

SEM Committee Paper

Trading and Settlement Code

Terms of Reference for the Market Audit

DECISION PAPER

31 August 2010

1. Background

The Trading and Settlement Code (“TSC” or the “Code”), requires an audit of the Code, its operation and implementation, and the operations, trading arrangements, procedures and processes under the Code to be performed on an annual basis. The Code also requires The Regulatory Authorities (“RAs”) to consult with Parties on the terms of reference for the audit and to specify annually the precise terms of reference.

In 2007/08 and 2009 the Market Audit represented an audit of compliance by the Single Electricity Market Operator (“SEMO”) and, in so far as it related to the calculation of Modified Interconnector Unit Nominations (“MIUNs”), the Interconnector Administrator with their requirements under the Code. For 2007/08 the scope of the Market Audit excluded discrete components of the MSP Pricing Engine (unit commitment, economic dispatch and the calculation of Shadow Prices) as it was considered that the benefits of performing audit work over these components were outweighed by the costs and disruption in the initial period of market operation. For the second Market Audit, the scope was marginally extended to include a review of the decision process and approvals for using the Mixed Integer Programming (MIP) solver instead of Lagrangian Relaxation (LR) in MSP. In both previous Market Audits, the scope also excluded activities undertaken by the System Operators (“SOs”), Meter Data Providers (“MDPs”) and other participants as set out in the Code and Agreed Procedures. The RAs took the view that the resulting opinion provided the Market with a report that was both comprehensive and of value to participants, given the constraints of what is practically feasible at a reasonable cost and without undermining the ongoing operation of the Market.

The pricing and settlement outputs in the SEM (energy and capacity volumes and payments) are reliant on the integrity and accuracy of source data provided by MDPs and SOs. Errors in metered generation, dispatch instructions, metered and profiled demand may result in significant errors in settlement outputs which may not be apparent to SEMO or market participants, however the Market Audit Scope does not currently extend to activities of the MDPs and SOs for sourcing, processing and provision of settlement data and it should be noted that the TSC does not impose any obligations on SEMO to check the validity of source data. The TSC does however require such data to be provided by the MDPs and SOs to the standards set out in the Metering Code and Grid Code (as applicable).

The RAs published a consultation paper on 27 May 2010. The Consultation Paper noted that the SEM Committee considers that there could be merit in gradually expanding the remit of the Market Audit to include certain activities of other parties to the TSC involved in the calculation of data that affects price and schedules. The Consultation Paper set out two potential extensions that would involve the Market Auditor either assessing compliance of the MDPs and SOs with their obligations under the Code or conducting a limited examination relating to the accuracy of source data provided by the MDPs and SOs. As well as the status quo option, both these extensions to the scope maintained the current audit of compliance by the SEMO and, in so far as it related to the calculation of MIUNs the Interconnector Administrator with their requirements under the Code.

Below is a brief summary of the options and their respective cost implications proposed in the Consultation Paper:

	Option 1	Option 2	Option 3
Benefits	Status Quo – continued audit of SEMO's (and some IA roles) compliance with Code	Assurance over SO and MDP compliance with their obligations under the Code	Assessment of provision of key inputs to settlements process
Costs	Status Quo	Increase of 50–66% of current market audit fee*	Increase of 12.5 – 25% of current market audit fee*

The RAs received comments from 10 interested parties on the Consultation Paper. The respondents were:

- Bord Gais Energy (BGE)
- Eirgrid and SONI
- ESB Pool Market Operations (ESB PMO)
- ESB Customer Supply
- ESB Networks
- NIE Energy Supply (NIES)
- NIE Power Procurement Business (PPB)
- NIE T&D
- Viridian Power and Energy (VPE)
- SSE Renewables (SSE)

The following section summarises these comments and provides the RAs' response in each case. The SEM Committee's final decision on the terms of reference for the 2010 Market Audit is set out in section 3 of the paper.

2. Comments on the Consultation Paper and the RAs response

Respondents Comments

BGE in their response welcomed the expansion of the Audit scope and took the view that 'Agreed Upon Procedures' (Option 3) would be a reasonable first step in this process, noting that data relating to all generator types should be included the scope rather than just price affecting data.

ESB PMO also stated their support for Option 3, noting that 'it offers the most appropriate means to improve benefits attainable by way of assurance and insights'. They also recommended that the audit scope include a review of SEMO's plans to resolve operational errors and improve end to end process'.

ESBCS endorse 'the gradual approach of Option 3 as it would focus on the key controls and processes for producing the relevant data and facilitate future extension of the Market Audit'.

NIES also stated that it supports the expansion of the audit scope, noting that 'the market has experienced significant levels of resettlement in no small part due to the data provided to SEMO' and argues for the benefits of including the Meter Data Providers in future audit. Recognising the cost implications of Option 2, NIES prefers Option 3 as a first step, pointing out that 'it will establish an exploratory terms of reference involving MDPs, and facilitate the assessment of key interfaces, providing the market with a high level view of the potential merits of a deeper MDP audit.

PPB's response sets out its view that the Market Audit should be expanded to cover compliance of the MDPs and SOs with their obligations under the Code. However, PPB argue that Option 2 should be excluded due to the high level of costs involved and the potential to replicate internal audits. PPB suggest that a subsection of the activities of the SOs and MDPs should be audited in detail and rotated on an annual based with all the obligations under the Code covered in 3-5 year cycles.

In their response, SSE set out their support for Option 3, and stated that it favours a prudent and gradual expansion of the audit scope.

VPE argued for the inclusion of the activities of the SOs within the audit scope as per Option 2, though it recognised that Option 3 is an improvement on the status quo and would support it as an interim step. In its response, VPE voiced its concern about 'uncertainty of the accuracy of market settlement data which strongly underlines the need for broadening of the scope of the Market Audit'.

Eirgrid and SONI responded setting out their belief that 'the expansion of the Market Audit would be worthwhile in providing the level of assurance necessary to industry participants and the wider SEM regarding compliance of the SOs and MDPs with the Trading and Settlement Code'. The SOs recommended Option 2 which 'would be appropriate given the role undertaken by the SOs and MDPs in the SEM, advising that it would be worthwhile to limit time and costs by carrying out one SO and one MDP audit per year'.

Eirgrid and SONI take the view that Option 3 'crosses over into the Metering Code and Grid Code and whilst these rules have dependencies to the TSC, a full study of the interdependencies of the Codes should be incorporated before the audit scope is expanded to incorporate them'. They also point out that Option 3 proposes the use of internal audit report as a means of assessment of compliance and note that internal audits vary between data providers and therefore should be aligned before Option 3 is considered feasible.

However, while supporting Option 2, Eirgrid and SONI point to the timescales involvement in its implementation and suggest that the RAs should instead consider it for the 2011 market audit scope.

NIE T&D states that it sees the status quo as 'adding little value' and favour Option 2. However, due to timing issues Option 1 is its advised approach for 2010. NIE sees Option 3 as involving governance issues relating to metering requirements that are outside the Grid Code and sees it as the most complex option which would require cost recovery.

ESBN also identifies Option 2 as its preferred option, noting that 'it provides a sufficiently thorough assurance for Industry Participants that MDPs/SOs remain compliant with the TSC'. It takes the view that 'Option 3 would require the deployment of a considerable level of resources which would result in higher costs'. However, ESN stresses that 'any expansion of the audit to incorporate the activities of the MDPs and SOs would have a big impact on time and resources, which has not been factored into business or financial plans'. Accordingly, ESN would prefer an extension to the scope of the Market Audit to commence in 2011, in order to incorporate any impact on business planning'.

ESBN suggests that the RAs should rationalise the auditing of the MDPs and avoid duplication with internal audits. Furthermore, they point out that when considering the costs and benefits of expanding the Market Audit, the SEM Committee should consider the additional costs imposed on the MDPs and SOs and discount any benefits that would be duplication of existing audit procedures carried out in the SOs and MDPs.

Regulatory Authorities Response

Expansion Options

The SEM Committee welcomes the positive responses by all respondents to the extension of the Market Audit, with most market participants' responses indicating that Option 3 would be the most sensible approach for 2010, given the greater volume of testing and resource implications involved in Option 2.

Regarding the governance issues raised by Eirgrid/SONI, NIE and ESN, the SEM Committee does not agree that Option 3 raises any governance issues given that the SOs and MDPs are contractual Parties to the SEM Trading and Settlement Code and their obligations set out therein include the provision of data inputs to the market. The TSC also requires compliance by MDPs and SOs with requirements contained in the Grid Code and Metering Code as applicable.

The SEM Committee also notes that the TSC provides under paragraph 2.139 'each Party shall provide without charge to the Market Auditor in a timely manner such information as is reasonably required by the Market Auditor to enable the Market Auditor to comply with its functions and obligations and terms of reference for the purposes of conducting the audit and preparing and finalising the audit report'.

Having considered the responses, the SEM Committee takes the view that Option 3 provides the best value for the 2010 audit, in part because it provides for a review that will lead to the identification of any risk areas that might require further attention in later years. As stated in the consultation paper, this is not an audit of the MDPs or SOs under the Metering Code or Grid Code, but the performance of defined test procedures (the 'Agreed upon Procedures' described in the Consultation Paper and further set out below) over their processes for the production of input data for settlements which is required under the TSC to standards set out in the relevant Codes.

In view of the importance of certain processes performed and data feeds provided by SOs and MDPs, the focus of the 'Agreed Upon Procedures' element of the 2010 Market Audit shall be for the Market Auditor to examine the main processes involved in the provision of metered generation for all Generator Units and related inputs (i.e. Dispatch Instructions) into the settlement system.

As noted in the Consultation Paper, it is recognised that some data types may be prioritised over others for inclusion within the audit activities and the Market Audit could focus in greater detail on any specific areas of weakness identified in future years, essentially narrowing and deepening its focus. Therefore, it is deemed appropriate to concentrate on dispatch instructions and metered generation for all Generator Units in the first instances in order to enable the further focusing of the Market Audit in later years.

Recovery of costs of Audit

In response to the resource and cost concerns with Option 3 expressed by NIE T&D and ESNB, the SEM Committee does not agree that Option 3 will require higher costs and resources than Option 2. Option 3 will not be an audit of the full suite of obligations of the SOs and MDPs under the TSC; rather a limited and targeted assessment of provision of key inputs to the SEM settlement processes in the TSC. In a well-controlled operation with adequate documentation of processes and controls, it is not anticipated that the AuP will present a significant time or resources burden on any of the relevant parties.

The SEM Committee welcomes any further discussion that may be needed on this point with the relevant parties.

Duplication of Audit Procedures

The SEM Committee recognises that in some cases there may be some overlap with existing audit procedures performed by the relevant parties, although highlights that the results of such procedures are not made more widely available to the market and are not subject to independent scrutiny and comparison by the SEM Committee. Given the limited scope of procedures to be undertaken for the Market Audit, the SEM Committee does not believe this will result in any significant duplication of audit procedures but will ensure that duplication of audit work is kept to a minimum in the terms of the Agreed Upon Procedures.

Agreed Upon Procedures

The extension to the Market Audit Scope, will be undertaken on an Agreed Upon Procedures (“AuP”) basis under International Standard for Related Services (ISRS) 4400 issued by the International Auditing and Assurance Standards Board (IAASB).

This approach involves agreeing a detailed work programme with the RAs and discussing with the audited parties, executing the specific procedures, and reporting the factual findings to the RAs and the Modifications Committee (although there would be similar reporting of significant/other issues, it would not contain an audit opinion).

The Agreed Upon Procedures will focus on key controls operated by the relevant parties over the creation and updating of standing data relating to generators, the collection, processing and submission of meter reads, and the collation and submission of dispatch instructions. In particular, the Procedures will seek to test data validation and completeness checking, internal review and approval, exception handling and resolution. It will not represent an audit of the full process undertaken by the relevant parties, and will concentrate on areas which could have a potentially significant impact on settlement calculations.

The steps in the 'Agreed Upon Procedure' would be:

- Identify the key requirements under the Code, Agreed Procedures and any other applicable rules to be tested. This enables testing to be concentrated on those areas which impact on the data being provided into the settlement process.
- Define and agree test procedures, setting out the detailed testing steps and test volumes, to address the key requirements. These represent the AuP
- Execute the AuP at each of the applicable SOs and MDPs, recording the factual results of testing
- Report the factual findings arising from the AuP to the RAs and Parties. As is normal practice for this type of engagement, it would not lead to an audit or assurance opinion. To avoid any confusion with the compliance audit opinion covering SEMO (and the IA in respect of MIUNs), the AuP results will be reported separately within the Market Audit report.

The specific AuP to be performed will be shared with the relevant parties in advance to provide for clarity and transparency, and facilitate smooth running of the work. In a well-controlled operation with adequate documentation of processes and controls, it is not anticipated that the AuP will present a significant time or resources burden on any of the relevant parties.

Decision and Next Steps

In view of the above considerations, the SEM Committee determines that the Terms of Reference for the Market Audit the 2010 shall be as for the 2009 Market Audit with the addition of an a set of Agreed Upon Audit Procedures focussing on defined activities of the SOs and MDPs. This will be developed in the coming months as part of the Market Audit Plan for the 2010 Market Audit.

The Terms of Reference for the period 1 January 2010 to 31 December 2010 are set out in Section 3 of this paper.

3. Proposed Terms of Reference for the 2010 Audit Scope

This section sets out the terms of reference for the 2010 Market Audit for the period January to December 2010, based on the matters discussed above.

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.

Period of Third Market Audit Report

The Market Audit will cover the 12 month period from 1 January to 31 December 2010, including Resettlement of previous Settlement Dates performed within this period.

In a similar manner to the previous Market Audits, 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 two audit periods and the continued successful operation of the SEM, the RAs believe it is not necessary to reinstate formal interim reporting.

Materiality

As with the 2009 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.

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.

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 third 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) fulfill the requirements of the Market Audit provisions in the Code.

The scope of the Market Audit for 2010 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 2009 Market Audit, 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;
- 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; and
- Performing audit procedures on the processes and approvals under which SEMO re-run the MSP Software using the Mixed Integer Programming solver.

Agreed Upon Procedures for System Operators and Meter Data Providers

This extension to the audit testing will involve a limited examination of certain activities of the MDPs and SOs, possibly including assessment of the relevant findings of the internal audits performed by those organisations, supplemented by certain defined audit procedures. Such procedures focus on the key controls and process for producing the relevant data rather than direct testing of detailed data items themselves. Matters which would be reviewed include:

- Maintenance of registration data and technical details – to assess whether controls and processes are in place to procure accurate data sets, e.g. register mappings, pulse multipliers. Focus will be on key controls over the validation, checking and approval of changes to standing data and meter technical details.
- Retrieval, processing and validation of reads data and calculation of meter advances to assess whether a robust process exists for the production of reliable metered generation data in accordance with the standards set out the Grid Code or Metering Code (as applicable). We will focus on key controls applied by the relevant party, including checks over completeness of data, validation of reads against technical limits and acceptable tolerances, handling of warning or error messages during meter data retrieval, and other reasonableness and consistency checks performed.
- Application of estimation processes – to consider whether the estimation and substitution requirements contained within the Grid Code or Metering Code (as applicable) are applied. In particular, we will test the review and approval processes, and consider whether preventive action has been taken in respect of the underlying cause where appropriate.
- Recording, processing and submission of dispatch instructions – to assess the key controls operated by the SOs over the compilation of dispatch instructions. We will

test the SOs' key controls over the completeness checking, validation, review and approval of dispatch instructions.

- Handling and resolution of queries and disputes – to assess the level of issues and ascertain that resolution actions are being taken.

An AuP engagement involves the following steps:

- Identify the key requirements under the Code, Agreed Procedures and any other applicable rules to be tested. This enables testing to be concentrated on those areas which impact on the data being provided into the settlement process.
- Define and agree test procedures, setting out the detailed testing steps and test volumes, to address the key requirements. These represent the AuP
- Execute the AuP at each of the applicable SOs and MDPs, recording the factual results of testing
- Report the factual findings arising from the AuP to the RAs and Parties. As is normal practice for this type of engagement, it would not lead to an audit or assurance opinion. To avoid any confusion with the compliance audit opinion covering SEMO (and the IA in respect of MIUNs), the AuP results will be reported separately within the Market Audit report.

The specific AuP to be performed will be shared with the relevant parties in advance to provide for clarity and transparency, and facilitate smooth running of the work. In a well-controlled operation with adequate documentation of processes and controls, it is not anticipated that the AuP will present a significant time or resources burden on any of the relevant parties.