



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). The audit assesses AEMO's compliance with the Gas Services Information (GSI) Rules and GSI Procedures for the period 1 July 2019 to 30 June 2020.

REGULATORY CONTEXT AND SCOPE

Regulatory context

The regulatory context for the audit is summarised in Table 1.

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.

KEY THEMES AND FINDINGS

Extensive automation means GSI obligations are well-controlled

AEMO uses automated software to implement most of its GSI obligations. The alleged breaches self-reported by AEMO relate to the remaining manual activities. No new findings have been reported by RBP.

The extensive automation and the pre-existing ability of AEMO staff to access systems remotely has meant that remote working conditions during Covid-19 lockdown have not materially impacted on AEMO's day to day GSI operations.

Strong compliance culture and accountability prevalent across AEMO

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

This is supported by the following:

- Audit findings from previous years have been consistently addressed and closed. One open finding from last year's audit and both new findings from this year's audit have already been closed - see Table 3Table 3There have been two new findings this year both of which are self-reported and minor in nature.
- Our interviews and walkthroughs have indicated that AEMO teams continue to maintain a strong compliance culture and apply effective controls to manage compliance risk.
- AEMO teams continue to be proactive in self-reporting breaches and managing compliance risk. For example, the GSI Rules require the Energy Coordinator to trigger a test of the Emergency Management Facility (EMF) by directing a test activation on an annual basis. In the previous audit we noted that such an activation has not been received since May 2016, and while this was not an AEMO breach, this was a gap. AEMO has since proactively

conducted internal testing of the activation of the EMF during the audit year to ensure the procedures and systems are robust.

Summary

We have historically consistently noted small numbers of findings of low risk with the GSI audit. The number of findings reported in the current audit year (2 findings) has decreased compared with the 2018/19 audit (5 findings) and the 2017/18 audit (5 findings).

Table 2: Audit findings summary by risk rating: 2017/18, 2018/19 and 2019/20.

Risk Rating	2017/18	2018/19	2019/20			
	Total	Total	Total	Breaches ¹ - reported by		Control Observations ²
				AEMO	RBP	
High	0	0	0	0	0	0
Medium	0	0	0	0	0	0
Low	3	5	2	2	0	0
Totals	5	5	2	2	0	0

Table 3: Audit findings at start and end of Audit Period by closed/open status

Finding status	Risk Rating			Total
	High	Medium	Low	
Open @ 01/07/2019	0	0	1	1
Add: new findings (01/07/19 – 30/06/20)	0	0	2	2
Less: closed findings (01/07/19 – 30/06/20)	0	0	3	3
Open @ 01/07/2020	0	0	0	0
<i>Prior year findings</i>	0	0	0	0
<i>Current year findings</i>	0	0	0	0

¹ Findings that are instances of non-compliance with the WEM Rules

² Findings that are not instances of non-compliance with the WEM Rules, but which pose compliance risk (Rating 2) or are opportunities for improvement which do not affect compliance risk (Rating 3)

Figure 1: Audit findings summary by risk rating and finding type (2017/18 - 2019/20)

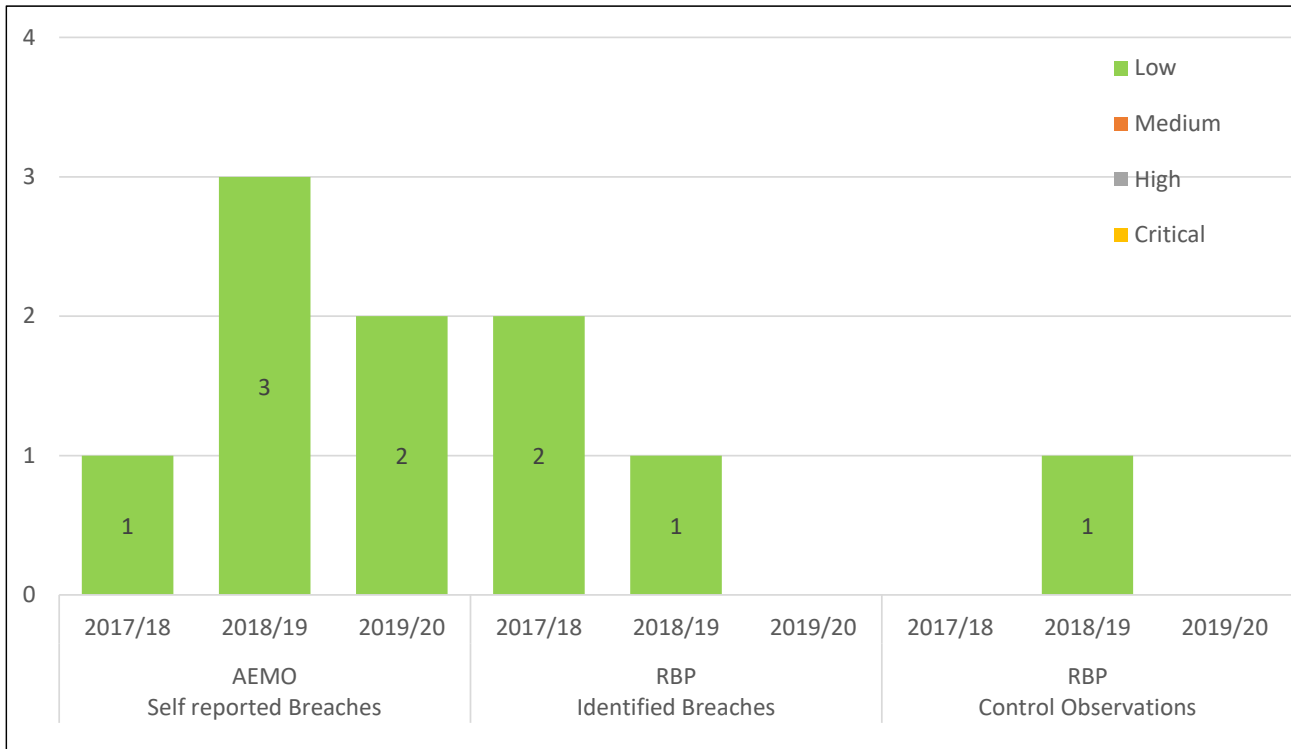


Table 4: Summary of audit findings identified by RBP during the current audit period 2019/20

Process	Finding Type	Risk Rating	Ref#	Findings
There were no audit findings identified by RBP during the current audit period.				

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 the detailed audit report, 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 the detailed audit report, 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 market 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 2019 to 30 June 2020, 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 5: Regulatory context for the market audit³

GSI 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 market audit is to assess:

³ 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 market 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 6: 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 Internal Procedure: Fees
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 7: 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	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.
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 via screensharing and teleconferencing facilities in May 2020. Remaining activities 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 8: 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 no changes to Part 1.

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

Ref	Issue Type & Obligation	Risk & Compliance Rating	Finding	Recommendation
20GSI1.01	<p>Issue Type AEMO reported non-compliance</p> <p>Obligation Rule 51(1) and 51(4)</p>	<p>Risk Rating Low</p> <p>Compliance Rating Level 1</p>	<p>Failure to amend GSI Register and publish notice of change.</p> <p>Clause 51(1) of the GSI Rules requires AEMO to maintain and publish an up to date GSI Register on the GSI Website.</p> <p>Clause 51(4) of the GSI Rules requires AEMO to publish a notice on the GSI Website whenever the GSI Register is changed.</p> <p>A participant was due to become a registered Participant during the audit year, and notified AEMO that it had begun market participation activities since before its intended registration date. AEMO failed to update the GSI Register to reflect this information and did not publish a notice on the GSI website in a timely manner. The failure to amend the GSI register is a breach of clause 51(1), while the failure to publish a notice of change is a breach of rule 51(4).</p> <p>AEMO is considering the automation of the GSI Register to remediate this finding. In the meantime we note that AEMO's existing controls as documented in Work Instructions are adequate to reduce the residual risk of this type of issue to immaterial.</p>	<p>No further action. AEMO has remediated the issue.</p>

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

There have been no changes to Part 4.

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

GBB processes under Part 4 are largely automated. We have additionally reviewed AEMO's internal procedures and work instructions to verify controls exist to mitigate errors arising during day to day activities.

We have also interviewed AEMO staff to understand the potential impact of Covid-19 remote working arrangements on GBB operations. Given the automated nature of most processes, coupled with the fact that AEMO already had facilities to conduct these processes remotely (e.g. for staff working weekends) means that the transition to Covid-19 working arrangements has been smooth.

5.3.2 Audit findings

Instances of non-compliance and areas of compliance risk associated with Part 4 are summarised in the table below.

Table 10: Operational compliance findings associated with Part 4 of the GSI Rules

Ref	Issue Type & Obligation	Risk & Compliance Rating	Finding	Recommendation
20GSI1.02	<p>Issue Type AEMO reported non-compliance</p> <p>Obligation 88(1), Step 4.3.5 of the GSI Procedure: Operations of the GBB and EMF</p>	<p>Risk Rating Low</p> <p>Compliance Rating Level 1</p>	<p>Large User Consumption Report published too early.</p> <p>Step 4.3.5 of the Gas Services Information Procedure: Operations of the Gas Bulletin Board (WA) and the Emergency Management Facility requires AEMO to publish the Large User Consumption Report on Gas Day D+7.</p> <p>On 30/07/2019, following an error discovered with participant provided data, the AEMO operator updated and published the Actual Flows, End User Consumption, and Large User Consumption Reports for Gas Day 28/07/2019 on the GBB(WA) website with updated user consumption data. However, only the Actual Flows and End User consumption reports should have been published in accordance with 4.3.5. The Large User Report for 28/07/2019 was published on 30/07/2019; however, it should have only been published on D+7, not D+2.</p> <p>There was minimal impact as AEMO remediated this by removing the Large User Consumption report.</p> <p>AEMO has since updated the relevant work instruction to make clear what reports should be re-generated following similar incidents.</p>	<p>No further action. Breach caused by human error, and existing controls mitigate risk sufficiently.</p>

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. However, AEMO has proactively conducted internal testing in March 2020 to review the procedure and test the activation within a GBB Test Environment.

This included:

- Reviewing the EMF Activation Work Instruction, including authorities to activate, escalation protocol, processes, record-keeping and documentation requirements, etc.
- Activating the EMF within a Test Environment.
- Uploading documentation within a Test Environment.
- Reviewing processes for authorisation of Users and creation of new Users during an EMF Activation within the Test Environment.

We have reviewed screenshots of AEMO's tests to verify they were conducted.

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

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

There have been no amendments to Part 7.

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 conducted a walkthrough of AEMO's centralised budget planning tool to ensure AEMO's 2020/21 budget is aligned to the relevant allowable revenue submission and consistent with what has been published.
- 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.
- We reviewed AEMO's fees tool to ensure the GSI fee base for the 2019/20 year has been set correctly.

We have no instances of non-compliance to report with Part 7. Additionally, there have been no instances of self-reported non-compliance with Part 2.

One finding from the 2018/19 audit period, which was open at the start of the audit period, but closed subsequently is summarised below.

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

Ref	Issue Type & Obligation	Risk & Compliance Rating	Finding	Recommendation
19GSI1.05	<p>Issue Type RBP reported compliance risk</p> <p>Obligation Part 7</p>	<p>Risk Rating Low</p> <p>Compliance Rating Level 2</p>	<p>Lack of formalised business processes and controls relating to WEM and GSI obligations.</p> <p>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.</p> <p>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.</p> <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 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>We recommend:</p> <ol style="list-style-type: none"> 1. Calendar alerts be instituted for key publication/submission deadlines such as budget, fees, historic financial reports, and allowable revenue submissions as well as reminders for monthly interest payments. 	No further action.

Ref	Issue Type & Obligation	Risk & Compliance Rating	Finding	Recommendation
			<p>2. 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 included in the budget/Allowable Revenue process description. See Example controls for finance worksheet for examples of controls we expect to see in this area.</p> <p>Finding is closed. AEMO has provided us evidence of controls being applied for 19/20 budget cycle in the form of:</p> <ul style="list-style-type: none"> a) Documented key dates to manage statutory timelines b) Generic AEMO wide budgeting (accounting) guidelines c) Evidence that market fee calculations were conducted correctly d) Checks were undertaken to ensure the 19/20 budget was aligned with the relevant allowable revenue submission. 	

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 12. 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 12: 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
GBB	1.11-345	03/09/2018	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. For the 2019-2020 audit year, there were no changes to the GBB.

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.

There have been changes to the GSI Fees tool since the previous Audit Period.

We have reviewed the latest version of the GSI Fees tool⁴ 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.

⁴ We audited the tools used to calculate initial invoices for Quarter 1 of 2020 (Jan-Mar) and adjustments for Quarter 1 of 2019.

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)

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.

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 13: 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 14: 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 15: 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 16: 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.