



ROBINSON BOWMAKER PAUL



AUSTRALIAN ENERGY MARKET OPERATOR

INDEPENDENT ASSURANCE REPORT ON AEMO'S COMPLIANCE WITH
THE GSI RULES AND GSI PROCEDURES

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EXECUTIVE SUMMARY

This independent assurance report sets out the results of the market audit by Robinson Bowmaker Paul (RBP) assessing AEMO’s compliance with the Gas Services Information (GSI) Rules and GSI Procedures.

AUDITED ENTITY

The audited entity for this report is AEMO.

AUDIT PERIOD

The Audit Period is 1 July 2018 to 30 June 2019, both dates inclusive.

REGULATORY CONTEXT AND SCOPE

Regulatory context

The regulatory context for the audit is summarised in the table below.

Table 1: Regulatory context for the market audit

Rule reference	Comment
174 (1)	Requirement for AEMO to appoint market auditor at least annually
174(2)	Defines the scope of the Audit to include, at minimum: <ul style="list-style-type: none">• the compliance of AEMO’s Internal Procedures and business processes with the GSI Rules• AEMO’s compliance with the GSI Rules and Procedures AEMO’s software systems for the Gas Bulletin Board (GGB) and the calculation of GSI Fees and processes for software management

Scope

Given the regulatory context above, the purpose of the GSI Compliance Audit is to assess:

- How AEMO implements its obligations under the GSI Rules
- How AEMO manages non-compliance risk with respect to the obligations above

- Instances of non-compliance by AEMO during the Audit period.
- AEMO’s market software systems and its processes for software management. It includes an assessment of whether:
 - AEMO maintains appropriate records
 - The software used by AEMO to implement its obligations under the GSI Rules is compliant with the underlying mathematical formulations and the GSI Rules themselves.
 - AEMO has been compliant with its market systems certification obligations

The GSI Compliance Audit includes the following work streams:

- Compliance Assessment of AEMO’s operational compliance and application of controls to mitigate compliance risk
- Procedures Assessment of GSI Procedures and Internal Procedures that have changed during the Audit Period
- Software Compliance Assessment

This scope differs from the previous audit in that it does not include audit of general IT controls.

AUDIT CRITERIA

Criteria for determining operational and procedural compliance

The criterion we have used for determining the compliance of AEMO’s GSI Procedures (referred to as the *GSI Procedures*) is the Gas Services Information Rules dated 1 March 2019 (referred to as the *GSI Rules*).

The criteria we have used for determining AEMO’s operational compliance and the compliance of AEMO’s Internal Procedures are the GSI Rules and the GSI Procedures.

Criteria for determining control application

When assessing whether AEMO has applied effective controls during the Audit Period we have used relevant Internal Procedure and Confluence Work Instruction documentation as our audit criteria.

This includes the following:

Table 2: Procedures reviewed to assess control application

AEMO functional area	Procedures against which control application have has been assessed
Market Operations	Daily Operations Procedure Work Instructions
Finance	WEM and GSI Procedure
IT	IT Change Management Policy, Software Configuration Management Plan

Where AEMO does not have documented controls or procedures relating to a business process under review we have used best practice criteria for a prudent market operator. This includes:

- The use of automated/semi-automated tools to reduce risk of errors
- Use of automated alerts or calendar reminders
- Approval and authorisation processes
- Issue escalation processes
- Validation and review processes
- Exception reporting
- Practices at other market operators with which we are familiar

APPROACH

Assurance

Our audit has been conducted in accordance with Australian Auditing and Assurance Standards Board's '*Framework for Assurance Engagements*', ASAE 3000 '*Assurance Engagements Other than Audits and Reviews of Financial Information*'.

- We provide reasonable assurance under this standard with respect to our review of AEMO's software changes and the compliance of AEMO's market software with the GSI Rules and GSI Procedures
- We provide limited assurance under this standard with respect to our review of:
 - AEMO's compliance with the GSI Rules and GSI Procedures
 - AEMO's software management processes and controls

Risk ratings and materiality

Compliance and risk ratings

Table 3: Compliance and risk rating definitions

Compliance rating	Risk Rating
1: Instances of non-compliance with the GSI Rules	Critical: Potential for catastrophic impact on market or system operations or other market outcomes if not addressed immediately. Requires executive actions and monitoring at board level.
2: Findings that are not an instance of non-compliance, but pose compliance risk	Significant: Potential for major impact on market or system operations or other market outcomes if not addressed as a matter of priority. Requires senior management attention with regular monitoring at executive meetings.
	Medium: Potential for moderate impact on market or system operations or other market outcomes if not addressed within a reasonable timeframe. Requires management attention with regular monitoring.
	Low: Potential for minor impact on market or system operations or other market outcomes if not addressed in the future. Requires team level attention with regular monitoring.

Materiality (qualification of audit opinion)

In determining whether to qualify our opinion on whether AEMO has complied “in all material respects”, we have taken the following factors into account:

- Purpose and objectives of the market audit
- AEMO’s overall objectives
- AEMO’s risk matrix definitions of impact
- Financial impacts on Gas Market Participants
- The number of Gas Market Participants or other stakeholders affected
- The impact of an issue on market objectives such as transparency, equity and efficiency
- Whether an issue is systemic
- Whether an issue is recurring (from previous audits)

Audit activities

We have undertaken a combination of:

- Reviewing self-reported incidents of AEMO non-compliance with the GSI Rules and GSI Procedures
- Business process walkthroughs and interviews with staff

- Reviewing AEMO’s GSI Procedures and Internal Procedures to ensure GSI Rules changes and other changes (e.g. processes, systems, etc.) have been reflected in the procedures.
- Compliance testing to audit AEMO’s operational compliance with the GSI Rules and GSI Procedures and to determine the effectiveness of operating controls¹.

The first two activities were conducted as part of our field-visit in July 2019. Remaining activities (including review of self-reported incidents arising since our field visit) have been undertaken remotely.

Compliance testing and business process walkthroughs were focussed on subset of functional areas based on residual compliance risk, materiality, and rule changes occurring in the Audit Period. These areas included:

Table 4: Audit focus areas

AEMO functional area	Focus area
Market Operations	Emergency Management Facility GSI fees invoicing
Finance	GSI Budget and fees

AUDIT FINDINGS

Extensive automation means GSI obligations are well-controlled

AEMO uses automated software to implement most of its GSI obligations. The non-compliance issues we have found (and AEMO has self-reported) relate to the remaining manual activities.

Publication of financial information is one such area. In 2017 and 2018, we noted breaches relating to late publication of budget information. This year, we have noted the same issue recurring,

Strong compliance culture and accountability prevalent across AEMO

AEMO teams generally have a strong culture of compliance where self-reporting of issues is encouraged and the approach to compliance risk management is proactive rather than reactive.

¹ In doing so, we have sourced information from all AEMO (WA) teams, with a particular emphasis on the market operations team.

This is supported by the following:

- Audit findings from previous years have been consistently addressed and closed. There are no opening findings from last year’s audit and only one open finding from this year’s audit.
- There have been five findings this year which include:
 - Four instances of minor non-compliance (i.e. compliance rating 1 findings, all of which have a low risk rating and two of which were self-reported) with the GSI Rules and GSI Procedures.
 - One low risk finding pertaining to compliance risk.
- Our site visits have indicated that AEMO teams maintain and apply effective controls to manage compliance risk.

Summary

Table 5 below summarises the total number of audit issues (broken down by risk rating) reported during the 2017/18 and 2018/19 Audit Periods.

Table 5: Audit issue summary by risk rating and open/closed status, 2017/18 and 2018/19.

	2017/18 Issues	2018/19 Issues				
Risk Rating	Total	Total	Closed		Open	
			AEMO	RBP	AEMO	RBP
Significant	0	0	0	0	0	0
Medium	0	0	0	0	0	0
Low	5	5	3	1	0	1
Totals	5	5	3	1	0	1
			4		1	

Table 6: Summary of audit issues

Ref	Issue type & process	Risk & Compliance Rating	Finding	Recommendation
19GSI 1.02	Issue Type AEMO reported non-compliance Process Invoicing	Risk Rating Low Compliance Rating 1	Incorrect GSI invoices due to defect in GSI Fee Calculation Tool	No further action. AEMO has now addressed the remaining issues.
19GSI 1.03	Issue Type AEMO reported non-compliance Process Budgeting and fees	Risk Rating Low Compliance Rating 1	Failure to submit proposal for GSI allowable revenue by deadline	No further action. AEMO has now addressed the remaining issues.
19GSI 1.04	Issue Type RBP reported non-compliance Process Budgeting and fees	Risk Rating Low Compliance Rating 1	Failure to publish historic financial report for financial year ending 2018	No further action - see related finding 19GSI1.05
19GSI 1.05	Issue Type RBP reported non-compliance	Risk Rating Low Compliance Rating 2	Lack of formalised business processes and controls relating to GSI obligations	<ul style="list-style-type: none"> • Institute calendar alerts for key publication/submission deadlines • Document processes including specification of key controls.

Ref	Issue type & process	Risk & Compliance Rating	Finding	Recommendation
	Process Budgeting and fees			
19GSI 1.06	Issue Type AEMO reported non-compliance Process Market operations	Risk Rating Low Compliance Rating 1	Participant details updated incorrectly in GSI Register	No further action. AEMO has now addressed the remaining issues.

OPINION

Qualifications

We have no qualifications to note with respect to the opinions provided below.

Conclusion

Opinion on AEMO's operational compliance with the GSI Rules and GSI Procedures

Subject to the inherent limitations set out in Section 1.5.4, based on the audit procedures we have performed and the evidence we have examined, nothing has come to our attention that causes us to believe AEMO has not been compliant with the GSI Rules and GSI Procedures during the Audit Period, in all material respects.

Opinion on the compliance of AEMO's Market Software Systems with the GSI Rules

Based on the audit procedures we have performed and the evidence we have examined, AEMO's Market Software Systems are compliant with the GSI Rules in all material respects.

Opinion with respect to the compliance of AEMO's software management processes with the GSI Rules

Subject to the inherent limitations set out in Section 1.5.4, based on the audit procedures we have performed and the evidence we have examined, nothing has come to our attention that causes us to believe that AEMO's processes for software management have not been compliant with the GSI Rules and GSI Procedures during the Audit Period in all material respects.

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1 INTRODUCTION

This chapter sets out the regulatory context for the GSI Compliance Audit and our approach to performing the audit.

1.1 AUDITED ENTITY

The audited entity for this report is AEMO.

1.2 AUDIT PERIOD

The Audit Period is 1 July 2018 to 30 June 2019, both dates inclusive.

1.3 REGULATORY CONTEXT AND SCOPE

1.3.1 Regulatory context

The regulatory context for the audit is summarised in the table below.

Table 7: Regulatory context for the market audit²

Rule reference	Comment
174 (1)	Requirement for AEMO to appoint market auditor at least annually
174(2)	Defines the scope of the Audit to include, at minimum: <ul style="list-style-type: none">• the compliance of AEMO's Internal Procedures and business processes with the GSI Rules• AEMO's compliance with the GSI Rules and Procedures• AEMO's software systems for the Gas Bulletin Board (GGB) and the calculation of GSI Fees and processes for software management

1.3.2 Scope

Given the regulatory context above, the purpose of the GSI Compliance Audit is to assess:

² Rules references are as at 31 May 2017 unless otherwise indicated

- How AEMO implements its obligations under the GSI Rules
- How AEMO manages non-compliance risk with respect to the obligations above
- Instances of non-compliance by AEMO during the Audit Period.
- AEMO’s market software systems, its processes for software management, and its general IT controls. It includes an assessment of whether:
 - AEMO maintains appropriate records
 - The software used by AEMO to implement its obligations under GSI Rules is compliant with the underlying mathematical formulations and the GSI Rules themselves.
 - AEMO has been compliant with its market systems certification obligations

The GSI Compliance Audit includes the following work streams:

- Compliance Assessment of:
 - Areas where we have noted breaches or non-compliance risk during past audits.
 - Areas that have changed or been introduced in the past Audit Period (e.g. in terms of rule changes, system changes, operational practice changes
 - AEMO’s self-reported instances of non-compliance with the GSI Rules
- Procedures Assessment of GSI Procedures and Internal Procedures that have changed during the Audit Period.
- Software Compliance Assessment. We reviewed the software used to meet obligations under the GSI Rules. In particular, we:
 - Reviewed AEMO’s Market Systems (used to implement GSI obligations), and in particular the nature of changes to the Gas Bulletin Board (GBB) software and GSI Fees tool to assess compliance with Part 1 Rule 19(1) of the GSI Rules
 - Reviewed AEMO’s software management processes.

1.4 AUDIT CRITERIA

1.4.1 Criteria for determining operational and procedural compliance

The criterion we have used for determining the compliance of AEMO’s GSI Procedures (referred to as the *GSI Procedures*) is the Gas Services Information Rules dated 1 March 2019 (referred to as the *GSI Rules*).

The criteria we have used for determining AEMO’s operational compliance and the compliance of AEMO’s Internal Procedures are the GSI Rules and the GSI Procedures.

1.4.2 Criteria for determining control application

When assessing whether AEMO has applied effective controls during the Audit Period we have used relevant Internal Procedure and Confluence Work Instruction documentation as our audit criteria. This includes the following:

Table 8: Procedures reviewed to assess control application

AEMO functional area	Procedures against which control application have has been assessed
Market Operations	Daily Operations Procedure Work Instructions
Finance	WEM and GSI Procedure
IT	IT Change Management Policy, Software Configuration Management Plan

Where AEMO does not have documented controls or procedures relating to a business process under review we have used best practice criteria for a prudent market operator. This includes:

- The use of automated/semi-automated tools to reduce risk of errors
- Use of automated alerts or calendar reminders
- Approval and authorisation processes
- Issue escalation processes
- Validation and review processes
- Exception reporting
- Practices at other market operators with which we are familiar.

1.5 APPROACH

1.5.1 Assurance

Our audit has been conducted in accordance with Australian Auditing and Assurance Standards Board’s *‘Framework for Assurance Engagements’*, ASAE 3000 *‘Assurance Engagements Other than Audits and Reviews of Financial Information’*.

- We provide reasonable assurance under this standard with respect to our review of AEMO’s software changes and the compliance of AEMO’s market software systems with the GSI Rules and GSI Procedures
- We provide limited assurance under this standard with respect to our review of:
 - AEMO’s compliance with the GSI Rules and GSI Procedures
 - AEMO’s software management processes and controls.

1.5.2 Risk ratings and materiality

Compliance and risk ratings

Audit findings are categorised as follows:

Table 9: Compliance and risk rating definitions

Compliance rating	Risk Rating
1: Instances of non-compliance with the GSI Rules	Critical: Potential for catastrophic impact on market or system operations or other market outcomes if not addressed immediately. Requires executive actions and monitoring at board level.
2: Findings that are not an instance of non-compliance, but pose compliance risk	Significant: Potential for major impact on market or system operations or other market outcomes if not addressed as a matter of priority. Requires senior management attention with regular monitoring at executive meetings.
3: Findings related to minor housekeeping issues that do not affect compliance risk	Medium: Potential for moderate impact on market or system operations or other market outcomes if not addressed within a reasonable timeframe. Requires management attention with regular monitoring.
	Low: Potential for minor impact on market or system operations or other market outcomes if not addressed in the future. Requires team level attention with regular monitoring.

Further information on risk and compliance ratings is provided in Appendix A.

Materiality (qualification of audit opinion)

In determining whether to qualify our opinion on whether AEMO has complied “in all material respects”, we have taken the following factors into account:

- Purpose and objectives of the market audit
- AEMO’s overall objectives
- AEMO’s risk matrix definitions of impact

- Financial impacts on Gas Market Participants
- The number of Gas Market Participants or other stakeholders affected
- The impact of an issue on market objectives such as transparency, equity and efficiency
- Whether or not an issue is systemic
- Whether or not an issue is recurring (from previous audits)

1.5.3 Audit activities

We have undertaken a combination of:

- Reviewing self-reported incidents of AEMO non-compliance with the GSI Rules and GSI Procedures
- Business process walkthroughs and interviews with staff to audit the application of operating controls and to determine the level of compliance risk associated with selected business processes.
- Reviewing AEMO’s GSI Procedures, Internal Procedures and IT Procedures to ensure GSI Rules changes and other changes (e.g. processes, systems, etc.) have been reflected in the procedures.
- Compliance testing to audit AEMO’s operational compliance with the GSI Rules and GSI Procedures and to determine the effectiveness of operating controls. In doing so, we have sourced information from all AEMO (WA) teams, with a particular emphasis on the market operations team.

The first two activities were conducted as part of our field visit in May 2018. Remaining activities (including review of self-reported incidents arising after our field visit) have been undertaken remotely.

Compliance testing and business process walkthroughs were focussed on a subset of functional areas based on residual compliance risk, materiality, and rule changes occurring in the Audit Period. These areas include:

Table 10: Audit focus areas

AEMO functional area	Focus area
Market Operations	Emergency Management Facility GSI fees invoicing
Finance	GSI Budget and fees

1.5.4 Inherent limitations

As in previous years, we note that there are limitations to any external audit. Audits are not an absolute guarantee of the truth or reliability of agency information or the effectiveness of internal controls. They may not identify all matters of significance. This is because external audit techniques involve:

- Professional judgement as to “good industry and market operational practice”
- The use of sample testing
- An assessment of the effectiveness of internal control structures and
- An assessment of risk.

A market audit does not guarantee every procedure and action carried out in the operation of the market in the audit report, nor does it examine all evidence and every transaction. However, our audit procedures should identify errors or omissions significant enough to adversely affect market outcomes.

Our opinion with respect to AEMO’s compliance with the GSI Rules and GSI Procedures is therefore subject to the following caveats:

- Our audit procedures did not include assessing irregularities such as fraudulent or illegal activities. As such, our audit should not be relied upon to disclose such irregularities. However, if we were to detect any fraudulent or illegal activity, we would report this to AEMO. No such findings have been made during this audit.
- Our audit is not designed to detect all weaknesses in control procedures as it is not performed continuously throughout the Audit Period and is performed on a sample basis.

1.6 STRUCTURE OF THIS REPORT

The remainder of this report is structured as follows:

- Chapters 2 to 11 present our audit findings relating to the Compliance Assessment and Procedures Assessment work streams on an GSI Rule Chapter by Chapter basis.
- Chapter 12 presents findings relating to AEMO’s GBB and GSI Fees software

1.7 ACKNOWLEDGMENTS

RBP would like to thank AEMO managers and staff who willingly provided information and shared in discussions with us while we carried out this audit.

2 PART 1 – INTRODUCTORY & ADMINISTRATIVE MATTERS

Part 1 of the GSI Rules sets out the Introduction to the GSI Rules and covers areas such as the objectives of the market, conventions and transitional arrangements.

2.1 RULE AMENDMENTS

There have been changes to Part 1 to remove references to the Independent Market Operator (IMO).

2.2 AEMO PROCEDURES

AEMO's GSI Procedures and Internal Procedures are compliant with Part 1 of the GSI Rules in all material respects.

2.3 OPERATIONAL COMPLIANCE WITH PART 1

We have not conducted any audit procedures to assess AEMO's compliance with Part 1 of the GSI Rules.

There have been no self-reported instances of non-compliance with Part 1.

3 PART 2 - REGISTRATION

Part 2 of the GSI Rules covers the registration of Gas Market Participants and facilities, including registration, deregistration, transfers, and exemptions.

3.1 RULE AMENDMENTS

There have been no changes to Part 2.

3.2 AEMO PROCEDURES

AEMO's GSI Procedures and Internal Procedures are compliant with Part 2 of the GSI Rules in all material respects.

3.3 OPERATIONAL COMPLIANCE WITH PART 2

We have not conducted any audit procedures to assess AEMO's compliance with Part 2 of the GSI Rules.

3.3.1 Audit findings

Instances of non-compliance and areas of compliance risk associated with Part 2 are summarised in the table below.

Table 11: Operational compliance findings associated with Part 4 of the GSI Rules

Ref	Issue Type & Obligation	Risk & Compliance Rating	Finding	Recommendation
19GSI1.06	<p>Issue Type AEMO reported non-compliance</p> <p>Obligation Rule 51(1)</p>	<p>Risk Rating Low</p> <p>Compliance Rating Level 1</p>	<p>Participant details updated incorrectly in GSI Register.</p> <p>In October 2018, a participant who was already registered as a Gas Shipper submitted forms to register a production facility and consequently also register themselves as a facility operator.</p> <p>During the Facility Operator registration process, due to human error, the participant's registration status was incorrectly changed to reflect that they were no longer a Gas Shipper. This error flowed into the GSI Register and GBB which were incorrect since 14 November 2018.</p> <p>The error was discovered on 30 April 2019 AEMO received an Aggregate Shipper Delivery submission from a pipeline operator indicating that the affected participant had shipped gas on their pipeline in Q1 2019, prompting AEMO to question why the participant was not registered as a Gas Shipper. The error was rectified thereafter.</p> <p>Note that this error was immaterial as:</p> <ul style="list-style-type: none"> • Registration categories are not used when deriving GSI invoice amounts which are calculated on the basis of data submitted by participants • Shippers do not submit any data for use in GBB reports; hence the removal of the participant as a Gas Shipper had no impact on GBB reports. <p>AEMO has since updated the GSI Register and GBB to correct the participant's registration status.</p>	No further action.

4 PART 3 – PROVISION OF INFORMATION FOR GBB

Part 3 of the GSI Rules deals with the GBB information requirements pertaining to Gas Market Participants and the various classes of Facilities.

4.1 RULE AMENDMENTS

There have been no amendments to Part 3.

4.2 AEMO PROCEDURES

AEMO's GSI Procedures and Internal Procedures are compliant with Part 3 of the GSI Rules in all material respects.

4.3 OPERATIONAL COMPLIANCE WITH PART 3

AEMO has limited obligations under Part 3; the obligations are all automated via the GBB which is independently tested and certified. Therefore, we have not conducted any audit procedures to assess AEMO's compliance with Part 3 of the GSI Rules.

There have been no self-reported instances of non-compliance with Part 3.

5 PART 4 – THE GAS BULLETIN BOARD

Part 4 of the GSI Rules describes the information that is required to be published on the Gas Bulletin Board.

5.1 RULE AMENDMENTS

GRC_2018_01 commenced on 1 March 2019 removing the specification of the GBB Zone list from the GSI Rules to a GSI Procedure so that changes to the list could be made without requiring a GSI Rule change.

5.2 AEMO PROCEDURES

AEMO's GSI Procedures and Internal Procedures are compliant with Part 4 of the GSI Rules in all material respects.

5.3 OPERATIONAL COMPLIANCE WITH PART 4

5.3.1 Audit activities

The nature of the rule change is such that no consequential changes were required to the GBB systems or BAU processes. Therefore, we have not conducted any audit procedures to assess AEMO's compliance with Part 4 of the GSI Rules.

There have been no self-reported instances of non-compliance with Part 4.

6 PART 5 – EMERGENCY MANAGEMENT FACILITY

Part 5 of the GSI Rules describes the operation of the Emergency Management Facility (EMF), the information that is to be published on the EMF, and the access requirements and limitations.

6.1 RULE AMENDMENTS

There have been no amendments to Part 5 of the GSI Rules.

6.2 AEMO PROCEDURES

AEMO's GSI Procedures and Internal Procedures are compliant with Part 5 of the GSI Rules in all material respects.

6.3 OPERATIONAL COMPLIANCE WITH PART 5

- There have been no activations of the EMF during the Audit Period.
- We reviewed Market Operations work instructions to assess whether an appropriate process and controls exist to manage AEMO's EMF obligations.

There have been no self-reported instances of non-compliance with Part 5.

Note, the Energy Coordinator has not directed an annual test activation of the EMF under Rule 93(7) since 30 May 2016. We note that without a direction from the Energy Coordinator, AEMO is unable to test the EMF.

7 PART 6 – THE GAS STATEMENT OF OPPORTUNITIES

Part 6 of the GSI Rules describes the high-level requirements for the publication and content of the Gas Statement of Opportunities (GSOO).

7.1 RULE AMENDMENTS

There have been no amendments to Part 6 of the GSI Rules.

7.2 AEMO PROCEDURES

AEMO's GSI Procedures and Internal Procedures are compliant with Part 6 of the GSI Rules in all material respects.

7.3 OPERATIONAL COMPLIANCE WITH PART 6

7.3.1 Audit activities

We have not conducted any audit procedures to assess AEMO's compliance with Part 6 of the GSI Rules

There have been no self-reported instances of non-compliance with Part 6.

8 PART 7 – BUDGET AND FEES

Part 7 of the GSI Rules covers AEMO’s allowable revenue, budget and fees.

8.1 RULE AMENDMENTS

Amendments to Part 7 include only transitional changes to remove references to the IMO.

8.2 AEMO PROCEDURES

AEMO’s GSI Procedures and Internal Procedures are compliant with Part 7 of the GSI Rules in all material respects.

8.3 OPERATIONAL COMPLIANCE WITH PART 7

8.3.1 Audit activities

- We conducted (retrospective) business process walkthroughs to determine whether AEMO has complied with the GSI Rules and its Internal Procedures and whether AEMO has applied appropriate controls in its preparation and publication of GSI budget and market fees.
- We reviewed AEMO’s website to assess whether key publications (budget, market fees, historical budget reports) have been published on time and contain the information required under the Rules.

8.3.2 Audit findings

Instances of non-compliance and areas of compliance risk associated with Part 7 are summarised in the table below.

Table 12: Operational compliance findings associated with Part 7 of the GSI Rules

Ref	Issue Type & Obligation	Risk & Compliance Ratings	Finding	Recommendation
19GSI1.02	Issue Type AEMO reported non-compliance Obligation Rule 116	Risk Rating Low Compliance Rating 1	Incorrect GSI invoices due to defect in GSI Fee Calculation Tool On 9 November 2018, a manifest error was discovered in the GSI Invoices issued. The error was a result of the GSI fees tool attributing the wrong signs to credits when generating invoices and summing quantities across periods. AEMO has since corrected this error in the GSI tool and addressed the invoicing errors via adjustments. We have sighted the fix and the calculation of the resulting adjustments.	No further action
19GSI1.03	Issue Type AEMO reported non-compliance Obligation Rule 108A(2)	Risk Rating Low Compliance Rating 1	Failure to submit proposal for GSI allowable revenue by deadline AEMO failed to file its AR5 submission for GSI by 30 November 2018. The error was related to the fact that the WEM AR5 submission had been extended to 15 March 2019 (to take into account the reform activity in progress). AEMO staff mistakenly assumed that the extension applied to the GSI submission, as had been done in 2015 given there are some AEMO costs (e.g. lease) that need to be split across WEM and GSI functions so makes sense to do the revenue submissions at the same time. The error was discovered in December 2018, at which point AEMO made the decision to delay the GSI AR5 submission and jointly submit with the WEM AR5. AEMO considered	No further action. However, see 19GSI1.05 recommendations about general controls to mitigate compliance risk.

Ref	Issue Type & Obligation	Risk & Compliance Ratings	Finding	Recommendation
			this to have minimal impact on stakeholders since if the ERA didn't make a GSI revenue determination before the start of the next regulatory period, the GSI Rules force a roll-over of the existing fee (Rule 108A(5)) and based on the preliminary information AEMO had at that time believed the existing fee would be sufficient to cover AEMO requirements in 2019/20 (with potentially some use of the 15% over spend allowance).	
19GSI1.04	Issue Type RBP reported non-compliance Obligation Rule 111A(1)(b)	Risk Rating Low Compliance Rating 1	Failure to publish historic financial report for financial year ending 2018 GSI Rule 111A(1)(b) requires AEMO to publish a historic financial report by 31 October showing AEMO's actual financial performance against budgeted financial performance for the previous financial year. AEMO published the historic financial report for the financial year ending 30 June 2018 six month late on 7 May 2019 (due to be published 31 October 2018). This is a recurring breach.	No further action. However, see 19GSI1.05 recommendations about general controls to mitigate compliance risk.
19GSI1.05	Issue Type RBP reported compliance risk Obligation N/A	Risk Rating Low Compliance Rating 2	Lack of formalised business processes and controls relating to WEM and GSI obligations The Finance team has no formalised processes in place to meet their obligations under the GSI Rules. The existing process documentation is extremely high level and reiterates GSI rule mandated timelines and selected obligations. While our interview with the Finance team indicated that there is some level of checking that occurs (e.g. to ensure that published outputs are correct), we only have the team's verbal assertion with no evidence that this occurs in practice.	We recommend: <ul style="list-style-type: none"> • Calendar alerts be instituted for key publication/submission deadlines such as budget, fees, historic financial reports and allowable revenue submissions. • The process for the above functions be documented including specification of key controls. As indicated above, a process for determining Declared Market Projects and GSI projects should be

Ref	Issue Type & Obligation	Risk & Compliance Ratings	Finding	Recommendation
			<p>Likewise, there are no formal controls in place to ensure that publication deadlines are met (e.g. calendar reminders). We further note that there has been a further breach of the requirement to publish historic WEM and GSI reports this year (see 19GSI1.04). This breach is a recurring one.</p> <p>During our interviews we also noted that the Finance team appeared to be unfamiliar with the term "Declared Market Project "and "GSI Project": this indicates that AEMO has no process in place to determine whether a project should be classified as a Declared Market Project or a GSI Project in accordance with the Rules.</p>	<p>included in the budget/Allowable Revenue process description</p>

9 PART 8 – RULE CHANGES

Part 8 of the GSI Rules details the process for making changes to the GSI Rules.

9.1 RULE AMENDMENTS

There have been no amendments to Part 8.

9.2 AEMO PROCEDURES

AEMO has no obligations under Part 8 of the GSI Rules. Therefore, AEMO has no procedures relating to Part 8.

9.3 OPERATIONAL COMPLIANCE WITH PART 8

As noted above, AEMO has no obligations under Part 8 of the GSI Rules. Therefore, we have conducted no audit activities in relation to Part 8.

10 PART 9 – GSI PROCEDURES

Part 9 of the GSI Rules details the process for developing and changing GSI Procedures.

10.1 RULE AMENDMENTS

There have been no amendments to Part 9.

10.2 AEMO PROCEDURES

AEMO's GSI Procedures and Internal Procedures are compliant with Part 9 of the GSI Rules in all material respects.

10.3 OPERATIONAL COMPLIANCE WITH PART 9

No procedure changes have been progressed or implemented during the Audit Period. Therefore, we have conducted no audit activities relating to Part 9.

There have been no self-reported instances of non-compliance with Part 9.

11 PART 10 – COMPLIANCE AND ENFORCEMENT

Part 10 of the GSI Rules describes the monitoring, investigating and enforcing compliance of Gas Market Participants with the GSI Rules and GSI Procedures. It also covers auditing of AEMO's own compliance.

11.1 RULE AMENDMENTS

There have been no amendments to Part 10.

11.2 AEMO PROCEDURES

AEMO's GSI Procedures and Internal Procedures are compliant with Part 10 of the GSI Rules in all material respects.

11.3 OPERATIONAL COMPLIANCE WITH PART 10.

We have conducted no audit activities relating to Part 10.

There have been no self-reported instances of non-compliance with Part 10.

12 GSI SYSTEMS AND IT CONTROLS

This chapter covers the compliance of AEMO's software systems for the GBB and GSI Fees calculations and software management processes with the GSI Rules and GSI Procedures, in accordance with rule 174(2)(c) of the GSI Rules.

- Section 12.1 sets out our review of AEMO's software systems for the GBB and the calculation of GSI Fees
- Section 12.2 sets out our review of AEMO's general IT controls, including processes for software management.

12.1 COMPLIANCE OF AEMO SOFTWARE

The software testing and certification process assesses whether the mathematical formulations specified in the GSI Rules and GSI Procedures have been correctly implemented by the software.

The software systems covered by this section of the review are:

- The Gas Bulletin Board (GBB)
- The GSI Fee Calculation Tool.

12.1.1 Certification of the GBB

The initial version of the GBB was certified in June 2013, prior to the official start of GBB operations on 1 August 2013. Since that time, a number of minor changes have been made to the GBB systems, none of which, in the IMO's or AEMO's opinion, required certifying under rule 19.

19 Certifying GBB software

(1) Subject to this rule, AEMO must ensure that any version of the GBB software used by AEMO has been certified as compliant with the Rules and Procedures by an independent auditor.

(2) AEMO may implement changes to the current version of the GBB software without obtaining certification under subrule (1) where AEMO considers that the change will not have a material impact on any one or more of the following:

(a) the provision of information to AEMO by Gas Market Participants under the Rules;

(b) the processing and publication of information on the GBB or the EMF; or

(c) the calculation and processing of GSI Invoices.

(3) Where AEMO considers that changes to the current version of the GBB software are urgently required and essential for the efficient operation of the GBB, AEMO may implement the changes to the current version of the GBB software prior to certification under subrule (1), and must obtain that certification as soon as practicable.

Details of production software changes made prior to this Audit Period are shown in Table 13. Releases with certification status of 'maintained' did not require additional testing, as they did not involve changes that would be expected to have material impact on prices or quantities.

Table 13: Previous production software changes

System	Version number	Release date	Material impact under 19(2)?	Certification status
GBB	1.0	01/08/2013	Yes	Certified
GBB	1.0.9	20/08/2013	No	Maintained
GBB	1.1.3	11/12/2013	No	Maintained
GBB	1.1.4	19/12/2013	No	Maintained
GBB	1.2.0	23/01/2014	No	Maintained
GBB	1.2.38	30/01/2014	No	Maintained
GBB	1.2-57.7	25/06/2014	No	Maintained
GBB	1.3-145	27/08/2014	No	Maintained
GBB	1.3-145-3	8/01/2015	No	Maintained
GBB	1.4-193	18/03/2015	No	Maintained
GBB	1.4-201	20/05/2015	No	Maintained
GBB	1.4-209-7	9/09/2015	No	Maintained
GBB	1.5-255-3	3/11/2015	No	Maintained

System	Version number	Release date	Material impact under 19(2)?	Certification status
GBB	1.6-289-4	29/11/2015	No	Maintained
GBB	1.6-289-7	30/03/2016	No	Maintained
GBB	1.7-303-6	21/06/2016	No	Maintained
GBB	1.8-316-4	7/11/2016	No	Maintained
GBB	1.9-329	15/11/2017	No	Maintained
GBB	1.9-331	12/01/2018	No	Maintained
GBB	1.9-333	13/02/2018	No	Maintained

For this audit, we reviewed the release notes for all changes made to the GBB during the Audit Period and assessed the changes in relation to rule 19(2) of the GSI Rules. In each case, we agreed with AEMO that certification was not required. The details of these changes are shown in Table 14.

Table 14: Changes to GBB systems in the Audit Period

System	Version number	Release date	Material impact under 19(2)?	Certification status	Comment
GBB	1.11-345	03/09/2018	No	Maintained	Changes to messages, terms of use information, disclaimer. Update to MOSMI alerts.

12.1.2 Certification of the GSI Fee Calculation Tool

While the GSI Fee Calculation Tool is not specifically required to be certified under the GSI Rules, the calculation of GSI Fees is a part of this compliance audit.

During the Audit Period, there have been a small number of minor changes to the GSI Fees tool as follows:

- Automation changes to address finding 17GSIAudit2.04 from the 2017 GSI Audit (relating to manual processes employed in the invoice creation process)

- Correction to address the bug associated with finding 19GSI1.02 (incorrect sign attributed to credits)
- Cosmetic changes to improve invoice formats and sorting of invoice summaries

We have reviewed the latest version of the GSI Fees tool³ and verified that the calculations are compliant with the GSI Rules. We have checked:

- The tool calculates the budget for the period (F(p)) as defined in GSI Rule 116(a).
- Shipper fees on the Shipper tab are calculated in accordance with GSI Rule 116(2)
- Producer fees on the Shipper tab are calculated in accordance with GSI Rule 116(3)
- The Invoice summary reads correct values from elsewhere in the tool.

The GSI Fees tool is compliant with the requirements of GSI Rule 116.

12.1.3 Compliance of GSI software with the GSI Rules

We have no audit findings to report with respect to the compliance of the GSI software with the GSI Rules.

12.2 SOFTWARE MANAGEMENT PROCESSES

Software management processes are also reviewed in the Electricity Compliance Audit. We carried out a single review covering both audits.

12.2.1 Audit activities

We reviewed AEMO's policies and procedures for:

- Business continuity
- Service management

We carried out compliance testing on:

- Release notes
- Service management records (including AEMO Jira and ServiceNow incident, problem, change and release records)

³ We audited the tools used to calculate initial invoices for Quarter 1 of 2019 (Jan-Mar) and adjustments for Quarter 3 of 2018.

12.2.2 Management of the GBB software

AEMO’s obligations in this regard are specified in rule 18(1) of the GSI Rules.

18(1) Where AEMO uses software (GBB software) and IT systems (GBB systems) to receive, store, collate and publish information for the operation of the GBB, AEMO must:

- (a) maintain a record of which version of GBB software was used at each point in time;
- (b) where changes are made to GBB software, maintain records of the differences between each version and the reasons for the changes between versions;
- (c) ensure that appropriate testing of new GBB software versions is conducted; and
- (d) ensure that any version of the GBB software used by AEMO has been certified in accordance with rule 19.

The changes made to the GBB during the Audit Period are listed in the Table 14 in the previous section.

12.3 AUDIT FINDINGS

There have been no self-reported or other instances of non-compliance with rule 18(1) of the GSI Rules.

12.3.1 Compliance of software management processes with the GSI Rules

AEMO's software management processes for the GBB remain sufficient to comply with the GSI Rules.

Table 15: Comment on AEMO’s compliance with rule 18(1) of the GSI Rules during the Audit Period

Clause	Comment on compliance
18(1)(a)	AEMO has maintained a record of all versions of market software used together with their dates in service, in the form of JIRA and ServiceNow records.
18(1) (b)	AEMO has maintained records of the differences between each version and the reasons for the differences, in the form of release notes and JIRA records.
18(1) (c)	AEMO has conducted appropriate testing of all new releases of the market software prior to their being placed in service.
18(1) (d)	AEMO has ensured that all software versions are covered by an independent certification prior to implementation where required.

13 APPENDIX – COMPLIANCE AND RISK RATINGS

This appendix contains information on the compliance and risk ratings used to classify audit findings. The only difference from AEMO’s internal ratings is that we assess the financial impact to market participants in addition to AEMO.

13.1 COMPLIANCE AND RISK RATINGS

Audit findings are categorised as follows:

Table 16: Compliance ratings

Compliance rating	Description
1	Instances of non-compliance with the GSI Rules
2	Findings that are not an instance of non-compliance, but pose compliance risk
3	Findings related to areas for improvement that do not affect compliance risk

Table 17: Risk ratings

Risk rating	Description
Critical	Potential for catastrophic impact on market or system operations or other market outcomes if not addressed immediately. Requires executive actions and monitoring at board level.
High	Potential for major impact on market or system operations or other market outcomes if not addressed as a matter of priority. Requires senior management attention with regular monitoring at executive meetings.
Medium	Potential for moderate impact on market or system operations or other market outcomes if not addressed within a reasonable timeframe. Requires management attention with regular monitoring.
Low	Potential for minor impact on market or system operations or other market outcomes if not addressed in the future. Requires team level attention with regular monitoring.

Table 18: Risk rating matrix

		CONSEQUENCE				
		<i>Immaterial</i>	<i>Minor</i>	<i>Moderate</i>	<i>Major</i>	<i>Extreme</i>
LIKELIHOOD	<i>Almost Certain</i>	Medium	Medium	High	Critical	Critical
	<i>Likely</i>	Low	Medium	High	Critical	Critical
	<i>Possible</i>	Low	Medium	High	High	Critical
	<i>Unlikely</i>	Low	Low	Medium	Medium	High
	<i>Rare</i>	Low	Low	Medium	Medium	High

AEMO’s definitions of likelihood and consequence are provided in the sections below.

13.2 AEMO LIKELIHOOD RATINGS

LIKELIHOOD	ANNUAL PROBABILITY	QUALITATIVE DESCRIPTION
Almost Certain	>90%	Will occur in most circumstances; statistical record of several occurrences
Likely	51% - 90%	Can be expected to occur in most circumstances; statistical record of multiple occurrences
Possible	11% - 50%	May occur, but not expected in most circumstances; statistical record of a few occurrence
Unlikely	1% - 10%	Conceivable but unlikely to occur in any given year; statistical record of at least one occurrence
Rare	<1%	Will only occur in exceptional circumstances; no history of occurrence

13.3 AEMO IMPACT RATINGS

AEMO’s impact rating matrix is provided below. When assessing the financial impact of non-compliance and risk on market participants, we have used the Financial (AEMO) category below as a guideline to assign risk ratings.

<i>Consequence</i>	<i>Reputation and Stakeholders</i>	<i>Financial (AEMO)</i>	<i>Safety</i>	<i>Environment</i>	<i>Market & System Impact</i>	<i>Legal & Compliance</i>
<i>Extreme</i>	<ul style="list-style-type: none"> Significant long term damage to stakeholder and public confidence and relationships. Continued adverse media exposure. Significant financial impact drives participant(s) towards insolvency. 	> \$25M	<ul style="list-style-type: none"> Single fatality or permanent injury or multiple notifiable injuries. 	<ul style="list-style-type: none"> Major environmental harm. e.g. major pollution incident causing significant damage or potential to health or the environment; and/or Fines and prosecution likely. 	<ul style="list-style-type: none"> Involuntary disruption of supply to a state(s) for any duration. Market suspension in multiple jurisdictions or markets. 	<ul style="list-style-type: none"> Corporate fine > \$1M. Imprisonment or fine for personal liability to Officer or Director. Regulatory action likely. Litigation involving Class actions.
<i>Major</i>	<ul style="list-style-type: none"> Significant short term damage to stakeholder confidence and relationships. Some loss of public confidence. Short term adverse media exposure. Significant financial impact on participant(s). 	\$5M - \$25M	<ul style="list-style-type: none"> Notifiable injury requiring hospitalisation > 5 days (incapacity beyond 3 months). 	<ul style="list-style-type: none"> Long term or serious environmental damage; and/or Multiple complaints received; and/or Potential for prosecution. 	<ul style="list-style-type: none"> Involuntary disruption of supply to a large portion of a state, for any duration. Market suspension in one jurisdiction or market. 	<ul style="list-style-type: none"> Corporate fine \$100K > \$1M. Fine for personal liability to officer or director. Likely investigation by a Regulator. Litigation involving protracted Court actions possible.
<i>Moderate</i>	<ul style="list-style-type: none"> Some damage to stakeholder confidence and relationships. Some adverse media exposure. Adverse financial impact on participant(s). 	\$500K- \$5M	<ul style="list-style-type: none"> Injury requiring < 5 days hospitalisation or increased level of medical treatment (6 days to 3 months incapacity). 	<ul style="list-style-type: none"> Moderate environmental impact; and/or Will cause complaints; and/or Possible fine. 	<ul style="list-style-type: none"> Market(s) operating in administered state, but not suspended. 	<ul style="list-style-type: none"> Corporate fine with no personal liability to Officer or Director. Likely to give rise to questions from a Regulator. Possible dispute resolution process*.
<i>Minor</i>	<ul style="list-style-type: none"> Manageable reduction in stakeholder confidence. Limited media exposure. Little to no financial impact on participant(s). 	\$100k - \$500K	<ul style="list-style-type: none"> Routine medical treatment only (up to 5 days incapacity). 	<ul style="list-style-type: none"> Minor environmental harm; and/or Potential for complaints; and/or Fine unlikely. 		<ul style="list-style-type: none"> Compliance breach with no penalties. Regulator attention, litigation or dispute resolution* unlikely.
<i>Immaterial</i>	<ul style="list-style-type: none"> No reduction in stakeholder confidence. No media exposure. No financial impact on participant(s). 	< \$100K	<ul style="list-style-type: none"> First aid. 	<ul style="list-style-type: none"> Little or no environmental harm; and/or No fines or complaints. 		<ul style="list-style-type: none"> No breach or minor technical breach of compliance obligation. No reasonable prospect of regulatory attention, litigation or dispute resolution.