

MERREDIN ENERGY POWER STATION

POST-AUDIT and POST-REVIEW IMPLEMENTATION PLAN

The Merredin Energy Asset Management System Review and Performance Audit were conducted in September 2017 to assess the effectiveness of the Merredin Energy Asset Management System and level of compliance with Generation Licence EGL25 conditions during the audit period 1st July 2014 to 30th June 2017.

Findings and recommendations arising from this audit and review, with management’s proposed actions are detailed in Table 1 and Table 2.

Recommended actions within this Implementation Plan are broadly summarised as per below. Merredin Energy will:

- Establish a Compliance schedule, ensuring that all relevant activities as per the recommendations in Table 1 are captured and assigned to appropriate personnel.
- Update the Asset Management System, including all historical data and routine maintenance tasks. Ensure that recurring tasks are entered into the CMMS, and that the ERA is notified when the update occurs.
- Review existing documentation and update all contingency and emergency plans within six months. Ensure documentation is stored in an electronic document management system, and reviewed annually.
- Confirm that the ERA and Western Power have updated contact details for all personnel and contractors associated with the operation of the Merredin Energy Power Station.
- Identify outstanding commissioning test requirements and undertake additional testing as deemed necessary, with consideration of operational history and OEM requirements.
- Investigate and, where possible, rectify operational issues including GT2 start reliability, historical DCS data storage, and data back-up requirements.

For the purposes of this Implementation Plan, positions listed with actions pertain to the following personnel:

Position	Personnel
General Manager	John Delicato
Asset Engineer	Dale Waterson
Document Controller	Grant Slade
Operational Staff	TWPS Personnel: <ul style="list-style-type: none"> • Terry Robartson • Ray Moselle
Energy Trading Team	CQ Partners Personnel: <ul style="list-style-type: none"> • Ryan Wilson • Trish Slattery

Dale Waterson
Asset Engineer
Merredin Energy

TABLE 1, POST-AUDIT IMPLEMENTATION PLAN

PERFORMANCE AUDIT					IMPLEMENTATION PLAN		
Oblig. No.	Lic. Cl.	Rating / Licence Requirement	Finding	Recommendation	Action	By Whom	Date
101/2017	CI 14.1	<p>Rating A1</p> <p>A licensee must provide the ERA with a performance audit conducted by an independent expert acceptable to the ERA, not less than once every 24 months.</p> <p>A compliance schedule is required to ensure key tasks are completed.</p>	<p>This is the second Audit conducted by an independent expert since the licence was granted in June 2012. The requirement for the audit is monitored by the Asset Engineer. Additionally, it is raised in email communications and correspondence with the Secretariat.</p> <ul style="list-style-type: none"> • ERA correspondence • Personnel interviewed 	<p>Due to the change in operator it is recommended that there is a Compliance Schedule established to ensure ongoing compliance. Processes established to identify changes to legislation.</p>	<p>Merredin Energy will establish a Compliance Schedule and establish processes to identify changes to legislation for ongoing compliance.</p>	Asset Engineer	31 March 2018
102/2017	CI 20.1	<p>Rating A1</p> <p>A licensee must provide for an asset management system. During the development of the Asset Management System it should be reviewed against compliance requirements to ensure adequacy.</p>	<p>The licensee maintained an Asset Management System for the duration of the audit period which was continually monitored and updated in response to plant conditions. A detailed maintenance history is contained in TECH1 output. Condition monitoring and maintenance were verified. The system was not available for review however, printout sighted indicated compliance.</p>	<p>Where practical import history into a new system or implement routine maintenance tasks to OEM specifications or operational parameters. Where changes have been made i.e. Electricity Generator and Turbine frequency checks ensure condition monitoring programs are well established.</p>	<p>All available history from the previous Asset Management System to be imported into the updated Asset Management System.</p> <p>Routine maintenance tasks to be implemented within updated Asset Management System.</p>	Asset Engineer	31 March 2018
103/2017	CI 20.2 and 20.3	<p>Rating A1</p> <p>A licensee must notify details of the asset management system and any substantial changes to it to the ERA. Liaison with the ERA during the development of the asset management system to ensure adequacy is required.</p>	<p>There have been no substantial changes to the Asset Management System which have required notification to the ERA during the audit period. A document detailing changes to the Merredin Maintenance schedule was sighted for Board Approval and detailed changes to maintenance program due to the infrequent running of the</p>	<p>Ensure the ERA are notified of the new asset management system and where practical import history into a new system or implement routine maintenance tasks to OEM specifications or operational parameters.</p>	<p>Formal advice to be made to the Authority when the Asset Management system is updated.</p>	General Manager.	28 February 2018

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Oblig. No.	Lic. Cl.	Rating / Licence Requirement	Finding	Recommendation	Action	By Whom	Date
			plant. It is noted that the operator changed hands and as such the next audit will require a review of this requirement.				
104/2017	CI 20.4	Rating A1 A licensee must provide the ERA with a report by an independent expert about the effectiveness of its asset management system every 24 months, or such longer period as determined by the ERA. A compliance schedule is required to ensure key tasks are completed.	GES was appointed, with the Authority's approval to undertake the asset management system review for the period 1 July 2014 to 30 June 2017. The technical aspects of the review have been addressed by Power & Energy Services, as detailed in the Audit Plan and approved by the Authority. This is the second review of the asset management system in accordance with licence EGL25. The 2014 asset management system review report was provided to the Authority in September 2014 and met the requirements of the Authority.	Ensure there is a Compliance Schedule established to ensure ongoing compliance. Processes established to identify changes to legislation. As for 101/2017.	As per 101/2017: Merredin Energy will establish a Compliance Schedule and establish processes to identify changes to legislation for ongoing compliance.	Asset Engineer	31 March 2018
105/2017	CI 4.1	Rating A1 A licensee must provide the ERA with a report by an independent expert about the effectiveness of its asset management system every 24 months, or such longer period as determined by the ERA. A compliance schedule is required to ensure key tasks are completed including payment of standing charges and license fees.	It is noted that all of the invoices were paid in accordance with the compliance requirements. Although in some instances payment was very close to due date. Invoices issued by the Authority Record of Payment in accounts system. Verification of receipt of payment was confirmed through discussions with the Finance Officer of the ERA as documentation not readily available due to change in operator.	Ensure payment of and scheduling of payment for licence fees is captured in compliance or accounting systems.	As per 101/2017: Merredin Energy will include an entry in the Compliance Schedule to provide for scheduling and payment of the licence fees.	Asset Engineer	31 March 2018

PERFORMANCE AUDIT					IMPLEMENTATION PLAN		
Oblig. No.	Lic. Cl.	Rating / Licence Requirement	Finding	Recommendation	Action	By Whom	Date
106/2017	CI 5.1	<p>Rating A1</p> <p>A licensee must take reasonable steps to minimise the extent, or duration, of any interruption, suspension or restriction of the supply of electricity due to an accident, emergency, potential danger or other unavoidable cause.</p> <p>As the documentation has been transferred a risk review and update of the documents for adequacy is recommended.</p>	<p>Through discussions with the General Manager EMR and review of the licensee's systems and documentation it is noted that there are;</p> <ul style="list-style-type: none"> Risk analysis has been undertaken. Contingency planning and business continuity processes in place to manage the impact of unplanned outages and unplanned events. However, these could have been reviewed for applicability. Licensee no longer operator as such this will need to be reviewed in the next audit period. Condition monitoring systems have been implemented and were reviewed for suitability as a result of the plant being run more infrequently than planned. Board approved. Detailed schedule for planned outages, which is regularly reviewed and monitored. 	<p>Undertake risk review of operations and ensure all contingency plans and emergency response plans are site specific implemented, tested and monitored for effectiveness.</p>	<p>Merredin Energy will review existing documentation and update all contingency and emergency plans on an annual basis. The first review is planned to be completed within six months (19 June 2018) with annual review thereafter.</p> <p>The Review Schedule will be incorporated as tasks within the CMMS to ensure that orders for this work are automatically generated.</p> <p>All relevant documentation is to be stored in a document management system which notifies the document owner when a document is due for review.</p>	<p>Review by Asset Engineer and General Manager.</p> <p>Task loading into CMMS by Asset Engineer.</p> <p>Document management by Document Controller</p>	19 June 2018
123/2017	CI 15.1	<p>Rating NP/NA</p> <p>In the manner prescribed, a licensee must notify the ERA, if it is under external administration or if there is a significant change in the circumstances that the licence was granted which may affect the licensee's ability to meet its obligations.</p> <p>Review of legal obligations would ensure compliance with requirements.</p>	<p>Confirmed that for the period 1 July 2017 to 30 June 2017, no such changes arose. However, operation of the power station has changed as of 1 July 2017. This is outside the audit scope.</p>	<p>Ensure these requirements are captured in the compliance system.</p>	<p>As per 101/2017:</p> <p>Merredin Energy will include an entry in the Compliance Schedule to provide for notification to the ERA in such an event.</p>	Asset Engineer	31 March 2018

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Oblig. No.	Lic. Cl.	Rating / Licence Requirement	Finding	Recommendation	Action	By Whom	Date
124/2017	CI 16.1	Rating A1 A licensee must provide the ERA, in the manner prescribed, with any information that the ERA requires in connection with its functions under the Electricity Industry Act. A compliance schedule is required to ensure key tasks are completed.	The Licensee has established a compliance scheduling system within its Tech 1 system to ensure compliance with its regulatory obligations relevant to its License. Additionally, document ERA General License Compliance MEPL-00-PROC-00008 outlines requirements for annual reporting.	Ensure Compliance Reporting requirement is captured in the compliance system and reporting times frames are monitored by management	As per 101/2017: Merredin Energy will include an entry in the Compliance Schedule to provide for Compliance Reporting.	Asset Engineer	31 March 2018
339/2017	CI 5.1	Rating A NR A Code participant who becomes aware of an outage or malfunction of a metering installation must advise the network operator as soon as practicable. To ensure the obligations can be met a procedure for checking metering calculations is recommended to be implemented from operational data.	The network operator is responsible for metering installations and manages all aspects of the metering services. A verification check is undertaken by the Licensee using production control systems to confirm data provided by the Network Operator. The General Manager EMR confirmed that during the period 1 July 2014 to 30 June 2017, no metering installation malfunctions were identified.	Establish system procedures/calculations to check meter readings for validity based on operational data.	As per 101/2017: Merredin Energy will include an entry in the Compliance Schedule to provide for meter validation	Asset Engineer / Operational staff / Energy Trading Team	30 June 2018
453/2017	CI 5.1	Rating NP NR A Code participant must notify its contact details to a network operator with whom it has entered into an access contract within 3 business days after the network operator's request. Review of legal obligations would ensure compliance with requirements	During the period 1 July 2014 to 30 June 2017, the network operator did not request the licensee to provide its contact details. There have been no changes made to Licensee's contact details.	Ensure licensee has notified the ERA of updated contact details and ensure compliance requirement captured in systems.	Merredin Energy will confirm that the ERA and Western Power have updated contact details. As per 101/2017: Merredin Energy will include an entry in the Compliance Schedule to provide for Contact detail updates.	General Manager Asset Engineer	30 January 2018 31 March 2018

PERFORMANCE AUDIT					IMPLEMENTATION PLAN		
Oblig. No.	Lic. Cl.	Rating / Licence Requirement	Finding	Recommendation	Action	By Whom	Date
454/2017	CI 5.1	Rating NP NR A Code participant must notify any affected network operator of any change to the contact details it notified to the network operator at least 3 business days before the change takes effect. Review of legal obligations would ensure compliance with requirements	There has been no change in contact details during the audit period	Ensure licensee has notified the ERA of updated contact details and ensure compliance requirement captured in systems.	As per 453/2017: Merredin Energy will confirm that the ERA and Western Power have updated contact details.	General Manager	30 January 2018
					Merredin Energy will include an entry in the Compliance Schedule to provide for Contact detail updates.	Asset Engineer	31 March 2018

TABLE 2, POST-REVIEW IMPLEMENTATION PLAN

ASSET MANAGEMENT REVIEW					IMPLEMENTATION PLAN		
Item No	EC Ref	Rating / AMS Component Effectiveness Criteria	Asset System Deficiency	Recommendation	Management Action	By Whom	Due Date
01/2017	2.4	Rating A2 Commissioning tests are documented and completed	No evidence of commissioning tests to substantiate this were presented. It is still not clear whether some original commissioning tests have been completed as per the previous audit recommendations.	Merredin Energy to complete the commissioning tests if the tests were not completed as per the 2014 Post Audit Implementation Plan.	Merredin Energy will identify outstanding commissioning test requirements and undertake additional testing as deemed necessary, with consideration of operational history and OEM requirements.	Asset Engineer / Operational Staff	19 December 2019
02/2017	6.2	Rating A1 Regular inspections are undertaken of asset performance and condition	GT2 still has unreliable starting.	Investigate, rectify and prove GT2 poor starting issues.	Merredin Energy and O&M personnel to investigate issues relating to GT2 start performance.	Asset Engineer / Operational Staff	30 June 2018
03/2017	7.2	Rating A2 Input controls include appropriate verification and validation of data entered into the system	Data is collected by the DCS and reported. Availability is broadcast to System Management via the DCS. No historian is installed.	Consideration be given again to storing historical DCS data.	Merredin Energy to reconsider options for historical DCS data storage.	Asset Engineer	30 March 2018
04/2017	7.5	Rating A2 Data backup procedures appear adequate and backups are tested schedule	Limited information presented to assess performance.	Merredin Energy investigate and assess its data backup requirements and procedures.	Merredin Energy will identify data backup requirements, and incorporate a strategy to ensure preservation of data.	Asset Engineer / Operational Staff	30 June 2018
05/2017	9.1	Rating A1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks,	The contingency plan has been reviewed and marked as updated. Not clear what changes made as previous document unavailable.	Undertake risk review of operations and ensure all contingency plans and emergency response plans are site specific implemented, tested and monitored for effectiveness.	Merredin Energy to have contingency plan and emergency response plan updated and implemented within six months.	General Manager / Asset Engineer	19 June 2018