourcing applied to maintaining those controls and processes
- Reporting of findings to Alinta Wagerup for review and response.

3. Summary of Ratings

In accordance with the Guidelines, the assessment of both the process and policy definition rating (refer to Table 1) and the performance rating (refer to Table 2) for each of the key AMS processes was performed using the below ratings.

Table 1: Process and policy rating scale

Rating	Description	Criteria
A	Adequately defined	<ul style="list-style-type: none"> Processes and policies are documented Processes and policies adequately document the required performance of the assets Processes and policies are subject to regular reviews, and updated where necessary The asset management information system(s) are adequate in relation to the assets being managed
B	Requires some improvement	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Processes and policies are incomplete or require substantial improvement Processes and policies do not document the required performance of the assets Processes and policies are considerably out of date The asset management information system(s) requires substantial improvements (taking into consideration the assets being managed)
D	Inadequate	<ul style="list-style-type: none"> Processes and policies are not documented The asset management information system(s) is not fit for purpose (taking into consideration the assets being managed).

Table 2: Performance rating scale

Rating	Description	Criteria
1	Performing effectively	<ul style="list-style-type: none"> The performance of the process meets or exceeds the required levels of performance Process effectiveness is regularly assessed and corrective action taken where necessary
2	Improvement required	<ul style="list-style-type: none"> The performance of the process requires some improvement to meet the required level Process effectiveness reviews are not performed regularly enough Recommended process improvements are not implemented
3	Corrective action required	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Process is not performed, or the performance is so poor the process is considered to be ineffective.

This report provides:

- A breakdown of each function of the AMS into sub-components as described in the Guidelines. This approach is taken to enable a more thorough review of key processes where individual components within a larger process can be of greater risk to the business therefore requiring different review treatment
- A summary of the ratings applied by the review (Table 3) for each of:
 - Asset management process and policy rating
 - Asset management performance rating.
- Detailed findings, including relevant observations and recommendations (Section 4). Descriptions of the effectiveness criteria can be found in section 4 and the Review Plan at Appendix A.

Table 3: AMS effectiveness summary

Ref	Asset management process and effectiveness criteria	Review priority	Ratings	
			Process and policy	Performance
1. Asset Planning			A	1
1.1	Asset management plan covers the processes in this table	Priority 4	A	1
1.2	Planning processes and objectives reflect the needs of all stakeholders and is integrated with business planning	Priority 4	A	1
1.3	Service levels are defined in the asset management plan	Priority 4	A	1
1.4	Non-asset operations (e.g. demand management) are considered	Priority 5	Not rated	Not rated
1.5	Lifecycle costs of owning and operating assets are assessed	Priority 5	A	1
1.6	Funding options are evaluated	Priority 5	A	1
1.7	Costs are justified and cost drivers identified	Priority 5	A	1
1.8	Likelihood and consequences of asset failure are predicted	Priority 2	A	1
1.9	Asset management plan is regularly reviewed and updated.	Priority 5	A	1
2. Asset creation and acquisition			A	1
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options	Priority 4	A	1
2.2	Evaluations include all life-cycle costs	Priority 4	A	1
2.3	Projects reflect sound engineering and business decisions	Priority 4	A	1
2.4	Commissioning tests are documented and completed	Priority 4	A	1
2.5	Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	Priority 2	A	1
3. Asset disposal			A	1
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process	Priority 4	A	1
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	Priority 5	A	1
3.3	Disposal alternatives are evaluated	Priority 5	A	Not rated
3.4	There is a replacement strategy for assets	Priority 4	A	1

Ref	Asset management process and effectiveness criteria	Review priority	Ratings	
			Process and policy	Performance
4. Environmental analysis			A	1
4.1	Opportunities and threats in the asset management system environment are assessed	Priority 4	A	1
4.2	Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved	Priority 4	A	2
4.3	Compliance with statutory and regulatory requirements	Priority 4	A	1
4.4	Service standard (customer service levels etc) are measured and achieved.	Priority 4	A	1
5. Asset operations			A	1
5.1	Operational policies and procedures are documented and linked to service levels required	Priority 4	A	1
5.2	Risk management is applied to prioritise operations tasks	Priority 4	A	2
5.3	Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition	Priority 4	A	1
5.4	Accounting data is documented for assets [new criteria]	Priority 4	A	1
5.5	Operational costs are measured and monitored	Priority 4	A	1
5.6	Staff resources are adequate and staff receive training commensurate with their responsibilities	Priority 4	A	2
6. Asset maintenance			A	1
6.1	Maintenance policies and procedures are documented and linked to service levels required	Priority 4	A	1
6.2	Regular inspections are undertaken of asset performance and condition	Priority 2	A	1
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	Priority 2	A	1
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary	Priority 2	A	1
6.5	Risk management is applied to prioritise maintenance tasks	Priority 4	A	1
6.6	Maintenance costs are measured and monitored	Priority 4	A	1
7. Asset management information systems			A	1
7.1	Adequate system documentation for users and IT operators	Priority 5	A	1
7.2	Input controls include suitable verification and validation of data entered into the system	Priority 4	A	1
7.3	Security access controls appear adequate, such as passwords	Priority 5	A	1
7.4	Physical security access controls appear adequate	Priority 5	A	1
7.5	Data backup procedures appear adequate and backups are tested	Priority 4	A	1
7.6	Computations for licensee performance reporting are accurate	Priority 5	Not rated	Not rated
7.7	Management reports appear adequate for the licensee to monitor licence obligations	Priority 5	A	1

Ref	Asset management process and effectiveness criteria	Review priority	Ratings	
			Process and policy	Performance
7.8	Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation	Priority 4	A	1
8. Risk management			A	1
8.1	Risk management policies and procedures exist and are applied to minimise internal and external risks	Priority 4	A	1
8.2	Risks are documented in a risk register and treatment plans are implemented and monitored	Priority 4	B	1
8.3	Probability and consequences of asset failure are regularly assessed	Priority 2	A	1
9. Contingency planning			A	2
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	Priority 2	A	2
10. Financial planning			A	1
10.1	The financial plan states the financial objectives and identifies strategies and actions to achieve those	Priority 4	A	1
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs	Priority 5	A	1
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	Priority 5	A	1
10.4	The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period	Priority 5	A	1
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	Priority 5	A	1
10.6	Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	Priority 5	A	1
11. Capital expenditure planning			A	1
11.1	There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	Priority 4	A	1
11.2	The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	Priority 5	A	1
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	Priority 5	A	1
11.4	There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented	Priority 5	A	1
12. Review of asset management system			A	1
12.1	A review process is in place to ensure the asset management plan and the asset management system described in it remain current	Priority 5	A	1
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system	Priority 4	A	1

4. Detailed findings and recommendations

The following tables contain:

- *Findings*: the reviewer's understanding of the process and any issues that have been identified during the review
- *Recommendations (where applicable)*: recommendations for improvement or enhancement of the process or control.

4.1 Asset Planning

Key process: Asset planning strategies are focused on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price)

Expected outcome: Integration of asset strategies into operational or business plans will establish a framework for existing and new assets to be effectively utilised and their service potential optimised

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
1.1 Asset management plan covers the processes in this table	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and Alinta Energy Head of Operations, consideration of Alinta Wagerup’s business planning processes, and examination of Alinta Energy’s Asset Management Policy, Alinta Energy’s Asset Management Framework and Alinta Wagerup’s Asset Management Plans (AMP), we determined that Alinta Wagerup’s business planning model accommodates its operation and maintenance of the Wagerup power station site in accordance with its wholesale electricity market and network access contractual arrangements and regulatory requirements.</p> <p>From a business planning perspective, we determined that Alinta Wagerup has established asset management processes and mechanisms to assimilate the requirements of its various stakeholders. In particular, we observed that Alinta Wagerup has:</p> <ul style="list-style-type: none"> • Adopted an AMS, which aligns with ISO55000:2014, ISO 55001:2014 and ISO 55002:2014 and the British Publicly Available Specification (PAS) Asset Management Standard PAS 55-1:2008 • Developed a supporting AMP for operating and maintaining the various components of the power station to achieve optimum performance over the entire life of power station assets. The AMP defines Alinta Wagerup’s broader and long term plans and is reviewed on an annual basis. The AMP sufficiently reflects each of the elements outlined in the rest of this Asset Planning process, including the elements highlighted in the 2017 AMS review (relating to contingency plans, key risks and legal and compliance requirements). 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
1.2 Planning processes and objectives reflect the needs of all stakeholders and is integrated with business planning	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and Alinta Energy Head of Operations, and consideration of Alinta Wagerup's business planning processes, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup's business planning model and planning documentation is developed in consultation with a range of business functions including: <ul style="list-style-type: none"> ○ Senior management ○ Engineering ○ Site-based management ○ Finance • A formal delegation of authority framework is in place across the stakeholder functions (operations, finance and compliance) and integrated into its SharePoint information storage portal for project task and expenditure approval. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
1.3 Service levels are defined in the asset management plan	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, examination of Alinta Wagerup's AMP and consideration of Alinta Wagerup's wholesale electricity market and network access contractual arrangements, we determined that the power station's required service levels have been:</p> <ul style="list-style-type: none"> • Summarised in the AMP to facilitate the achievement of those service levels. The AMP references relevant operational information for each item of equipment and is updated on an annual basis • Defined in Alinta Wagerup's maintenance standards, which are reflected in Wagerup's Ellipse computerised maintenance management system. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
1.4 Non-asset operations (e.g. demand management) are considered	<ul style="list-style-type: none"> • As the primary purpose of the Alinta Wagerup Power Station is to supply electricity to the SWIS during peak period, there is no requirement or opportunity for Alinta Wagerup to consider non-asset options. 	
	Process and Policy Rating: Not rated	Performance Rating: Not rated

Effectiveness criteria	Findings	
1.5 Lifecycle costs of owning and operating assets are assessed	<p>Through consideration of Alinta Wagerup’s AMP and finance models, we determined that assessment of lifecycle costs of owning and operating the assets is reflected in the AMP, which addresses each major equipment component and provides specific details, including:</p> <ul style="list-style-type: none"> • Operating and maintenance philosophy • Key lifecycle issues and how they are addressed • Lifecycle plan and critical outages • Performance improvement opportunities • Critical reinvestments • Retirement/disposal consideration at end of plant life • Capex and Opex forecast for a five year period. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
1.6 Funding options are evaluated	<p>Through consideration of Alinta Wagerup’s AMP and finance models, we determined that:</p> <ul style="list-style-type: none"> • Day to day operating expenses are funded from operating cash flows • Funding options are considered and evaluated using the Alinta Energy ‘Request for Commitment’ process within the AMP Expenditure Project Delivery SharePoint Site • A Delegated Financial Authority matrix and automated workflow system within the Alinta Energy ‘Request for Commitment’ approval process helps ensure that fund requests above specified levels are required to be authorised by the appropriate level of management. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
1.7 Costs are justified and cost drivers identified	<p>Through consideration of Alinta Wagerup’s AMP and finance models, we determined that:</p> <ul style="list-style-type: none"> • The AMP includes a detailed lifecycle plan that identifies and assesses all lifecycle costs and cost drivers associated with the power station • Alinta Energy’s business case approval process and associated templates require the costs and cost drivers (in the form of a business case) to be identified. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
1.8 Likelihood and consequences of asset failure are predicted	<p>Through examination of Alinta Wagerup's AMP and relevant supporting documentation, we determined that:</p> <ul style="list-style-type: none"> • The AMP is a major tool used for predicting the likelihood and consequence of asset failure. The AMP considers each major item of equipment and provides specific details of its operation and maintenance strategy and key lifecycle issues and remedial plans • Alinta Wagerup's asset maintenance plans and procedures provide for: <ul style="list-style-type: none"> ○ Scheduled inspections and assessments to assist in identifying defects or conditions that impact on Alinta Wagerup's assessment of the likelihood and consequence of asset failure ○ Failures to be analysed and operational/maintenance plans adjusted to reduce the likelihood of the failure to be repeated. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
1.9 Asset management plan is regularly reviewed and updated.	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and examination of Alinta Wagerup's two most recent AMPs and relevant supporting asset planning documentation, we determined that the AMP has been reviewed and revised on an annual basis in accordance with Alinta Energy's Asset Management Policy and Framework.</p>	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

4.2 Asset creation and acquisition

Key process: Asset creation/acquisition is the provision or improvement of assets

Expected 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 Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
2.1 Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and Alinta Energy Head of Operations, and consideration of relevant supporting documentation, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup has continued to maintain expenditure approval procedures that outline the requirement for project evaluations to be undertaken prior to seeking funds approval. As part of the project evaluation process, Alinta Wagerup requires the following to be completed: <ul style="list-style-type: none"> ○ A full business case, which provides approval criteria for instigating new projects including; financial and capital requirements, current state assessment, asset/non-asset alternatives and timeline ○ Economic evaluation modelling in support of the business case. The modelling utilises a standard set of high level economic assumptions to assess the cost associated with the overall plant life and generate cost predictions over the 40 years of plant life ○ Consideration of non-asset options. • Alinta Wagerup applied those procedures in developing its project plans for the major upgrades made to its gas turbines. Those upgrade projects were completed in 2019 and 2020. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
2.2 Evaluations include all life-cycle costs	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, and examination of the procedures for expenditure approval and associated forms and templates, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup has maintained the following process to assess lifecycle costs of owning and operating assets: <ul style="list-style-type: none"> ○ Assessment of lifecycle costs of owning and operating the assets is reflected in the AMP, which addresses each major equipment component and provides specific details, including: <ul style="list-style-type: none"> ▪ Operating and maintenance philosophy ▪ Key lifecycle issues and how they are addressed ▪ Lifecycle plan and critical outages ▪ Performance improvement opportunities ▪ Critical reinvestments ▪ Retirement/disposal consideration at end of plant life ○ An economic evaluation model is to be utilised as part of budgeting and forecasting process to assess the cost associated with the overall plant life and forecast expenditure up to 2049 ○ Project evaluations provide for estimates of the amount of investment required as well as identifying the source of funds. • Alinta Wagerup applied those procedures in developing its project plans for major upgrades made to its gas turbines in 2019 and 2020, as well in updating its AMP accordingly. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
2.3 Projects reflect sound engineering and business decisions	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and Alinta Energy Head of Operations, and examination of Alinta Wagerup’s AMP, expenditure approval process and associated forms and templates, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup has maintained the following procedures to assess the commercial and technical competence of projects: <ul style="list-style-type: none"> ○ Project evaluations are performed with the input from engineering and finance personnel and results detailed and approved by relevant department stakeholders to ensure all engineering, finance, environmental, health and safety aspects are addressed ○ Project modelling tools are applied to project evaluations, considering relevant economic measures ○ Commercial sign-off is required, which incorporates the above considerations and addresses any potential contract risks when engaging external parties. • Alinta Wagerup applied those procedures in developing its project plans for major upgrades made to its gas turbines in 2019 and 2020. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
2.4 Commissioning tests are documented and completed	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, consideration of relevant procedures and examination of a sample of projects, we observed that:</p> <ul style="list-style-type: none"> • Alinta Wagerup and its external contractors performed commissioning tests during the review period as part of its standard process for adding/replacing asset components (e.g. during planned shutdowns) or for undertaking gas turbine upgrades commensurate with the power station’s operating strategy • Commissioning tests form part of the project lifecycle, which is recorded on SharePoint • Where Alinta Wagerup engages external contractors to perform commissioning tests: <ul style="list-style-type: none"> ○ Testing reports are prepared by the site engineering team and stored on SharePoint ○ Service requirements are governed by contractual terms relating to any major service required. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
2.5 Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and examination of relevant supporting documentation, we determined that, for the purpose of its ongoing asset management obligations Alinta Wagerup has:</p> <ul style="list-style-type: none"> • Identified legal, environmental and safety obligations relating to its power station assets. The Wagerup AMP summarises those obligations, including assignment of responsibility to Alinta Wagerup and Alinta Energy staff • Assigned responsibilities to staff on site and in the Perth office for managing Alinta Wagerup’s environmental and safety obligations in accordance with OHS and Environmental management plans • Implemented an organised document management system within SharePoint for housing regulatory obligations such as licences, related management plans and monitoring/compliance reports • Assigned responsibilities to its national legal team for monitoring any updates or changes to regulatory obligations and reporting requirements. <p>We sighted evidence of Alinta Wagerup’s Compliance Manual, which demonstrates identification, assessment and treatment of risks relating to its legal, environmental and safety obligations within the Wagerup site.</p>	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

4.3 Asset disposal

Key process: Asset disposal is the consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets

Expected outcome: The asset management framework minimises holdings of surplus and underperforming assets and lowers service costs. The cost-benefits of disposal options are evaluated

Overall Process and Policy/Performance rating: [Adequately defined \(A\)](#) / [Performing effectively \(1\)](#)

Effectiveness criteria	Findings	
<p>3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process</p>	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of Alinta Wagerup's Incident Management System, we determined that Alinta Wagerup has applied the following mechanisms for identifying under-utilised and under-performing assets:</p> <ul style="list-style-type: none"> • The AMP considers each major item of equipment and provides details of the facility's operations and maintenance strategy, key lifecycle issues and remedial plans • The operational performance of the Wagerup facilities is monitored through the Honeywell Experion system, with weekly performance dashboard reports presented to management for review. Note that for the duration of the review period, there were no assets considered to be under-utilised • Results of these assessments and inspections are included in the rolling five year plans • Unexpected asset failures are logged in Alinta Wagerup's InControl Incident Management System. 	
	<p>Process and Policy Rating: Adequately defined (A)</p>	<p>Performance Rating: Performing effectively (1)</p>
<p>3.2 The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken</p>	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of Alinta Wagerup's asset condition monitoring and reporting arrangements, we determined that Alinta Wagerup's processes for examining under-utilised and under-performing assets include:</p> <ul style="list-style-type: none"> • Undertaking root cause analyses of under-utilisation or poor performance of power station assets • Applying a project evaluation approach as part of the capital expenditure approval process, which requires a justification of why the upgrade/purchase of equipment is crucial to the condition of the asset • Incorporating assessments into rolling five year plans that detail the major capital projects planned for the coming financial year. <p>For the duration of the review period:</p> <ul style="list-style-type: none"> • There were no assets considered to be under-utilised • Alinta Wagerup had not disposed of any relevant assets. 	
	<p>Process and Policy Rating: Adequately defined (A)</p>	<p>Performance Rating: Performing effectively (1)</p>

Effectiveness criteria	Findings	
3.3 Disposal alternatives are evaluated	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and examination of supporting documentation, we determined that Alinta Wagerup's processes require:</p> <ul style="list-style-type: none"> • Consideration of alternatives for decommissioning, removal or storage of key plant • The rolling five year plans to provide details of the major projects planned for each asset in the coming financial year, including any equipment replacement requirements • Asset disposals to be performed in accordance with Project Management processes (including the Management of Change system process) and the AMP. <p>As Alinta Wagerup had not disposed of any relevant assets in the review period, this process was not required to be applied.</p>	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Not rated
3.4 There is a replacement strategy for assets.	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of Alinta Wagerup's AMP and decommissioning documentation we observed that:</p> <ul style="list-style-type: none"> • The AMP considers each major item of equipment and provides specific details of the power station's operations and maintenance strategy, key lifecycle issues and remedial plans • Alinta Energy has maintained a stable, organisation-wide Decommissioning Policy • Rolling five year plans provide details of the major projects planned for each asset in the coming financial year, including any equipment replacement requirements. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

4.4 Environmental analysis

Key process: Environmental analysis examines the asset management system environment and assesses all external factors affecting the asset management system

Expected outcome: The asset management system regularly assesses external opportunities and threats and identifies corrective action to maintain performance requirements

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
4.1 Opportunities and threats in the asset management system environment are assessed	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of relevant supporting documentation, we determined that Alinta Wagerup:</p> <ul style="list-style-type: none"> • Maintains a site-based Compliance Manual, which outlines: <ul style="list-style-type: none"> ○ NOx emissions targets and requirements ○ Greenhouse gas emissions obligations under the NGER Act ○ Occupational Health and Safety Regulations. Alinta’s Energy Occupational Health and Safety Management Framework accommodates Alinta’s core focus on safety ○ Additional licence and Standard requirements (e.g. Dangerous Goods Storage Licence requirements and Plant and Pressure Vessel Registration) • Details its compliance with environmental performance standards in its Environmental Ministerial Performance and Compliance Reports. We sighted the 2020/2021 report • Utilises the Alinta Group InControl incident reporting system for logging, managing and reporting risks and incidents • Maintains an Environmental Aspects and Impacts procedure, which provides for the systematic review of environmental aspects and impacts, identification and assessment of opportunities and threats to the Wagerup operations system environment and compliance with ISO 14001, Dangerous Goods regulations and health and safety requirements. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
<p>4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved</p>	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, consideration of Alinta Wagerup’s performance monitoring practices and examination of supporting documentation, we determined that:</p> <ul style="list-style-type: none"> • Tracking of work orders and performance KPIs on site is controlled through Ellipse, which reports on the key performance aspects of the plant. Monthly reports include aspects such as availability and production losses, maintenance costs, EOHS incidents and emission breaches. Any deviations from budget or contractual KPIs are highlighted and explained, where appropriate • Alinta Wagerup is required to report any breaches of emission limits (e.g. for SO₂ and NO_x) to the Department of Water and Environmental Regulation. Alinta Wagerup monitors its emissions in sufficient detail to flag any instance where its emission limits are breached • Alinta Wagerup effectively monitors and reports on its critical availability and start-up obligations: <ul style="list-style-type: none"> ○ Severe penalties apply in the event that Alinta Wagerup does not meet those obligations ○ During the review period, Alinta Wagerup met all of its critical obligations • In relation to Alinta Wagerup’s Emergency Response plans and activities: <ul style="list-style-type: none"> ○ A comprehensive Emergency Response Plan has been prepared to provide guidance for all probable hazards, with incidents grouped by type and assigned a specific colour code in accordance with Australian Standard AS3745 ○ Emergency Evacuation Drills have been scheduled on a six-monthly basis (through a Maintenance Standard Task within Ellipse), however Alinta Wagerup’s Training reports initially sighted at the time of this review show several staff participation in emergency response drills as “pending”. We subsequently confirmed that those staff had participated in the most recent drill, and were due to participate in the next scheduled drill. As staff training and awareness of emergency response activities can be critical to the safety of staff and assets, it is important for staff to participate in such drills as scheduled and for up-to-date records to be maintained. <i>This matter was discussed with Alinta Wagerup staff as an improvement opportunity.</i> 	
	<p>Process and Policy Rating: Adequately defined (A)</p>	<p>Performance Rating: Requires improvement (2)</p>

Effectiveness criteria	Findings	
4.3 Compliance with statutory and regulatory requirements	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of relevant supporting documentation and sample Ministerial compliance reports, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup operates and monitors its operations in accordance with the following statutory and regulatory requirements: <ul style="list-style-type: none"> ○ Mines Safety and Inspection Regulations ○ WA Gas Standards (Gas fitting & Consumer Gas Installations) Regulations 1999 ○ Environmental Operating Licence, which includes NOx emissions targets and requirements. We observed that monitoring of NOx emissions is undertaken on a continuous basis to enable reporting of any breaches in accordance with the environmental licence requirements. Alinta Energy’s Environmental Management Framework accommodates Alinta Wagerup’s commitment to environmental protection ○ Environmental Noise Regulations licence, which specifies the maximum night and day noise levels as measured at the boundary ○ Occupational Health and Safety Regulations. Alinta’s Energy Occupational Health and Safety Management Framework accommodates Alinta Wagerup’s core focus on safety. • Alinta Wagerup’s Compliance Manual reflects the current legal, safety and environmental obligations relating to Alinta Wagerup’s operations. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
4.4 Service standard (customer service levels etc) are measured and achieved	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of relevant supporting documentation, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup’s customer service levels and performance requirements are defined by its electricity transfer access agreement with Western Power and the directions of the Market Operator, AEMO • Alinta Wagerup effectively monitors and reports on its critical availability and start-up obligations <ul style="list-style-type: none"> ○ Severe penalties apply in the event that Alinta Wagerup does not meet those obligations ○ During the review period, Alinta Wagerup met all of its critical obligations • In relation to community obligations, Alinta operates and monitors its operations in accordance with 4.3 above. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

4.5 Asset operations

Key process: Asset operations is the day-to-day running of assets (where the asset is used for its intended purpose)

Expected 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

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
5.1 Operational policies and procedures are documented and linked to service levels required	<p>As outlined in the AMP, the operating strategy for the Alinta Wagerup power station has changed to accommodate a substantial change in dynamics observed in the Wholesale Electricity Market (WEM), and to prepare for the WEM reform scheduled for 2023. This change means the power station is only operated when directed by the Market Operator, or the real time market conditions present an opportunity to create a return above the short run marginal cost of operation (i.e. when there is insufficient capacity in the SWIS to meet system demand), which occurred in approximately 1,100 instances during the review period. Control system modifications were undertaken during the review period to allow Alinta Wagerup's units to participate in the Load Following Ancillary Services market, although this is not an operational mode used regularly.</p> <p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of supporting documentation, we determined that:</p> <ul style="list-style-type: none"> • During 2017 and 2018, Alinta Wagerup progressively updated its operational policies and procedures from the previous Alcoa arrangements. Further revisions have been made to reflect modifications and adjustments to operational requirements and procedures • Alinta Wagerup's operational procedures, control plans and instructions specifically refer to required service levels (where appropriate) for the operation of the specific item of equipment, or specific electrical or mechanical procedures • As the Original Equipment Manufacturer for Alinta Wagerup's gas turbines and generators, GE has provided all required reference documents, including a detailed Operation Training Program, GT Operator Instructions, GT Operation Setpoint Lists, GT Protection Functional Requirements and checklists for completion for GT Start-up and Operation • Reporting dashboards are used to provide a weekly summary of the power station's performance. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
5.2 Risk management is applied to prioritise operations tasks	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, examination of Alinta Wagerup’s records of material, operational and asset specific risks, and consideration of Alinta Wagerup’s risk management and reporting framework:</p> <ul style="list-style-type: none"> • We determined that: <ul style="list-style-type: none"> ○ Alinta Energy’s Enterprise Risk Management Framework has been applied to Alinta Wagerup’s operations to enable Alinta Wagerup to make risk based decisions in relation to operational matters ○ All operations and maintenance activities are based on a risk management approach, whereby the operations and maintenance tasks addressing higher risk issues are performed first in order, followed by lower priority tasks ○ Alinta Wagerup’s understanding of risks and treatment options relevant to its operations and maintenance activities is reflected in its records of material, operational and asset specific risks and its reporting of issues, assessments and decisions that require prioritisation and action. • We observed the following minor improvement opportunity: <ul style="list-style-type: none"> ○ The June 2022 Fleet Risk Summary Presentation identifies Casing and rotor cracking as a potential high risks with predicted production interruption of greater than 3 months. As the current operating strategy requires units to be operating in load following (LFAS) mode, units will see increased GT starts which will further increase the risk of casing and rotor cracking. The FY2023 AMP identifies this risk category as “Medium” while the FY2022 AMP identified the same risk to be “High”. Given that the most recent Fleet Risk Summary Presentation identifies Wagerup units with high risk of casing and rotor cracking, the AMP FY2023 document needs to be revised to align with this risk category. <i>We discussed this matter with Alinta Wagerup staff as an improvement opportunity.</i> 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Improvement required (2)
5.3 Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets’ physical/structural condition	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of relevant supporting documentation, we determined that:</p> <ul style="list-style-type: none"> • The Ellipse system holds detailed information for each major component of plant (under an asset hierarchy layout, such as assets’ unique asset identifier details, operational history, equipment condition, cost/financial data, and maintenance intervals) • The Alinta Wagerup AMP outlines the major components of the plant and applies a risk rating to any associated issues or long term maintenance requirements. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
5.4 Accounting data is documented for assets	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of Alinta Wagerup's asset register, we observed that the asset register and corporate records capture relevant information for accounting purposes, including:</p> <ul style="list-style-type: none"> • Purchase date • Acquisition cost • Depreciation rates and costs • Written down values. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
5.5 Operational costs are measured and monitored	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of Alinta Wagerup's monthly reporting arrangements, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup prepares and presents detailed monthly costs reports, which include: <ul style="list-style-type: none"> ○ Operational costs incurred ○ Analysis of actual expenditure against budgeted expenditure, including reasons for significant variances ○ Internal and external costs (i.e. Alinta Wagerup staff, contractor costs, parts, etc.) • Costs are allocated to assets based on the work order and are typically tracked on a whole-of-plant basis, with asset level cost information also available within Ellipse when required. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of Alinta Wagerup's staff resourcing and training arrangements, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup employs six full time staff, with additional support provided by Alinta Energy for several disciplines, including engineering, finance and HSE • Staff are adequately qualified for their respective roles and their required licences are current • Alinta Wagerup's SharePoint and other internal information management systems contain relevant high-level procedures and checklists to guide staff in performing required tasks • Alinta Wagerup uses in-house training facilities to provide relevant training to its staff and maintains a central record of staff qualifications and training • In relation to training records, the current training status report shows required safety related training had not been completed by two staff. This indicates a need for Alinta Wagerup to ensure training arrangements and records remain up-to-date. Also refer to item 4.2 of this report in relation to records of staff participation in evacuation drills. <i>We discussed this matter with Alinta Wagerup staff as an improvement opportunity.</i> 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Improvement required (2)

4.6 Asset maintenance

Key process: Asset maintenance is the upkeep of assets

Expected 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 Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
6.1 Maintenance policies and procedures are documented and linked to service levels required	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, consideration of Alinta Wagerup's contractual arrangements for its maintenance requirements and examination of relevant supporting documentation, we determined that:</p> <ul style="list-style-type: none"> • The Wagerup AMP clearly outlines the basis of Alinta Wagerup's operations and maintenance strategy and program, including: <ul style="list-style-type: none"> ○ A planned outage schedule based on the power station's forecast operational profile ○ The asset management strategy and major maintenance cycle for all core equipment and assets • In October 2017 (i.e. early in this review period), Alinta Wagerup completed the task of migrating previous work order data from Alcoa's Oracle system (which was previously used under an O&M contract with Alcoa) and assigning priorities under Alinta Wagerup's maintenance framework • Maintenance strategies and procedures for all major assets and site specific maintenance activity are documented and readily available to staff via Alinta Energy's SharePoint platform • Maintenance plans are loaded into the maintenance module of Alinta Wagerup's Ellipse enterprise asset management system. The Ellipse system references major equipment maintenance procedures, equipment details, maintenance intervals, costs and equipment history and is linked to service levels required • Alinta Wagerup has entered into service agreements for its core equipment and assets, including: <ul style="list-style-type: none"> ○ An LTSA with the turbine manufacturer GE for condition monitoring and maintenance of gas turbines and generators ○ A standing service agreement with NRG HV for ancillary high voltage assets ○ LTSAs with ABB and Honeywell for control systems. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
<p>6.2 Regular inspections are undertaken of asset performance and condition</p>	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, and consideration of Alinta Wagerup's maintenance procedures and practices, we determined that:</p> <ul style="list-style-type: none"> • As part of Alinta Wagerup's general plant management, plant performance is monitored on a continual basis by the duty officer to ensure that the plant is operating correctly. Any deviations from normal operations or control system alarms are appropriately investigated. We sighted examples of completed daily Gas Turbine inspection (Rounds) sheets • Alinta Wagerup monitors and maintains several aspects of the plant using a condition-based monitoring maintenance process. In 2021, Alinta Wagerup replaced its routine combustion inspections with robotic inspections. The first generator robotic inspection performed in June 2021 identified a problem with generator rotor winding, leading to a Generator Condition Report being prepared in August 2021, followed by rectification works being undertaken and completed in December 2021 • Regular third party inspections of key high risk equipment such as gas turbines, generators, fuel supply and power transmission and auxiliary power supply are performed during planned outages, including preventative maintenance, where required. <p>We sighted several Field Service Reports prepared for Gas Turbine inspections performed in June 2018 (AO3 inspections), October 2019 and October 2020 (C01 Inspections and MXL2 Upgrades), June 2021 (Generator Robotic Inspections) and September 2021 (AO4 inspection).</p>	
	<p>Process and Policy Rating: Adequately defined (A)</p>	<p>Performance Rating: Performing effectively (1)</p>
<p>6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule</p>	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, and examination of relevant documentation and data extracts, we determined that:</p> <ul style="list-style-type: none"> • As part of the transfer of Alinta Wagerup's asset O&M activities from Alcoa, Alinta Wagerup undertook a rationalisation and defect maintenance phase during the period May to October 2017, after which Alinta Wagerup's maintenance activities reverted to normal operational mode • For all core equipment and assets, the Ellipse system contains plans for scheduled maintenance as well as required emergency and corrective works • All maintenance work undertaken is recorded in the Ellipse system • Maintenance schedules and work order completion rates are monitored through Weekly Performance Reports • Maintenance strategies are reviewed on a yearly basis or when there are significant events that affect the assets • Sections 4 and 5 of the Wagerup AMP detail the major maintenance history for core equipment and assets. <p>We observed evidence of maintenance plans being effectively executed through examination of a sample of gas turbine inspections, field service reports and Weekly Performance Reports.</p>	
	<p>Process and Policy Rating: Adequately defined (A)</p>	<p>Performance Rating: Performing effectively (1)</p>

Effectiveness criteria	Findings	
6.4 Failures are analysed and operational/maintenance plans adjusted where necessary	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, consideration of Alinta Wagerup's maintenance systems, and examination of records of asset/equipment failures during the review period, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup's maintenance procedures provide for: <ul style="list-style-type: none"> ○ Failures to be analysed and operational/maintenance plans adjusted to reduce the likelihood of the failure to be repeated ○ Emergency and corrective actions to be taken, followed by a root cause analysis of the failure event such as a trip or fail-to-start ○ Unplanned outages that result in a loss of availability or production are required to be investigated and are reported into Alinta Wagerup's InControl incident reporting system. The incident report includes an explanation of the outage and possible causes, and also tracks who is responsible for any investigation and what actions are in place to correct the fault. Where appropriate, a work order is raised to undertake preventative actions to limit the fault's recurrence. Incident reports are prepared by the person who found the fault, reviewed by a supervisor, then assigned to the Operations Manager for investigating further corrective actions • Alinta Wagerup maintains appropriate evidence of failures being recognised, analysed and treated/corrected. We sighted evidence of root cause analyses performed for incidents impacting key power station assets, plus an incident where the gas supply pipework was blocked. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
6.5 Risk management is applied to prioritise maintenance tasks	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, examination of Alinta Wagerup's records of material, operational and asset specific risks, and consideration of Alinta Wagerup's risk management and reporting framework, we determined that:</p> <ul style="list-style-type: none"> • In late 2017 (during this review period), Alinta Wagerup completed the task of migrating previous work order data from Alcoa's Oracle system and assigning priorities under Alinta Wagerup's maintenance framework • All maintenance activities are based on a risk management approach, whereby the maintenance tasks addressing higher risk issues are performed first in order, followed by lower priority tasks • Daily meetings are used to arrange: <ul style="list-style-type: none"> ○ Daily work plans ○ Plans for upcoming work ○ Outage plans for major scheduled outages • Alinta Wagerup's understanding of risks and treatment options relevant to its operations and maintenance activities is reflected in its records of material, operational and asset specific risks and its reporting of issues, assessments and decisions that require prioritisation and action. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
6.6 Maintenance costs are measured and monitored	<p>Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of Alinta Wagerup's monthly reporting arrangements, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup prepares and presents detailed monthly costs reports, which include: <ul style="list-style-type: none"> ○ Total costs for the month ○ Analysis of actual expenditure against budgeted expenditure, including reasons for significant variances ○ Internal and external costs (i.e. Alinta Wagerup staff, contractor costs, parts, etc.) • Costs are allocated to assets based on the work order and are typically tracked on a whole-of-plant basis, with asset level cost information also available within Ellipse when required. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

4.7 Asset management information systems

Key process: An asset management information system is a combination of processes, data and software supporting the asset management functions

Expected 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

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
7.1 Adequate system documentation for users and IT operators	<p>Through discussions with Alinta Wagerup staff and consideration of relevant IT security system documentation, we observed that:</p> <ul style="list-style-type: none"> Alinta Wagerup utilises the Ellipse computerised maintenance management system and monitors live plant performance through Alinta Energy’s Honeywell Experion software Alinta Energy maintains technical documentation for the Ellipse and Honeywell Experion applications, with that documentation readily available to Alinta Wagerup Alinta Wagerup is also supported by Alinta Energy’s Group IT policies and procedures, which are stored on Alinta’s SharePoint site and are readily accessible for all users. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
7.2 Input controls include suitable verification and validation of data entered into the system	<p>Through discussions with Alinta Wagerup staff and consideration of relevant IT security system documentation, we observed that Alinta Wagerup’s Ellipse system maintains a series of input validation checks and Alinta Wagerup applies a range of data verification and validation controls and techniques (including reconciliations and analyses) to provide additional assurances over the completeness, accuracy and validity of data entered into Alinta Wagerup’s core systems.</p>	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
7.3 Security access controls appear adequate, such as passwords	<p>Through discussions with Alinta Wagerup staff and consideration of relevant IT security system documentation, we observed that in relation to Alinta Wagerup’s Ellipse and Honeywell systems:</p> <ul style="list-style-type: none"> The process of granting and managing access is undertaken online through Alinta’s IT helpdesk. Access requests are required to be approved by the relevant departmental head End-users are granted the minimum level of access privileges required to perform their job function and to prevent segregation of duties conflicts Password requirements are maintained to authenticate user access to the Alinta network and the Ellipse and Honeywell systems. Those requirements are aligned with accepted information security access protocols. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
7.4 Physical security access controls appear adequate	<p>Through discussions with Alinta Wagerup staff and consideration of relevant IT security system documentation, we observed that Alinta Wagerup has established and maintained appropriate processes and procedures relating to the access of facilities and the physical protection of information assets and systems.</p> <p>Specifically in the context of access to computer server rooms and other control systems on site, we observed that:</p> <ul style="list-style-type: none"> • Access to the site operations building, main control room and key plant control facilities is restricted by security fencing and swipe card entry to the premises • General safety precautions are maintained to contain fire and other damaging events in computer rooms on site. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
7.5 Data backup procedures appear adequate and backups are tested	<p>Through discussions with Alinta Wagerup staff and consideration of relevant IT security system documentation, we observed that procedures for managing data backup and data restore of Alinta Wagerup servers have been established and maintained in accordance with accepted industry practice for :</p> <ul style="list-style-type: none"> • Scheduling and executing daily backups of production data • Secure management of backup data and restoration of data • Testing of data recovery and restoration procedures. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
7.6 Computations for licensee performance reporting are accurate	<p>Alinta Wagerup's asset management information systems do not directly provide data used in any computation related to Alinta Wagerup's performance reporting.</p>	
	Process and Policy Rating: Not rated	Performance Rating: Not rated
7.7 Management reports appear adequate for the licensee to monitor licence obligations	<p>Through discussions with Alinta Wagerup staff and consideration of relevant supporting documentation and management reporting procedures, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup's Ellipse and Honeywell Experion systems are capable of generating a substantial variety of reports, including for plant operations, routine and first line intervention maintenance and generation activity • Management reports relating to the operation and performance of the facility are produced on a scheduled basis and can also be produced on request. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
7.8 Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation	<p>Through discussions with Alinta Wagerup staff and consideration of relevant IT security system documentation, we observed that Alinta Wagerup has established and maintained appropriate processes and procedures relating to the protection of information assets and systems, including:</p> <ul style="list-style-type: none"> • Comprehensive user access controls, including user permissions and remote access • Contemporary cyber security processes and procedures. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

4.8 Risk management

Key process: Risk management involves the identification of risks and their management within an acceptable level of risk

Expected outcome: The risk management framework effectively manages the risk that the licensee does not maintain effective service standards

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
8.1 Risk management policies and procedures exist and are applied to minimise internal and external risks	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, and consideration of Alinta Wagerup's risk management and reporting framework, we determined that:</p> <ul style="list-style-type: none"> Alinta Energy's Enterprise Risk Management Framework applies throughout Alinta Energy's business structure, including Alinta Wagerup's operations. In particular, all maintenance activities are based on Alinta Wagerup's risk management approach, whereby the maintenance tasks addressing higher risk issues are performed first in order, followed by lower priority tasks. We sighted several examples of risk based practices being applied to Alinta Wagerup's monitoring of asset operations, asset condition and incidents. Alinta Wagerup maintains appropriate records of those activities Alinta Wagerup's AMP includes several references to risk assessment and management activities, including material risks, risk mitigation options and links to risk reduction recommendations. <p>Based on our examination of the risk management processes in place, we determined that Alinta Wagerup uses a well-established and consistent system for identifying and managing risks, including formal supporting procedural documentation.</p>	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
8.2 Risks are documented in a risk register and treatment plans are implemented and monitored	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, consideration of Alinta Wagerup's risk management and reporting framework and examination of Alinta Wagerup's risk records, we determined that:</p> <ul style="list-style-type: none"> • Alinta Wagerup uses several references and applications to capture its material and operational risks, including: <ul style="list-style-type: none"> ○ The AMP, which includes several references to risk assessment and management activities, including material risks and risk mitigation options and plans ○ Alinta Energy's Power Generation Fleet reports material Asset Fleet risks on a quarterly basis, including Alinta Wagerup's material risks, mitigations and actions ○ A Risk Management SharePoint tool, which rates site, environmental and personnel risks and summarises treatment action and/or requirements ○ A Plant Condition SharePoint tool, which rates plant condition risks and summarises treatment action and/or requirements. • Although Alinta Wagerup has applied a consistent approach and timeframe for preparing and reviewing risk treatment plans and reports, it has not maintained a single, clear reference to the complete suite of risk records and registers that make up Alinta Wagerup's risk profile. Accordingly, it can be a challenging task to form a complete view of the power station's risk profile at any one point in time • Alinta Wagerup is currently included in a workstream of a project currently being undertaken by Alinta Energy to expand the use of its InControl platform (which is currently used to record hazards, incidents and operational events) as a single risk register for each site. This enhancement should facilitate that more complete view of the power station's risk profile at any one point in time. <i>No further recommendation is made by this review in relation to this matter.</i> 	
	Process and Policy Rating: Requires some improvement (B)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
8.3 Probability and consequences of asset failure are regularly assessed	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, examination of Alinta Wagerup's AMP and consideration of Alinta Wagerup's asset planning and risk management practices, we determined that Alinta Wagerup has applied the following mechanisms for identifying and assessing the consequence and likelihood of power station asset failure:</p> <ul style="list-style-type: none"> • The AMP is a major tool used for predicting the likelihood and consequences of asset failure. The AMP considers each major item of equipment and provides specific details of its operation and maintenance strategy and key lifecycle issues and remedial plans • During scheduled outages (e.g. long term shutdowns), main components of the plant are inspected for defects by site staff and external contractors • Classified plant inspections are conducted in accordance with the statutory requirements imposed upon the plant • Condition monitoring techniques are employed on a frequent basis to identify defects, including: <ul style="list-style-type: none"> ○ Oil analysis ○ Vibration analysis ○ Radiography and thermography to identify any surface or internal defects • The management and maintenance of the plant assets is reviewed on a day-to-day basis at an operational level and on at least an annual basis • A high level of priority is accorded to minimising instances of asset failure and the duration of any such failure • The management structures, skills and resources assigned by Alinta Wagerup to the required asset management processes appear to be appropriate for enabling the regular assessment of the probability and consequences of asset failure. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

4.9 Contingency planning

Key process: Contingency plans document the steps to deal with the unexpected failure of an asset

Expected outcome: Contingency plans have been developed and tested to minimise any major disruptions to service standards

Overall Process and Policy/Performance rating: [Adequately defined \(A\)](#) / [Improvement required \(2\)](#)

Effectiveness criteria	Findings	
<p>9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks</p>	<p>Through discussion with the Alinta Energy Operations Manager, SWIS, and examination of relevant supporting documentation, we determined that:</p> <ul style="list-style-type: none"> Alinta Wagerup’s contractual arrangements mean that whilst the power station remains available, it is only operated when directed by the Market Operator, or the real time market conditions present an opportunity to create a return above the short run marginal cost of operation (i.e. when there is insufficient capacity in the SWIS to meet system demand), which occurred in approximately 1,100 instances during the review period. Alinta Wagerup’s availability and start-up reliability obligations means it remains exposed to interruptions from accidents, emergencies or other events. During the review period, Alinta Wagerup experienced a small number of forced outages (equating to 0.3% availability) which interrupted electricity supply Alinta Wagerup uses its InControl incident management system to manage all incidents in order to minimise the extent of disruptions to its power station assets Alinta Wagerup maintains a comprehensive Emergency Response Plan, which provides guidance for all probable hazards, with incidents grouped by type and assigned a specific colour code in accordance with Australian Standard AS3745 Alinta Wagerup site personnel are specifically trained to ensure their competency in key start-up and asset operations procedures and to respond to power station asset failures, to minimise any impact on start-up and availability obligations Emergency Evacuation Drills have been scheduled on a six-monthly basis (through a Maintenance Standard Task within Ellipse), however Alinta Wagerup’s Training reports initially sighted at the time of this review show several staff participation in emergency response drills as “pending”. We subsequently confirmed that those staff had participated in the most recent drill, and were due to participate in the next scheduled drill. As staff training and awareness of emergency response activities can be critical to the safety of staff and assets, it is important for staff to participate in such drills as scheduled and for up-to-date records to be maintained. <i>This matter was discussed with Alinta Wagerup staff as an improvement opportunity.</i> In response to the 2017 review recommendation, Alinta Wagerup reconsidered its approach to capturing its contingency plans for each key risk, concluding that the AMP, plus Alinta Wagerup’s comprehensive system recovery plans and existing records of risk mitigations effectively capture relevant contingency plans. We are satisfied that Alinta Wagerup’s current approach and records sufficiently document action required to deal with the unexpected failure of an asset and to minimise any major disruptions to service standards. 	
	<p>Process and Policy Rating: Adequately defined (A)</p>	<p>Performance Rating: Improvement required (2)</p>

4.10 Financial planning

Key process: Financial brings together the financial elements of the service delivery to ensure its financial viability over the long term

Expected outcome: The financial plan is reliable and provides for the long-term financial viability of the services

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
10.1 The financial plan states the financial objectives and identifies strategies and actions to achieve those	Through discussion with the Alinta Energy Operations Manager, SWIS and consideration of Alinta Wagerup's financial planning mechanisms, we observed that: <ul style="list-style-type: none"> • Alinta Wagerup's financial plan takes the form of an annual operational budget, prepared on a rolling five year basis to reflect its financial objectives and strategies that are driven by its contractual agreements for generation and supply of electricity • The financial plan outlines the financial elements of the power station's operations to reflect its financial viability over the long term. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
10.2 The financial plan identifies the source of funds for capital expenditure and recurrent costs	Through consideration of Alinta Wagerup's financial planning mechanisms, we determined that: <ul style="list-style-type: none"> • The Alinta Wagerup annual budget is aligned with Alinta Wagerup's overall business plans • Operational cash flows are retained for budgeted maintenance and capital expenditure, based on retained funds or by submission through the Alinta Energy corporate structure for non-budgeted expenditure. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	Through consideration of Alinta Wagerup's financial planning mechanisms, we determined that: <ul style="list-style-type: none"> • Alinta Wagerup's financial plan constitutes a summary of budgeted income and expenditure from the supply of electricity under its contractual agreements, which is prepared and updated annually and includes a rolling forecast for the next five years • An income statement and a position statement are prepared as part of consolidated financial statements on a six-monthly and annual basis. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
10.4 The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period	<p>Through consideration of Alinta Wagerup's financial planning mechanisms, we determined that Alinta Wagerup's financial plan:</p> <ul style="list-style-type: none"> • Is prepared on an annual basis and updated for the projections of income and expenses based on five year outage and maintenance schedules • Includes a summary of planned capital expenditure projects for the next five years with a brief description of the intended purpose of the project • Forms part of Alinta Energy's budgeting and forecasting processes, which assess costs associated with overall fleet asset life. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
10.5 The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	<p>Through consideration of Alinta Wagerup's annual financial plans, we observed that those plans:</p> <ul style="list-style-type: none"> • Provide a sufficient level of detail relating to forecast operational, maintenance and administrative costs. i.e. operations maintenance and administration expenses on a rolling five year basis • Include a summary of current and planned capital expenditure projects over the following five years, with a brief description of each project's purpose and assumptions. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
10.6 Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	<p>Through consideration of Alinta Wagerup's financial planning and monitoring mechanisms, we observed that actual versus budgeted expenditure is monitored on a monthly basis, with variances identified and investigated where required to determine whether corrective action is required.</p>	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

4.11 Capital expenditure planning

Key process: The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure 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

Expected 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

Overall Process and Policy/Performance rating: [Adequately defined \(A\)](#) / [Performing effectively \(1\)](#)

Effectiveness criteria	Findings	
11.1 There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	Through discussions with the Alinta Energy Operations Manager, SWIS and consideration of Alinta Wagerup's capital planning procedures, we determined that: <ul style="list-style-type: none"> • A capital expenditure plan is included in the annual financial plan • Capital expenditure planning is undertaken along with financial planning on a rolling five year basis • The plan provides information on the amount, purpose and description of budgeted capital expenditure • The plan also provides information on project responsibilities and the estimated dates of funds release. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
11.2 The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	Through consideration of Alinta Wagerup's capital planning procedures, we determined that Alinta Wagerup's capital expenditure plan specifies the reasons for the capital expenditure and the financial year in which the capital expenditure amount is planned.	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)
11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	Through consideration of Alinta Wagerup's capital planning procedures, we determined that: <ul style="list-style-type: none"> • Alinta Wagerup's procedures require lifecycle costs of assets to be assessed and recorded in the AMP for each major item of equipment, including key lifecycle issues, critical outages and operating and maintenance philosophy • The capital expenditure plan concurs with the assessed lifecycle costs of the power station's assets. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

Effectiveness criteria	Findings	
11.4 There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented	<p>Through consideration of Alinta Wagerup’s capital planning procedures, we determined that:</p> <ul style="list-style-type: none"> • The capital expenditure budget is tracked on a monthly basis and any variances analysed to determine impact on the scheduled maintenance and outage plans • On completion, capital projects are assessed against the approved criteria to determine whether project objectives were met • The annual financial and capital expenditure planning process takes account of all asset risks, assigned treatments and requirements. 	
	Process and Policy Rating: Adequately defined (A)	Performance Rating: Performing effectively (1)

4.12 Review of asset management system

Key process: The asset management system is regularly reviewed and updated

Expected outcome: The asset management system is regularly reviewed and updated

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
12.1 A review process is in place to ensure the asset management plan and the asset management system described in it remain current	<p>Through consideration of Alinta Energy's Asset Management Policy and Framework and supporting AMS documentation, we observed that:</p> <ul style="list-style-type: none"> The Alinta Wagerup AMP, which is the main reference to the AMS, has been reviewed and updated on an annual basis. With the support of designated engineering staff, the Alinta Energy Asset Engineer has the primary responsibility for that annual review, with the Alinta Energy Operations Manager, SWIS responsible for reviewing and the Alinta Energy Head of Optimisation responsible for approving the revised version Alinta Energy's Asset Management Framework provides for asset management activities to be subject to performance assessment and continuous improvement. Provision is made for independent audits and reviews to be conducted either internally or through third parties <p>An independent review of Alinta Energy's asset management systems conducted by Wave International in 2018 assessed the alignment of Alinta Energy's asset management framework to its asset management policy, plus Alinta Energy's compliance with that asset management framework. Recommendations made by that review have since been implemented and are incorporated into Alinta Wagerup's asset management systems.</p>	
12.2 Independent reviews (e.g. internal audit) are performed of the asset management system		

5. Status of recommendations addressing asset system deficiencies from the previous review

Reference (no./year)	Process and policy deficiency / Performance deficiency (Rating / Reference number, Asset management process & effectiveness criterion / Details of deficiency)	Reviewer’s recommendation or action planned	Date resolved	Further action required (Yes/No/Not Applicable) Further action required (including current recommendation reference, if applicable)
A. Resolved during current review period¹				
1/2017	<p>B2</p> <p>Asset planning: 1.1 Asset management plan covers key requirements.</p> <p>Although the Alinta Energy Wagerup Power Station – Asset Management Plan FY2018 - FY2022 (AMP) generally reflects Alinta Wagerup’s expectations and requirements for managing its generation assets, the AMP:</p> <ol style="list-style-type: none"> 1. Requires updating to reflect the following aspects of the power station’s operations: <ul style="list-style-type: none"> • As Alinta Wagerup has decided that it will currently not operate its gas turbine units on diesel fuel, the power station’s diesel unloading, storage and forwarding equipment is not in operational mode. Risks associated with these arrangements and plans for utilising a long recall storage approach should be reflected in the AMP • The AMP has some residual references to Alcoa’s role in operations and maintenance. 2. Can be further improved as it does not clearly address the following elements expected by Alinta Energy’s Asset Management Framework: 	<p>Action Plan</p> <p>Alinta Wagerup will update its AMP to:</p> <ol style="list-style-type: none"> (a) Reflect current arrangements relating to diesel, as well as to remove any residual reference to Alcoa’s role in operations and maintenance (b) Explicitly incorporate the following elements of its Asset Management Framework and EGL obligations <ul style="list-style-type: none"> • Contingency plans • Known and significant risks relating to key assets • Legal and compliance requirements. <p>Responsible Person: Wagerup Plant Manager</p> <p>Target Date: August 2018</p>	July 2018	No

¹ Recommendations 2/2017 and 5/2017 had been actioned and closed-out prior to the issue of the final 2017 review report
EGL6 – 2022 Asset Management System Review report

Reference (no./year)	Process and policy deficiency / Performance deficiency (Rating / Reference number, Asset management process & effectiveness criterion / Details of deficiency)	Reviewer's recommendation or action planned	Date resolved	Further action required (Yes/No/Not Applicable) Further action required (including current recommendation reference, if applicable)
	<ul style="list-style-type: none"> Contingency plans designed to mitigate the business impact of incidents or emergencies arising as a result of realised asset related risks A brief description of any known and significant risks relating to assets Consideration and documentation of legal and compliance requirements. 			
3/2017	<p>A2</p> <p>Asset Operations: 5.1 Operational policies and procedures are documented and linked to service levels required</p> <p>Asset Maintenance: 6.1 Maintenance policies and procedures are documented and linked to service levels required</p> <p>Alinta Wagerup is in the process of developing its Plant operations and maintenance procedures, as procedures received from Alcoa did not align with Alinta's documentation framework. Those site specific procedures are to refer to required service levels (where appropriate) for the operation of the specific item of equipment, or electrical or mechanical procedures. Control plans are also being developed for major items of plant. We recognise that Alinta Wagerup has mitigating processes and controls in place, including:</p> <ul style="list-style-type: none"> An overarching Asset Management Plan for the Wagerup site Maintenance tasks integrated into the Ellipse system Reporting dashboards in place, which provide a weekly view of performance of each site 	<p>Action Plan</p> <p>Alinta Wagerup will:</p> <p>(a) Document and implement all key procedures and control plans, which require updating from Alcoa procedures and plans</p> <p>(b) When updating key documentation, ensure that key operations and maintenance tasks and service level metrics are clearly communicated.</p> <p>Responsible Person: Wagerup Plant Manager</p> <p>Target Date: March 2018</p>	May 2018	No

Reference (no./year)	Process and policy deficiency / Performance deficiency (Rating / Reference number, Asset management process & effectiveness criterion / Details of deficiency)	Reviewer's recommendation or action planned	Date resolved	Further action required (Yes/No/Not Applicable) Further action required (including current recommendation reference, if applicable)
	<ul style="list-style-type: none"> Senior and experienced personnel assigned to manage site operations and maintenance tasks. 			
4/2017	<p>B2</p> <p>Asset operations: 5.2 Risk management is applied to prioritise operations tasks</p> <p>Asset Maintenance: 6.5 Risk management is applied to prioritise maintenance tasks</p> <p>Risk management: 8.1 Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system</p> <p>Risk management: 8.2 Risks are documented in a risk register and treatment plans are actioned and monitored</p> <p>Alinta Wagerup is in the process of:</p> <ul style="list-style-type: none"> Migrating previous work order data from Alcoa's Oracle system and assigning priorities (including re-assigning where required) under Alinta Wagerup's maintenance framework (refer to Issue 5/2017) Developing a site specific risk register. The current risk register is limited to risks associated with the transition of operations in May 2017. In particular, it does not address risks associated with the decision not to operate the gas turbine units on diesel fuel and associated plans for utilising a long recall storage approach. <p>Although Alinta Wagerup has applied the Alinta Energy group-wide risk management framework, it has not yet captured clear evidence of some of those risk management activities to demonstrate that its risk</p>	<p>Action Plan</p> <p>Alinta Wagerup will:</p> <p>(a) Develop its site Risk Register to include all risk elements relevant to:</p> <ul style="list-style-type: none"> The site environment Maintenance of the asset Contingency planning Current diesel fuel arrangements <p>(b) Complete the data migration of work orders</p> <p>(c) Establish a clear approach and timeframe for assessing risks, implementing treatment plans and monitoring status on a more frequent basis than the annual review of the AMP.</p> <p>Responsible Person: Wagerup Plant Manager</p> <p>Target Date: March 2018</p>	March 2018	No

Reference (no./year)	Process and policy deficiency / Performance deficiency (Rating / Reference number, Asset management process & effectiveness criterion / Details of deficiency)	Reviewer's recommendation or action planned	Date resolved	Further action required (Yes/No/Not Applicable) Further action required (including current recommendation reference, if applicable)
	<p>management philosophies and approach are consistently applied.</p> <p>For example, a consistent approach and timeframe has not been designed for preparing and reviewing risk treatment plans and reports, other than through the annual review of the AMP.</p> <p>The AMP does not provide a clear and consistent reference to specific risk assessment and management activities, including preparation of risk treatment plans (which often result in allocation of capital expenditure) and links to insurer risk reduction recommendations.</p>			
6/2017	<p>B2</p> <p>Contingency Planning: <i>9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks</i></p> <p>As Alinta Wagerup's contingency plans and arrangements are currently maintained/described in different processes and documents, it has the opportunity to further ensure the completeness and consistency of their contingency planning arrangements by capturing all of its plans and processes in one single reference. Such an approach would be consistent with Alinta Energy's Asset Management Framework.</p> <p>We also observed that during the period subject to review, Alinta Wagerup had not performed regular tests of the Wagerup power station site emergency response plans.</p>	<p>Action Plan</p> <p>Alinta Wagerup will:</p> <p>(a) Establish a formal process for ensuring that contingency arrangements in place for all key risks to the power station's operations and availability are rigorously challenged and tested, including regular testing of the Wagerup power station site emergency response plans</p> <p>(b) Prepare a clear overarching "umbrella" document to capture all contingency plans in place for each of the key risks to Alinta Wagerup's assets' operations and availability.</p>	February 2018	No

Reference (no./year)	Process and policy deficiency / Performance deficiency (Rating / Reference number, Asset management process & effectiveness criterion / Details of deficiency)	Reviewer's recommendation or action planned	Date resolved	Further action required (Yes/No/Not Applicable) Further action required (including current recommendation reference, if applicable)
		Responsible Persons: Wagerup Plant Manager Target Date: December 2017		
7/2017	B2 AMS Review: 12.2 Independent reviews (e.g. internal audit) are performed of the asset management system. Although components of Alinta Wagerup's AMS are subject to regular reviews and updates, Alinta Wagerup has not applied formal processes for ensuring sufficient degrees of independence in any regular reviews of the asset management plans and underlying AMS.	Action Plan Alinta Wagerup will implement: (a) The requirement for its AMS to be subject to independent reviews on a regular basis (b) A register or record to capture reviews conducted on its AMS and the independence of the associated reviewer. Responsible Person: Wagerup Plant Manager Target Date: August 2018	March 2018	No
B. Unresolved at end of current review period				
Reference (no./year)	Process and policy deficiency / Performance deficiency (Rating / Reference number, Asset management process & effectiveness criterion / Details of deficiency)	Reviewer's recommendation or action planned	Date resolved	Further action required (Yes/No/Not Applicable) Further action required (including current recommendation reference, if applicable)
Not applicable.				

Appendix A – Review Plan

Alinta Cogeneration (Wagerup) Pty Ltd

and

Alinta Cogeneration (Pinjarra) Pty Ltd

Electricity Generation Licences (EGL6 & EGL10)

2022 Asset Management System Review

Review Plan

July 2022

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Introduction

Overview

The Economic Regulation Authority (the **ERA**) has under the provisions of the Electricity Industry Act 2004 (the **Act**), issued to Alinta Cogeneration (Wagerup) Pty Ltd (Alinta Wagerup) and Alinta Cogeneration (Pinjarra) Pty Ltd (Alinta Pinjarra) (hereinafter together **Alinta**) Electricity Generation Licences EGL6 and EGL10 respectively (the **Licences**).

Section 14 of the Act requires Alinta to provide to the ERA an asset management system review (the **review**) report, conducted by an independent expert acceptable to the ERA not less than once in every 24-month period unless otherwise approved by the ERA. With the ERA's approval, Assurance Advisory Group (**AAG**) has been appointed to conduct the 2022 reviews for the five year period 1 July 2017 to 30 June 2022 (**review period**).

The Licences relate to Alinta's operation of electricity generation works at its Wagerup and Pinjarra cogeneration facilities which provide electricity to the South West Interconnected System (**SWIS**).

The Wagerup Power Station is a 351MW (nameplate capacity) dual fuel (gas and distillate) power station in the Shire of Waroona approximately 100kms south of Perth. The electricity generated is dispatched to the SWIS during peak periods.

The Pinjarra Power Station is a 280MW (nameplate capacity) gas fuelled cogeneration plant located at Alcoa's Pinjarra refinery in the Shire of Murray, approximately 70 kms south of Perth. The Pinjarra Power Station operates as a base load power station and supplies electricity and steam to Alcoa under commercial agreements. Alinta has established an Operations and Maintenance Agreement with Alcoa for Alcoa to manage, operate and maintain the Pinjarra Power Station on Alinta's behalf.

The reviews will be conducted in accordance with the ERA's March 2019 issue of the *Audit and Review Guidelines: Electricity and Gas Licences* (**Review Guidelines**). In accordance with the Review Guidelines this document represents the Review Plan (the **Plan**) that is to be agreed upon by AAG and Alinta and presented to the ERA for approval.

This Plan has been prepared in relation to both asset management system reviews (i.e. for the EGL6 and EGL10 Licences) and represents the review approach to assessing both Licences concurrently. All references to 'review' assumes applicability to both asset management system reviews. Two separate review reports will be prepared, outlining the obligations and findings relevant to each Licence.

Objective

The objective of the review is to independently examine the effectiveness and performance of the asset management systems established for the assets subject to Alinta's Licences during the review period.

Scope

In accordance with the Review Guidelines, the review will consider the effectiveness of Alinta's existing control procedures within the 12 key processes in the asset management life cycle as outlined below at Table 1. Each key process and effectiveness criteria is applicable to Alinta's Licences and as such will be individually considered in this review.

Table 1 – Asset management system key processes and effectiveness criteria

Key processes	Effectiveness criteria
1. Asset Planning	1.1 Asset management plan covers the processes in this table 1.2 Planning processes and objectives reflect the needs of all stakeholders and is integrated with business planning 1.3 Service levels are defined in the asset management plan 1.4 Non-asset operations (e.g. demand management) are considered 1.5 Lifecycle costs of owning and operating assets are assessed 1.6 Funding options are evaluated 1.7 Costs are justified and cost drivers identified 1.8 Likelihood and consequences of asset failure are predicted 1.9 Asset management plan is regularly reviewed and updated.
2. Asset creation and acquisition	2.1 Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options 2.2 Evaluations include all life-cycle costs 2.3 Projects reflect sound engineering and business decisions 2.4 Commissioning tests are documented and completed 2.5 Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood
3. Asset disposal	3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process 3.2 The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken 3.3 Disposal alternatives are evaluated 3.4 There is a replacement strategy for assets
4. Environmental analysis	4.1 Opportunities and threats in the asset management system environment are assessed 4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved 4.3 Compliance with statutory and regulatory requirements 4.4 Service standard (customer service levels etc) are measured and achieved.
5. Asset operations	5.1 Operational policies and procedures are documented and linked to service levels required 5.2 Risk management is applied to prioritise operations tasks 5.3 Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition 5.4 Accounting data is documented for assets [new criteria] 5.5 Operational costs are measured and monitored 5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities
6. Asset maintenance	6.1 Maintenance policies and procedures are documented and linked to service levels required 6.2 Regular inspections are undertaken of asset performance and condition 6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule 6.4 Failures are analysed and operational/maintenance plans adjusted where necessary 6.5 Risk management is applied to prioritise maintenance tasks 6.6 Maintenance costs are measured and monitored

Key processes	Effectiveness criteria
7. Asset management information systems	<p>7.1 Adequate system documentation for users and IT operators</p> <p>7.2 Input controls include suitable verification and validation of data entered into the system</p> <p>7.3 Security access controls appear adequate, such as passwords</p> <p>7.4 Physical security access controls appear adequate</p> <p>7.5 Data backup procedures appear adequate and backups are tested</p> <p>7.6 Computations for licensee performance reporting are accurate</p> <p>7.7 Management reports appear adequate for the licensee to monitor licence obligations</p> <p>7.8 Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation [new criteria]</p>
8. Risk management	<p>8.1 Risk management policies and procedures exist and are applied to minimise internal and external risks</p> <p>8.2 Risks are documented in a risk register and treatment plans are implemented and monitored</p> <p>8.3 Probability and consequences of asset failure are regularly assessed</p>
9. Contingency planning	<p>9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks</p>
10. Financial planning	<p>10.1 The financial plan states the financial objectives and identifies strategies and actions to achieve those</p> <p>10.2 The financial plan identifies the source of funds for capital expenditure and recurrent costs</p> <p>10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)</p> <p>10.4 The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period</p> <p>10.5 The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services</p> <p>10.6 Large variances in actual/budget income and expenses are identified and corrective action taken where necessary</p>
11. Capital expenditure planning	<p>11.1 There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates</p> <p>11.2 The capital expenditure plan provides reasons for capital expenditure and timing of expenditure</p> <p>11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan</p> <p>11.4 There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented</p>
12. Review of asset management system	<p>12.1 A review process is in place to ensure the asset management plan and the asset management system described in it remain current</p> <p>12.2 Independent reviews (e.g. internal audit) are performed of the asset management system</p>

Alinta's responsibility for maintaining an effective asset management system

Alinta is responsible for putting in place policies, procedures and controls, which are designed to provide for an effective asset management system for assets subject to the Licences.

AAG's responsibility

Our responsibility is to express a limited assurance conclusion on whether, based on the procedures performed and the evidence obtained, anything has come to our attention that causes us to believe that Alinta's AMS for assets subject to its Licences have not been established and maintained, in all material respects, in accordance with the Licences as measured by the effectiveness criteria in the Guidelines for the period from 1 July 2017 to 30 June 2022. The review will be conducted in accordance with Australian Standard on Assurance Engagements ASAE 3500 Performance Engagements (**ASAE 3500**), issued by the Australian Auditing and Assurance Standards Board.

ASAE 3500 requires that we plan and perform the review to obtain assurance about whether the AMS for assets subject to the Licences is materially ineffective. A limited assurance engagement conducted in accordance with ASAE 3500 involves identifying areas where the AMS for assets subject to a Licence is likely to be materially ineffective, addressing the areas identified and considering the process used to prepare the AMS for assets subject to the Licences. 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.

Limitations of use

Our reports will be produced solely for the information and internal use of Alinta and are not intended to be and should not be used by any other person or entity. No other person or entity is entitled to rely, in any manner or for any purpose, on our reports.

We understand that a copy of our reports will be provided to the ERA for the purpose of meeting Alinta's reporting requirements of section 14 of the Act. We agree that a copy of our reports may be provided to the ERA for its information in connection with this purpose, however we accept no responsibility to the ERA or to anyone who is provided with or obtains a copy of our reports.

This plan is intended solely for the use of Alinta for the purpose of its reporting requirements under section 14 of the Act.

Inherent limitations

A review consists primarily of making enquiries, primarily of persons responsible for the management of assets, applying analytical and other review procedures, and examination of evidence for a small number of transactions or events. A review is substantially less in scope than a reasonable assurance "audit" conducted in accordance with ASAEs. Accordingly, we will not express an audit opinion in the asset management system review reports.

An assurance engagement relating to the period from 1 July 2017 to 30 June 2022 will not provide assurance on whether the AMS for assets subject to the Licences will remain effective in the future.

Independence

In conducting our engagement, we will comply with the independence requirements of the Australian professional accounting bodies.

Approach

The review will be conducted in three distinct phases, being a risk assessment, system analysis/policy and procedure review and examination of performance. From the review results, reports will be produced to outline findings, overall assessments and recommendations for improvement in line with the Review Guidelines. Each step of the review is discussed in detail below.

Risk assessment

The review will focus on identifying or assessing those activities and management control systems to be examined and the matters subject to review. Therefore, the purpose of conducting the risk assessment as a preliminary phase enables the reviewer to focus on pertinent/high risk areas of Alinta’s asset management systems established for the assets subject to Alinta’s Licences. The risk assessment considers changes to Alinta’s relevant systems and processes and any matters of significance raised by the ERA and/or Alinta. The level of risk and materiality of the process determine the level of review required i.e. the greater the materiality and the higher the risk, the more effort will be applied.

The first step of the risk assessment is the rating of the potential consequences of Alinta not effectively maintaining an asset management system for the assets subject to its Licences, in the absence of mitigating controls. The consequence classification descriptions listed at Table 1 of the Reporting Manual, provides the risk assessment with context to enable the appropriate consequence rating to be applied to each component of the asset management system subject to review.

Once the consequence has been determined, the likelihood of Alinta not effectively maintaining an asset management system for the assets subject to its Licences (with reference to the defined effectiveness criteria) is assessed using the likelihood rating listed at Table 17 of the Review Guidelines (refer to Appendix 1). The assessment of likelihood is based on the expected frequency of non-performance against the defined criteria, over a period of time.

Table 2 below (sourced from the Review Guidelines) outlines the combination of consequence and likelihood ratings to determine the level of inherent risk associated with each individual effectiveness criteria

Table 2: Inherent risk rating

	Consequence		
Likelihood	Minor	Moderate	Major
Likely	Medium	High	High
Probable	Low	Medium	High
Unlikely	Low	Medium	High

Once the level of inherent risk has been determined, the adequacy of existing controls is assessed in order to determine the level of control risk. Controls are assessed and prioritised as weak, moderate or strong dependant on their suitability to mitigate the risks identified. The control adequacy ratings used by this risk assessment are aligned to the ratings specified in the Review Guidelines (refer to Appendix 1-3). Once inherent risks and control risks are established, the audit priority can then be determined using the matrix specified in the Review Guidelines (refer to Table 3 below). Essentially, the higher the level of risk the more substantive testing is required.

Table 3: Assessment of Review Priority

	Preliminary adequacy of existing controls		
Inherent Risk	Weak	Moderate	Strong
High	Review priority 1	Review Priority 2	
Medium	Review priority 3	Review Priority 4	
Low	Review Priority 5		

The following table outlines the review requirement for each level of review priority. Testing can range from extensive substantive testing around the controls and activities of particular processes (including physical inspection of asset infrastructure, which will be given greater attention for those processes with a review priority of 1, 2 or 3) to confirming the existence of controls through discussions with relevant staff.

Table 4: Review Priority Table

Priority rating	Review requirement
Review Priority 1	<ul style="list-style-type: none"> • Via interview and walkthrough, understand relevant processes and controls as they apply to each asset management system effectiveness criteria • Examine relevant documents, registers and reports as they apply to each asset management system effectiveness criteria • Obtain evidence of policies, procedures and controls being in place and working effectively • Controls testing and extensive substantive testing of activities and/or transactions as they apply to each asset management system effectiveness criteria, including physical inspection of applicable asset infrastructure • Follow-up and if necessary, re-test matters previously reported.
Review Priority 2	<ul style="list-style-type: none"> • Via interview and walkthrough, understand relevant processes and controls as they apply to each asset management system effectiveness criteria • Examine relevant documents, registers and reports as they apply to each asset management system effectiveness criteria • Obtain evidence of policies, procedures and controls being in place and working effectively • Controls testing and moderate substantive testing of activities and/or transactions as they apply to each asset management system effectiveness criteria, including physical inspection of applicable asset infrastructure • Follow-up and if necessary, re-test matters previously reported.
Review Priority 3	<ul style="list-style-type: none"> • Via interview and walkthrough, understand relevant processes and controls as they apply to each asset management system effectiveness criteria • Examine relevant documents, registers and reports as they apply to each asset management system effectiveness criteria • Limited controls testing (moderate sample size) of activities and/or transactions as they apply to each asset management system effectiveness criteria, including physical inspection of applicable asset infrastructure. Only substantively test transactions if further control weakness found • Follow-up of matters previously reported.
Review Priority 4	<ul style="list-style-type: none"> • Confirmation of existing controls via walk through of key processes and examination of key documents including policies and procedures, compliance/breach registers and reports • Follow-up of matters previously reported.
Review Priority 5	<ul style="list-style-type: none"> • Confirmation of existing controls via observation, discussions with key staff and/or reliance on key references including policies and procedures, compliance/breach registers and reports (“desktop review”).

The risk assessment has been discussed with Alinta representatives to gain their input as to the appropriateness and factual accuracy of risk and control ratings and associated explanations. The key sources considered in reaching our preliminary assessment of the risk and control ratings were based on:

- Our understanding of Alinta's assets and internal processes.
- Any other factors that may influence the level or strength of controls.
- Consideration of relevant circumstances and activity that trigger specific performance issues.

At this stage, the risk assessment can only be a preliminary assessment based on reading of documentation and interviews by the auditors. It is possible that the ratings and risk assessment comments may be revised as we conduct our work and new evidence comes to light. The risk assessment is attached at Appendix 2.

System analysis / policy and procedure review

The level of policy and procedure review required will be determined utilising the priority scale. Once the priority level has been defined, the review will consist of:

- Interviewing Alinta representatives and key operational and administrative staff responsible for the development and maintenance of policies and procedural type documentation
- Consideration of Alinta's response to the recommendations made by the 2017 reviews
- Examination of documented policies and procedures for key functional requirements and consideration of their relevance to Alinta's asset management system requirements and standards.

The policy and procedure element of the asset management system review will be performed to provide a rating as defined under Table 5 (refer below).

Key documents which may be subject to review are not specifically disclosed in this plan. A list of documents examined will be included in the review report.

Examination of performance

The actual performance of the relevant controls and processes in place will then be examined via:

- Consideration of reports and references evidencing activity
- Interviews with Alinta representatives and key operational and administrative staff
- Consideration of Alinta's response to the recommendations made by the 2017 reviews
- Physical visit to the power station facilities at Wagerup and Pinjarra
- Consideration of the facilities' function, normal modes of operation and age.

A full work program will be completed to record the specific aspects of our review and examination of the performance of each asset management system key process. This work program will be based on:

- The review priority determined by the risk assessment to be applicable to each effectiveness criteria
- The results of the policy and procedure review, as described above
- The location of personnel and activity to be tested.

Review fieldwork will include a visit to Alinta's Wagerup and Pinjarra facilities, plus meetings with staff at Alinta Energy's Perth office.

The performance effectiveness element of the asset management system review will be performed to provide a rating as defined under Table 6 (refer below).

Reporting

The review reports will also be structured to address all of the minimum contents specified in section 5 of the Review Guidelines.

In accordance with the Review Guidelines, the reviewer must provide an assessment of both the process and policy rating (refer to Table 5 below and Table 8 of the Guidelines) and the performance rating (refer to Table 6 below and Table 9 of the Guidelines) for each of the key processes in Alinta's asset management system.

Alinta is responsible for providing a separate post review implementation plan, if required.

Table 5: Process and policy rating scale

Rating	Description	Criteria
A	Adequately defined	<ul style="list-style-type: none"> Processes and policies are documented Processes and policies adequately document the required performance of the assets Processes and policies are subject to regular reviews, and updated where necessary The asset management information system(s) are adequate in relation to the assets being managed
B	Requires some improvement	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Processes and policies are incomplete or require substantial improvement Processes and policies do not document the required performance of the assets Processes and policies are considerably out of date The asset management information system(s) requires substantial improvements (taking into consideration the assets being managed)
D	Inadequate	<ul style="list-style-type: none"> Processes and policies are not documented The asset management information system(s) is not fit for purpose (taking into consideration the assets being managed).

Table 6: Performance rating scale

Rating	Description	Criteria
1	Performing effectively	<ul style="list-style-type: none"> The performance of the process meets or exceeds the required levels of performance Process effectiveness is regularly assessed and corrective action taken where necessary
2	Improvement required	<ul style="list-style-type: none"> The performance of the process requires some improvement to meet the required level Process effectiveness reviews are not performed regularly enough Recommended process improvements are not implemented
3	Corrective action required	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Process is not performed, or the performance is so poor the process is considered to be ineffective.

Appendix 1 - Risk assessment key

1-1 Criteria for classification of consequence of ineffective performance

Source: Modified from Electricity Compliance Reporting Manual February 2022

Classification	Criteria for classification
Major	Classified on the bases that: <ul style="list-style-type: none"> The consequences of ineffective performance would cause major damage, loss or disruption to customers; or The consequences of ineffective performance would endanger or threaten to endanger the safety or health of a person.
Moderate	Classified on the basis that the consequences of ineffective performance affect the efficiency and effectiveness of the licensee’s operations or service provision, but do not cause major damage, loss or disruption to customers.
Minor	Classified on the basis that: <ul style="list-style-type: none"> The consequences of ineffective performance are relatively minor – i.e. ineffective performance will have minimal effect on the licensee’s operations or service provision and do not cause damage, loss or disruption to customers; Assessment of performance against the obligation is immeasurable; The matter of ineffective performance is identified by a party other than the licensee; or The licensee only needs to use its reasonable or best endeavours to demonstrate effective performance, or where the obligation does not otherwise impose a firm obligation on the licensee.

1-2 Likelihood ratings

Source: Review Guidelines: Electricity and Gas Licences March 2019

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

1-3 Preliminary adequacy ratings for existing controls

Source: Review Guidelines: Electricity and Gas Licences March 2019

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

Appendix 2 - Risk assessment

1. Asset Planning						
Key process		Asset planning strategies focus on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price)				
Outcome		Asset planning is integrated into operational or business plans, providing a framework for existing and new assets to be effectively utilised and their service optimised				
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
1.1	Asset management plan covers the processes in this table	Moderate	Probable	Medium	Moderate	Priority 4
1.2	Planning process and objectives reflect the needs of all stakeholders and are integrated with business planning	Moderate	Unlikely	Medium	Strong	Priority 4
1.3	Service levels are defined in the asset management plan	Moderate	Probable	Medium	Strong	Priority 4
1.4	Non-asset options (e.g. demand management) are considered	Minor	Unlikely	Low	Strong	Priority 5
1.5	Lifecycle costs of owning and operating assets are assessed	Minor	Probable	Low	Strong	Priority 5
1.6	Funding options are evaluated	Minor	Unlikely	Low	Strong	Priority 5
1.7	Costs are justified and cost drivers identified	Minor	Probable	Low	Strong	Priority 5
1.8	Likelihood and consequences of asset failure are predicted	Major	Probable	High	Strong	Priority 2
1.9	Asset management plan is regularly reviewed and updated	Minor	Probable	Low	Strong	Priority 5

2. Asset creation and acquisition						
Key process		Asset creation/acquisition is the provision or improvement of assets				
Outcome		The asset acquisition framework is economic, efficient and cost-effective; it reduces demand for new assets, lowers service costs and improves service delivery				
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options	Moderate	Probable	Medium	Strong	Priority 4
2.2	Evaluations include all life-cycle costs	Moderate	Probable	Medium	Strong	Priority 4
2.3	Projects reflect sound engineering and business decisions	Moderate	Probable	Medium	Strong	Priority 4
2.4	Commissioning tests are documented and completed	Moderate	Probable	Medium	Strong	Priority 4
2.5	Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	Major	Probable	High	Strong	Priority 2

3. Asset disposal						
Key process		Asset disposal is the consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets				
Outcome		The asset management framework minimises holdings of surplus and underperforming assets and lowers service costs. The cost-benefits of disposal options are evaluated				
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process	Moderate	Probable	Medium	Strong	Priority 4
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	Minor	Probable	Low	Strong	Priority 5
3.3	Disposal alternatives are evaluated	Minor	Unlikely	Low	Strong	Priority 5
3.4	There is a replacement strategy for assets	Moderate	Probable	Medium	Strong	Priority 4

4. Environmental analysis						
Key process		Environmental analysis examines the asset management system environment and assesses all external factors affecting the asset management system				
Outcome		The asset management system regularly assesses external opportunities and threats and identifies corrective action to maintain performance requirements				
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
4.1	Opportunities and threats in the asset management system environment are assessed	Moderate	Probable	Medium	Strong	Priority 4
4.2	Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved	Moderate	Probable	Medium	Strong	Priority 4
4.3	Compliance with statutory and regulatory requirements	Moderate	Probable	Medium	Moderate	Priority 4
4.4	Service standard (customer service levels etc) are measured and achieved.	Moderate	Probable	Medium	Strong	Priority 4

5. Asset operations						
Key process		Asset operations is the day-today 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				
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
5.1	Operational policies and procedures are documented and linked to service levels required	Moderate	Probable	Medium	Moderate	Priority 4
5.2	Risk management is applied to prioritise operations tasks	Moderate	Probable	Medium	Moderate	Priority 4
5.3	Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition	Moderate	Probable	Medium	Strong	Priority 4
5.4	Accounting data is documented for assets	Moderate	Probable	Medium	Moderate	Priority 4
5.5	Operational costs are measured and monitored	Moderate	Probable	Medium	Strong	Priority 4
5.6	Staff resources are adequate and staff receive training commensurate with their responsibilities	Moderate	Probable	Medium	Strong	Priority 4

6. Asset maintenance						
Key process		Asset maintenance is the upkeep of assets				
Outcome		The asset maintenance plans cover the scheduling and resourcing of the maintenance tasks so work can be done on time and on cost				
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
6.1	Maintenance policies and procedures are documented and linked to service levels required	Moderate	Probable	Medium	Moderate	Priority 4
6.2	Regular inspections are undertaken of asset performance and condition	Major	Probable	High	Strong	Priority 2
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	Major	Probable	High	Moderate	Priority 2
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary	Major	Probable	High	Strong	Priority 2
6.5	Risk management is applied to prioritise maintenance tasks	Moderate	Probable	Medium	Moderate	Priority 4
6.6	Maintenance costs are measured and monitored	Moderate	Probable	Medium	Strong	Priority 4

7. Asset management information systems						
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				
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
7.1	Adequate system documentation for users and IT operators	Minor	Probable	Low	Strong	Priority 5
7.2	Input controls include suitable verification and validation of data entered into the system	Moderate	Probable	Medium	Strong	Priority 4
7.3	Security access controls appear adequate, such as passwords	Minor	Probable	Low	Strong	Priority 5
7.4	Physical security access controls appear adequate	Minor	Probable	Low	Strong	Priority 5
7.5	Data backup procedures appear adequate and backups are tested	Moderate	Probable	Medium	Strong	Priority 4
7.6	Computations for licensee performance reporting are accurate	Minor	Unlikely	Low	Moderate	Priority 5
7.7	Management reports appear adequate for the licensee to monitor licence obligations	Minor	Probable	Low	Strong	Priority 5
7.8	Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation	Moderate	Probable	Medium	Moderate	Priority 4

8. Risk management						
Key process	Risk management involves the identification of risks and their management within an acceptable level of risk					
Outcome	The risk management framework effectively manages the risk that the licensee does not maintain effective service standards					
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
8.1	Risk management policies and procedures exist and are applied to minimise internal and external risks	Moderate	Probable	Medium	Moderate	Priority 4
8.2	Risks are documented in a risk register and treatment plans are implemented and monitored	Moderate	Probable	Medium	Moderate	Priority 4
8.3	Probability and consequences of asset failure are regularly assessed	Major	Probable	High	Strong	Priority 2

9. Contingency planning						
Key process	Contingency plans document the steps to deal with the unexpected failure of an asset.					
Outcome	Contingency plans have been developed and tested to minimise any major disruptions to service standards.					
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	Major	Probable	High	Moderate	Priority 2

10. Financial planning						
Key process		Financial brings together the financial elements of the service delivery to ensure its financial viability over the long term				
Outcome		The financial plan is reliable and provides for the long-term financial viability of the services				
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
10.1	The financial plan states the financial objectives and identifies strategies and actions to achieve those	Moderate	Probable	Medium	Strong	Priority 4
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs	Minor	Probable	Low	Strong	Priority 5
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	Minor	Probable	Low	Strong	Priority 5
10.4	The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period	Minor	Probable	Low	Strong	Priority 5
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	Minor	Probable	Low	Strong	Priority 5
10.6	Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	Minor	Probable	Low	Strong	Priority 5

11. Capital expenditure planning						
Key process	The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure 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					
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
11.1	There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	Moderate	Probable	Medium	Strong	Priority 4
11.2	The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	Minor	Probable	Low	Strong	Priority 5
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	Minor	Probable	Low	Strong	Priority 5
11.4	There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented	Minor	Probable	Low	Strong	Priority 5

12. Review of asset management system						
Key process	The asset management system is regularly reviewed and updated					
Outcome	The asset management system is regularly reviewed and updated					
Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
12.1	A review process is in place to ensure the asset management plan and the asset management system described in it remain current	Minor	Probable	Low	Strong	Priority 5
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system	Moderate	Probable	Medium	Moderate	Priority 4

Appendix 3 - Previous review recommendations

The following recommendations were made by the 2017 reviews (assigned to each of Alinta Wagerup and Alinta Pinjarra):

Issue 1/2017 (Wagerup)

Asset planning: 1(a) Asset management plan covers key requirements.

Although the Alinta Energy Wagerup Power Station – Asset Management Plan FY2018 - FY2022 (AMP) generally reflects Alinta Wagerup’s expectations and requirements for managing its generation assets, the AMP:

1. Requires updating to reflect the following aspects of the power station’s operations:
 - As Alinta Wagerup has decided that it will currently not operate its gas turbine units on diesel fuel, the power station’s diesel unloading, storage and forwarding equipment is not in operational mode. Risks associated with these arrangements and plans for utilising a long recall storage approach should be reflected in the AMP
 - The AMP has some residual references to Alcoa’s role in operations and maintenance.
2. Can be further improved as it does not clearly address the following elements expected by Alinta Energy’s Asset Management Framework:
 - Contingency plans designed to mitigate the business impact of incidents or emergencies arising as a result of realised asset related risks
 - A brief description of any known and significant risks relating to assets
 - Consideration and documentation of legal and compliance requirements.

Recommendation 1/2017

Alinta Wagerup update its AMP to:

- (a) Reflect current arrangements relating to diesel, as well as to remove any residual reference to Alcoa’s role in operations and maintenance
- (b) Explicitly incorporate the following elements of its Asset Management Framework and EGL obligations:
 - Contingency plans
 - Known and significant risks relating to key assets
 - Legal and compliance requirements.

Action Plan 1/2017

Alinta Wagerup will update its AMP to:

- (a) Reflect current arrangements relating to diesel, as well as to remove any residual reference to Alcoa’s role in operations and maintenance
- (b) Explicitly incorporate the following elements of its Asset Management Framework and EGL obligations
 - Contingency plans
 - Known and significant risks relating to key assets
 - Legal and compliance requirements.

Responsible Person: Wagerup Plant Manager

Target Date: August 2018

Issue 1/2017 (Pinjarra)

Asset planning: 1(a) Asset management plan covers key requirements.

Although the Alinta Energy Pinjarra Cogeneration Plant – Asset Management Plan FY2018 - FY2022 (AMP) generally reflects Alinta Pinjarra’s expectations and requirements for managing its generation assets, the AMP can be further improved as it does not clearly address the following elements expected by Alinta Energy’s Asset Management Framework:

- Contingency plans designed to mitigate the business impact of incidents or emergencies arising as a result of realised asset related risks
- A brief description of any known and significant risks relating to assets
- Consideration and documentation of legal and compliance requirements.

<p>Recommendation 1/2017</p> <p>Alinta Pinjarra update its AMP to explicitly incorporate the following elements of its Asset Management Framework and EGL obligations:</p> <ul style="list-style-type: none"> • Contingency plans • Known and significant risks relating to key assets • Legal and compliance requirements 	<p>Action Plan 1/2017</p> <p>Alinta Pinjarra will update its AMP to explicitly incorporate the following elements of its Asset Management Framework and EGL obligations:</p> <ul style="list-style-type: none"> • Contingency plans • Known and significant risks relating to key assets • Legal and compliance requirements. <p>Responsible Person: Head of Asset Management</p> <p>Target Date: August 2018</p>
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<p>Issue 3/2017 (Wagerup)</p> <p><i>Asset Operations: 5(a) Operational policies and procedures are documented and linked to service levels required</i></p> <p><i>Asset Maintenance: 6(a) Maintenance policies and procedures are documented and linked to service levels required</i></p> <p>Alinta Wagerup is in the process of developing its Plant operations and maintenance procedures, as procedures received from Alcoa did not align with Alinta’s documentation framework. Those site specific procedures are to refer to required service levels (where appropriate) for the operation of the specific item of equipment, or electrical or mechanical procedures. Control plans are also being developed for major items of plant. We recognise that Alinta Wagerup has mitigating processes and controls in place, including:</p> <ul style="list-style-type: none"> • An overarching Asset Management Plan for the Wagerup site • Maintenance tasks integrated into the Ellipse system • Reporting dashboards in place, which provide a weekly view of performance of each site • Senior and experienced personnel assigned to manage site operations and maintenance tasks. 	
<p>Recommendation 3/2017</p> <p>Alinta Wagerup:</p> <p>(a) Document and implement all key procedures and control plans which require updating from existing Alcoa procedures and plans</p> <p>(b) When updating key documentation, ensure that key operations and maintenance tasks and service level metrics are clearly communicated.</p>	<p>Action Plan 3/2017</p> <p>Alinta Wagerup will:</p> <p>(a) Document and implement all key procedures and control plans, which require updating from Alcoa procedures and plans</p> <p>(b) When updating key documentation, ensure that key operations and maintenance tasks and service level metrics are clearly communicated.</p> <p>Responsible Person: Wagerup Plant Manager</p> <p>Target Date: March 2018</p>

<p>Issue 3/2017 (Pinjarra)</p> <p><i>Asset Operations: 5(a) Operational policies and procedures are documented and linked to service levels required</i></p> <p><i>Asset Maintenance: 6(a) Maintenance policies and procedures are documented and linked to service levels required</i></p> <p>In 2014, NEM Energy [heat recovery steam generator (HRSG) manufacturer] was commissioned by Alinta Pinjarra to design and implement major modifications to the Plant’s cogeneration units to improve steam production capacity at low GT Loads. The updated drawings relating to those modifications are not yet fully integrated into the O&M system managed by Alcoa on Alinta Pinjarra’s behalf.</p>	
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<p>Recommendation 3/2017</p> <p>Alinta Pinjarra work with Alcoa to ensure updated drawings of the modified HRSG units are fully integrated within the O&M system.</p>	<p>Action Plan 3/2017</p> <p>Alinta Pinjarra will work with Alcoa to ensure updated drawings of the modified HRSG units are fully integrated within the O&M system.</p> <p>Responsible Person: Head of Asset Management and Alcoa WA Operations CoGen Supervisor</p> <p>Target Date: June 2018</p>
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<p>Issue 4/2017 (Wagerup)</p> <p><i>Asset operations: 5(b) Risk management is applied to prioritise operations tasks</i></p> <p><i>Asset maintenance: 6(e) Risk management is applied to prioritise operations tasks</i></p> <p><i>Risk management: 8(a) Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system</i></p> <p><i>8(b) Risks are documented in a risk register and treatment plans are actioned and monitored</i></p> <p>Through discussion with personnel on-site and examination of Alinta Wagerup’s Risk Register, we observed that Alinta Wagerup is in the process of:</p> <ul style="list-style-type: none"> • Migrating previous work order data from Alcoa’s Oracle system and assigning priorities (including re-assigning where required) under Alinta Wagerup’s maintenance framework (refer to Issue 5/2017) • Developing a site specific risk register. The current risk register is limited to risks associated with the transition of operations in May 2017. In particular, it does not address risks associated with the decision not to operate the gas turbine units on diesel fuel and associated plans for utilising a long recall storage approach. <p>Although Alinta Wagerup has applied the Alinta Energy group-wide risk management framework, it has not yet captured clear evidence of some of those risk management activities to demonstrate that its risk management philosophies and approach are consistently applied. For example, a consistent approach and timeframe has not been designed for preparing and reviewing risk treatment plans and reports, other than through the annual review of the AMP. The AMP does not provide a clear and consistent reference to specific risk assessment and management activities, including preparation of risk treatment plans (which often result in allocation of capital expenditure) and links to insurer risk reduction recommendations.</p>	
<p>Recommendation 4/2017</p> <p>Alinta Wagerup:</p> <p>a) Develop its site Risk Register to include all risk elements relevant to:</p> <ul style="list-style-type: none"> • The site environment • Maintenance of the asset • Contingency planning (refer to Issue 6/2017) • Current diesel fuel arrangements <p>b) Complete the data migration of work orders</p> <p>(c) Establish a clear approach and timeframe for assessing risks, implementing treatment plans and monitoring status on a more frequent basis than the annual review of the AMP.</p>	<p>Action Plan 4/2017</p> <p>Alinta Wagerup will:</p> <p>a) Develop its site Risk Register to include all risk elements relevant to:</p> <ul style="list-style-type: none"> • The site environment • Maintenance of the asset • Contingency planning • Current diesel fuel arrangements <p>(b) Complete the data migration of work orders</p> <p>(c) Establish a clear approach and timeframe for assessing risks, implementing treatment plans and monitoring status on a more frequent basis than the annual review of the AMP.</p> <p>Responsible Person: Wagerup Plant Manager</p> <p>Target Date: March 2018</p>

Issue 4/2017 (Pinjarra)

Asset Maintenance: 6(e) Risk management is applied to prioritise maintenance tasks

Risk management: 8(a) Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system

Alinta Pinjarra applies the Alinta Energy group-wide risk management framework across its asset management activities. Alcoa also applies a structured, risk based approach to its O&M activities, performed in accordance with the O&M Agreement.

However, Alinta Pinjarra has not yet captured clear evidence of some of those risk management activities to demonstrate that its risk management philosophies and approach are consistently applied. For example:

- A consistent approach and timeframe has not been designed for preparing and reviewing risk treatment plans and reports, other than through the annual review of the AMP
- The AMP does not provide a clear and consistent reference to specific risk assessment and management activities, including preparation of risk treatment plans (which often result in allocation of capital expenditure) and links to insurer risk reduction recommendations. For example, in relation to Alinta Pinjarra's decision to extend the Unit 1 critical rotor inspection to be delayed until the 3rd major inspection in 2023, the impact of that decision (e.g. on other maintenance activity and cost forecasts) had not been reflected in Alinta Pinjarra's records of the risks associated with the Unit 1 gas turbine rotor prior to and subsequent to the decision
- The Pinjarra site risk register does not capture all risk elements identified through the contingency planning process (refer to Issue 5/2017) or the insurer risk reduction recommendations.

In relation to 6(e) Risk management is applied to prioritise maintenance tasks:

- In relation to the major inspection of a "U1 Gas Turbine Rotor" initially scheduled for November/December 2017 and classified in the AMP as a medium risk, Alinta Pinjarra engaged MHI to assess whether the major inspection could be delayed. In April 2016, MHI concluded that it was possible for the critical rotor inspection to be delayed until the 3rd major inspection scheduled for 2023, enabling Alinta Pinjarra to make a decision not to purchase a replacement rotor. Although Alinta Pinjarra had demonstrated its assessment of risk in prioritising maintenance tasks, the impact of that decision had not been reflected in Alinta Pinjarra's records of the risks and related treatments associated with the Unit 1 gas turbine rotor prior to and subsequent to the decision.

Recommendation 4/2017

Alinta Pinjarra:

- Establish a clear approach and timeframe for assessing risks, implementing treatment plans and monitoring status on a more frequent basis than the annual review of the AMP
- Further develop its site Risk Register to include all risk elements relevant to its management of the power station assets, including the contingency planning process and insurer risk reduction recommendations.

Action Plan 4/2017

Alinta Pinjarra will:

- Establish a clear approach and timeframe for assessing risks, implementing treatment plans and monitoring status on a more frequent basis than the annual review of the AMP
- Further develop its site Risk Register to include all risk elements relevant to management of the power station assets, including the contingency planning process and insurer risk reduction recommendations.

Responsible Person: Head of Asset Management and Alcoa WA Operations CoGen Supervisor

Target Date: March 2018

Issue 6/2017 (Wagerup), Issue 5/2017 (Pinjarra)

Contingency Planning: 9(a) Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks

As Alinta Wagerup's and Alinta Pinjarra's contingency plans and arrangements are currently maintained/described in different processes and documents, they have the opportunity to further ensure the completeness and consistency of their contingency planning arrangements by capturing all of their plans and processes in one single reference. Such an approach would be consistent with Alinta Energy's Asset Management Framework.

We also observed that during the period subject to review, Alinta Wagerup had not performed regular tests of the Wagerup power station site emergency response plans.

Recommendation

Alinta Wagerup and Alinta Pinjarra:
(a) Establish a formal process for ensuring that contingency arrangements in place for all key risks to the power station's operations and availability (such as fuel and water supply) are rigorously challenged and tested, including regular testing of the Wagerup power station site emergency response plans
(b) Prepare a clear overarching "umbrella" document to capture all contingency plans in place for each of the key risks to Alinta Wagerup's and Alinta Pinjarra's assets' operations and availability.

Action Plan

Alinta Wagerup and Alinta Pinjarra will:
(a) Establish a formal process for ensuring that contingency arrangements in place for all key risks to the power station's operations and availability are rigorously challenged and tested, including regular testing of the Wagerup power station site emergency response plans
(b) Prepare a clear overarching "umbrella" document to capture all contingency plans in place for each of the key risks to Alinta Wagerup's and Alinta Pinjarra's assets' operations and availability.
Responsible Persons: Wagerup Plant Manager, Pinjarra Head of Asset Manager
Target Date: December 2017 for Wagerup. March 2018 for Pinjarra

Issue 7/2017 (Wagerup) and Issue 6/2017 (Pinjarra)

AMS Review: 12(b) Independent reviews (e.g. internal audit) are performed of the asset management system.

Although components of Alinta Wagerup's and Alinta Pinjarra's AMSs are subject to regular reviews and updates, Alinta Wagerup and Alinta Pinjarra have not applied formal processes for ensuring sufficient degrees of independence in any regular reviews of the asset management plans and underlying AMSs.

Recommendation

In accordance with the Alinta Energy Asset Management Framework, Alinta Wagerup and Alinta Pinjarra implement:
(a) The requirement for their AMSs to be subject to independent reviews on a regular basis
(b) A register or record to capture the reviews conducted on their AMSs and the independence of the associated reviewers.

Action Plan

Alinta Wagerup and Alinta Pinjarra will implement:
(a) The requirement for their AMSs to be subject to independent reviews on a regular basis
(b) A register or record to capture the reviews conducted on their AMSs and the independence of the associated reviewers.
Responsible Person: Wagerup Plant Manager, Pinjarra Head of Asset Management
Target Date: August 2018

Appendix B – References

Alinta Wagerup representatives participating in the review

- Operations Manager, SWIS, Alinta Energy
- Site Administrator, Alinta Wagerup
- Head of Operations, Alinta Energy
- Manager WA Retail Regulation, Alinta Energy.

AAG staff participating in the review

		Hrs
• Andrew Baldwin	Executive Director	48
• Tanuja Sanders	Senior Engineer	18
• Margaret-Mary Gauci	Senior Consultant	4
• Stephen Linden	Director (QA review)	1

Key documents and other information sources examined

- Alinta Energy Asset Management Policy
- Alinta Energy Asset Management Framework
- Asset Management Plan Wagerup (2021 and 2022)
- Connection Access Contract WGP12 – Alinta Cogeneration (Wagerup) Pty Ltd
- Environmental Ministerial Performance and Compliance Report - 2020/2021
- Emergency Response Plan, Alinta Energy, Wagerup Power Station
- Trainee Training Reports
- Example InControl Event Report, Wagerup
- Sample Ellipse Work Order records and screenshots
- Example Emergency Evacuation Drill completed checklist
- Evacuation Drill Training Attendance records
- Alinta Energy Compliance records specific to Wagerup operations
- Wagerup Equipment Hierarchy
- Alstom Power GT Operation Concept and Instructions
- Alstom Power GT Operation Set Point List
- Alstom Power GT Protection Functional requirements
- Alstom Power GT13E2 – Procedure walk down for start-up and operation
- Alstom Power Setting List GT
- Extensive list of Operations & Maintenance Procedures & Strategies, Wagerup
- Planned Outage Schedule
- Sample Ellipse system records of maintenance activity
- Operator Rounds Check Sheets
- Example Plant Condition Dashboard

- Example monthly station performance reports
- Sample Field Service Reports for A03 Inspections, C01 Inspections, MXL2 Upgrade, Generator Robotic Inspections, A04 Inspection
- Alinta Energy Group IT policies and procedures
- Alinta Energy Risk Management Framework
- Alinta Energy Fleet Risk Summary
- Example Risk Management Tool
- Wagerup P&L Budget vs Actuals FY22
- Capital Project Forecasts
- Wave International Asset Management Framework Audit Report 2018
- Representations from the Alinta Energy Operations Manager, SWIS.