



**TRADING AND SETTLEMENT CODE**

**Terms of Reference for the Market Audit**

**CONSULTATION PAPER**

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## **1 Introduction**

### **1.1 Background**

The Trading and Settlement Code (“T&SC” or “the Code”) for the Single Electricity Market (SEM) was designated on 3 July 2007. The T&SC provides, inter alia, that a Market Audit will be conducted annually. Paragraph 2.136 provides that the Regulatory Authorities (together the Commission for Energy Regulation (CER) and Northern Ireland Authority for Utility Regulation (NIAUR)) shall consult with Parties on the terms of reference for such Market Audit at least 10 weeks in advance of the commencement of the audit period. The first audit period for the SEM will commence on the Market Start Date.

The following paper considers the constituent elements of a Market Audit, and sets out a potential terms of reference for the first Market Audit.

The paper does not seek to address the detailed audit risks presented by each aspect of settlement, nor does it seek to specify the nature of audit procedures that might be carried out in each area of settlement.

### **1.2 Requirement for Market Audit**

The requirement for a Market Audit is set out in section 2 of the Trading & Settlement Code in paragraphs 2.131 to 2.143. Specifically

- The Market Auditor is appointed by the Regulatory Authorities;
- 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; and
- The Regulatory Authorities shall consult with Parties on the terms of reference for the audit, and specify and publish annually the precise terms of reference for the Market Audit.

### **1.3 Consultation on Terms of Reference**

As noted above, the Code requires that the Regulatory Authorities consult with Parties on the terms of reference of the audit at least 10 weeks in advance of the commencement of the audit period, and publish precise terms of reference 4 weeks in advance of the commencement of the year or period subject to audit. This document is the vehicle for consultation by the Regulatory Authorities on the terms of reference for the Market Audit, as required under the Code.

## **2 Executive Summary**

### **2.1 Introduction**

The requirement for a Market Audit in the Single Electricity Market (SEM) is set out under the provisions of the Trading and Settlement Code (T&SC). This includes the necessity to undertake a consultation process in relation to the development of the terms of reference for the Market Audit.

The first step in this process is the development of a consultation document. This document outlines the options that exist in relation to the scoping of the Market Audit, the nature of Market Audits undertaken in other jurisdictions and the proposed Market Audit scoping developed by the Regulatory Authorities.

The objective of this consultation paper is to elicit public and industry comment on the Regulatory Authorities' proposed terms of reference for the Market Audit.

### **2.2 Terms of reference for Market Audit**

There are two key areas which require consideration in the determining the terms of reference for the Market Audit – (i) principles for the Market Audit and (ii) scope of the Market Audit. A summary of the key proposed elements within each of these areas is set out below, and are expanded on further in Sections 4 and 5.

#### **2.2.1 Principles for the Market Audit**

The main proposed principles underpinning the Market Audit function and the opinion to be provided to the market are:

- Standing of the Code. The Market Audit will focus on the compliance with the Trading & Settlement Code and not extend to a review of other legal, regulatory and licence requirements;
- Single Opinion. The Audit will take the form of a single, overarching opinion from one Market Auditor;
- Materiality. A single level of materiality is proposed expressed in financial terms. It is suggested that this be set at 0.25 % of estimated market value with a lower threshold of 10% of materiality adopted for the reporting of significant issues identified during the course of the Market Audit;
- Report of Significant Issues. The Audit will contain a Report of Significant Issues which will outline matters identified during the course of the Market Audit which did not affect the audit opinion but were in themselves considered to be significant;
- Nature of Opinion. The audit opinion will take the form of a compliance opinion which will provide assurance that the Market Operator and other

Parties as appropriate have complied in all material respects with the T&SC and Agreed Procedures; and

- First Audit Period. The first Market Audit will cover a 14 month period from November 2007 until December 2008. It is proposed that an interim review be undertaken six months into this period to provide a level of assurance to the market.

### **2.2.2 Scope of the Market Audit**

The decision on the scope of the Market Audit is essentially a matter of judgement, based on the assurance needs of the respective parties, balanced with the cost and feasibility of providing that assurance. The key scoping considerations are

- Settlement Processes. It is proposed that for the initial period of operation of the market, the Market Audit should focus on the activities of the Market Operator under the T&SC and cover the systems and processes within the control of the Market Operator. As the market matures, this scope may be broadened;
- Systems/processes under the control of the Market Operator. Systems/processes to be included are proposed as: Accession and Registration; Settlement Production; Market Operator, Currency, Balancing and other Charges; Invoicing & Payment; Credit Cover Management; Disputes and Design Authority / Code Development. In addition, the calculation of Modified Interconnector Unit Nominations which are currently undertaken by the Interconnector Administrator will be included within the scope (this function is due to transfer to the Market Operator by November 2008). It is proposed to exclude discrete components of the MSP Pricing Engine (Unit Commitment, Economic Dispatch, Calculation of Shadow Prices) from the scope of the Market Audit given the significant costs foreseen which would outweigh the envisaged benefits; and
- Limitations / Exclusions from Scope. Areas which it is considered fall naturally outside of the scope of the market audit include: Checking of validity of the Rules; Derivation of Generator Unit Technical Offer Data; Calculation of Generator Unit Commercial Offer Data; Calculation of Loss Factors and Meter Configuration.

### **2.3 Document structure**

This document is structured as follows:

- Section 1 sets out the requirement for a Market Audit as defined in the T&SC and the consultation process regarding the terms of reference for the Market Audit;
- Section 2 contains this Executive Summary;

- Section 3 provides a high level overview of the SEM which will come into effect on the 1 November 2007;
- Section 4 sets out the principles which will underlie the basis of the Market Audit opinion, the nature of the reporting and the timeframe of the Market Audit;
- Section 5 addresses the specific boundaries of the Market Audit in terms of the market processes and systems, and operators and parties which are inside and excluded from the scope;
- Section 6 provides an overview of the scope of Market Audits undertaken in selected other countries – Great Britain, Australia, USA and Spain;
- Section 7 sets out the proposed terms of reference of the Market Audit building on the analysis set out in the previous sections; and
- Finally, the Appendices include samples of the alternative audit opinion and report formats available in addition to definitions and other supporting material.

## 2.4 Consultation and Next Steps

In presenting this paper for consultation, the Regulatory Authorities invite comment on the proposed scope of the Market Audit.

Responses to this consultation are requested by the close of business on **21 September 2007** and should be in writing and submitted, preferably via email, to

Philip Newsome

Commission for Energy Regulation  
The Exchange  
Belgard Square North  
Tallaght,  
Dublin 24.

Email: [pnewsome@cer.ie](mailto:pnewsome@cer.ie)

The Regulatory Authorities intend and prefer to publish all comments received, but are prepared to facilitate those respondents that wish that certain sections of their submission remain confidential. Accordingly, respondents that so wish should submit these sections in an appendix that is clearly marked “confidential”.

Further to their consideration of the comments received, the Regulatory Authorities will publish their decision on the terms of reference for the Single Electricity Market Audit. Thereafter, the Regulatory Authorities will conduct a procurement exercise using these terms of reference to engage a Market Auditor.

### 3 Overview of the Single Electricity Market

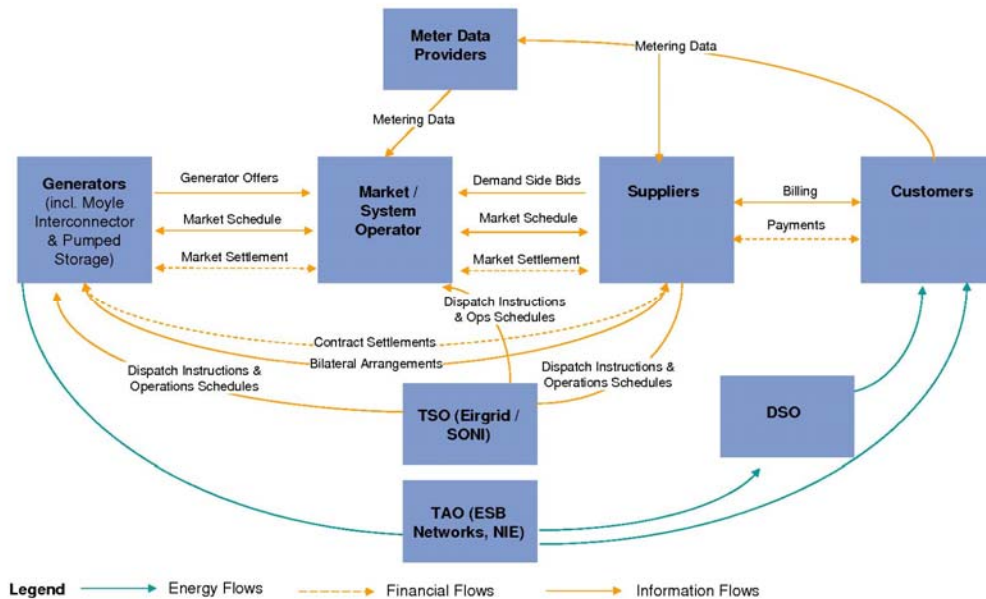
#### 3.1 Introduction

The introduction of the new wholesale electricity market on the island of Ireland in November 2007 will involve a move from the current bilateral trading arrangements. The key features of the new market include

- Gross mandatory Pool;
- day-ahead complex bidding;
- ex-post System Marginal Price (SMP) pricing (which excludes transmission, reserve and other constraints), with a single island-wide price for each Trading Period;
- central dispatch;
- separate Capacity Payments Mechanism; and
- locational transmission losses.

A high level overview of the energy, information and financial flows within these arrangements is set out below.

#### Information flows in the Single Electricity Market



With the introduction of a new market there is likely to be a level of uncertainty in the market among market participants. The undertaking of an independent



Market Audit should provide assurance to market participants that the market has been operated according to the Code which will be particularly important in the early years of the new market.

### 3.2 Overview of requirements of Market Participants for Market Audit

It is anticipated that there will be a range of requirements and expectations from the two main categories of market participants in relation to the output of the Market Audit. The scope of the audit will need to consider these to ensure they are considered and met (if possible). An overview of the key areas is set out below:

Suppliers	Generators
<ul style="list-style-type: none"> <li>• Operation of MSP Software in calculating System Marginal Price (SMP)</li> <li>• Calculation of charges (Energy; Capacity; Imperfections and MO Charges) in a fair manner in accordance with the T&amp;SC</li> <li>• Calculation of settlements in a timely and fair manner</li> <li>• Aggregation of metering data and calculation of metering services payments</li> </ul>	<ul style="list-style-type: none"> <li>• Operation of MSP Software in calculating SMP and Market Schedule Quantity (MSQ)</li> <li>• Calculation of Payments (Energy, Capacity, Constraint, Uninstructed Imbalances and Make Whole Payments), and Charges (Imperfections, Testing and MO Charges) in a fair manner in accordance with the T&amp;SC</li> <li>• Calculation of settlements in a timely and fair manner</li> <li>• Calculation of Dispatch Instructions by the SO (including Instruction Profiling &amp; Availability Profiling)</li> </ul>

### 3.3 Main data sources

The following table sets out the main types of data and their sources:

Data provided	Source
Transmission connected generator metered data	TSOs
Distribution connected generator metered data	MDPs (MRSO / NIE T&D)
Commercial Offer Data	Generators
Technical Offer Data	Generators
Demand Side Bids	Suppliers
Registration Data	Parties

Data provided	Source
Forecast Demand	TSO
Operations Schedule	TSO
Maintenance Schedule	TSO
Interconnector data	Interconnector Administrator
Metered Demand	MDPs (MRSO / NIE)
Annual Capacity Payment Sum	Regulatory Authorities
Dispatch Instructions	TSO
Real Time Availability	TSO

## **4 Principles for the Market Audit**

The purpose of the Market Audit is to provide independent assurance to the market on the operation of the trading and settlement system. This assurance is required by participants and their auditors and other stakeholders as the systems and calculations within the trading and settlement process fall outside their control making them unable to verify for themselves the processing and calculations being undertaken on their collective behalf. The Market Audit should therefore be designed to provide an opinion or report which can be relied upon by participants (and their auditors) for the purposes of their own financial statements.

Set out below are the main principles underpinning the Market Audit function and the opinion to be provided to the Market.

### **4.1 Standing of the Code**

The Code (together with subsidiary documents) was developed and approved by the Regulatory Authorities. The Code itself may be subject to modification through a defined process which may result in new versions of the Code being issued during the course of an audit period, or Approved Modifications superseding certain requirements of the Code. Subject to the order of precedence described below, the Code, as modified from time to time, represents the principal authority for the SEM and specifies the requirements against which a Market Audit would be conducted. Furthermore, for the purposes of the Market Audit, it is assumed that the Code contains all necessary requirements, and the Market Auditor is not required to review any other documents, e.g. enabling legislation or statement of principles, to identify provisions which may override the Code.

T&SC Section 2.4, Legal and Governance, describes the priority in which the Code sits in relation to other legal, regulatory and licence requirements, with precedence being given to Applicable Laws, the decision of any Competent Authority, Licence, Grid Code and Metering Code in that order in the event of any conflict. The Market Auditor would require to be notified of any situations in which a conflict arose and would not be expected to identify any such conflicts himself.

The Market Audit is not an audit of the Code itself. It is assumed that the Code, and the algorithms, formulae and requirements contained therein, are complete, valid and correct. Accordingly, the purpose of the Market Audit is not to identify errors in the Code itself, but to identify non compliance with the Code by the Market Operator (and other Parties as appropriate).

## 4.2 Single opinion

It is clear that a single, overarching opinion from one auditor has a number of significant advantages over a suite of opinions from different auditors. The principal advantages are as follows:

- it avoids duplication of audit work over market systems and processes by the individual participants' own auditors;
- participants are provided with a single audit report, and are not forced to evaluate the opinions of multiple auditors, potentially prepared on different bases, and assess for themselves the effect of any individual qualifications or issues raised on the overall market and them as participants;
- it enables one market auditor to take overall responsibility for providing independent assurance to all market participants. This allows the market auditor to plan and perform the audit from end to end; to ensure that audit risk is addressed to his satisfaction; and to provide an authoritative report to market participants at the conclusion of his audit;
- a single client / auditor relationship in settlement will reassure market participants of the independence of the opinion given. Independent assurance is the key deliverable of the market audit.

Expressing a preference for a single audit opinion should not lead to the automatic presumption that the Market Auditor should carry out all of the work required to support that opinion. Rather it simply recognises that the entire audit should be under the control of the Market Auditor who can perform or procure the work according to his assessment of risk across the whole of settlement.

The type of opinion or report of the Market Auditor is discussed further in section 4.5 below.

## 4.3 Materiality

The principal objective of the Market Auditor's opinion is to provide participants (and their auditors and other stakeholders) with assurance over the reliability of the settlement information which will underpin their commercial activities and from which will be derived the revenues and costs reported in their own financial statements. The opinion may provide assurance over compliance with the T&SC, operational effectiveness of controls or material accuracy of settlement, and is discussed further in 4.5 below.

Definitions of materiality are provided in auditing standards. In the International Standard on Auditing (UK and Ireland) (ISA (UK and Ireland)) 320, "Audit Materiality", paragraph 3, materiality is defined in the following manner:

"Information is material if its omission or misstatement could influence the economic decisions of users taken on the basis of the financial statements. Materiality depends on the size of the item or error judged in the particular

circumstances of its omission or misstatement. Thus materiality provides a threshold or cut-off point rather than being a primary qualitative characteristic which information must have if it is to be useful”.

Once selected the audit materiality measure is used in two principal ways:

- to determine the nature, timing and extent of audit procedures required; and
- to evaluate the impact of errors, omission or misstatements.

#### **4.3.1 Informed user**

It is considered reasonable to assume that the user is sufficiently knowledgeable about the electricity market, the settlement systems and is aware of the approximations and estimations based on the Rules and Agreed Procedures.

#### **4.3.2 Single versus multiple levels of materiality**

Materiality may be considered from the perspective of individual participants or the market as a whole.

As the purpose of the Market Audit is to provide assurance to participants and their auditors, there is a prima facie case for taking into account their perspective on materiality. However, adopting a different materiality for each participant may not be practical, with the granularity of audit work varying by participant and potentially being dependant on the size of the participant’s volume of activity. While theoretically possible to choose the lowest materiality based on the volume traded by the smallest supplier or generator, this would most likely be prohibitive in terms of the resources required and costs associated with delivering the corresponding opinion.

A single level of materiality based on a percentage of settlements volume has the advantage of simplicity and clarity. Performing the calculation would be reasonably straightforward and transparent. Market participants would have a clear understanding of the basis of calculation in assessing the Market Auditor’s report and its implications for them.

To lessen some of the problems identified above in respect of a single level of materiality, participants would be provided with a Report of Significant Issues which would have a lower threshold for reporting, e.g. one tenth of materiality. This report would provide them with transparency over issues arising in the market and allow them to estimate the impact on their own position for themselves. This is further described below.

#### **4.3.3 Financial versus volumetric data**

Participants require a clear understanding of the level of materiality to which they can relate in the context of their financial statements, i.e. in terms of the financial impact on their sales and cost of sales.

While the settlements process produces output in both volumetric and financial terms, the ultimate output to participants are the settlement statements and invoices setting out payments and charges for energy, capacity, imperfections, etc., which are recorded by participants in their own financial systems and over which they and their auditors require assurance. To the extent that payments and charges relate to non energy transactions, including capacity, a financial measure provides a common base. Accordingly, it would be appropriate to express materiality in monetary terms.

The calculation of materiality typically involves identifying a suitable base, estimating its amount and applying an appropriate percentage to compute the level of materiality. One potential suitable base for materiality would be the total annual gross payments to generators (or by suppliers), with a percentage of between 0.1% and 0.5% being applied to calculate the level of materiality. For the financial statement of large entities, materiality may be calculated at 0.5% of turnover. In other electricity markets, percentages of 0.1%, 0.2% and 0.5% have been applied.

To provide clarity, financial output could be converted into volumetric amounts using an agreed multiplier (e.g. average SMP) which would provide a fair approximation for the translation between financial and volumetric amounts. This would avoid the need for materiality to be stated in both volumetric and financial terms.

It should be noted that there are also qualitative aspects to materiality, for example in relation to compliance with certain laws and regulations or in respect of certain classes of transaction, which the Market Auditor would require to consider during the planning, execution and reporting of the Market Audit.

#### **4.3.4 Interim versus final settlement**

At the time of the audit, the Market Operator may have received updated settlement data for certain dates for which a later settlement run may not yet be timetabled. To the extent that the updated data represents actual or revised estimated data replacing actual or estimated data in the normal course of settlement in accordance with the Rules, ordinarily such a revision of data should not be included in the quantification of errors for the purposes of the audit opinion or statement of significant issues.

However, circumstances may exist under which the Market Auditor would wish to highlight such an issue in the Report of Significant Issues, and these may include, inter alia, systematic misstatement of pre-final settlement data or bias to particular types or groups of market participant.

#### **4.4 Report of Significant Issues**

The market would also be provided with a Report of Significant Issues containing matters identified during the course of the Market Audit which did not affect the audit opinion but were in themselves of significance. These issues would be reported to the Regulatory Authorities and other stakeholders at the same time

as the issue of the Market Auditor's opinion, and also after an interim audit where performed. A sample extract is provided at Appendix II.

The Report of Significant Issues would include details of the cause, circumstances and incidence of the error, and provide an estimate of magnitude. A summary of the action to be taken by the relevant party and any other party to resolve the issue would also be included. With this information, participants could ascertain for themselves the affect on them of the matters reported, and request further investigation as required. Where appropriate, the estimate of magnitude would include a quantification of the effect of the error on previous years' settlement information.

The drafting process for the Report of Significant Issues would involve dialogue with operational management to confirm factual accuracy of the detailed points and develop the response/resolution, discussion of the draft report in its entirety with the Regulatory Authorities prior to its issue.

It is important to note that the level of materiality would remain unaffected by the reporting of significant issues. Market participants would continue to be provided with an audit opinion giving them reasonable assurance that there were no undetected material errors or misstatements. However, there could be no assurance as to the completeness of significant issue items reported. Audit testing would be designed to confirm that no material errors or misstatements existed, not to detect all significant issues and only those significant issue items as were identified during the course of the audit work could be reported.

Experience in other electricity markets confirms that great importance is placed on the Report of Significant Issues by market participants. They take comfort from the fact that issues which are not material in overall market terms, are identified and quantified, enabling them to assess for themselves the impact of each issue on their business. This transparency and clarity helps diffuse any debate on the level materiality being set for the overall market rather than individual participants.

#### **4.5 Nature of the Opinion**

Different types of opinion or report may be provided, depending on the type of audit or review to be undertaken, the scope of the audit (which is considered within Section 5 below) and the level of assurance desired. The different options include

- Compliance opinion;
- Opinion on the material accuracy of settlement;
- ISAE 3000 Assurance opinion;
- SAS70 opinion; or
- Agreed Upon Procedures report.

Discussion of the different forms of opinion is provided below, and specimen opinions are contained in Appendix I.

#### **4.5.1 Compliance Opinion**

The work of the Market Auditor may be directed at providing assurance that the Market Operator and other Parties as appropriate have complied in all material respects with the Rules and Agreed Procedures, i.e. the Market Operator and other Parties have carried out those activities required of it, and has performed them according to the Rules, including the settlement calculations carried out.

This form of opinion would be restricted to Rules compliance, and would not address the material accuracy of settlement. Although it would confirm proper operation of the systems/processes, it would not address issues of poor data quality being provided to settlement or scenarios where errors or oversights in the Rules lead to inequitable results. It would require users of the compliance opinion to make their own assessment of the assurance provided, and potentially undertake additional verification work to provide themselves with assurance as to the material accuracy of the output from the settlement system.

The opinion would be similar in format to a financial audit opinion on a company's financial statements. In accordance with ISA 700, it would set out the responsibilities of the respective parties (including the Market Auditor), the basis of the opinion and the opinion itself.

#### **4.5.2 Opinion on material accuracy of settlement**

An alternative form of opinion may be to provide assurance that the output of settlement is materially correct and that in all material respects parties have complied with the Rules and Agreed Procedures. However, this would be subject to multiple limitations of scope and caveats if the scope of the audit did not cover the providers of data, including the TSOs, Interconnector Administrator, Meter Data Providers and potentially the Parties themselves.

#### **4.5.3 ISAE 3000 Assurance Opinion**

International Standard on Assurance Engagements (ISAE) 3000 is the standard applicable to assurance engagements other than audits or reviews of historical financial information and presents an alternative basis for undertaking Market Audit work. While ISAE 3000 supports both reasonable assurance and limited assurance engagements, it is assumed that the former would be the more relevant form for the Market Audit. An ISAE 3000 approach involves:

- definition of the subject matter, e.g. non financial information and conditions for which the subject matter information may be key indicators of efficiency or effectiveness, or systems and processes for which the subject matter information may be an assertion about effectiveness.
- identification of the criteria against which the subject matter is evaluated or measured. Appropriate subject matter needs to be identifiable and capable of consistent evaluation or measurement against the identified



criteria, and be able to be subjected to appropriate procedures for gathering appropriate evidence.

- development of the work programme by the Market Auditor to assess the subject matter against the specified criteria.
- reporting the results of testing to Regulatory Authorities and other stakeholders. The report would provide “assurance” that the subject matter had satisfied the evaluation criteria, and provide an “audit opinion”, supported by detail of the subject matter, evaluation criteria and work performed, and not merely a report of factual findings.

The increased flexibility over both the scope of the work and the level and depth of testing may provide the Regulatory Authorities with much greater control over costs of the Market Audit. Unlike the traditional approach which would address all T&SC requirements, an ISAE 3000 approach has the potential to give the Regulatory Authorities the ability to specify the specific subject matter that would be included (and conversely excluded) and the evaluation criteria. Large sections of the scope could be removed where they are assessed as providing little value, and allowing work to be focused on key risk areas.

An ISAE 3000 reasonable assurance opinion would be addressed to the Regulatory Authorities, specify the responsibilities of each party and contain a description of the subject matter, measurement criteria, details of any significant inherent limitations, a summary of the work performed and the auditor’s conclusion.

ISAE 3000 assurance reports are becoming more commonplace, particularly for Corporate Social Responsibility reports in public company accounts, reviews of internal controls and reporting on performance and quality information.

#### **4.5.4 SAS70 style report**

A specific type of reasonable assurance report is a SAS70 (Statement on Auditing Standards No 70 issued by the American Institute of Public Accountants) type of opinion. This standard deals with “Reports on Processing of Transactions by Service Organisations” and is an internationally recognised method of providing assurance in complex control environments involving service provider/third party reporting.

A SAS70 involves the service provider preparing a detailed description of the controls in place which the auditor reviews in terms of design and operating effectiveness. The auditor then produces a SAS70 report which provides a general understanding of the principal procedures and internal controls in place as described by the service provider.

A SAS70 type opinion would require the Regulatory Authorities to procure a detailed description of controls in place (it is assumed this would be delegated to the Market Operator). The controls description may be developed from existing business documentation such as process models, including process maps, descriptions of activities and responsibilities, etc. Audit verification and testing

would then be on top-down basis, focusing on key controls, rather than attempting to provide full coverage. Testing can also be carried out at a point in time or be designed to cover a specific period and the final opinion would be based on the period selected. The nature of a SAS70 and the level of assurance provided mean that the Regulatory Authorities would have more control over the costs, but would require substantial input from the Regulatory Authorities and Market Operator in the preparation of controls documentation.

SAS70 engagements are particularly commonplace in the financial services sector and over the provision of IT and business process outsourcing services.

#### **4.5.5 ISRS 4400 Agreed Upon Procedures Report**

An Agreed Upon Procedures (AUP) approach has some fundamental differences compared to an audit. As an audit engagement, the Market Auditor designs the approach in response to the terms of reference issued by the Regulatory Authorities in order to provide an overall audit opinion on compliance with the rules. Under AUP, the Regulatory Authorities, with input as necessary from the Market Operator and Market Auditor, would determine the specific audit procedures to be undertaken. The Market Auditor would be responsible for executing the tests and reporting the results which would require interpretation and evaluation by the Regulatory Authorities and Parties.

The approach to AUP assignments is well established and is set out in International Standards on Related Services ('ISRS') 4400 - Engagements to Perform Agreed-upon Procedures Regarding Financial Information. An AUP approach may be relevant where the focus is on key controls and known/expected market issues. Testing would be reduced in areas where the potential settlements impact is minimal, the issue is dealt with by other verification mechanisms or other audit testing, or is directly apparent to the affected Parties without any testing or external assurance. The specific areas for inclusion in the testing programme would be decided by the Regulatory Authorities and, as such, they would carry the risk associated with the design of the procedures.

The AUP approach would no longer result in a Market Auditor Opinion, but rather a report of the results of testing performed in the areas agreed, although the final report may not be noticeably different from a Statement of Significant Issues. Benefits of an AUP approach may include:

- the opportunity for the Regulatory Authorities to direct the audit effort to the areas in which they have greatest concern and where the risk is perceived to be highest, with the Market Auditor carrying out an agreed programme of work in pre-defined areas. There would be a deliberate decision to dispense with audit testing over low risk or peripheral areas;
- the ability to change the scope of the work year on year, to reflect changes in the incidence and significance of errors and issues; and
- greater transparency and control of audit input and resulting costs, as the Market Auditor will be able to provide a cost for each line of the Agreed

Upon Procedures work programme, allowing the Regulatory Authorities to select those tests they believe are important, based on their understanding of risks and settlement impact.

#### **4.6 Governance and reporting**

##### **4.6.1 Contractual and reporting relationships**

The Code states that the Regulatory Authorities will appoint the Market Auditor and specify the terms of reference, the Market Operator will pay the fees and costs of the Market Auditor, and the Market Auditor will report to the Regulatory Authorities. Nominated representatives of the Market Operator and Modifications Panel shall be entitled to attend the meeting with the Regulatory Authorities following the delivery of the final Market Audit Report, and the Market Operator is required to publish the final Market Audit Report.

It is assumed that the Regulatory Authorities will engage the Market Auditor for the provision of Market Audit services, and the Market Auditor's contractual and primary reporting responsibility will be to the Regulatory Authorities. This gives rise to the situation where the Market Auditor will be interacting extensively with the Market Operator and reporting to market participants in the absence of any contractual relationship covering respective responsibilities, access to information, confidentiality, intellectual property, liability provisions, use of deliverables, etc. In this regard, and in respect of a duty of care to these other parties, the Market Auditor may need to be afforded some protection, as described below.

##### **4.6.2 Interaction with Market Operator**

Notwithstanding the contractual arrangements, the Market Auditor will require to have significant interaction with the Market Operator in light of its role as market administrator. It is important that the Market Operator is engaged during the drafting and finalisation of the report in order to allow the Market Operator to confirm factual accuracy of issues raised and to allow the development of appropriate and practical resolution actions. Furthermore in the interests of fairness, it is reasonable that any Party being audited has sight of issues in advance of publication in order to be able to comment and respond appropriately.

##### **4.6.3 Auditor's liability and duty of care**

In addition to contractual liability under the Market Auditor's contract or letter of engagement, it is probable that the Market Auditor will have a duty of care to the Market Operator and the Parties to the Code who will receive the Market Audit report and may seek to rely on it. This duty of care is not restricted by the terms of the contract as the Market Operator and Parties are not signatories. The RAs have been advised that it is normal practice for recipients of the Market Audit report to sign up to side letters confirming their acceptance of the basis on which they are being provided with the report, including the basis of its preparation, limitations on its use and liability provisions.

#### **4.6.4 Governance Panel**

Under the Code the Market Auditor is appointed by, and reports to, the Regulatory Authorities. Other than its nominated representatives being entitled to attend a meeting of the Regulatory Authorities and Market Auditor after delivery of the final Market Audit report, there is no defined role for the Modifications Panel in the Market Audit process.

In other markets, a Governance Panel has been established to interact with and oversee the activities of the Market Auditor, rather than the reporting line being direct to the Regulator. For example, under the BSC in Great Britain, the Performance Assurance Board, whose members are nominated by BSC Parties, provides the necessary oversight for the Market Audit along with other market monitoring and assurance activities. This is consistent with the principle of self regulation by and within the market.

It is recognised that a Governance Panel model may be more appropriate for an established and more mature market, so this model is not currently proposed by the Regulatory Authorities for the period following market go-live. Going forward, one option may be to extend the role of the Modifications Panel to act as an “audit committee” or performance assurance panel. However, it would be for market participants to decide for themselves and propose any necessary changes to the T&SC through the Modifications Process.

#### **4.6.5 Period covered by audit**

As final settlement will only take place 13 months after the settlement date (and potentially later if there are subsequent Dispute runs), the Market Audit will have to report on dates for which final settlement has yet to take place. Waiting until final settlement was completed would result in too great a delay in reporting and would be less meaningful to market participants. Given the number of settlement runs for each date, there is the potential for confusion or misunderstanding as to the dates and runs being reported on by the Market Auditor unless clearly specified.

The proposed period to be covered by the audit is the initial settlement run for all dates in audit period including the production of weekly and monthly statements for these dates where these are complete, plus all re-settlement runs processed up to the date of the initial settlement run for the final date in the period together with the production of weekly and monthly statements for these reruns where these are complete.

#### **4.6.6 Initial period**

It is currently envisaged that the initial audit period will cover 14 months from go live on 1 November 2007 to 31 December 2008. The extension of the audit period from 12 to 14 months would not normally be a matter for concern but in this first period after implementation it may result in delayed identification and reporting of issues in the operation of new market systems.

A “trial run” or interim audit to address this concern is expanded upon below.

#### **4.6.7 Limited scope or interim review**

The T&SC represents a fundamental change in the electricity market arrangements and the Market Operator function will be undertaken by a new joint venture organisation. With new Rules, systems and processes which are untested in live operations, there may be issues with data retention and audit trails which affect the auditability of the new arrangements. There will be some visibility over MO activities through monthly MO Reporting, although the scope and level is currently being developed and consulted upon concurrently with this consultation process.

Rather than wait until the end of the first year before undertaking Market Audit work, there may be benefit from a limited scope review several months into the operation of the new market in which the Market Auditor executes all audit procedures on a “walkthrough” basis, reporting the results to the Regulatory Authorities and allowing the Market Operator to address any weaknesses identified in its processes at an early stage. Given the very limited nature of this testing, it would not be appropriate to issue a public report on the results of testing.

Alternatively, it may be desired to instruct an interim review to cover the initial six months of the operation of the new market, delivering an Interim Review Report and Report of Significant Issues to the market at that time. This is consistent with the approach adopted in both the Scottish and England & Wales markets following the market opening in 1998, and similar to the practice of interim reporting for public company financial statements. The purpose of the Interim Review Report would be to report to the Regulatory Authorities and Parties whether any issues had been identified which may lead to qualification of the Audit Opinion for the full audit period; it would not necessarily identify all significant or material issues existing.

An annualised value for materiality would be adopted and approximately 50% of the audit work that would be required for a full year would be performed for the interim audit. The interim review would encompass the areas of scope set out at 5.2 below, and the nature, extent and timing of the audit procedures performed at the interim stage would be set out in the Audit Plan agreed by the Regulatory Authorities, following consultation with the Market Operator. The resolution and prioritisation of any significant issues identified would be considered by the Regulatory Authorities and discussed with the relevant participants.

From a resource perspective, the inclusion of an interim review gives rise to a rescheduling of audit work, with the volume of audit testing required for the annual audit being divided between the interim and final visit. This would have an impact on the timing of participation by the Market Operator and other participants. There would also be an incremental cost potentially in the region of 20-30%, particularly relating to audit administration, testing roll forward and the report drafting and finalisation process.

## **5 Scope of Market Audit**

A decision on the scope of the Market Audit is essentially a matter of judgement, based on the assurance needs of the respective parties, balanced with the costs of providing that assurance, while taking into account the feasibility of performing the audit procedures. Ideally, the Market Audit should provide market participants with an annual opinion that is as comprehensive and meaningful as possible, that provides them with the required assurance over areas that are not transparent to them or are beyond their control. This however needs to be judged in the context of what is practically feasible and the related cost, both in terms of direct audit fees which are passed on to the market and the Market Operator's and participants' own time in dealing with the Market Auditor.

### **5.1 Settlement processes**

The T&SC covers the settlement of energy volumes via the gross Pool, and this includes settlement of Energy Payment, Constraint Payments, Uninstructed Imbalance Payments, Imperfections Payments, Make Whole Payments, Market Operator Charges and Currency Costs. In addition, the T&SC provides for separate Capacity related payments and charges.

Settlement processes are operated by a number of different parties for whom there are specific requirements under the Code, including the following:

- Market Operator, for operation of the MSP software and associated applications;
- TSOs, for provision of dispatch instructions and real time availability;
- MDPs (TSOs, NIE, DSO, MRSO), for provision of metered generation and demand;
- Interconnector Administrators, in particular for provision of Modified Interconnector Unit Nominations (to be performed initially by SONI but subsequently transferred to the Market Operator);
- Generator Units, for provision of Commercial and Technical Offer Data;and
- Supplier Units.

The scope of the Market Audit could be drawn very widely to cover processes operated by all these participants, and be similar to the scope of the BSC Audit in Great Britain (see 6.1 below). This wide scope would allow the Market Auditor to deliver an opinion on the materiality accuracy of settlement, but the volume of audit work would require to be substantially increased from its present level, particularly in respect of testing undertaken at the TSOs and MDPs. This may prove overly intrusive and burdensome on participants especially in the first year of operation, with the bedding in of new systems and processes, and initial

learning curves. However, in a more mature environment, the wider scope would become a realistic option.

An alternative and more pragmatic approach for the initial audit period would be to limit the scope of the Market Audit to those activities undertaken by the Market Operator under the relevant sections of the T&SC, Rules and Agreed Procedures. The Market Audit would provide assurance that the Market Operator, including its systems and processes, had complied with the requirements of the T&SC, Rules and Agreed Procedures during the audit period. It should be noted that this contained scope would not allow the Market Auditor to conclude on the material accuracy of settlement, without requiring extensive caveats and limitations of scope which would significantly limit the value of the resulting opinion.

A potential addition to this contained scope may be the calculation of Modified Interconnector Unit Nominations currently undertaken by the Interconnector Administrator, which under Section 7.16 of the T&SC will be transferred to the Market Operator one year after the Market Start Date. In view of the impending transfer of this activity, it may be desired to include the calculation of Modified Interconnector Unit Nominations by the Interconnector Administrator within the contained scope. For the avoidance of doubt, the scope would not include other activities performed by the Interconnector Administrator.

The resultant opinion would provide assurance to the market that the Market Operator is properly performing the duties required of it by the Rules and Agreed Procedures. However the Market Auditor would not be in a position to comment on the accuracy of Market Operator outputs, which are reliant upon the quality of data received from, and processing performed by, other parties (TSOs, MDPs, Interconnector Administrator, etc.). The compliance opinion would only provide assurance in respect of the Market Operator's compliance with the Rules and Agreed Procedures set out in the Trading and Settlement Code, but would provide no assurance as to the overall quality and accuracy of settlement. In particular, settlement output is reliant on the integrity of the following input data:

- metered generation
- despatch instructions and real-time availability
- metered and profiled demand

Quality of data provided by feeder systems operated by, inter alia, the TSOs and MDPs in each jurisdiction, is of critical importance to the market as a whole and to individual participants. For example, suppliers are reliant on NIE and the MRSO for revenue data (meter readings provided for customer billing) and cost data (meter readings passed to the Market Operator), and they may not be in a position to detect errors or omissions.

Any assurance that a market participant required in respect of the data output provided by the Market Operator would have to be deduced from a collation of opinions including those relating to the operation of the feeder systems given by other auditors (e.g. for MRSO, TSO) should these be available.

For the avoidance of doubt, the processes for Transmission Use of System Billing and Ancillary Services Payments, although utilising similar source data, are managed within the TSOs and accordingly do not fall within the scope of the Market Audit. Likewise, Distribution Use of System Billing which is managed by the DSOs is outside the scope.

## **5.2 Systems/processes under the control of the Market Operator**

The relevant Market Operator activities, to the extent covered by specific requirements in the T&SC, Rules and Agreed Procedures, would include:

- Accession and Registration
- Settlement production, including operation of the MSP Software, Instruction Profiling, etc.
- Market Operator and other Charges
- Invoicing and Payment
- Credit Cover management
- Disputes
- Design Authority / Code development and Systems Upgrade.

As such, an audit focused on the Market Operator would address compliance of the Market Operator's system and associated processes with the Rules and Agreed Procedures of the Trading & Settlement Code. It would cover, inter alia, the processes of acquisition of input data, application of algorithms and calculations, provision of output data, and maintenance of standing data.

It is envisaged that the bulk of audit testing would be focused in the area of settlement production, covering inter alia

- Receipt of Bids/Offer
- Determine Ex-Ante Indicative MSP:
  - Market Schedule Quantities
  - Economic Dispatch
  - Shadow prices, Uplift and System Marginal Price
- Instruction Profiling
- Receipt of Meter Data
- Determine Ex-Post Indicative and Initial SMP - Market Schedule Quantities and System Marginal Price



- Calculate Constraints, Uninstructed Imbalances, Balancing Charges, MO Charges, etc.
- Produce weekly settlement statements and invoices
- Determine capacity payments (fixed, ex ante and ex post), with monthly statements and invoices

An initial assessment of auditability suggests that the design of appropriate audit procedures is feasible in all areas, with one potential exception. The MSP pricing engine is a highly complex, proprietary application which is responsible for the determination of MSQs and SMPs and it is likely to present significant challenges when performing audit procedures. It may not be feasible to design relevant audit procedures at an acceptable cost, with the resources required from both the Market Auditor and Market Operator disproportionate to the value derived from undertaking the procedures. There are a range of options which may be considered from the perspectives of the assurance benefits for market participants, costs (direct and Market Operator) of undertaking the procedures and the feasibility of performing the audit procedures:

- (i) Treating the MSP Pricing Engine as a given, in a similar way to the Code and Rules, such that audit procedures would commence with the output of the engine. This approach effectively de-scopes the MSP Pricing Engine from the Market Audit and provides no assurance to market participants over Unit Commitment or determination of the System Marginal Price;
- (ii) Reviewing the pre-implementation testing undertaken (including, but not limited to, the detailed review commissioned by the Market Operator) and 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. While this approach provides some assurance, there is a risk that changes have unexpected consequences or new scenarios are encountered which were not covered in the initial testing;
- (iii) In addition to undertaking the testing outlined in (ii) above, performing a defined 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 the Market Operator 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 the Market Operator, e.g. conflicting input data, replacement of zero single ramp up/down rates; and adherence to timetables for gate closure and settlement runs. It should be noted that this would not extend to checking the Unit Commitment and Economic Dispatch calculations performed by MSP; or
- (iv) Performing full audit procedures over the operation of the MSP Pricing Engine, extending the testing described above to include testing controls over its operation (including the use of test data packs), performing

analytical procedures over its outputs, and building an audit reperformance model to recalculate a sample of prices and quantities. Consistent with standard audit procedures, this would be designed to provide reasonable rather than absolute assurance over the operation of the MSP Pricing Engine. Such an approach would require substantial input from the Market Auditor and Market Operator, particularly during the set-up period, potentially accounting for in the region of 20-30% of total audit input.

### **5.3 Limitations and exclusions from scope**

In defining the scope of a Market Audit, there are a variety of areas which naturally fall outside the bounds of a Market Audit:

- activities outside the expected competencies and skills of a Market Auditor, e.g. technical configuration of meters, calculation of line loss factors, and verifying the operational characteristics of generators; and
- areas outside the responsibility of the Market Operator under the T&SC, many of which are already subject to scrutiny or where there is a robust self-balancing or self-checking mechanism already in place, e.g. submission of Generator Unit Commercial Offer Data.

These areas are further considered below.

#### **5.3.1 Checking validity of the Rules**

While the work of the Market Auditor would include checking the application of the Rules, validation of the Rules themselves is a technical area which is outside the Market Auditor's area of competence. Although the Market Auditor would report any inconsistency or error coming to his attention during the course of the audit work, he would not be specifically charged with confirming the validity of the Rules.

It is assumed that development of the Code and Rules was robust and subject to appropriate technical challenge. The Market Auditor's role would be restricted to confirming that the process for development has operated in accordance with the requirements of the Code.

#### **5.3.2 Derivation of Generator Unit Technical Offer Data**

Generator Unit Technical Offer Data are provided by Generator Units to the Market Operator for use in Instructions Profiling and in UUC. These relate to technical operating characteristics of generator plant and, as such, are outside the Market Auditor's area of expertise.

The work of the Market Auditor would be restricted to ensuring that the appropriate information has been delivered in accordance with Rules and Agreed Procedures and that the information has been correctly applied, again in accordance with Rules and Agreed Procedures.

### **5.3.3 Calculation of Generator Unit Commercial Offer Data**

Prices Quantity Pairs submitted by Price Maker Generator Units to the Market Operator along with Start Up Costs and No Load Costs (together the Generator Unit Commercial Offer Data) are used in the production of the Unit Commitment Schedule and the determination of the System Marginal Price.

The calculation of Price Quantity Pairs, Start Up Costs and No Load Costs is the responsibility of each Generator Unit. Without prejudice to Bidding Principles imposed by licence, the T&SC places no obligations on Generator Units in respect of the manner in which Generator Units are bid into the market.

The work of the Market Auditor would be restricted to ensuring that the appropriate information has been delivered in accordance with Rules and Agreed Procedures and that the information has been correctly applied, again in accordance with Rules and Agreed Procedures.

### **5.3.4 Calculation of loss factors**

The calculation of Transmission Loss Adjustment Factors (TLAFs) for generation sites and Distribution Loss Adjustment Factors (DLAFs) for customer sites is a technical area which is outside the Market Auditor's area of expertise. Loss factor information is made available directly to the Regulatory Authorities and market participants who can carry out their own reasonableness checks on the information.

The work of the Market Auditor would be restricted to ensuring that the appropriate information has been delivered in accordance with Rules and Agreed Procedures and that the information has been correctly applied, again in accordance with Rules and Agreed Procedures.

### **5.3.5 Meter configuration**

Meter operation is a technical discipline concerned with installing and maintaining accurate metering systems. Other than notification of faults, meter operators do not provide information for direct use in settlement and therefore their activities fall outside the scope of settlement.

It is not possible for the market auditor to provide any assurance on the accuracy of standing data and accuracy of measurement of consumption of electricity as measured by the meter in respect of metering of both eligible and green customers. This is because the accuracy of the measurement of electricity consumption depends on the base meter equipment being programmed and calibrated correctly with accurate standing data when it is set up.

It is recognised that market participants may wish some assurance on the accuracy of metering. It may be appropriate for some kind of meter "policing" function to be established, and resourced with the requisite technical skills, to provide assurance to market participants in this regard.

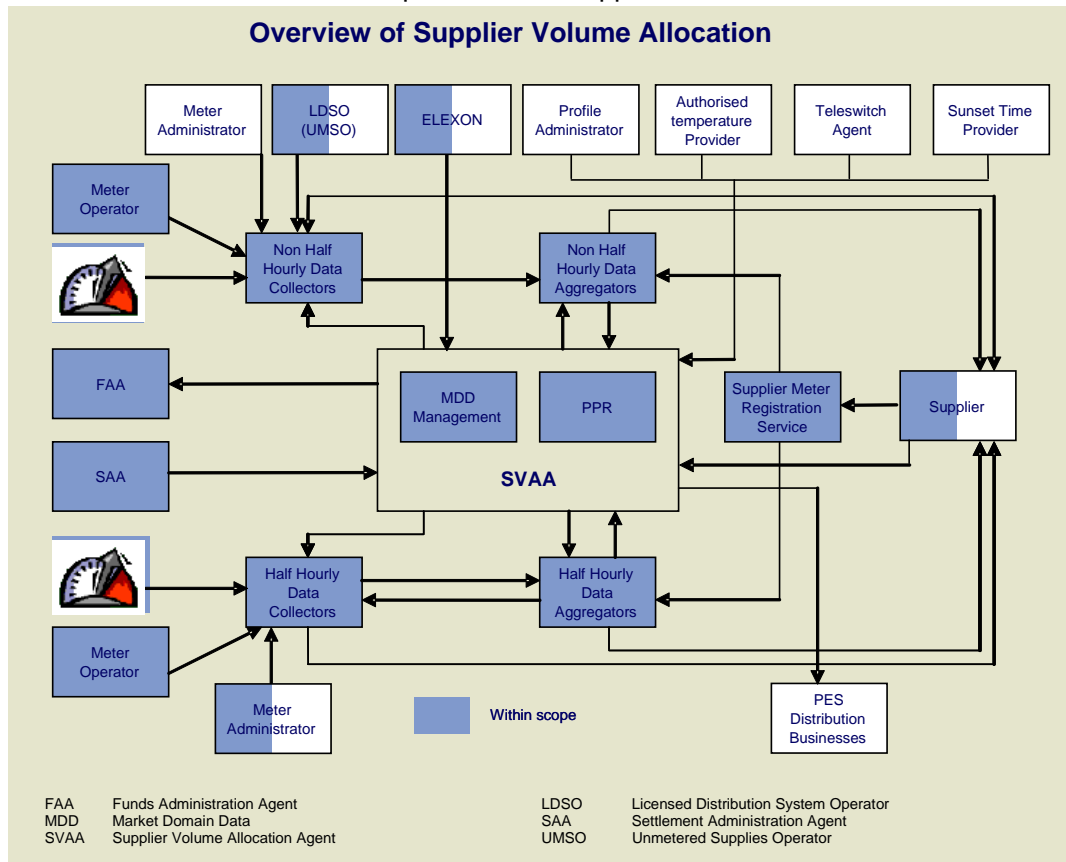
## 6 International comparisons

### 6.1 Great Britain – Balancing and Settlement Code

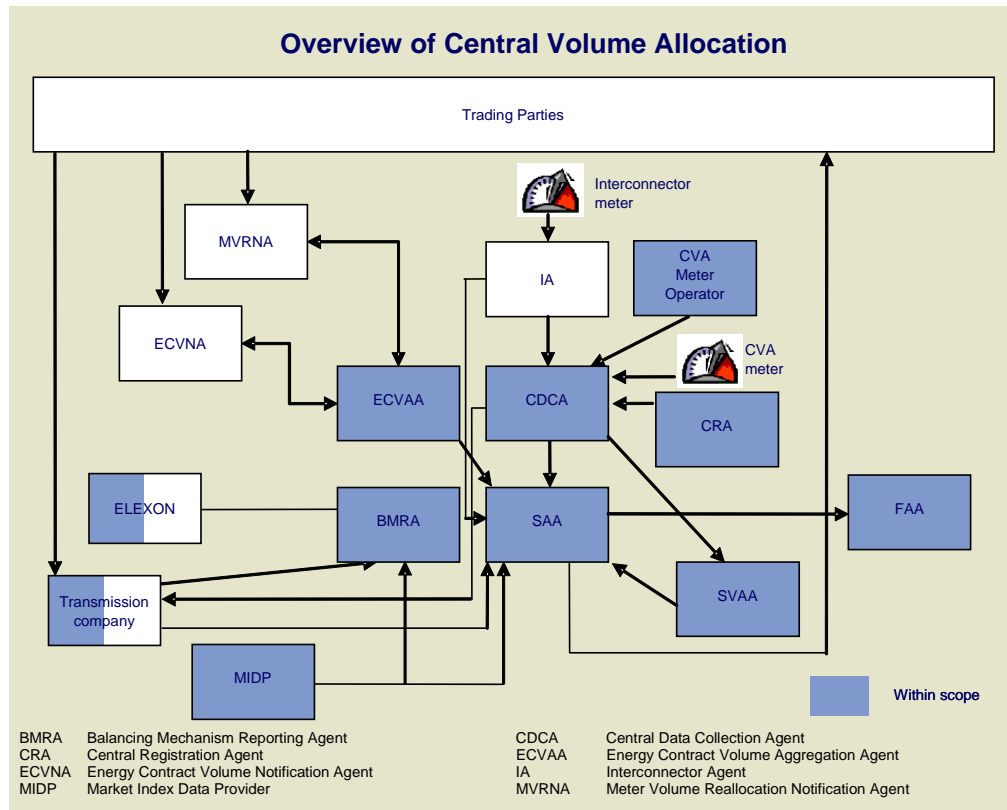
The Balancing and Settlement Code (BSC) Audit is the operational audit of the Balancing and Settlement Mechanism in Great Britain. Under the BSC, suppliers, generator and other trading parties enter into bilateral contracts for electricity, with half hourly ex post prices used to settle imbalances through the Balancing Mechanism operated by the TSO.

The objective set for the Audit is to provide assurance that the provisions of the BSC and Code Subsidiary Documents in relation to Settlement and in relation to the calculation of Funding Shares has been complied with in the reporting period. A volumetric materiality threshold of 1.65TWh, equivalent to 0.5% of annual energy volumes, is used for the overall Audit Opinion, and a lower threshold (10% of materiality) is used for the reporting of Significant Issues.

The BSC Audit scope covers Supplier Volume Allocation and Central Volume Allocation, extending (almost) from meter to bank. For Supplier Volume Allocation, it includes the central Supplier Volume Allocation system (including NHH Profile Production) run by ELEXON's Agent; Supplier Meter Registration Services run by DSOs; competitive HH and NHH meter read data collection, processing and aggregation services; unmetered supplies; and certain activities of and interfaces with Meter Operators and Suppliers.



For Central Volume Allocation, the roles are undertaken by ELEXON Agents and include GSP/Generator Registration, Meter Operator and Meter Data Collection; Market Index Data Provider; Energy Contract Volume Allocation; Settlements Administration; Funds Administration and the Balancing Mechanism Reporting Agent.



Functions excluded from the scope include

- Master Registration Agreement, Change of Supplier and SMRS registration disputes, MRA Disputes;
- Accuracy of Metering Equipment and standing data;
- Activities of temperature provider, time of sunset provider and teleswitch agent in producing profiling variables;
- Derivation of profile coefficients and regression coefficients;
- Customer billing;
- Production of TUoS/DUoS reports;
- Contractual relationship between Parties and their Party Agents and between BSCCo and BSC Agent; and

- Data Transfer Service & NETA communications media.

## 6.2 Australia

NEMMCO is the Independent System Operator and Power Exchange for the National Electricity Market (NEM) in Australia. The Market Auditor in this market reports on an annual basis on the systems and processes NEMMCO introduced to comply with National Electricity Rules. Specifically this includes:

Calculations and allocations performed by the Metering Systems and Settlement System  
 Billing and Information Systems  
 Scheduling and Dispatch processes  
 Software Change Management Processes  
 NEMMCO's procedures for their compliance with the Rules

Specific exclusions from the audit are:

- Design or operation of market participant control environments;
- Metering installation audits; and
- Office and financial systems (such as the general ledger) of NEMMCO. Review relates only to NEM systems.

Within the National Electricity Market, 15 Meter Data Providers (MDP) manage the installation, collection and processing of meter data to support the settlement of the market. Six monthly independent reviews are undertaken to assess MDP operations in accordance with the Service Level Requirements that govern their operations.

## 6.3 USA

In two of the US markets reviewed (California and New England) SAS70 audits are performed on the Independent System Operators. The SAS70 approach requires the ISO to document the control objectives to be satisfied in each area and the detailed control activities in respect of each control objective. The SAS70 Auditor is required to undertake a review of the design of the control objectives and the control activities, and perform detailed testing on the operational effectiveness of the control activities.

The coverage of these SAS70 reviews is set out below.

California	New England
Scheduling and bidding	User Registration
Metering	Metering
Settlements and invoicing	Billing

California	New England
Monthly cash clearing	Cash Clearing
Ancillary Services	Market Monitoring & Mitigation
Real time Dispatch	Customer Query Tracking
Operating Order Settlements	Change Management
Non compliance charges	Day Ahead Market
FERC Fee charges	Real Time Market
Transmission Access Charges	Regulation Market
TAC Refunds	Net Commitment Period Compensation
HVAC Charges	Installed Capacity Market
Wheeling Charges	Financial Transmission Rights & Auction Revenue Rights
GMC Charges	Forward Reserve Market
Start Up Fuel Cost	Demand Response Program
Emission Fee Cost	Open Access Transmission Tariff
MLCC Charges & Credits	ISO Self-Funding Tariff
Rounding Adjustment	Finance Charges
UFE Charges	Requested Billing Adjustments
Long Term Voltage Support Credits	Fixed Reliability Must Run
RMR Dispatch Notices & Invoices	Emergency Purchase & Sale Adjustments
FTR Auction Settlements	SWCT GAP RFP Payments & Charges
Information System Controls	Information System Controls

#### 6.4 Spain

The audit of the OMEL Mercado de Electricidad in Spain is currently in the course of development. It is likely to be undertaken on either a SAS70 or Agreed Upon Procedures basis, and will cover the following areas:

##### Entry Process for Market Agents

Daily Market operations, including operational rules, supply and demand curves calculation, load gradient conditions, price determination, etc.

Intra-day market operations, including operational rules, supply and demand curves calculation, load gradient conditions, price determination, etc.

Settlements, invoicing and clearing

Guarantees to cover financial obligations

Claims on market processes, settlements and invoicing

Other issues, including information received by the system operator: unavailability, sales capacity of international tie-lines, information on assignation of capacity rights and on international bilateral contracts, etc.

Confidentiality and information reporting

General Computer Controls (GCC)



## **7 Proposed Terms of Reference**

This section sets out an initial proposed terms of reference for the Market Audit, based on the matters discussed in sections 4-6 above.

Based on an analysis of the Trading and Settlement Code and current understanding of the requirements of market participants the Regulatory Authorities have developed proposed terms of reference and scope for the new Market Audit. The Regulatory Authorities have taken the view that the Market Audit should provide market participants with a report or opinion that is as comprehensive and meaningful as possible. However, this needs to be judged in the context of what is practically feasible and the related costs, and certain trade-offs are likely to be required in defining the final scope.

### **7.1 Contractual and Governance Arrangements**

The Market Audit terms of reference and scope will be approved by the Regulatory Authorities, as required under the Code, and the Regulatory Authorities will enter into the contract with the Market Auditor. 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 Regulatory Authorities. In preparing the Market Audit Plan, the Market Auditor may consult with the Regulatory Authorities, Market Operator and other participants as required.

The Market Operator and Market Auditor will enter into a side agreement acknowledging the terms of engagement of the Market Auditor and respective responsibilities.

### **7.2 Period of First Audit Report**

The T&SC states that the annual period covered by the audit is to be 1 January to 31 December, unless the terms of reference specify a different period. For the first audit it is suggested that the period covered be a fourteen month period from 1 November 2007 to 31 December 2008.

Given the length of this period, it is believed there would be benefit to the market from performing an interim audit during this period 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, and lead to the production of an Interim Review Report and Report of Significant Issues. The purpose of the Interim Review Report would be to report to the Regulatory Authorities and Parties whether any issues had been identified which may lead to qualification of the Audit Opinion for the full audit period.

### **7.3 Materiality**

The design of the market as a gross mandatory Pool with financial settlement through the Market Operator would suggest that materiality should be expressed in financial terms, based on a fraction of the total annual gross value of payments to generators (or payments from suppliers). Although there are multiple participants of varying sizes and exposure, it would not be practical to adopt different levels of materiality, so a single level of materiality is proposed.

It is proposed that materiality be set at 0.25% of estimated annual market value.

A lower threshold, 10% of materiality, would 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.

### **7.4 Nature of Market Audit Report**

At this early stage in the operation of the market, a compliance audit report would offer the greatest benefit to market participants at an acceptable level of cost. This would provide market participants with assurance the Market Operator (and other Parties as appropriate) have complied with the relevant requirements of the T&SC during the audit period.

The audit report would also include a Report on Significant Issues, identifying significant issues identified during the course of the audit which did not affect the overall audit opinion. It would be incumbent on the Regulatory Authorities to ensure that appropriate action was taken in respect of the issues identified, although it is recognised that this may require action to be taken by the Modification Panel or the Market Operator.

### **7.5 Reporting**

In the preparation of the Market Audit Report, the Market Auditor will discuss individual draft issues with the Market Operator 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 Regulatory Authorities who may, at their discretion, invite or include named participants in the discussion of the draft report.

The final version of the Market Audit Report will be addressed to the Regulatory Authorities. The final version of the Market Audit Report will be provided to Parties to the T&SC, in line with the provisions of the T&SC, and subject to any confidentiality issues raised by the Market Auditor.

## 7.6 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 first market audit period has been set on the basis of this, and the Regulatory Authorities consider that the systems, activities and processes under the aegis of the Market Operator (and other parties where stipulated) fulfil the requirements of the Market Audit provisions in the Code. The Terms of Reference are set on an annual basis by the Regulatory Authorities and it is intended that the boundaries of the Audit will evolve over time, as the market develops.

The scope of the Market Audit for the initial period of operation of the market should be focused on the activities of the Market Operator under the T&SC and Agreed Procedures and cover the systems and processes within the control of the Market Operator. This will focus attention on the implementation of new market rules, systems and processes which have not previously been tested. An audit to this scope will provide assurance to market participants but avoid being overly intrusive or burdensome in the period post implementation, and be at an acceptable level of cost. Similar to some international comparisons, as the market matures, the scope may be broadened as participants become more familiar with its operations.

It should be noted that this contained scope will result in the exclusion of activities undertaken by the TSOs, Meter Data Providers and other participants as set out in the T&SC and Agreed Procedures. However, in view of the transfer of the calculation of Modified Interconnector Unit Nominations from the Interconnector Administrator to the Market Operator twelve months after the Market Start Date, it is proposed that this activity be included within the initial scope.

The relevant Market Operator activities, to the extent covered by specific requirements in the T&SC, Rules and Agreed Procedures, would 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
- Design Authority / Code development

At least for the first Market Audit period it is proposed to exclude the operation of certain components of the MSP Pricing Engine from the scope of the Market Audit as it is believed that the cost and disruption from their inclusion are likely to outweigh the assurance benefit, although this position may be reviewed for subsequent Market Audits. 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 the Market Operator 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 the Market Operator, e.g. conflicting input data, replacement of zero single ramp up/down rates; and adherence to timetables for gate closure and settlement runs.

**APPENDIX**  
**Specimen opinions**

I

**Compliance opinion**

***Independent Market Auditor's Report to the Commission for Energy Regulation and the Northern Ireland Authority for Utility Regulation (together the "Regulatory Authorities") for the year ended [date]***

We have audited the settlement systems, as defined in the Terms of Reference for the Market Audit issued by the Regulatory Authorities on [date], operated by the Market Operator during the year ended [date].

We have audited the extent to which the Market Operator has complied with the Rules and relevant Agreed Procedures as set out in the Trading & Settlement Code ("T&SC" or "Code"), as varied by direction of the Regulatory Authorities.

This report is made solely for the Regulatory Authorities [and the Parties], as a body, in accordance with the T&SC. Our audit work has been undertaken so that we might state to the Regulatory Authorities [and the Parties] those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Regulatory Authorities [and the Parties] as a body, for our audit work, for this report, or for the opinions we have formed. Parties may only rely on this report if they have agreed in writing to be bound by the conditions under which it has been prepared.

***Responsibilities of the Regulatory Authorities, Market Operator, Parties and the Market Auditor***

The T&SC is a legal agreement which, inter alia, governs the organisation and operation of the systems engaged in the settlement of electricity trading in Ireland and Northern Ireland. The Code defines the Rules and Agreed Procedures which are required to be followed by the signatories to the Code ("Parties") who are bound by its provisions. Unless otherwise specified, words and expressions used in this report have the same meaning as defined in the Code.

In the context of the Market Audit the role of the Regulatory Authorities is to appoint the Market Auditor, consult with Parties on the terms of reference for the audit, specify and publish the precise terms of reference for the audit. The Regulatory Authorities receive our annual report and any interim Audit Report. The Regulatory Authorities may direct implementation of any recommendation of the Market Auditor and shall consult with the Market Operator and the Modification Committee before doing so.

The responsibilities of the Market Operator are set out in Section [ ] of the T&SC. The Market Operator is required to operate the Settlement System and related processes in compliance with the Code. Specifically in relation to the Market Audit, the Market Operator is required to publish the Market Audit report in its final form, and to pay the fees and costs of the Market Auditor.

The responsibilities of the Parties in respect of the Market Audit are set out in paragraph 2.139 of the T&SC, which requires Parties to provide without charge to the Market Auditor in a timely manner, subject to any obligations of confidentiality, such information as is reasonably required by the Market Auditor to enable the Market Auditor to comply with the functions and obligations and terms of reference for the purposes of conducting the audit and preparing and finalising the Audit Report.

The responsibilities of the Market Auditor are set out in paragraphs 2.133, 2.137, 2.138 and 2.140 of the T&SC. It is our responsibility as Market Auditor to perform an audit of the operation of the systems specified in the Market Audit Scope, provide our Market Audit Report to the Regulatory Authorities, and meet with the Regulatory Authorities and nominated representatives of the Market Auditor and Modifications Committee.

We planned and performed our work to enable us to form an independent opinion on whether the Market Operator has complied with the Rules and Agreed Procedures relevant to the processes undertaken by the Market Operator as set out in the T&SC. It is not our responsibility to confirm compliance with Agreed Procedures other than to the extent that these are explicitly referred to in the Rules, or where we deem necessary for the purpose of our audit.

#### *Audit Scope*

The scope of our audit was set out in the Terms of Reference for the Market Audit issued by the Regulatory Authorities on [date]. The Terms of Reference for the Market Audit expressly excludes functions performed by the TSOs, MDPs and other Parties or their agents under the T&SC from the scope of the audit including, inter alia, generation metering, dispatch instruction logging, and metering and aggregation of demand.

#### *Basis of opinion*

We conducted our audit in accordance with International Standards on Auditing (UK and Ireland) issued by the Auditing Practices Board which we consider applicable to this engagement. Our audit included examination, on a test basis, and an assessment of whether the Rules and where relevant the Agreed Procedures, were consistently and correctly applied in all material respects. We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give us reasonable assurance that the Market Operator has complied, in all material respects, with the Rules and relevant Agreed Procedures.

For the purpose of our opinion a qualification, in terms of material non compliance with the Rules and relevant Agreed Procedures of the T&SC, would arise if we considered the breach to be of such significance that it undermined the robust operation of the settlements process.

*Opinion*

On the basis set out above, in our opinion, during the year ended [date], the Market Operator has complied in all material respects with the Rules and relevant Agreed Procedures of the T&SC, as varied by direction of the [Regulatory Authorities].

## **ISAE 3000 Assurance Report**

### ***Independent Accountant's Assurance Report to the Regulatory Authorities ("the Responsible Party"), and T&SC Parties (together "the Beneficiaries")***

In accordance with the terms of engagement dated [ ] we have performed assurance work in connection with certain aspects of the operation of the T&SC settlement systems by the Audited Entities as described below and detailed in Appendix [ ] ("the Review").

[The Appendix sets out in detail the relevant T&SC settlement systems, relevant T&SC requirements (potentially only a subset of T&SC requirements), description of any significant inherent limitations, etc.]

The Responsible Party was responsible for specifying the T&SC settlement systems and applicable T&SC requirements to be covered by our Review, and defining the measurement criteria and acceptance standards. Our responsibility, as agreed with the Responsible Party, was to provide reasonable assurance to the Responsible Party and Beneficiaries that the operation of the specified T&SC settlement systems by the Market Operator had complied with the relevant T&SC requirements during the period under review.

The work performed has been undertaken so that we may produce an opinion to the Responsible Party and the Beneficiaries on those matters we have agreed to opine on and for no other purpose. The matters we agreed to opine on are those included in our opinion below. Except as defined in our terms of engagement, our Report has not been prepared in contemplation of any other party and, to the fullest extent permitted by law, we do not accept responsibility or liability to any other party for this report. To the extent that any other party chooses to rely on this report, they do so entirely at their own risk.

We conducted our work in accordance with the International Standard on Assurance Engagements 3000 "Assurance Engagements Other Than Audits or Reviews of Historical Financial Information". That standard requires that we plan and perform our work to obtain appropriate evidence about the subject matter of the engagement sufficient to support an opinion providing reasonable assurance. Our work included the review of risks, control objectives and controls associated with the operation of the T&SC settlement systems as described in section [ ] of this report. Our testing of the controls comprised review of documentation, corroborative enquiry with key Market Operator staff and, on a sample basis, testing the operation of controls.

We believe that our work performed and evidence obtained provides a reasonable basis for our opinion. Our assurance report has been produced under our letter of engagement with the Responsible Party dated [ ].

### ***Opinion***

In our opinion, the operation of the specified T&SC settlement systems by the Market Operator has, in all material respects, complied with the relevant T&SC requirements.



The procedures we performed did not constitute an audit under International Standards on Auditing. Except to the extent expressly stated above we did not subject the information contained in our Report or given to us by the Audited Entities to checking or verification procedures. This is normal practice when carrying out such limited scope procedures, but contrasts significantly with, for example, an audit. The procedures we performed were not designed to and are not likely to reveal fraud.

Our Report has been prepared solely for the exclusive use of [the Regulatory Authorities and Beneficiaries] and solely for the purpose of assisting you in assessing the operation of the T&SC settlements process in certain identified areas. Our Report is not to be used for any other purpose, recited or referred to in any document, copied or made available (in whole or in part) to any other person without our prior written express consent. We accept no duty, responsibility or liability to any other party in connection with the Report or this engagement.

Yours faithfully

## **SAS70 Opinion**

### ***Independent Accountant's Report to the Regulatory Authorities ("the Responsible Party") and T&SC Parties (together "the Beneficiaries")***

We have examined the accompanying description of controls related to the TSC Settlement Process. Our examination included procedures to obtain reasonable assurance about whether:

1. The accompanying description presents fairly, in all material respects, the aspects of T&SC Settlement Process controls that may be relevant to the Market Operator's internal control as it relates to the audit.
2. The controls included in the descriptions were suitably designed to achieve the controls objectives specified in the description.
3. Such controls had been placed in operation as of [date].

The accompanying description includes only those controls and related control objectives for the T&SC Market Audit. It does not include controls and related control objectives at other agents. We performed our examination in accordance with SAS70 and included those procedures we considered necessary in the circumstances to obtain a reasonable basis for rendering our opinion.

In our opinion, the accompanying description of the aforementioned applications presents fairly, in all material respects, the relevant aspects of the T&SC Market Audit controls that may be relevant to the Market Operator that had been placed in operation as of [date]. Also, in our opinion, the controls as described are suitably designed to provide reasonable assurance that the specific control objectives would be achieved if the described controls were complied with satisfactorily.

Yours faithfully

## **Agreed Upon Procedures Report**

### **To [the Regulatory Authorities and T&SC Parties]**

Dear Sirs

#### *Report of Factual Findings*

We have performed the following procedures as agreed by the Regulatory Authorities on the schedule of information provided by the Regulatory Authorities (the "Schedule") in accordance with the International Standard on Related Services (ISRS) 4400 "Engagements to Perform Agreed-Upon Procedures Regarding Financial Information" and our engagement letter dated [ ], a copy of which is attached. The procedures were performed solely for the purpose of assisting you in assessing the operation of the settlements process in certain identified areas.

#### 1. Scope of our work and factual findings

The procedures performed were formally agreed with the Regulatory Authorities on [date] and are attached as Appendix [ ].

We report our findings below:

#### 2. Results of procedures....

The scope of our work in preparing this Report was limited solely to those procedures set out above. Accordingly we do not express any opinion or overall conclusion on the procedures we have performed. You are responsible for determining whether the scope of our work specified is sufficient for your purposes and we make no representation regarding the sufficiency of these procedures for your purposes. If we were to perform additional procedures, other matters might come to our attention that would be reported to you. Our Report should not be taken to supplant any other enquiries and procedures that may be necessary to satisfy the requirements of the recipients of the Report.

The procedures we performed did not constitute a review or an audit of any kind. We did not subject the information contained in our Report or given to us by the Directors to checking or verification procedures except to the extent expressly stated above. This is normal practice when carrying out such limited scope procedures, but contrasts significantly with, for example, an audit. The procedures we performed were not designed to and are not likely to reveal fraud.

#### 3. Use of Report

Our Report has been prepared solely for the exclusive use of [the Regulatory Authorities and T&SC Parties] and solely for the purpose of assisting you in assessing the operation of the settlements process in certain identified areas. Our Report is not to be used for any other purpose, recited or referred to in any document, copied or made available (in whole or in part) to any other person without our prior written express consent. We accept no duty, responsibility or liability to any other party in connection with the Report or this engagement.

Yours faithfully

**APPENDIX**  
**Sample extract of Report of Significant Issues**

II

Issue	Effect	Resolution
Title of issue		Classification [Material/Significant/Other] First raised in [ ]
Description of issue including inter alia <ul style="list-style-type: none"> <li>• Nature of issue</li> <li>• How it arose</li> <li>• Parties affected</li> <li>• How it represents non compliance</li> </ul>	Quantification of impact, focusing on materiality of error	Suggested action to be taken to resolve issue and/or prevent/detect its recurrence

## APPENDIX Terminology used and definitions

III

The terminology used in this consultation paper is consistent with the Trading & Settlement Code. The main terms are set out in the table below:

AP	Agreed Procedure
AUP	Agreed Upon Procedures
BSC	Balancing & Settlement Code
CER	Commission for Energy Regulation
DLAF	Distribution Loss Adjustment Factor
DSO	Distribution System Operator
IA	Interconnector Administrator
ISA	International Standard on Auditing
ISAE	International Standard on Assurance Engagements
ISRS	International Standard on Related Services
MDP	Meter Data Provider
MO	Market Operator
MRSO	Meter Registration System Operator
MSP	MSP Software
MSQ	Market Schedule Quantity
NIAUR	Northern Ireland Authority for Utility Regulation
NIE	Northern Ireland Electricity
RAs	Regulatory Authorities
SAS70	Statement of Auditing Standards No 70
SEM	Single Electricity Market
SMO	Single Market Operator
SMP	System Marginal Price
SONI	System Operator for Northern Ireland
TLAF	Transmission Loss Adjustment Factor
T&SC	Trading & Settlement Code
TSO	Transmission System Operator
UUC	Unconstrained Unit Commitment

**MARKET AUDIT, CONSULTATION AND INFORMATION SHARING**

- 2.131 The Regulatory Authorities will appoint a person or firm as Market Auditor every three years for a three year term, such appointment to take effect from the date specified by the Regulatory Authorities.
- 2.132 Where the appointment is terminated or the Market Auditor resigns before the expiry of the three year term, the Regulatory Authorities may appoint a person or firm to fulfil the role of Market Auditor on a temporary basis pending the appointment by the Regulatory Authorities of a person or firm as Market Auditor for a three year term. The three year term of the person or firm so appointed as Market Auditor shall commence from their date of appointment.
- 2.133 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.
- 2.134 The annual period covered by the audit shall be 1 January to 31 December unless the terms of reference specify a different period.
- 2.135 The Regulatory Authorities shall consult with Parties on the terms of reference for the audit at least 10 weeks in advance of the commencement of the audit period.
- 2.136 The Regulatory Authorities shall specify annually the precise terms of reference for the audit 4 weeks in advance of the commencement of each Year of the audit or audit period, if different, and shall publish the terms of reference before the commencement of each Year or audit period if different.
- 2.137 The Market Auditor shall be of good repute with the appropriate experience to enable it to carry out the audit with the appropriate level of expertise, care, skill and diligence.
- 2.138 The Market Auditor, pursuant to these provisions and such terms of reference as the Regulatory Authorities shall specify, shall:
1. report to the Regulatory Authorities at such reasonable intervals as the Regulatory Authorities shall specify in the terms of reference during the course of the audit;
  2. deliver its Audit Report to the Regulatory Authorities in draft form prior to it being finalised;
  3. deliver its Audit Report in final form to the Regulatory Authorities within 4 weeks of delivering its draft audit;

4. meet with the Regulatory Authorities at the request of the Regulatory Authorities at any time during the Market Auditor's engagement. The Regulatory Authorities will, in any event, require the Market Auditor to attend a meeting with it within 6 weeks of its delivery of the Audit Report in final form. Nominated representatives of the Market Operator and the Modifications Committee shall be entitled to attend such meeting.
- 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 the functions and obligations and terms of reference for the purposes of conducting the audit and preparing and finalising the Audit Report. This is subject to any obligations of confidentiality which the relevant Party claims are owed to any third parties which prevent disclosure of the information required. In such circumstances, the relevant Party shall be obliged to explain the nature of the obligations of confidentiality, the information to which they apply and to demonstrate to the satisfaction of the Regulatory Authorities that it has used its best endeavours to obtain clearance from the third party to whom the obligation of confidentiality is owed to release the information required to the Market Auditor.
  - 2.140 The Market Auditor shall be entitled to make recommendations in its Audit Report. The Regulatory Authorities may direct implementation of any recommendation of the Market Auditor and shall consult with the Market Operator and the Modifications Committee before so doing. Any recommendation which the Regulatory Authorities direct to implement by way of an amendment of the Code shall be deemed to be an approved Modification Proposal and shall be published accordingly by the Market Operator.
  - 2.141 The Market Operator shall arrange for the publication of the Audit Report in final form in accordance with the provisions of the Code upon its delivery in accordance with paragraph 2.138.3 subject to any confidentiality obligations under paragraphs 2.344 to 2.349.
  - 2.142 Each Party shall keep complete, accurate and up to date records whilst a Party to the Code and, where applicable, of its participation in the Pool for a minimum of 3 years from the date of creation of such records.
  - 2.143 The fees and costs of the Market Auditor shall be paid by the Market Operator.