



Trading and Settlement Code

Market Audit 2019 Agreed Upon Procedures

Information Paper

28 November 2019

SEM-19-067

Paragraph B.16.1.3 of the Trading and Settlement Code (“TSC” or “the Code”), requires the Market Auditor to conduct an audit of the Code, its operation and implementation of the operations, trading arrangements, procedures and processes under the Code at least once a Year. Paragraph B.16.1.6 requires the Regulatory Authorities to specify annually the precise terms of reference for the audit following this consultation process.

In September (following a consultation) the SEM Committee published a Decision Paper on the Terms of Reference for the Market Audit 2019 ([SEM-19-051](#)). This paper outlined the reporting approach that will be implemented in the 2019 Market Audit, namely ISRS4400 Agreed Upon Procedures. Reporting under ISRS4400 Agreed Upon Procedures requires the development of a specific list of Agreed Upon Procedures to audit. The SEM Committee has worked with the Auditors to develop a specific list of Agreed Upon Procedures that form the basis of the Trading and Settlement Code Market Audit.

The purpose of this paper is to outline the Agreed Upon Procedures that will be audited in the 2019 audit.

2 GENERAL NOTE REGARDING SAMPLING AND REPORTING

The below procedures include testing on a sample basis, note the following will apply:

1. When sampling individual occurrences of a process (e.g. unit registrations) the sample will be selected to include units from both jurisdictions and, where relevant, demand-side units in addition to other generation units.
2. When testing is performed for a sample of dates (this relates to testing via recalculation of settlement values etc.) then all applicable units for the calculation for that date will be recalculated.

In reporting the results of the audit, for a number of procedures SEMOs response will be documented if it exceeds 1% difference from that recalculated by the auditor or if the value is greater than a certain value. Both a percentage and value have been included as if there was a single large number, the 1% could be a significantly large value, in these instances a lower (monetary value) limit would be applied to ensure all responses of relevance are documented. The monetary value of deemed importance to warrant documentation, will be different for each procedure and the exact value will be better understood once the audit has begun. For this reason, the monetary values have been left as place holders in the document and will be applied during the audit when deemed appropriate.

3 AGREED UPON PROCEDURES

Scope Area	Relevant TSC Section(s)	Planned Approach
Accession and Registration	Section B.7; B12, Agreed Procedure 1	<ul style="list-style-type: none"> • Record the Accession and Registration process, implemented by SEMO, to register Participants/Units as part of the market activities. • For a sample of 5 new party registrations, and new unit registrations; document all relevant registration requirements in terms of Section B7 of the Code and AP1 have been met. • For a sample of 2 parties that have acceded to the Code (intermediaries), document all requirements of registration as set out section B.17 of the Code as well as AP1 • Record the Participant and unit deregistration process implemented by SEMO to deregister Participants / Units as part of the market activities. • For a sample of 2 Participant and unit deregistrations, document if the requirements of Section B.12 of the Code and AP1 have been met.

		<ul style="list-style-type: none"> For a sample of 2 Participants who failed to comply with the Credit Cover Increase Notice within two working days of issue from the total list provided by SEMO, document if the Suspension Order was issued in accordance with AP1.
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Scope Area	Relevant TSC Section(s)	Planned Approach
Imbalance Settlement Price calculation and recalculation	Section E.3	<ul style="list-style-type: none"> For a sample of 4 days during the testing period (1 October 2018 – 31 December 2019), chosen to test between major software releases, obtain all input data (Imbalance Settlement data and Bid Offer Acceptance data) that is used to calculate the imbalance settlement price. Mathematically recalculate imbalance settlement price, based on the market code (E.3) and record any difference to the value obtained by SEMO. Document SEMO’s response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p> <ul style="list-style-type: none"> For a sample of 4 days during the testing period, chosen to test between major software releases, obtain all available input data (Registration Data, Imbalance settlement price, Bid Offer Prices, Loss adjusted accepted quantities) that is used to calculate the C Premium/C Discount for all units. Recalculate C Premium/C Discount, based on the market code (F.6) and record any difference to the value obtained by SEMO. Document SEMO’s response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p> <ul style="list-style-type: none"> For a sample of 4 days during the testing period, chosen to test between major software releases, obtain all input data (Imbalance settlement parameters, bid offer price, bid offer acceptance, premium/discount for under/over generation, Loss adjusted information imbalance) that is used to calculate uninstructed imbalance for a given unit. Recalculate uninstructed imbalance, based on the market code (F.9) and record any difference to the value obtained by SEMO. Document SEMO’s response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p>

Settlement Production and returns (to include all the Market Operator Charges)	Section F.1	<ul style="list-style-type: none"> For a sample of 4 days during the testing period, chosen to test between major software releases, obtain all input data (Technical Offer Details, Dispatch Instructions, Outturn Availability) that is used to calculate the Dispatch Quantity (DQ) for a given unit. Recalculate the DQ, based on the market code (Appendix O) and record any difference to the value obtained by SEMO. Document SEMO's response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p>
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		<ul style="list-style-type: none"> For a sample of 4 days during the testing period, chosen to test between major software releases, obtain all input data (Metered Quantity, Curtailed quantity, Bid offer details, physical notification, outturn availability) that is used to calculate the curtailment price (PCURL). Recalculate curtailment price, based on the market code (F.8) and record any difference to the value obtained by SEMO. Document SEMO's response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p> <ul style="list-style-type: none"> For a sample of 4 days during the testing period, chosen to test between major software releases, obtain all input data (Registration Data, Metered quantity, Market Operator Charge Parameters) that is used to calculate the Variable (CVMO) and Fixed Market Operator Charge (CMOA) for a given unit. Recalculate the market operator charges, based on the market code (G.7) and document the value obtained by SEM. Document SEMO's response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p>

		<ul style="list-style-type: none"> For calculations performed on or after [version XX / date of fix of the Market Systems] select a sample of 4 days from the testing period including dates resettled from prior to [version XX / date of fix of the Market Systems]. For these dates obtain all input data (Dispatch quantity, final physical notification, commercial offer details) that is used to calculate the QBOA for a given unit. Recalculate QBOA, based on the market code (F6.2) and record any difference to the value obtained by SEMO for the calculations performed on or after [version XX / date of fix of the Market Systems]. Document SEMO's response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate any subsequent resettlement runs performed during the testing period on or after [version XX / date of fix of the Market Systems].</p> <ul style="list-style-type: none"> For a sample of 5 manual QBOA overrides during the testing period. Obtain the initial QBOA values and SEM manual adjustment. Confirm these overrides are consistent with the process documented and appropriate as per the TSC. <ul style="list-style-type: none"> For calculations performed on or after [version XX / date of fix of the Market Systems] select a sample of 4 days from the testing period including dates resettled from prior to [version XX / date of fix of the Market Systems]. For these dates obtain all input data required (Registration Data, Final Physical
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		<p>Notifications, No Load Cost, Bid Quantities, Bid Offer Price) to calculate the Fixed Cost and Make Whole Payments for a given unit. Recalculate Fixed Cost (CFC) and Make Whole Payments (COCMWP), based on the market code (F.11) and record any difference to the value obtained by SEMO. Document SEMO's response to any differences over 1% or greater than €[X].</p> <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p>

		<ul style="list-style-type: none"> For a sample of 4 days during the testing period, chosen to test between major software releases, obtain all input data (Imperfections Annual Parameters, Metered quantity) that is used to calculate the imperfections charge for a given unit. Recalculate imperfections charge (CIMP), based on the market code (F.12) and record any difference to the value obtained by SEMO. Document SEMO's response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p> <ul style="list-style-type: none"> For a sample of 4 days during the testing period, chosen to test between major software releases, obtain all input data (Registration Data, Metered quantity, Residual Error Parameters) that is used to calculate the Residual Error Charge (CREV) for a given unit. Recalculate Residual Error Charge, based on the market code (F.14) and record any difference to the value obtained by SEMO. Document SEMO's response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p> <ul style="list-style-type: none"> For a sample of 4 days during the testing period, chosen to test between major software releases, obtain all input data (Capacity Parameters, Metered Quantity) that is used to calculate the Capacity charge (CCC), Capacity Payment (PCP) and Difference Payment Socialisation Charges (CSOCDIFFP) for a given unit. Recalculate Capacity charge, Capacity Payment and Difference Payment Socialisation Charge, based on the market code (F.19, F.17) and record any difference to the value obtained by SEMO. Document SEMO's response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p>
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		<ul style="list-style-type: none"> For a randomly selected sample of 4 days during the testing period where the monthly strike price (PSTR) has been exceeded by either the imbalance price (PIMB), an intraday trade price (PTID) or dayahead trade price (PTDA). Obtain all input data required (Metered Quantity, Difference Payment Parameters, Capacity Charge Parameters) to calculate the Total Difference Payment (CDIFFPTOT) for a given unit. Recalculate Difference Payment Charge, based on the market code (F.19) for all units for the selected dates and record any difference to the value obtained by SEMO. Document SEMO's response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs performed during the testing period.</p>
Currency and balancing charges	Section F.14, F.15	<ul style="list-style-type: none"> For a sample of 4 days during the testing period, chosen to test between major software releases, obtain all input data required (Registration Data, Metered quantity, Currency Charge Parameters) to calculate the Currency Adjustment Charge (CCA) for a given unit. Recalculate Currency Adjustment Charge, based on the market code (F.15) and record any difference to the value obtained by SEMO. Document SEMO's response to any differences over 1% or greater than €[X]. <p>For each day tested within the period, recalculate for the initial run and any subsequent resettlement runs.</p>
Credit Cover Management	Section G.9-15, Agreed Procedure 9	<ul style="list-style-type: none"> Document the Credit Cover Management process, implemented by SEMO, to implement the requirements of with section G.9 – G.15 of the Code as well as AP 9. Obtain a list of all instances where the required credit cover of a participant, exceeded the posted credit cover. Select a sample of [N] instances and document what notices were issued to these participants. For a sample of 5 new unit registrations selected in Accession and Registration testing, document the requirements in terms of adjusted Participant Cover as set out in AP9. For a sample of 2 Credit Cover providers, record what ongoing monitoring, as set out by AP 9 and the Code were performed. Document SEMO's explanation for any discrepancies. For a sample of 2 Participants for which changes to Posted Credit Cover occurred, other than changes to letters of credits or new letter of credit, record if each of the steps of section 3.4 of AP 9 were performed. For a sample of 5 transfers from the collateral reserve account document the requirements in respect of transfers from the SEM Collateral Reserve Account (including request for transfers), as set out by AP 9 and the Code. Inspect the RCC calculation configuration of the Credit Risk Management System and document against each element of with Section 2.3 of AP9. Select a sample participant and re-perform the calculation of the RCC based on the factors indicated in the code and record if it matched with RCC value in the Credit Risk Management System.

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		<ul style="list-style-type: none"> For a sample of 2 Parties who had defaulted, document the requirements in terms of issuing a default notice and record against paragraph B.18 (part 2, 3 and 5) in the Code.
Settlement Queries	Agreed Procedure 13	<ul style="list-style-type: none"> Document an overview of the Settlement Queries process, implemented by SEMO, with the Code as well as AP 13. For a sample of 5 Settlement Queries, document the requirements as set out by AP 13 and the Code,
Modifications/Code development	Section B.17, Agreed Procedure 12	<ul style="list-style-type: none"> Document an overview of the Code Modifications process, implemented by SEMO against the Code as well as AP 12. For a sample of 2 Modifications made or proposed during the testing period document if each step of section B.17 and AP 12 was completed.
Information publication	Section C.7, Agreed Procedure 6	<ul style="list-style-type: none"> Document an overview of the process SEMO has put in place to ensure that all data as required by the Code and AP 6 have been published within the timeframes set out by Appendix E of the code. Document if SEMO published the latest version of the code as well as related updates, against the timelines as set out in the Code.
Communication channels	Section C.2, Agreed Procedure 3	<ul style="list-style-type: none"> Document an overview of the process involved in qualifying Communication Channels in terms of AP 3 and the Code. For a sample of 5 parties registered to the Market, record if all Digital Certificates have been issued to parties of the Market, as required by AP 3 and the Code. For a sample of 5 parties registered to the Market, record if all requirements for Qualification Testing of Communication Channels (type 2 and type 3), as set out by AP 3 and the Code were performed by SEMO. For a sample of 2 parties who have been suspended from using type 2 or type 3 Channels, by SEMO, document if all requirements of the suspension process were performed by SEMO, as set out by AP 3 and the Code.
Communication and System Failures	Section C.5, Agreed Procedure 7	<ul style="list-style-type: none"> Document an overview of the process involved in Emergency Communications and General System Failures in terms of AP 7 and the Code. For a sample of up to 2 general system and/or general communication failures, document against the requirements as set out by AP 7 and the code.
Transaction Submission and Validation	Agreed Procedure 4	<ul style="list-style-type: none"> For the validated Technical Offer Data obtained under section 'Settlement Production' above, record if the data is consistent with the validation requirements as set out by AP 4 and the code. Document explanations from SEMO for any exceptions.
Data Storage and IT Security	Agreed Procedure 5	<ul style="list-style-type: none"> For a sample of 5 new and modified user accounts, document against the requirements of AP 5 and the code. For a sample of 5 leavers, document when their access was removed. For each user account with privileged access record when SEMO management approved

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		<ul style="list-style-type: none"> Obtain and document an overview of how system access by IT / Software Vendors is monitored. For a sample of 5 instances of IT / Software Vendor access record each step of the documented process. Record the design and implementation of offline electronic backup solution against AP 5 and the code.
Systems and operations	Agreed Procedure 11	<ul style="list-style-type: none"> Document an overview of the process involved in Systems Operation, Testing, Upgrading and Support Document in terms of AP 11 and the Code. For a sample of 2 change releases and 3 bug fixes, document against AP 11 and the code. For a sample of 2 amended authorised persons, document against AP 11 and the code. Record when annual confirmation of authorised persons was completed.
Legacy SEM Resettlement	Section A	<ul style="list-style-type: none"> For settlement dates previously tested in the testing period ending 30 September 2018 obtain updated metering data, participant information reports, settlement statements and settlement invoices for resettlement runs performed during the period 1 October 2018 – 31 December 2019. Recalculate the resettlement of the following charges/payments and compare to SEMO calculated values: <ul style="list-style-type: none"> Energy Charge and Payments Capacity Charge and Payments Uninstructed Imbalances Any other charges/payments affected by previously reported issues <p>Document SEMO's response to any differences over 1% or greater than €[X].</p>
Transitional Arrangements	Section C	<ul style="list-style-type: none"> Compare the participant register from the [legacy] SEM and new SEM arrangements. Identify any participants in the new arrangements valid on the Amendment Date that were not present in the [legacy] SEM and document SEMO's explanation for how these participants were registered. Document the transitional process published by SEMO per section 5 including key checks/reconciliations performed by SEMO. For a sample of 5 units subject to transition document the process. Compare the registration data subject to migration between the [legacy] and new SEM systems and record any discrepancies. Document explanations from SEMO for any discrepancies found. Obtain a copy of SEMOs "Lessons Learnt" / "Project Closure" report from the transition to I-SEM. Document the key inputs to the report including stakeholders who provided input from within SEMO and wider market. For each major recommendation / change proposed in the Lessons Learnt report inspect documentation of relevant SEMO Processes and project plans/documentation for current Market System stabilisation activity and document if these have been updated to reflect the recommendations.

