



# INDEPENDENT MARKET OPERATOR

Independent Assurance Report:  
Compliance of System Management with  
the Market Rules and Market Procedures

## FINAL REPORT

4 November 2015

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# EXECUTIVE SUMMARY

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This independent assurance report sets out the results of the market audit by PA Consulting Group assessing System Management's compliance with the Wholesale Electricity Market Rules (Electricity Rules) and Market Procedures<sup>1</sup>.

## Scope

This market audit has been carried out under Electricity Rule 2.14.6 which requires that:

*In accordance with the Monitoring Protocol, the IMO must at least annually, and may more frequently where it reasonably considers that System Management may not be complying with the Market Rules and Market Procedures:*

- a. *require System Management to demonstrate compliance with the Market Rules and Market Procedures by providing such records as are required to be kept under these Market Rules or any Market Procedure; or*
- b. *subject System Management to an audit by the Market Auditor to verify compliance with the Market Rules and Market Procedures.*

This year's market audit has taken the form of an "incremental" audit. We have examined those aspects of the Electricity Rules and Market Procedures and System Management's internal processes where:

- Clauses in the Electricity Rules are new or amended since last year's annual audit.
- Previous audits, our assessment of SM's documented procedures, and SM's internal compliance processes have indicated non-compliance risk
- There have been substantive systems or resourcing changes
- Internal procedures are new or updated since last year's annual audit

That is, we have looked at areas that have changed (or should have changed) since last year's annual audit.

There have been no changes to the Electricity Rules that impact on System Management. As such our audit has focussed on the last three bullet points.

## Audit period

The period covered by the audit is 1 August 2014 to 31 July 2015.

## Approach

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' and provides limited assurance under this standard.

To provide limited assurance under ASAE 3000 we have:

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<sup>1</sup> For avoidance of doubt, the term Market Procedure includes System Management's Power System Operation Procedure.

1. Undertaken a risk assessment to determine which business function areas we will focus on.
2. Sought evidence that System Management is performing those business functions so as to comply with the Electricity Rules and Market Procedures. To obtain this evidence we have performed a variety of audit procedures<sup>2</sup> including sample-based compliance testing and business process walkthroughs.

## Summary of non-compliance incidents

Table 1 summarises the incidents of non-compliance by clauses breached:

- We have flagged clauses that have been breached multiple times
- Breaches that have been self-reported by SM or reported by IMO are flagged as such.
- All other breaches were identified as part of the audit process

Three areas of non-compliance that we have noted recurring since previous audits are particularly important, as they relate to System Management's (SM's) core market roles: implementing market dispatch, and developing and publishing critical market information.

- We have noted multiple breaches relating to SM dispatch not being in accordance with the LFAS merit order and erroneous LFAS data provided to the IMO. We note, however, that SM has recently made improvements to their tools to enable ex-post detection of LFAS non-compliance or errors in LFAS settlement data.
- The IMO has reported seven incidents where SM has incorrectly dispatched facilities out of merit. The processes around out of merit dispatch are manual; this combined with the low level of staffing in the control room means future breaches are likely. Given the potential financial impacts on the market of incorrect out of merit dispatch, SM should investigate means of making the dispatch process more transparent and of reducing the risk of manual error<sup>3</sup>.
- The remaining material breaches relate to provision of information to the market, and particularly in relation to dispatch advisories provided either late, or not at all. While the vast majority of information is provided to the market without incident, SM's role as the sole provider of near-real-time information to market participants means that if it does not provide information, or provides it late, participants will not have a full set of information on which to base their market decisions. The current dispatch advisory mechanism may not be the most efficient way to provide the necessary information to the market, and we recommend investigation of alternate approaches to more effectively share SM's view of likely future dispatch with the market<sup>4</sup>. We note that last year SM presented a paper to the Market Advisory Council (MAC) setting out options for publishing forecast dispatch plans so as to meet some of the requirements of clause 7.11.6. However, as noted in footnote 3, there has been limited opportunity for SM to make large scale changes to its systems or processes

**Table 1: Summary of incidents of non-compliance by clause breached.**

Chapter	Clauses breached	Materiality	Description
3	3.11.13 (self-reported)	Non-material	Failure to have the annual ancillary service report approved by the IMO by 1 July 2015. This report was subsequently approved in August 2015

<sup>2</sup> We performed one site visit in August 2015 over a period of two weeks.

<sup>3</sup> We note that the on-going Electricity Market Review (EMR) and the resulting uncertainty about the future has meant that there has been limited opportunity for SM to make large scale changes to its systems or processes.

<sup>4</sup> See Chapter 8 for our recommendations in this area.

Chapter	Clauses breached	Materiality	Description
	3.11.14	Non-material	Failure to document the procedure for determining Ancillary service requirements in the PSOP. We note, however, that the 2015 Ancillary Services report contains more information on the derivation of the LFAS requirement than what was provided in previous years.
	3.16.9 (self-reported)	Non-material	Failure to send MT PASA report to IMO on time
	3.21A.9 (2 self-reported breaches)	Non-material (2)	Failure to notify market participants of approval to commissioning test plans by 8am on the Scheduling Day
	3.22.3	Material	Failure to send correct monthly ancillary services payment data to IMO for settlement
7	7.2.3B (self-reported)	Non-material	Failure to send IMO load forecast information on time
	7.5.2 (23 self-reported breaches)	Non-material	Failure to confirm receipt of Non-Balancing Dispatch Merit Orders and Fuel Declarations from IMO
	7.6.1C (7 breaches reported by IMO; 2 incidents are outside audit period) <ul style="list-style-type: none"> <li>• Five related breaches of MR 7.6.1D</li> <li>• One related breach of MR 7.7.6B(b)</li> </ul>	Non-material (1) Material (5) Potentially material (1)	Incorrect out-of-merit dispatch of facilities
	7.6.2, 7.13.1(a) (multiple non-material breaches)	Non-material	Failure to provide records of dispatch orders to the IMO
	7.6A.2(b) (self-reported)	Non-material	Failure to send demand forecast to Synergy on time
	7.10.7(a) (multiple non-material breaches)	Non-material	Failure to provide full participant dispatch non-compliance information to the IMO
	7.11.3 (44 breaches)	Non-material (15) Material (29)	Failure to issue DAs “as soon as practicable after System Management becomes aware of a situation requiring the release of a Dispatch Advisory
	7.11.5(d) (3 breaches)	Material (3)	Failure to issue Dispatch Advisories when significant outages of generation transmission or customer equipment are occurring or expected to occur
	7.11.5(g) (2 breaches reported by IMO)	Material (2)	Failure to issue Dispatch Advisories when SM expects out-of-merit dispatch
	7.11.6 (6 breaches)	Non-material (1) Material (5)	Failure to include particular information in Dispatch Advisories
	7.11.6A (3 breaches)	Non-material (2) Material (1)	Failure to name facility on Dispatch Advisory

Chapter	Clauses breached	Materiality	Description
	7.13.1 (c), 7.13.1(e), 7.13.1(eC) (multiple breaches)	Non-material (1) Material (3)	Incorrect LFAS enablement data provided to IMO
7A	7A.3.15 (material breaches in ~3% of trading intervals in audit period)	Material	Failure to provide IMO with best estimate load forecast
7B	7B.1.4 (self-reported)	Non-material	Failure to provide LFAS quantity forecasts by 12pm
	7B.3.6 (Breaches in multiple intervals over 63 days)	Material	Failure to use facilities for LFAS in accordance with the selection information provided by the IMO

## Additional comments on areas of compliance risk

Compliance self-reporting practices still appear to be robust, with staff proactively notifying potential compliance issues, but nevertheless not all issues are noted by staff.

During this year's audit, we noted that areas of compliance risk that we noted last year still continue to be a concern.

### Level of system operator staffing remains a compliance risk

We note that the level of staffing in SM is low compared with the staffing levels of comparable system operators. The low staffing levels are of particular concern in the control room where there is only one controller on shift (with two shifts per day). This practice is not consistent with the practice of comparable system operators internationally and is an area of significant compliance risk in our view. Specifically:

- In high-risk or emergency situations it can be challenging for a single controller handle both security and dispatch creating scope for non-compliance. Such scenarios are likely to arise during summer peak intervals and carry with them high risk of dispatch non-compliance and/or non-compliance with power system security obligations.
- The timeliness issues around dispatch advisories is related, in part, to a single controller being on shift. The controller may be too occupied with security and dispatch issues to notify market operations staff of the need to issue an advisory.
- In the event that a controller becomes incapable carrying out their duties (e.g. due to sickness or other unforeseen circumstances), the control desk may remain unattended until a replacement controller arrives to take over the shift<sup>5</sup>.

We recommend that SM immediately increase the level of staffing in the control room to two controllers: one responsible for security and the other for scheduling and dispatch.

### There is opportunity to improve governance of processes

We have noted areas where general governance and management of processes used to implement material obligations can be improved. For example:

<sup>5</sup> In the interim network operators may be able to provide some level of coverage until a replacement controller arrived. However, this interim relief would depend on the network operator's skillset; in particular the network operator would need system operations experience which is not the same as network operations experience.

- The sparse level of process documentation continues to be an area of compliance risk. We note that the governance and ownership issues we noted in last year's audit with respect to Control Room Instructions (CRIs) are yet to be resolved. Additionally, material obligations implemented by the planning team (around outage planning, commissioning, dispatch planning, forecasting) is undocumented. We understand that SM has made some progress in terms of developing a SM-specific emergency management framework and setting up a document management framework. SM has also engaged a contractor to write-up the emergency management procedures and Control Room Instructions.
- There are opportunities to improve the level of audit trail for some business processes. For example::
  - SM's assessment and approval of commissioning test plans (see Chapter 4).
  - SM's outage planning processes; particularly network outage planning (see Chapter 4).
  - Control room activities; the current level of audit trail makes it particularly difficult to determine SM's basis for out of merit dispatch and declaration of high-risk or emergency operating states; both of these areas are of material importance to the market (see Chapter 8).
- Simple controls can be introduced in a number of areas to avoid recurring incidents of non-compliance that we have noted over previous audits. For example:
  - Checklists can be used for daily activities (including formal delegation of tasks to specific team members to ensure accountability). This will reduce the likelihood of incidents such as the breaches of clauses 7.13.1(c) and 7.6A.2(b) noted in Chapter 8 recurring where information was not sent out due to an oversight.
  - Controls in spreadsheet tools can be strengthened by automating content insofar as possible or introducing validation controls to detect errors.

## **There are boundary issues between Western Power and System Management**

Last year we noted that interactions between SM and other parts of Western Power had changed as a result of organisational restructuring and that the organisation is still working through the process of defining how parties will interact across the ring-fence, and in some areas, the appropriate level of oversight and authority to be exercised by SM.

This year we have noted three areas of boundary related compliance risk where Network Operations staff implement obligations that are the responsibility of SM:

- Networks Operations staff continue to undertake the rule prescribed risk assessment (clauses 3.18.10, 3.19.3) for network outages albeit in consultation with SM staff<sup>6</sup>.
- The security assessments used by the control to place security constraints in RTDE are undertaken by Network Operations staff in consultation with the controller (see also Chapter 8).
- The network aspects of system monitoring required to monitor the system state as defined in clauses 3.3.1, 3.4.1 and 3.5.1 (e.g. overloading of transmission lines, voltage issues, circuit issues) is also undertaken by Network Operations staff (see also Chapter 8).

## **IT Service Level Agreements between SM and Western Power are yet to be implemented**

We have recommended in previous audits that SM should define a robust Service Level Agreement (SLA) for system support (including target response and resolution times) to ensure that the critical real-time nature of these systems is embedded in support processes. Since the last audit SM has undertaken a comparative review of Western Power SLAs against its own requirements with a view to

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<sup>6</sup> We do not deem this to be a breach as we are satisfied that SM has delegated this responsibility to Network Operations staff under clause 2.2.3 of the Electricity Rules.

identifying gaps (i.e. SLAs required by SM over and above what is provided). However, no progress has been made in terms of formally establishing the SLAs.

## Opinion on System Management's compliance with the Wholesale Electricity Market Rules and Market Procedures

Our opinion is as follows and is subject to the inherent limitations and qualifications set out in Section 1.3.3:

- System Management has been materially non-compliant with its obligation to provide monthly ancillary services payment data to IMO under Electricity Rule 3.22.3 as set out in Table 3.
- System Management has been materially non-compliant with some of its obligations in respect of issuing Dispatch Advisories, specifically Electricity Rule 7.11.3, 7.11.5(d), and 7.11.6, as set out in Table 4.
- System Management has been materially non-compliant with its obligation to dispatch facilities in accordance with the Dispatch Criteria set out in Electricity Rule 7.6.1C and 7.6.1D as set out in Table 4.
- System Management has been materially non-compliant with its obligation to provide LFAS enablement data to the IMO under Electricity Rules 7.13.1C(e) and 7.13.1C(ef) as set out in Table 4.
- System Management has been materially non-compliant with its obligation in respect of providing load forecasts to the IMO under Electricity Rule 7A.3.15 as set out in Table 5.
- In multiple trading intervals, System Management has been materially non-compliant with its obligation to use facilities for LFAS in accordance with the selection information provided by the IMO, as set out in Table 6.
- We have not observed anything else that causes us to believe that System Management has not been compliant with the Electricity Rules and Market Procedures during the Audit Period, in all material respects.

### PA Consulting Group



Stephen James Thornton  
Member of PA's Management Group  
1 October 2015

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# 1 INTRODUCTION

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This independent assurance report sets out the results of the market audit by PA Consulting Group in carrying out its assessment of System Management's compliance with the Wholesale Electricity Market Rules (Electricity Rules) and Market Procedures.

## 1.1 Scope of the market audit

This market audit has been carried out under Electricity Rule 2.14.6, which requires that:

*In accordance with the Monitoring Protocol, the IMO must at least annually, and may more frequently where it reasonably considers that System Management may not be complying with the Market Rules and Market Procedures:*

- a. *require System Management to demonstrate compliance with the Market Rules and Market Procedures by providing such records as are required to be kept under these Market Rules or any Market Procedure; or*
- b. *subject System Management to an audit by the Market Auditor to verify compliance with the Market Rules and Market Procedures.*

## 1.2 Audit Period

The period covered by the audit is 1 August 2014 to 31 July 2015.

## 1.3 Market audit process

### 1.3.1 Audit approach

This year's market audit of System Management (SM) has taken the form of an "incremental" audit. This means we have focussed on System Management business processes and procedures where:

- Clauses in the Electricity Rules are new or amended since last year's annual audit
- Previous audits, our assessment of SM's documented procedures, and SM's internal compliance processes have indicated non-compliance risk
- There have been substantive systems or resourcing changes
- Internal procedures are new or updated since last year's annual audit

That is, we have looked at areas that have changed (or should have changed) since last year's annual audit.

There have been no changes to the Electricity Rules that impact on System Management. As such our audit has focussed on the last three bullet points.

In conducting the market audit on the compliance of System Management with the Electricity Rules and Market Procedures, PA has:

1. Ensured that it is up to date with its understanding of the Electricity Rules.

2. Identified new or amended obligations placed on System Management by changes to the Electricity Rules that came into force between 1 August 2014 and 31 July 2015 (as noted above, we have identified no new or amended obligations placed on System Management).
3. Mapped those obligations identified in step 2 to the applicable Internal Procedures and sections of the Power System Operation Procedure
4. Undertaken a risk assessment to determine which business function areas we will focus on. In practice this has meant:
  - a. Identifying System Management business functions that relate to areas of non-compliance identified in the previous market audit
  - b. Identifying System Management business functions that we deem to be subject to high compliance risk (as a result of discussions with IMO or System Management staff or as a result of audit procedures that we have conducted).
5. Sought evidence that System Management is performing those business functions so as to comply with the Electricity Rules and Market Procedures. To obtain this evidence we have performed a variety of audit procedures<sup>7</sup> including:
  - a. Compliance testing of rules obligations based on our risk assessment. This involves requesting data, information and meetings (e.g. market data, reports, emails, system logs, system sighting requests, observing System Management staff perform rule mandated activities, etc.) to determine whether System Management has been operationally compliant with its obligations.
  - b. Business process walkthroughs and interviews with respect to selected business functions to:
    - i. Review whether System Management implements its obligations in accordance with the Electricity Rules, the Power System Operating Procedure and Internal Procedures
    - ii. Assess whether System Management applies adequate controls to manage compliance risk.
6. Held discussions with System Management managers and staff to clarify issues identified.
7. Prepared a draft report setting out our findings followed by a final report.

### **1.3.2 Alignment to ASAE 3000 standard**

Our process was designed to provide limited assurance as defined by the Australian Auditing and Assurance Standards Board's '*Framework for Assurance Engagements*', ASAE 3000 '*Assurance Engagements Other than Audits and Reviews of Financial Information*'.

### **1.3.3 Inherent limitations and qualifications**

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.

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<sup>7</sup> We performed one site visit in August 2015 over a period of two weeks.

A market audit does not guarantee every procedure and action carried out in the operation of the electricity 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 the decisions of market participants.

Our opinion with respect to System Management's compliance with the Electricity Rules and Market Procedures are therefore subject to the following caveats:

1. 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, in the event that we were to detect any fraudulent or illegal activity, we would report this to the IMO or System Management. No such findings have been made during this audit.
2. 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. Specifically, our business process reviews assessing the use of controls were undertaken after the end of the audit year. As such:
  - a. Although our findings are indicative of System Management's practices during the audit year, they do not constitute definitive evidence that System Management applied those controls during the audit year.
  - b. Projections of our findings to future periods carry the risk that:
    - i. Controls may become inadequate over time due to changes in the Electricity Rules or System Management's business processes, procedures and systems
    - ii. Degree of compliance with the control procedures we have reviewed deteriorate over time.
3. We have noted a lack of audit trail for network outage scheduling. In practice, this has meant that we have had to rely on verbal assertions from System Management staff to determine compliance with obligations in this area. We have therefore been unable to form a definitive view with respect to System Management's compliance in this area and provide a qualified opinion instead.

### **1.3.4 Materiality**

Where non-compliant procedures or actions are identified, these are classified as being:

- Material, in that they do not comply with the Electricity Rules and may affect decisions made by market participants, affect the outcome of the market or otherwise affect the financial position of one or more rule participants, or
- Non-material, in that:
  - They do not comply with the wording of the Electricity Rules but do comply with the intention of the Electricity Rules, or
  - They do not comply with the Electricity Rules but they are not likely to affect decisions made by market participants, affect the outcome of the market or otherwise affect the financial position of one or more rule participants.

## **1.4 Structure of this report**

The remainder of the report is structured around the various chapters of the Electricity Rules. The chapters of this report summarise the incremental changes to the Electricity Rules that have occurred since the time of the last audit, the changes to the Power System Operation Procedure and System Management's internal procedures that are relevant to that chapter of the Electricity Rules, and any recorded instances of non-compliance.

## 1.5 Acknowledgements

PA would like to thank the managers and staff of System Management who willingly provided information and shared in discussions while we carried out this market audit.

## 2 ELECTRICITY RULES CHAPTER 1 – INTRODUCTION

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

### 2.1 System Management’s processes and procedures

#### 2.1.1 Rule amendments

The following clauses in Chapter 1 have been amended since last year’s market audit:

**Table 2: Rule amendments to Chapter 1**

Date	Rule change	Clauses amended
1-Nov-14	RC_2014_04	1.12.1 (new) and 1.12.2 (new)
1-May-15	RC_2015_04	1.12.1

#### 2.1.2 Procedures

There are neither Power System Operation Procedure sections nor internal procedures relevant to Chapter 1.

### 2.2 Compliance with Chapter 1

The obligations placed on System Management under Chapter 1 relate to transitional matters or matters that expired at the Energy Market Commencement.

#### 2.2.1 Opinion

System Management has no current obligations under Chapter 1 of the Electricity Rules.

# 3 ELECTRICITY RULES CHAPTER 2 – ADMINISTRATION

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Chapter 2 of the Electricity Rules sets out the Functions and Governance Rules.

## 3.1 System Management’s processes and procedures

### 3.1.1 Rule amendments

There have been no amendments to Chapter 2 since last year’s market audit.

### 3.1.2 Procedures

There have been no amendments to the Power System Operation Procedure relating to Chapter 2 of the Electricity Rules since last year’s market audit.

The following internal procedures relating to Chapter 2 of the Electricity Rules have been updated since last year’s market audit:

Title	Updated
Internal Market Operations Procedure	July 2015
Weekly Ad-hoc Market Operations Procedure	July 2015

Previously the Internal Market Operations Procedure contained a number of ad-hoc procedures relating to SM’s obligations under Chapter 2 of the Rules. These procedures have now been moved to a new procedure entitled Weekly Ad-hoc Market Operations Procedure.

## 3.2 Compliance with Chapter 2

### 3.2.1 Incidents

We have not observed any non-compliance on the part of System Management with respect to its obligations under Chapter 2 of the Electricity Rules.

### 3.2.2 Opinion

We have not observed anything that causes us to believe that System Management has not complied with its obligations under Chapter 2 of the Electricity Rules.

# 4 ELECTRICITY RULES CHAPTER 3 – POWER SYSTEM SECURITY AND RELIABILITY

Chapter 3 of the Electricity Rules sets out the Power System Security and Reliability Rules.

## 4.1 System Management’s processes and procedures

### 4.1.1 Rule amendments

There have been no amendments to Chapter 3 since last year’s market audit

### 4.1.2 Procedures

There have been no amendments to the Power System Operation Procedure relating to Chapter 2 of the Electricity Rules since last year’s market audit.

The following internal procedures relating to Chapter 3 of the Electricity Rules have been updated since last year’s market audit:

Title	Updated
Internal Market Operations Procedure	July 2015
Daily Market Operations Procedure	July 2015
Weekly Ad-hoc Market Operations Procedure	July 2015

Previously the Internal Market Operations Procedure contained a number of daily and ad-hoc procedures relating to SM’s obligations under Chapter 3 of the Rules. These procedures have now been respectively moved to two new procedure entitled Daily Market Operations Procedure and Weekly Ad-hoc Market Operations Procedure.

### 4.1.3 Additional risk areas

In addition to the incremental review above, we also specifically reviewed System Management’s:

- Processes to assess and approve Commissioning Tests
  - We chose a sample of Commissioning Test requests to determine whether these tests were assessed and approved in accordance with Section 3.21A of the Electricity Rules and the PSOP: Commissioning and Testing. We noted a lack of audit trail in terms of documented criteria used to approve commissioning tests or physical evidence indicating the assessment process was undertaken.
  - Going forward we recommend that SM:
    - Document the process used by the System Operations Planning Engineers (SOPEs) to assess and approve commissioning test plans. In particular, the procedure should explicitly set out the criteria used by SOPEs to evaluate a test plan.
    - Create an audit trail for the assessment/approval process. Such an audit trail can be created with little effort. For example:
      - i. An additional worksheet can be created in the excel template used by participants to submit their commissioning test plans. This worksheet can include a table of criteria (as identified in the procedure recommended above) with SOPE comments on whether

each criterion is applicable and if so whether the test plan meets the criterion, as well as any other pertinent comments the SOPE may wish to add.

- ii. If amending the excel template is problematic, the above audit trail can also be implemented in a word or email template.
- Outage scheduling processes
    - We chose a sample of generator and network outages to determine whether SM’s outage scheduling processes were compliant with Sections 3.18 and 3.19 of the Electricity Rules and the PSOP: Outages. Due to the lack of a robust audit trail we were unable to view physical evidence of SM’s compliance with clauses 3.18.10 and 3.19.3 of the Electricity Rules with respect to network outages<sup>8</sup> and had to rely on verbal assertions from SM staff and a note in the outage schedule<sup>9</sup> indicating the reserve margin at the time of the assessment. Hence, we were unable to form a definitive view on SM’s compliance with these obligations.
    - Going forward, we recommend SM:
      - Document the process used by the SM to evaluate and approve outages.
      - Increase staffing to enable SM staff to under the network outage risk assessments or formally delegate the risk assessment to Network Operations staff.
      - Create an audit trail for the process. At the moment the only audit trail is the schedule of outage information that SM is required to maintain under clauses of 3.18.4 and 3.19.13 of the Electricity Rules. This schedule is an exhaustive of all outages evaluated, but does not include sufficient information to assess compliance with SM’s outage scheduling obligations. Additionally, it is structured in a manner that overwrites historical information<sup>10</sup>. We recommend SM either amends the existing outage schedule template to include more useful information or create separate outage evaluation templates that provide a more robust audit trail of SM’s outage evaluation processes.
      - Enhance records to improve audit trail for the process used by the control room operator to evaluate and approve On the Day Opportunistic Maintenance (ODOM) requests under clause 3.19.3 of the Electricity Rules.

## 4.2 Compliance with Chapter 3

### 4.2.1 Incidents

We have observed one material and five non-material instances of non-compliance with Chapter 3. Incidents associated with System Management’s obligations under Chapter 3 are set out in Table 3.

### 4.2.2 Opinion

Our opinion is as follows:

- System Management has been materially non-compliant with its obligation to provide monthly ancillary services payment data under clause 3.22.3.
- System Management has been non-compliant with some of its obligations under Chapter 3 of the Electricity Rules, but the non-compliance has not been material as set out in Table 3.
- We have not observed anything that causes us to believe that System Management has not complied with its obligations under Chapter 3 of the Electricity Rules in all material respects.

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<sup>8</sup> For generation outages. As noted in Table 3, Network Operations staff undertake outage evaluations for network outages.

<sup>9</sup> SM is required to maintain an outage schedule under clauses of 3.18.4 and 3.19.13 of the Electricity Rules.

<sup>10</sup> For example, the schedule will indicate the reserve margin at the time an outage was approved (under Section 3.19 of the Electricity Rules); however, the record indicating the reserve margin at the time of outage acceptance (Section 3.18 of the Electricity Rules) would have been overwritten.

## 4.3 Details of non-compliance

**Table 3: Incidents of non-compliance with Chapter 3**

Rule	The Issue	Material?	Comment
3.11.13 (self-reported)	<p>SM is obliged to submit an annual ancillary service report to the IMO, and to have the report approved by 1 July.</p> <p>Although SM submitted a draft report by 1 June as required under 3.11.11, the report had not been approved by 1 July.</p>	No	<p>The ancillary services report was approved by IMO in August 2015 (after the rule imposed deadline).</p> <p>SM decisions on the levels do have a material impact on the market, and as noted in last year's audit, the levels of Load Following Ancillary Services (LFAS) and Load Rejection Reserve<sup>11</sup> (LRR) Services are not necessarily being determined in a manner that will demonstrably minimise costs to the market. However, we note that there are a number of EMR initiatives that will address the existing limitations around the determination of LFAS requirements. See commentary below on compliance with rule 3.11.14.</p>
3.11.14	<p>SM is obliged to document the procedure for determining Ancillary service requirements in the PSOP. The PSOP: Ancillary Services includes information about things that SM may consider, but does not set out the actual process for determining the requirements.</p>	No	<p>We note that in the 2015 report, SM has provided greater detail around how ancillary services requirements have been determined (compared with previously published reports). SM has also presented their rationale for determining ancillary services requirements to the Market Advisory Council (MAC) to enhance transparency around this process. Nevertheless, SM is technically in breach as the methodology for determining ancillary services requirements is not explicitly set out in the relevant PSOP. We note that this is a technical breach as SM has met the intent of the market rules by providing more detail about derivation of ancillary services requirements in the 2015 report.</p> <p>As noted in last year's audit, since SM publishes the results of its determinations, and since they have a significant amount of discretion in operating the power system, it is unlikely that the market is currently directly affected by the absence of this methodology.</p> <p>The market is, however affected by the values chosen, and the process by which they are calculated should be made public, so that informed discussion can be had on whether the requirements are set appropriately.</p> <p>This non-compliance was also identified in our 2012, 2013 and 2014 audit reports. We further noted in our 2014 audit report that the approach to determining LFAS requirements is set in a manner that pre-supposes which units will provide LFAS and does not guarantee a least cost outcome. Since the last audit, a joint SM-IMO working group had been investigating LFAS usage and its causes to identify opportunities to set the requirement and LFAS Quantity more efficiently.</p>
3.16.9 (self-reported)	<p>SM must provide the IMO with the MT PASA analysis by the 15<sup>th</sup> day of each month. In September 2014, SM sent the MT PASA analysis to the IMO one day late.</p>	No	<p>SM uses a calendar reminder as a control to ensure the MT PASA analysis is sent to the IMO on time. On this occasion, due to an email upgrade, the calendar reminder was not triggered and SM staff forgot to send the information to the IMO.</p> <p>The MT PASA reports are for informational purposes only and do not affect decisions made participants. As</p>

<sup>11</sup> We note, however, that LRR is currently provided at zero cost. In future, however, this cost is likely to increase.

Rule	The Issue	Material?	Comment
			such, this breach is non-material.
3.21A.9 (self-reported)	<p>SM must notify a market participant of whether it has approved or rejected a commissioning test plan as soon as practicable and in any case no later than 8am on the Scheduling Day.</p> <p>SM notified participants that their commissioning test plans had been approved after the 8am deadline on two occasions.</p>	No  Two breaches	<p>In the first instance, a change to the relevant commissioning test plan had been submitted the evening before the 8am deadline. Due to a misunderstanding relating to the participant's email, SM was unable to establish the new end-date of the commissioning test plan till the following morning. As a result, SM was 47 minutes late communicating approval to the participant.</p> <p>In the second instance, the failure to notify the participant by 8 am was an oversight, as the participant had submitted their plans for approval significantly in advance.</p> <p>Had SM reviewed the plan, it would have been approved, and market outcomes would have been unchanged.</p> <p>Note, we audited a sample of commissioning test plans to determine whether SM was compliant with its obligations under Section 3.21A of the rules. As part of this audit, we noted a further instance of a commissioning test plan where email approval was sent 77 minutes late. However, SM asserts that the participant was verbally notified by 8am. Due to the lack of audit trails, we were unable to verify this. We have not listed this as a breach, as we have no evidence that suggests approval was not verbally communicated by 8am.</p>
3.22.3	<p>System Management must send monthly ancillary services payment data to IMO for settlement purposes.</p> <p>In July 2014<sup>12</sup> System Management sent incorrect ancillary services payment data to IMO</p>	Yes	<p>The error was notified to SM by the participant who provided the affected ancillary services. The error occurred due to an issue in the spreadsheet tool that extracts ancillary services information from SCADA whereby the SCADA data in the tool was not updated properly. SM investigated the issue and noted that it was an isolated incident. SM sent corrected data to IMO in September 2014.</p> <p>Due to the error the initial settlement run was undertaken with incorrect ancillary services payment data, and the affected participant was not compensated appropriately until the first adjustment for that billing period. The discrepancy in payment was \$37,169.33. For this reason we deem this to be a material breach.</p>

<sup>12</sup> This breach occurred outside the audit period but was detected as part of the current audit.

# 5 ELECTRICITY RULES CHAPTER 4 – RESERVE CAPACITY

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Chapter 4 of the Electricity Rules sets out the Reserve Capacity Rules.

## 5.1 System Management’s processes and procedures

### 5.1.1 Rule amendments

There have been no amendments to Chapter 4 since last year’s market audit:

### 5.1.2 Procedures

There have been no amendments to the Power System Operation Procedure relating to Chapter 4 of the Electricity Rules since last year’s market audit.

The following internal procedures relating to Chapter 4 of the Electricity Rules have been updated since last year’s market audit:

Title	Updated
Internal Market Operations Procedure	July 2015
Daily Market Operations Procedure	July 2015
Weekly Ad-hoc Market Operations Procedure	July 2015

Previously the Internal Market Operations Procedure contained a number of daily procedures relating to SM’s obligations under Chapter 4 of the Rules. These procedures have now been moved to a new procedure entitled Daily Market Operations Procedure.

## 5.2 Compliance with Chapter 4

### 5.2.1 Incidents

We have not observed any non-compliance on the part of System Management with respect to its obligations under Chapter 4 of the Electricity Rules.

### 5.2.2 Opinion

We have not observed anything that causes us to believe that System Management has not complied with its obligations under Chapter 4 of the Electricity Rules.

# 6 ELECTRICITY RULES CHAPTER 5 – NETWORK CONTROL SERVICE PROCUREMENT

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Chapter 5 of the Electricity Rules sets out the Network Control Service Procurement Rules.

## 6.1 System Management's processes and procedures

### 6.1.1 Rule amendments

There have been no amendments to Chapter 5 since last year's annual audit.

### 6.1.2 Procedures

No procedures relating to Chapter 5 of the Electricity Rules have been updated since last year's market audit.

## 6.2 Compliance with Chapter 5

### 6.2.1 Incidents

We have not observed any non-compliance on the part of System Management with respect to its obligations under Chapter 5 of the Electricity Rules.

### 6.2.2 Opinion

We have not observed anything that causes us to believe that System Management has not complied with its obligations under Chapter 5 of the Electricity Rules.

# 7 ELECTRICITY RULE CHAPTER 6 – ENERGY MARKET

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Electricity Rules Chapter 6 sets out the Energy Market Rules.

## 7.1 System Management’s processes and procedures

### 7.1.1 Rule amendments

There have been no amendments to Chapter 6 since last year’s market audit:

### 7.1.2 Procedures

System Management has limited obligations under Chapter 6. There are no Power System Operation Procedure sections.

The following internal procedures relating to Chapter 6 of the Electricity Rules have been updated since last year’s market audit:

Title	Updated
Internal Market Operations Procedure	July 2015
Daily Market Operations Procedure	July 2015

Previously the Internal Market Operations Procedure contained daily procedures relating to SM’s obligations under Chapter 6 of the Rules (to send the IMO information required for settlement purposes). These procedures have now been moved to a new procedure entitled Daily Market Operations Procedure.

## 7.2 Compliance with Chapter 6

### 7.2.1 Incidents

We have not observed any non-compliance on the part of System Management with respect to its obligations under Chapter 6 of the Electricity Rules.

### 7.2.2 Opinion

We have not observed anything that causes us to believe that System Management has not complied with its obligations under Chapter 6 of the Electricity Rules.

# 8 ELECTRICITY RULE CHAPTER 7 – DISPATCH

Electricity Rules Chapter 7 sets out the Dispatch Rules.

## 8.1 System Management’s processes and procedures

### 8.1.1 Rule amendments

There have been no amendments to Chapter 7 since last year’s market audit:

### 8.1.2 Procedures

There have been no changes to the Power System Operation Procedure relating to Chapter 7 of the Electricity Rules since last year’s market audit:

The following internal procedures relating to Chapter 7 of the Electricity Rules have been updated since last year’s market audit:

Title	Updated
Internal Market Operations Procedure	July 2015
Daily Market Operations Procedure	July 2015

Previously the Internal Market Operations Procedure contained a number of daily procedures relating to SM’s obligations under Chapter 7 of the Rules. These procedures have now been moved to a new procedure entitled Daily Market Operations Procedure.

### 8.1.3 Additional risk areas

We reviewed the following areas due to multiple breaches noted in last year’s audit. We re-examined System Management’s:

- Declaration of high risk and emergency states
  - We reiterate our observation from last year’s audit that the amount of information available to review the declaration of operating states after the event is minimal; sometimes consisting only of short entries in the control room log, and sometimes not even that. In particular, these DAs do not provide sufficient information to identify the specific reason SM considers the system to be in High Risk or Emergency states under MR 3.4.1 and 3.5.1 respectively.
- Issuance of Dispatch Advisories
  - We note some improvements in the information being provided on DAs relating to out of merit dispatch. However, we have still noted a number of breaches in this area – see Table 4.
  - Delays (and sometimes omissions) in issuing DAs continue due to a combination of understaffing in the control room and the inability of market operations staff to access the DA systems after hours.
- Compliance with dispatch obligations (including a review of control room processes). We reiterate our observations from last year’s audit:
  - The level of staffing in the control room is low enough to give rise to compliance risk (given SWIS requirements and practices by comparable system operators around the world)
  - The lack of clarity with respect to governance and ownership of Control Room Instructions (CRIs) continues to be a compliance risk

- Incorrect out of merit dispatch remains an area of compliance risk due to the manual nature of the associated processes and understaffing in the control room – see breaches of clauses 7.6.1C and 7.6.1D in Table 4.
- The level of records for control room activities is not sufficient to reconstruct events after the fact. The written log provides little (and sometimes no) information on actions or rationale for actions taken by the controller. On some days the control room log for a particular shift can contain as little as three or four entries. We note that there are database records of actions taken such as constraints applied.
- There are boundary issues in the control room whereby the security assessments used by the controller to place security constraints in RTDE are sometimes undertaken by Network Operations staff (as the single controller cannot dispatch and undertake the security assessment, particularly during high risk/emergency situations). Likewise, the network aspects of system monitoring required to monitor the system state as defined in clauses 3.3.1, 3.4.1 and 3.5.1 (e.g. overloading of transmission lines, voltage issues, circuit issues) are undertaken by Network Operations staff (who then notify the controller).

## 8.2 Compliance with Chapter 7

### 8.2.1 Incidents

We found 49 material and 47 non-material incidents of non-compliance with Chapter 7.

Incidents associated with System Management's obligations under Chapter 7 are set out in Table 4 below.

### 8.2.2 Comment

As per last year's audit, a large number of the material breaches noted here relate to dispatch advisory non-compliance; 40 of the material breaches relate to dispatch advisories. As noted in Section 8.1.3, there is opportunity for significant improvement in the manner dispatch advisories are released to the market. In particular:

- SM should investigate means of disseminating information to the market in a more efficient manner. Specifically, SM should consider release forecast dispatch schedules to the market as this will mean automatic compliance with clause 7.11.6(dA)
- Delays in releasing DAs will be greatly reduced if remote access is provided to market operations staff and the level of staffing in the control room is increased.

### 8.2.3 Opinion

Our opinion is as follows:

- System Management has been materially non-compliant with some of its obligations in respect of Dispatch Advisories, Dispatch Criteria and provision of dispatch information, as set out in Table 4.
- System Management has been non-compliant with some of its other obligations under Chapter 7 of the Electricity Rules, but the non-compliance has not been material as set out in Table 4.
- We have not observed anything else that causes us to believe that System Management has not complied with its obligations under Chapter 7 of the Electricity Rules.

## 8.3 Details of non-compliance

**Table 4: Incidents of non-compliance with Chapter 7**

Rule	The Issue	Material?	Comment
7.2.3B (self-reported)	SM must provide the IMO with load forecast information by 7.30am each day. On 12 January 2015, SM provided the information until 11 minutes after the deadline due to a systems outage.	No	This particular forecast is provided more than 24 hours in advance. An 11 minute delay in publishing to the market is not significant enough to have been likely to affect market participant behaviour, and in any case, updated forecasts for closer intervals are provided each trading interval. Repeat breach from last year.
7.5.2 (self-reported)	SM must confirm receipt of Non-Balancing Dispatch Merit Orders and Fuel Declarations within five minutes of receipt from the IMO. On several occasions during the audit year, SM sent this confirmation later than five minutes after receipt.	No (23 breaches)	On 9 July SM sent the confirmation required by clause 7.5.2 thirteen minutes late. As a result of this, SM did a self-review of compliance with clause 7.5.2 and noted 22 instances (since 21 November 2014) in which confirmation was sent late. In most of these instances the confirmation was sent only a few minutes late. On one occasion it was sent over an hour late (possibly due to IT issues SM was experiencing). We note that the sending of the confirmation (under clause 7.5.2) is a manual process that is open to delay from time to time. The delay in sending confirmation to IMO would not have impacted on the timelines of any market facing processes. Hence there was no material impact on the market.
7.6.1C Five related breaches of MR 7.6.1D One related breach of MR 7.7.6B(b)	SM must dispatch facilities in accordance with the BMO subject to the priority specified in clause 7.6.1C. Clause 7.6.1D specifies that SM may only depart from the priority specified in clause 7.6.1C to avoid a High or Emergency Operating State or to return to a Normal Operating State (when in High or Emergency Operating States). SM did not follow the BMO when dispatching facilities on seven occasions during the audit year when none of the	7 breaches (one non-material, six material <sup>13</sup> )  Yes	The instances of non-compliance are briefly described below <ul style="list-style-type: none"> <li>On 24 June 2014<sup>14</sup>, SM did not dispatch a generator that was in merit. Due to the lack of audit trails in the control room it is unclear why this breach</li> </ul>

<sup>13</sup> Of the six material breaches, one is potentially material. The settlement adjustment for the billing period this breach pertains to has not yet been undertaken; hence it is unclear what the materiality of this breach is.

<sup>14</sup> This breach occurred outside the audit period but was identified within the audit period.

Rule	The Issue	Material?	Comment
(reported by IMO)	conditions in clause 7.6.1C(b)-(d) or 7.6.1D applied.	Yes	<p>occurred. As a result of this breach, constraint payments to the market were higher than what they would have been in absence of the breach (by approximately \$12,000). There was a related breach of clause 7.6.1D in this instance.</p> <ul style="list-style-type: none"> <li>On 25 July 2014<sup>15</sup>, SM was having IT issues whereby BMOs could not be read by RTDE. SM verbally overwrote a Dispatch Instruction (DI) to a generator that was incorrect and did not reflect the BMO. As a result of this breach, the generator in question was paid a constraint payment it would have otherwise not received (of \$30,832.58). There was a related breach of clause 7.6.1D in this instance.</li> <li>On 14 September 2014, SM constrained on a generator out of merit (see also related breach of clause 7.11.5(g)). As a result of this breach, the generator in question was paid a constraint payment it would have otherwise not received (of \$1,563.72). There was a related breach of clause 7.6.1D in this instance.</li> <li>On 16 October 2014, SM constrained on a generator (out of merit) upon the generator's request. According to the Electricity Rules, SM should have declined the request and the generator should have updated its offers. As a result of this breach, the generator in question was paid a constraint payment it would have otherwise not received (of \$525.77). There was a related breach of clause 7.6.1D in this instance.</li> <li>On 21 April 2015 SM dispatched a generator out of merit when it mistakenly placed a unit constraint on it that was intended for another generator. As the affected generator ignored the new DI there was no material impact on the market. There was a related breach of clause 7.7.6B(b) as SM did not issue a rectification DI to the generator who should have been issued the constrained DI.</li> <li>On 20 May 2015 SM dispatched a generator out of merit when, as above, it mistakenly placed a unit constraint on it that was intended for another generator. As a result of this breach, the generator in question was paid a constraint payment it would have otherwise not received (of \$1,069.17).</li> <li>On 23 June 2015 SM instructed a generator to ignore their DI as they thought RTDE was issuing incorrect DIs. However, there was no issue with RTDE and SM was in breach of clause 7.6.1C in instructing the generator to</li> </ul>
		Yes	
		Yes	
		No	
		Yes	
		Potentially	

<sup>15</sup> This breach occurred outside the audit period but was identified within the audit period.

Rule	The Issue	Material?	Comment
			<p>ignore their DI. As the settlement adjustment for this period has not yet been undertaken, it is unclear what the materiality of this breach is.</p> <p>We note that the process for dispatching facilities out of merit is manual and prone to error. Such manual errors are more likely when the control room operator is under pressure to resolve system security issues. Two controllers on shift at the same time would likely mitigate this risk; whereby one controller could focus on security while the other focusses on dispatch.</p>
7.6.2, 7.13.1(a)	<p>7.6.2 "... the dispatch of any Facility within the Balancing Portfolio is to be under the Dispatch Plan or a Dispatch Order in accordance with clause 7.6A ..."</p> <p>7.13.1(a) "SM must provide the IMO with ... a schedule of all the Dispatch Orders that SM issued for each Trading Interval ..."</p> <p>While the Rules are not entirely clear about when a Dispatch Order (DO) should be used instead of an update to the Dispatch Plan (DP), the intent appears to be to provide a record of balancing portfolio dispatch - by either DP or DO - in the same way as IPP dispatch is captured in a Dispatch Instruction.</p> <p>The DP is "the schedule of energy and Ancillary Services to be provided ... by the Facilities of Synergy in the Balancing Portfolio, during a Trading Day, where these schedules may be revised by System Management during the course of the corresponding Scheduling Day and the Trading day."</p> <p>A DO is "an instruction by SM under clause 7.6A for a Facility or Facilities in the Balancing Portfolio to vary output or consumption from the Dispatch Plan".</p> <p>While SM do provide Synergy with a DP at specific times each day, this plan is viewed as representing the upper and lower boundaries within which SM expects to operate Synergy plant, and is not a record of the actual MW amount to be provided in real-time. We were unable to find evidence that the Dispatch Plan is updated and provided to Synergy even when plant operation is expected to depart outside the upper and lower</p>	No	<p>This issue was noted in our 2012, 2013 and 2014 reports.</p> <p>The phone records of balancing portfolio dispatch are sufficient to support post-event investigations of specific incidents, but the significant manual effort involved in reconstructing events means that phone records cannot provide a complete automated history of dispatch decisions.</p> <p>While the lack of a complete history for balancing portfolio dispatch cannot be said, prima facie, to have affected the outcomes of the market, its absence increases the likelihood of breaching other obligations, such as monitoring and reporting on Synergy non-compliance with dispatch – if there is no record of what balancing portfolio plant were actually dispatched to, how is compliance to be assessed? It also raises difficulties in auditing the recording of forced outages of plant in the portfolio.</p>

Rule	The Issue	Material?	Comment
	<p>boundaries.</p> <p>Real time dispatch of Synergy facilities is by phone or AGC, and phone instructions are recorded manually in the control room log. Real-Time Dispatch Engine outputs record a notional dispatch for the portfolio, but this does not feed into the actual instructions given to Synergy facilities. There is no automatic record of the instructions given to Synergy facilities, other than the recording of the telephone conversation.</p> <p>In our opinion the phone instructions given to Synergy function as Dispatch Orders, should be provided to the IMO, and SM is in breach of 7.13.1(a). If the phone instructions are not Dispatch Orders, then SM is in breach of 7.6.2 by dispatching Synergy under neither the DP nor a DO.</p>		
7.6A.2(b) (Self-reported)	<p>SM must send Synergy a forecast of total system demand by 8:30 a.m. on each Scheduling Day.</p> <p>On 3 September 2014 SM failed to send the demand forecast to Synergy, and instead sent it a day late on 4 September 2014.</p>	No	<p>Due to an oversight, SM staff failed to send the demand forecast on time. We note that there are no remedial actions in place to prevent recurrence of similar breaches.</p> <p>We recommend the use of a daily checklist to ensure all daily activities are undertaken in accordance with rules prescribed deadlines.</p> <p>As the load forecast is also sent to the IMO at 7:30 a.m. and published thereafter, it is unlikely that the failure to send the information to Synergy would have impacted on market outcomes or, importantly, on SM's Dispatch Plan for Synergy.</p>
7.10.7(a)	<p>SM must provide particular information to the IMO when participants advise that they are unable to comply with dispatch, including the participant's explanation, and an assessment of whether the non-compliance affected system security.</p> <p>In practice, SM does not provide all the information required. SM:</p> <ul style="list-style-type: none"> <li>• Automatically provides the record of non-compliance, including the data prescribed by the IMS interface procedure,</li> <li>• May manually provide reasons given by participants.</li> </ul> <p>This includes some but not all the information required</p>	No (multiple breaches)	<p>This finding is repeated from our 2013 and 2014 reports. As long as the IMO is provided with records of participant dispatch non-compliance, the detail of the circumstance makes no difference to market outcomes.</p> <p>The wording of this clause is a hang-over from previous treatment of dispatch instructions, and we again recommend it is updated to align with the IMS interface procedure, and further, that consideration is given to whether the two free text comment fields in the Compliance interface defined in the IMS interface procedure are necessary.</p>

Rule	The Issue	Material?	Comment
	by 7.10.7(a).		
7.11.3	<p>SM must issue DAs “as soon as practicable after System Management becomes aware of a situation requiring the release of a Dispatch Advisory.</p> <p>The following DAs were issued more than 60 minutes after the start of the event requiring their issuance<sup>16</sup>:</p> <ul style="list-style-type: none"> <li>• 6381, 6397, 6412, 6546, 6904, 6926, 7028, 7032, 7046, 7091, 7093, 7368, 7487, 9956, 9981 (in relation to generation outages within the balancing portfolio)</li> <li>• 4703, 6353, 6352, 6403, 6417, 6508, 6556, 6622,, 6808, 6843, 6847, 6848, 6896, 6907, 6924, 6931, 6930, 7011, 7016, 7049, 7064, 7069, 7088, 7134, 7440, 7454, 11175, 11196, 11263 (in relation to other events)</li> </ul>	<p>No<sup>17</sup> (15 breaches)</p> <p>Yes (29 breaches)</p>	<p>The issues we noted last year with respect to delays in the issuance of DAs are still valid.</p> <p>Specifically, SM separates the functions of market information provision from control room system operation tasks<sup>18</sup>. This is partly due to the reliance on a single system controller on shift. In practice, this leads to two issues:</p> <ul style="list-style-type: none"> <li>• When the system controller is addressing a serious power system security issue, they may not get around to alerting market operations team responsible for issuing DAs. Even when they do, the market operations team may not have enough information to issue the DA and are unable to do so until after the system controller has resolved the security issue. Arguably, it is during security incidents (e.g. that could lead to the declaration of high or emergency operating states) that timely dissemination of information to participants is most important. Again, this highlights the importance of having more than one system controller on shift.</li> <li>• No DAs are issued overnight as the market operations team works business hours only. As noted last year, SM practice is to issue a retrospective advisory the following morning. Timely information is key for the market to function efficiently, and this practice is not compliant with the rules. We note that allowing market operations staff remote access to the DA system (so that overnight DAs can be issued in a timely manner) will likely improve the timeliness of DAs.</li> </ul>

<sup>16</sup> Last year we used 90 minutes as a threshold to determine compliance. Advisories should be as close to real time as practicable to be of use to participants. Hence this year we have decreased the threshold to 60 minutes. We would expect that in general, the power system security issues relevant to the DAs would have been dealt with by this time, and some window of respite have been available to send information to market participants

<sup>17</sup> In determining materiality, we have deemed failure to issue a DA on time non-material if it pertains to a facility in the Synergy portfolio because SM’s action will be to dispatch another portfolio facility to replace the tripped unit. Other market participants are unlikely to be affected until Synergy offer changes flow through to the balancing merit order, at which point the information will be published by the IMO. When the issue is not in the portfolio, we have deemed the breach to be material as SM’s action will dispatch another facility (which may or may not be outside the portfolio), and the effect on the merit order will be immediate. If market participants know of the situation sooner, they may choose to change their offer behaviour. Even without out of merit dispatch, large outages affect the merit order, making it more likely that participants who are not currently dispatched will be dispatched, raising potential for participants to want to revise their offers.

<sup>18</sup> We note that since last year, the market operations team responsible for DA issuance have been moved in closer proximity to the control room to make communications with system controllers more efficient.

Rule	The Issue	Material?	Comment
			<p>We therefore recommend:</p> <ul style="list-style-type: none"> <li>• SM immediately implement remote access for market operations staff so that they are able to issue DAs after business hours.</li> <li>• SM increase the level of staffing the control room to allow information to be provided to the market as close to real time as possible.</li> </ul>
7.11.5(d)	<p>SM must issue Dispatch Advisories (DAs) when "... significant outages of generation transmission or customer equipment are occurring or expected to occur". PA reviewed SM's outage schedule and cross-checked forced outages against DAs issued during the year. We noted twelve instances in which SM did not issue DAs for generator outages greater than 100 MW</p>	Yes (3 breaches)	<p>Since last year's audit SM has made it operational practice to issue DAs for all generation outages greater than 100 MW. Our audit detected the following instances in which SM did not issue DAs for generator outages greater than 100 MW:</p> <ul style="list-style-type: none"> <li>• On 12 November 2014 at approximately 7:00 a large generator failed to start</li> <li>• On 21 April 2015 at approximately 14:30 a large generator tripped</li> <li>• On 2 August 2014 at approximately 5:30 a large generator went on forced outage due to operational issues</li> </ul>
7.11.5(g) (reported by IMO)	<p>SM must issue a DA if it expects to issue a DI out of merit.</p> <p>On two occasions SM dispatched facilities out of merit and failed to issue DAs.</p>	Yes (2 breaches)	<ul style="list-style-type: none"> <li>• On 14 September 2015, a facility was dispatched out of merit (see related breach of clause 7.6.1C and 7.6.1D above). SM failed to issue a DA in respect of this incident.</li> <li>• On 8 June 2015, a facility was unable to return to service due to a forced network outage. As a result the facility was constrained off. However, SM did not issue a DA to notify the market</li> </ul> <p>In both cases the facility was not part of the Synergy portfolio. Consequently we have deemed the breaches to be material as if market participants had known of the situation, they may have chosen to change their offer behaviour.</p>
7.11.6	<p>SM must include particular information in DAs, including time that the DA is likely to apply, the applicable operating state, and likely out of merit quantities.</p> <p>On several occasions through the audit period, SM has not provided all information required by 7.11.6:</p> <ul style="list-style-type: none"> <li>• The following DAs did not provide out of merit</li> </ul>	<p>6 breaches (5 material, 1 non-material)</p> <p>Yes (5 breaches)</p>	<ul style="list-style-type: none"> <li>• Breaches of MR 7.11.6(dA) <ul style="list-style-type: none"> <li>– As noted last year, without knowing the affected location or quantity of out of merit dispatch, participants do not have sufficient information to adjust their offers to reflect the system issues. As such the exclusion of this</li> </ul> </li> </ul>

Rule	The Issue	Material?	Comment
	<p>quantities (MR 7.11.6(dA)):</p> <ul style="list-style-type: none"> <li>– 6508, 6607, 6779, 6844<sup>19</sup>, 6901</li> </ul> <ul style="list-style-type: none"> <li>• The following DAs included incorrect information on the operating state (MR 7.11.6(cA)) <ul style="list-style-type: none"> <li>– 6931</li> </ul> </li> </ul>	No (1 breach)	<p>information in DAs can have material impacts on market participants.</p> <ul style="list-style-type: none"> <li>– We reiterate our recommendation from last year for SM to publish a forecast dispatch plan to market participants as this would provide the requisite level of transparency around forecasted out of merit dispatch.</li> <li>• Breaches of MR 7.11.6(cA) <ul style="list-style-type: none"> <li>– PA selected a sample of DAs and reviewed SM’s approach to determining the operating state. We noted one instance where SM should have declared a high risk state but instead issue the DA under normal operating state. As all other pertinent information was included in the DA, it is unlikely that market participants would have behaved differently had SM changed the operating state to high risk. Hence we have deemed this breach to be non-material.</li> <li>– As noted last year, however, the amount of information available to review the declaration of operating states after the event is minimal; sometimes consisting only of short entries in the control room log, and sometimes not even that. In particular, these DAs do not provide sufficient information to identify the specific reason SM considers the system to be in High Risk or Emergency states under MR 3.4.1 and 3.5.1 respectively.</li> </ul> </li> </ul>
7.11.6A	<p>SM must include the name of the facility that has caused or materially contributed to the issuance of a DA.</p> <p>SM breached this rule three times over the audit year:</p> <ul style="list-style-type: none"> <li>• On two occasions it named the wrong facility (6907 and 11259)</li> <li>• On one occasion it did not name the facility (6844<sup>20</sup>)</li> </ul>	<p>3 breaches (1 material, 2 non-material)</p> <p>No Yes</p>	<p>The incorrect naming of facilities in DAs 6907 and 11259 would not have had a material impact on market participants as the facilities in questions were owned by the same participant and similar in size and operating characteristics.</p> <p>However, we have deemed the failure to name the facility in DA 6844 as material because without knowing the affected location or quantity of out of merit dispatch, participants would not have sufficient information to adjust their offers to reflect the system issues.</p>
7.13.1(c) (self-reported)	<p>SM must provide the IMO with a schedule of all Dispatch Instructions (for each trading day, trading interval and facility) by noon on the first business day following the day on which the relevant trading day ends.</p> <p>On 9 March 2015, SM failed to send Dispatch Instructions for trade date 6 March 2015. The file was</p>	No	<p>The file for trade date 6 March 2015 was delayed as SM had to manually enter DIs for Demand Side Programmes that had been undergoing reserve capacity testing. SM is able, under clause 7.13.1B, to seek extensions to the timeline stipulated in clause 7.13.1. However, due to an oversight, SM failed to seek an extension for the 6 March 2015 Dispatch Instructions, and therefore breached clause 7.13.1(c).</p>

<sup>19</sup> Note related breach of Clause 7.11.6A below

<sup>20</sup> See related breach of clause 7.11.6

Rule	The Issue	Material?	Comment
	sent a day late on 10 March 2015.		The delay did not impact on the IMO's settlement activities. Hence we have deemed this breach to be non-material.
7.13.1(e), 7.13.1(eC)	<p>SM must provide the IMO with Ex-Post Upwards and Downwards LFAS enablement quantities by noon each business day.</p> <p>During the audit year we have noted 3 days (24, 25 and 26 January) on which the files containing LFAS Up and Down enablement quantities included errors (see comments).</p>	Yes (3 breaches)	<p>As part of our audit we compared LFAS cleared (in accordance with the LFAS merit order) to LFAS enabled by SM in a sample of intervals. We noted a number of intervals over 24-26 January that contained discrepancies which were attributable to errors in the spreadsheet tool used by SM to send LFAS enablement quantities to the IMO<sup>21</sup> leading to non-compliance by SM of clauses 7.13.1(e) and (eC).</p> <p>We have deemed these breaches to be material as providing incorrect enablement quantities directly impacts on settlement quantities and amounts paid to participants providing LFAS.</p>

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<sup>21</sup> Errors have included: rounding errors where quantities that were not whole numbers were rounded up to the next whole round number (e.g. 65.5 MW being rounded to 66 MW) and excluding LFAS enablement quantities for an entire trading interval if a facility fell off AGC prior to the end of the interval. We note that SM has fixed both of these errors.

# 9 ELECTRICITY RULE CHAPTER 7A - BALANCING MARKET

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Electricity Rules Chapter 7A sets out the Balancing Market Rules.

## 9.1 System Management's processes and procedures

No clauses in Chapter 7A have been amended since last year's market audit.

### 9.1.1 Procedures

There have been no amendments to the Power System Operation Procedure relating to Chapter 7A of the Electricity Rules since last year's market audit:

There have been no changes to the internal procedures relating to Chapter 7A of the Electricity Rules since last year's market audit.

## 9.2 Compliance with Chapter 7A

### 9.2.1 Incidents

We found one material incident of non-compliance with Chapter 7A.

This incident is described in Table 5.

### 9.2.2 Comment

We deem the breach to this section of the Rules to be material, that is the breach may compromise the intention of the Electricity Rules, and/or the decisions made by market participants, or otherwise may affect the outcome of the market.

This breach is concerned with information provision. That is, SM has an obligation to provide information to the market, and where the information is not provided, market outcomes are likely to be different than if it had been.

### 9.2.3 Opinion

Our opinion is as follows:

- System Management has been materially non-compliant with its obligation in respect of providing load forecasts to the IMO under Electricity Rule 7A.3.15 as set out in Table 5.
- We have not observed anything else that causes us to believe that System Management has not complied with its obligations under Chapter 7A of the Electricity Rules.

## 9.3 Details of non-compliance

### 9.3.1 Rule changes and procedure updates

**Table 5: Incidents of non-compliance with Chapter 7A**

Rule	The Issue	Material?	Comment
7A.3.15 (repeat breach)	<p>“SM must ... provide the IMO with SM's forecast of the Relevant Dispatch Quantity” and must update the forecasts and provide the update to the IMO each time it has new information on which to determine these quantities.</p> <p>SM control room staff have a range of information available to assess the likely load, including the output of two load forecasting tools, the ability to plot similar past days against the current load, and the ability to take a combination of the various inputs to arrive at the load forecast they think is most likely to eventuate.</p> <p>One of the available load forecasts is produced by SM's Metrix load forecasting tool, and it is this forecast which is provided to the IMO for use in its Balancing Forecast, and also used in the Real-time dispatch engine which produces automatic electronic dispatch instructions to generation facilities.</p> <p>In reality, the Metrix load forecast does not always represent SM's best estimate of future RDQ, which is actually arrived at by some combination of load forecast tool outputs with similar past day profiles.</p> <p>This appears to be a breach of the obligation to provide the IMO with SM's forecast of the RDQ. A forecast is provided, but it does not represent SM's best estimate of the expected load.</p> <p>From 1 August 2014 to 31 July 2015, SM control room staff used the Metrix forecast 96.87% of the time, and an alternate forecast around 3.13% of the time.</p>	Yes	<p>This issue was raised in our 2013 and 2014 reports.</p> <p>Given that the purpose of the IMO's Balancing Forecast is "to provide Market Generators with information upon which to make an assessment regarding whether to make [or update] a Balancing Submission" (7A.3.20), it follows that a more accurate forecast could influence participants to make different decisions in the market, and the breach is therefore material.</p> <p>We note that the use of alternate forecasts is higher than in the previous audit period (1.5% in 2013/14) but still lower than 2012/13 (7%). SM is yet to build functionality to publish this forecast to the market.</p> <p>We understand that in order to publish this information, SM must also consider the time horizon to which the manually selected load forecast applies, so that it can be merged into a single load forecast covering both the next few periods actively considered by control room staff and the remainder of the forecast horizon. We believe these considerations can be resolved, and more transparent information provided to the market.</p>

# 10 ELECTRICITY RULE CHAPTER 7B - LFAS MARKET

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Electricity Rules Chapter 7B sets out the Load Following Ancillary Service Market Rules.

## 10.1 System Management's processes and procedures

### 10.1.1 Rule amendments

There have been no amendments to Chapter 7B since last year's market audit:

### 10.1.2 Procedures

There have been no amendments to the Power System Operation Procedure relating to Chapter 7B of the Electricity Rules since last year's market audit.

There have been no amendments to internal procedures relating to Chapter 7B of the Electricity Rules since last year's market audit.

## 10.2 Compliance with Chapter 7B

### 10.2.1 Incidents

We have found multiple incidents (multiple trading intervals over 63 days) of material non-compliance with clause 7B.3.6.

Incidents associated with System Management's obligations under Chapter 7B are set out in Table 6.

### 10.2.2 Comment

We deem 23 of the breaches to this section of the Rules to be material; these breaches relate to incorrect LFAS enablement and had these breaches not occurred the settlement outcomes for market participants would have been different.

We deem the multiple breaches of clause 7B.3.6 to be material as they relate to incorrect LFAS enablement and had these breaches not occurred the settlement outcomes for market participants would have been different.

These breaches relate to incorrect LFAS dispatch. This area is of particular interest, as it speaks directly to the integrity of the market.

### 10.2.3 Opinion

Our opinion is as follows:

- In multiple trading intervals, System Management has been materially non-compliant with its obligation to use facilities for LFAS in accordance with the selection information provided by the IMO, as set out in Table 6.
- System Management has been non-compliant with one other obligation under Chapter 7B of the Electricity Rules, but the non-compliance has not been material as set out in Table 6.
- We have not observed anything else that causes us to believe that System Management has not complied with its obligations under Chapter 7B of the Electricity Rules.

## 10.3 Details of non-compliance

### 10.3.1 Rule changes and procedure updates

### 10.3.2 Incidents of non-compliance

**Table 6: Incidents of non-compliance with Chapter 7B**

Rule	The Issue	Material?	Comment
7B.1.4 (reported by IMO)	SM must provide the IMO with LFAS quantity forecasts by 12pm daily for the upcoming trading day. On 26 June 2015, SM provided the data 54 minutes late.	No	SM sent the file containing LFAS quantities at the correct time but for the incorrect trade date (i.e. the file sent to the IMO indicated a trade date of 25 June 2015 instead of 26 June 2015). However, the quantity (72 MW) was correct. SM sent the corrected file with the appropriate trade date at 12:54p.m.  The error occurred as the date that the LFAS forecast pertains to is manually entered and subject to error. To prevent this error recurring SM has added conditional formatting to the file so that incorrect dates are highlighted.  As the correct file was sent at 12:54 pm and as the LFAS requirement is a constant 72 MW, there was no material impact on the market.
7B.3.6	SM must use facilities for LFAS in accordance with the selection information provided by the IMO. Particularly, SM must enable LFAS facilities in reasonable proportion to the quantities indicated the LFAS merit order. PA's analysis of a sample of LFAS merit orders and corresponding LFAS activation instructions issued by SM has uncovered multiple intervals across 63 days in which either SM did not enable facilities in a reasonable proportion to the cleared quantities in the LFAS merit order	Yes (Multiple intervals across 63 day <sup>22</sup> )	In order to assess the potential for systemic issues in LFAS dispatch, we analysed a sample of data covering the period 1 August 2014 – 30 September 2014 and 1 December 2014 – 31 January 2015. We noted a number of instances where the amount of LFAS enabled for facilities did not match the amount cleared by the LFAS merit order. In cases where LFAS was provided by multiple participants, this constitutes a breach of clause 7B.3.6 <sup>23</sup> .  Breaches of clause 7B.3.6 would result in participants providing different amounts of LFAS than they otherwise would have, thus affecting market settlement payments. We have therefore deemed these breaches to be material.

<sup>22</sup> See also Chapter 8, Table 4

<sup>23</sup> Clause 7B.3.6 requires SM to enable LFAS in a reasonable proportion to the quantities cleared in the LFAS merit order. In the event that only one facility provides LFAS, a discrepancy between LFAS cleared and LFAS enabled does not constitute a breach of clause 7B.3.6, since notwithstanding the discrepancy, SM dispatched the sole facility in a "reasonable proportion". In other words, the facility accounted for 100% of LFAS enabled and 100% of LFAS cleared. In the event that multiple participants are providing LFAS a discrepancy could be indicative of a breach of clause 7B.3.6. For example, if the total LFAS cleared were 72MW (30 MW for facility 1 and 42 for facility 2), but SM activated facility 1 for 30MW, and facility 2 for 38MW then facility 2 would have been cleared for 58% but only enabled for 55%.

# 11 ELECTRICITY RULE CHAPTER 8 – WHOLESALE MARKET METERING

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Electricity Rules Chapter 8 sets out the Wholesale Market Metering Rules. These Rules do not apply to System Management.

## 11.1 Compliance with Chapter 8

System Management has no obligations under Chapter 8 of the Electricity Rules.

# 12 ELECTRICITY RULES CHAPTER 9 – SETTLEMENT

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Chapter 9 of the Electricity Rules sets out the Settlement Rules.

## 12.1 System Management’s processes and procedures

### 12.1.1 Rule amendments

There have been no amendments to Chapter 9 since last year’s market audit:

### 12.1.2 Procedures

System Management has limited obligations under Chapter 9. There are no Power System Operation Procedure sections or internal procedures relating to Chapter 9.

## 12.2 Compliance with Chapter 9

We have not observed any non-compliance on the part of System Management respect to its obligations under Chapter 9.

### 12.2.1 Opinion

We have not observed anything that causes us to believe that System Management has not complied with its obligations under Chapter 9 of the Electricity Rules.

# 13 ELECTRICITY RULES CHAPTER 10 – MARKET INFORMATION

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Electricity Rule Chapter 10 sets out the Market Information Rules.

## 13.1 System Management’s processes and procedures

### 13.1.1 Rule amendments

There have been no amendments to Chapter 10 since last year’s market audit:

### 13.1.2 Procedures

System Management has limited obligations under Chapter 10. There are no Power System Operation Procedure sections or internal procedures relating to Chapter 10.

## 13.2 Compliance with Chapter 10

We have not observed any non-compliance on the part of System Management respect to its obligations under Chapter 10.

### 13.2.1 Opinion

We have not observed anything that causes us to believe that System Management has not complied with its obligations under Chapter 10 of the Electricity Rules.



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