

# **SEM Committee Paper**

## **Trading and Settlement Code**

### **Terms of Reference for the Market Audit 2009**

#### **DECISION PAPER**

**SEM-09-078**

**21 July 2009**

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## 1 Background

The Trading and Settlement Code (“TSC” or “Code”) provides in paragraph 2.133 that ‘the Market Auditor shall conduct an audit of the Code, its operation and implementation and the operations, trading arrangements, procedures and processes under the Code at least once a Year’.

The TSC further sets out in paragraph 2.134 that an annual Market Audit will be conducted for the period from 1 January to 31 December, unless the terms of reference specify a different period. It further provides in paragraph 2.135 and 2.136 that ‘the Regulatory Authorities (“RAs”) shall consult with Parties on the terms of reference for the audit following the publication of the Audit Report for the previous year or audit period’ and that ‘the RAs shall specify annually the precise terms of reference for the audit following the consultation process set out in paragraph 2.135 and in sufficient time to enable the Market Auditor to complete the work in a timely manner and shall publish the terms of reference before the commencement of the audit activities’.

The RAs published a consultation paper on 19 May 2009 and proposed to continue with the scope of the 2007/08 Market Audit for 2009<sup>1</sup>. The precise proposed terms of reference for the Single Electricity Market (“SEM”) Market Audit for the period January to December 2009 were set out in Section 2 of the Consultation Paper.

The RAs received comments from interested parties on the Consultation Paper. The three respondents were:

- Viridian Power and Energy (VPE)
- ESB Power Generation (ESBPG)
- NIE Energy Supply (NIE)

The following section summarises these three submissions and provides the RAs response in each case.

The SEM Committee’s final decision on the terms of reference for the 2009 Market Audit is set out in section 3 of the paper.

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<sup>1</sup> SEM-09-058

## **2 Comments on the Consultation Paper and the RAs response**

### **2.1 Respondents Comments**

While NIE agreed with the RAs proposed 'status quo' option where the scope of the 2009 Market Audit remains unchanged from that of the 2007/08 scope, ESBPG and VPE expressed a preference for expanding the scope further as set out in the Consultation Paper under Alternative 1 and Alternative 2<sup>2</sup> respectively.

ESB were of the view that 'the MSP should be included in the scope of the audit as per Alternative 1', whilst noting that added value of this needs to be balanced against the cost of auditing the MSP Software. ESBPG further suggests that if a full audit of the MSP Software is not feasible, the audit scope could include an audit of the certification process and be the trigger for this.

VPE, in their response, argued for the inclusion of the activities of the System Operator (SOs) within the audit scope as per Alternative 2 for the reason of the role that the SOs have in the market, in terms of information provision and interactions between the System Operators and the market schedule and prices. VPE were also of the view that SEMO's use of the Lagrangian Relaxation (LR) and Mixed Integer Programming (MIP) solvers should be audited 'identifying when this [MIP] has occurred, the criteria that have been used by SEMO to determine when this should occur and the materiality to SMP'.

VPE were of the view that the liability provisions in the market auditors letters of release with participants relating to the 2007/08 audit are 'untypical' and should be brought in line with standard audit practice.

### **2.2 Regulatory Authorities Response**

#### MSP Software

It is important that the benefits of including a full audit of the MSP Software and the additional assurances that such an audit would provide are weighed against the cost.

There is currently an ongoing process of recertification of the MSP Software<sup>3</sup>, which is intended to provide a detailed assessment of the technical integrity and accuracy of the software. Given that recertification is underway and will be based on a realistic and representative set of scenarios, the additional benefits of including the MSP Software within a compliance market audit for the current year are somewhat reduced, in particular when set against the likely extra Market Auditor cost implications.

An audit of the MSP Software would potentially provide reasonable, but not absolute, assurance that SEMO was compliant with the TSC requirements on the operation of the software throughout the audit year. While this may provide a degree of comfort to participants, it would differ from the assurance given by the certification process over the technical integrity and accuracy of the software at a point in time. Furthermore it would be expected to involve a significant increase in the costs of the Market Auditor. The RAs

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<sup>2</sup> Under Alternative 1, the audit would be extended to cover the compliance of the SEMO with the provisions of the TSC in its operation of the MSP Software. Under Alternative 2, the scope of the audit would be broadened to include the activities of the System Operators and Meter Data Providers.

<sup>3</sup> SEMO intends publish results of the recertification process in the near future

therefore remain of the view that the components of the MSP Software that have to date remained outside of the audit scope - the operation of Unit Commitment, Economic Dispatch and calculation of Shadow Prices - should continue to be excluded.

In addition, the re-certification process is at present undertaken when required and dependent upon the level of changes made to the market systems. As the market develops, the RAs will consider whether a specific trigger for recertification is appropriate.

#### Lagrangian Relaxation v Mixed Integer Programming

The process by which SEMO determines whether to rerun the MSP Software using the Mixed Integer Programming solver has been conveyed to participants at various industry for a since mid 2008. In addition, the Market Operator Monthly Report provides a transparent means of communicating when a run of the MSP Software is conducted and published using MIP.

Whilst this process is not detailed in the TSC, the RAs consider that as a further step to ensuring the openness of this process the Market Auditor should provide assurances around the process and approvals by which the MSP Software is run using the MIP solver. This will further advance the transparency objective set in the TSC.

#### System Operators and MDPs

The RAs acknowledge VPE's comments on broadening the scope to include the activities of the System Operator. The accuracy of source data provided by the System Operators (and the Meter Data Providers) is key to the settlement outputs of the market. Notwithstanding this, the RAs are aware that a comprehensive audit of these parties would be necessary in order to deliver the required level of assure. Whilst such a significant increase in scope and cost of the audit work may be judged worthwhile in future years, it is the RAs view that, at present, mitigating avoidable costs to the market and consumers is of higher priority.

As such, the cost implications of including the activities of the System Operators and Meter Date Providers are judged at this point in the market's development to offset any assurance gains.

Regarding the liability provisions in the letter of release to the Market Auditor, the RAs would underline that these are standard liability provisions and any concerns that participants have regarding these should be taken up with the Market Auditor.

### **2.3 Decision and Next Steps**

In view of the above considerations, the SEM Committee determines that the Terms of Reference for the Market Audit the 2009 shall be as for the 2007/08 Market Audit with the addition of an audit of the process and approvals under which SEMO conducts a re-run of the MSP Software using Mixed Integer Programming.

The Terms of Reference for the period 1 January 2009 to 31 December 2009 are set out in Section 3 of this paper.

### **3 Proposed Terms of Reference for the 2009 Audit Scope**

This section sets out an proposed terms of reference for the 2009 Market Audit for the period January to December 2009, based on the matters discussed above.

#### **3.1 Contractual and Governance Arrangements**

In accordance with paragraph 2.136 of the SEM Trading and Settlement Code (TSC), the RAs hereby specify the terms of reference for the second Market Audit for the period from 1 January to 31 December 2009 as set out below.

Based on the terms of reference, the Market Auditor will prepare an Audit Plan setting out the detailed audit approach which will be presented to and agreed with the RAs. In preparing the Market Audit Plan, the Market Auditor may consult with the RAs, Market Operator and other participants as required.

SEMO and the Market Auditor will enter into a side agreement acknowledging the terms of engagement of the Market Auditor and their respective responsibilities. The Market Auditor will also enter into some form of agreement with Parties to the TSC who receive a copy of its report.

#### **3.2 Period of Second Audit Report**

The Market Audit will cover the 12 month period from 1 January to 31 December 2009, including Resettlement of previous Settlement Dates performed within this period.

In a similar manner to the 2007/08 Audit, it is intended that the Market Auditor should perform interim audit procedures to cover the first six months of the audit period. This would involve approximately 50% of the audit work that would be required for a full year. The Market Auditor will flag to the RAs any issues identified from its audit procedures which it considers may have a material impact on the audit opinion for the year, although a formal Interim Review Report and Report of Significant Issues would not be required. This reporting was required for the 2007/08 Market Audit as it was the first audit period following the introduction of the new SEM and covered an extended period of 14 months. In view of the absence of material non compliance identified in the first audit period and the continued successful operation of the SEM, the RAs believe it is appropriate to discontinue the formal interim reporting.

#### **3.3 Materiality**

As with the 2007/08 Market Audit, the materiality for the audit shall be set at 0.25% of estimated annual market value.

A lower threshold, 10% of materiality, will be adopted for the reporting of significant issues identified during the course of the Market Audit, although it is

recognised there may be qualitative aspects in determining the significance of any issue. That is, the Market Auditor shall report on issues which come to its attention which exceed this significant issues threshold or which it believes to be significant for other reasons.

### **3.4 Reporting**

In the preparation of the Market Audit Report, the Market Auditor will discuss individual draft issues with SEMO and other Parties insofar as they relate to them in order to confirm factual accuracy of the issues and their estimated quantification, and that all pertinent information and clarifications have reasonably been included.

The Market Auditor will subsequently discuss a full draft of the Market Audit Report with the RAs who may, at their discretion, invite or include named participants in the discussion of the draft report. The RAs believe that it may be necessary for them to discuss with SEMO and the Market Auditor any relevant Significant Issues included in the draft report.

The final version of the Market Audit Report will be addressed to the RAs. The final version of the Market Audit Report will be provided to Parties to the TSC most likely at a meeting of the Modifications Committee, in line with the provisions of the TSC, and subject to any confidentiality provisions required by the Market Auditor.

### **3.5 Boundary of Audit**

The Trading and Settlement Code Section 2.133 sets out that “the Market Auditor shall conduct an audit of the Code, its operation and implementation and the operations, trading arrangements, procedures and processes under the Code”. The remit of this proposed scope for the second market audit period has been set on the basis of this, and the RAs consider that the systems, activities and processes under the aegis of SEMO (and other parties where stipulated) fulfil the requirements of the Market Audit provisions in the Code.

The scope of the Market Audit for 2009 will focus on the activities of SEMO under the TSC and Agreed Procedures and cover the systems and processes within the control of SEMO.

This contained scope excludes activities undertaken by the TSOs, Meter Data Providers and other participants as set out in the TSC and Agreed Procedures. However the Scope will include the calculation of Modified Interconnector Unit Nominations by the Interconnector Administrator.

The relevant Market Operator activities, to the extent covered by specific requirements in the TSC, Rules and Agreed Procedures, will include:

- Accession and Registration
- Settlement production, including operation of the MSP Software (subject to the limitation set out in the paragraph below), Instruction Profiling,



calculation of Energy Payments and Charges, and calculation of Capacity Payments and Charges, etc.

- Market Operator, Currency, Balancing and other Charges
- Invoicing and Payment
- Credit Cover management, including Settlement Reallocation
- Disputes
- Code development
- As with the 2007/08 first Market Audit period it is intended to exclude the operation of certain components of the MSP Pricing Engine from the scope of the Market Audit. The excluded components are the operation of Unit Commitment, Economic Dispatch and calculation of Shadow Prices. The reduced scope for the MSP Pricing Engine would therefore include:
  - Performing testing over change control, IS operations and access security to verify that only thoroughly tested and properly authorised changes are made to the MSP Pricing Engine; and
  - Performing a set of test procedures limited to the application of Uplift to Shadow Prices to determine System Marginal Prices and areas of manual intervention and controls exercised by SEMO over the operation of the MSP software, including controls over receipt and upload of data inputs, including system static data, Generator Unit standing data and Offer Data; controls over the modification of data provided to SEMO, e.g. conflicting input data, replacement of zero single ramp up/down rates; and adherence to timetables for gate closure and settlement runs.
  - Performing audit procedures on the processes and approvals under which SEMO re-run the MSP Software using the Mixed Integer Programming solver.