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SEM Market Audit

Independent Market Auditor's Report
For the period ended 31 December 2021

Date: 5 April 2023



Market Auditor Report – Notice re Distribution and Publication

This notice concerns the Market Auditor Report to the Commission for Regulation of Utilities (CRU) and the Utility Regulator (UR) (together the Regulatory Authorities (the RAs)) on the SEM Market Audit for the 12 months ended 31 December 2021 dated 5 April 2023 (the "Report").

This notice does not apply to the RAs (including their employees acting within the scope of their employment duties).

The requirement for the Market Audit is set out in The Single Electricity Market (SEM) Trading & Settlement Code ("TSC" or "the Code") designated on 3 July 2007 and as amended from time to time. This Report was prepared by Deloitte Ireland LLP (a partnership established in Ireland and with its registered address at Deloitte & Touche House, Earlsfort Terrace, Dublin 2, Ireland) ("Deloitte").

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No work has been carried out nor have any enquiries of RAs or Single Electricity Market Operator management been made since 31 January 2023. The Report does not incorporate the effects, if any, of any events or circumstances which may have occurred or information which may have come to light subsequent to that date. Deloitte makes no representation as to whether, had Deloitte carried out such work or made such enquiries; there would have been any material effect on the Report. Further, Deloitte has no obligation to notify you if any matters come to its attention after the date of this report which might affect the continuing validity of the comments or conclusions in the Report.

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This notice shall be governed and construed in accordance with the laws of Ireland. The courts of Ireland will have exclusive jurisdiction to settle any claim, dispute or difference which may arise out of or in connection with this notice.

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1 Introduction

1.1 Background

The Single Electricity Market ("SEM") was developed by the Commission for Regulation of Utilities ("The Commission" or "CRU") and the Utility Regulator ("UR"), together the Regulatory Authorities ("RAs"). The Single Electricity Market Operator ("SEMO") is responsible for the operation of the SEM. The Trading and Settlement Code ("TSC" or "the Code") was developed as part of the process of establishing the SEM and constitutes the trading and settlement arrangements for the SEM.

The Regulatory Authorities have engaged Deloitte as Market Auditor to undertake a Market Audit of the Code, its operations and implementation and the operations, trading arrangements, procedures and processes under the Code. The requirement for a Market Audit is set out in section B.16.1 of the Code. As required under the Code, the RAs consulted on the scope of the Market Audit resulting in the publication of the Terms of Reference for the Market Audit (SEM-21-082) on 4 November 2021 ("TOR").

As defined in the TOR the scope of the Market Audit focused on the activities of the SEMO under the Code and associated Agreed Procedures and covered the systems and processes within the control of the SEMO. The TOR require that the audit is reported under ISAE 3000 Assurance Opinion, and covers the following areas:

- Accession & Registration
- Imbalance Settlement Price Calculation and Recalculation
- Settlement Production and Reruns (to include all of the Market Operator Charges)
- Currency and balancing charges
- Market Operator and Imperfections charges
- Invoices, payments and credit cover
- Queries and disputes
- Code development
- Information publication
- Communication channels, systems and operation

Unless otherwise specified, words and expressions used in this document have the same meaning as defined in the Code.

Introduction (Continued)

1.2 Requirement for Market Audit

The requirement for a Market Audit of the Code is set out in section B.16 of the Code in paragraphs B.16.1.1 to B.16.1.13. As specified in the Terms of Reference, it covers the 12 months from 1 January 2021 to 31 December 2021 and aims to provide a reasonable level of assurance under ISAE 3000.

1.3 Report Structure

Section 2 contains our Market Audit Conclusion. The Market Audit Scope was agreed by the RAs in accordance with the Terms of Reference.

The Regulatory Authorities have specified in the ToR that materiality should be set at 0.25% of estimated annual market value, with a threshold of 10% of the materiality level set for the reporting of Significant Issues. Planning materiality for the Market Audit has therefore been set at €2.4m and it will be for signatories to the Code ("Parties") themselves to evaluate the financial impact of any errors or matters arising on their own businesses.

Section 3 contains our Report of Significant Issues, setting out matters identified during the course of the audit which, while not material in the context of the audit, may have a significant impact on Parties to the Code. Where, in our judgement, matters arising may be significant to individual parties such matters have been included in the Significant Issues Report with sufficient detail so as to allow the RAs and Parties to the Code to evaluate the impact of the cause and circumstances of matters reported. Qualitative and quantitative factors were taken into account when determining the significance of an issue. From a quantitative perspective, a threshold of 10% of the materiality value has been applied in determining whether a matter should be included in the Significant Issues Report. From a qualitative perspective we consider a range of factors including the number and type of parties affected, cause of the issue, duration of the issue and whether this had already been identified by the Market Operator. The resolution response for each of these points was provided by SEMO.

Section 4 contains details of Other Matters Arising which we wish to bring to the attention of Parties. They do not represent issues of significant non-compliance however we include this section, as we believe it may assist the RAs and Parties to the Code to judge for themselves the relative significance of all points reported.

Section 5 contains the Follow up on Prior Period Issues, which were brought to your attention in the prior period SEM Independent Market Auditor's Report, some of which have been resolved. Where the points have not yet been resolved a current year update has been provided and, where related issues were observed in the current Audit Period, reference made to the appropriate findings in sections 3 and 4.

2 Market Auditor Conclusion

Independent Market Auditor's Assurance Report to the Commission for Regulation of Utilities ("The Commission" or "CRU") and the Utility Regulator ("UR") (together "The RAs")

We have performed reasonable assurance work over the extent to which the Single Electricity Market Operator ("SEMO") has complied with Part B of the Trading and Settlement Code ("Code") and relevant Agreed Procedures as defined in the "Terms of Reference for the Market Audit 2021" published by the RAs on 4 November 2021, during the 12 month period ending 31 December 2021. The engagement has been performed in accordance with ISAE 3000 (Revised) "Assurance Services Engagements other than Audits or Reviews of Historical Financial Information" ("ISAE 3000") issued by the International Auditing and Assurance Standards Board. In the context of this engagement the terms "Audit" and "Market Audit" mean a reasonable assurance engagement performed in accordance with ISAE 3000.

This report is made solely for the RAs, as a body, in accordance with paragraph B.16.1.3 of the Code. Our work has been undertaken so that we might state to the RAs those matters we are required to state to them in a reasonable assurance report in accordance with ISAE 3000 and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the RAs and the Parties as a body, for our work, for this report, or for the conclusions we have formed. Parties to the Code may only rely on this report if they have agreed in writing to be bound by the conditions under which it has been prepared, in line with the engagement letter.

Unless otherwise specified, words and expressions used in this report have the same meaning as defined in the Code.

Responsibilities of the Single Electricity Market Operator, RAs and Parties to the Code (together the "Responsible Party")

The Code is a legal agreement which, inter alia, sets out the terms of the trading and settlement arrangements for the sale and purchase of wholesale electricity on the island of Ireland between participating generators and suppliers ("Single Electricity Market"). The Code defines the Rules and Agreed Procedures, which are required to be followed by the Parties who are bound by its provisions.

The functions of the RAs are set out in the Electricity Regulation Act 1999, the Northern Ireland (Miscellaneous Provisions) Act 2006 and in the Code. In the context of the Market Audit, the role of the RAs as the Responsible Party is to appoint the Market Auditor and agree the terms of the Market Auditor's appointment, consult on and issue the Terms of Reference for the Market Audit, and receive Market Audit Reports.

SEMO is responsible for the operation of the Single Electricity Market ("SEM") under the Code as set out in paragraph A.1.1.4 therein and for complying with the requirements of the Code and Agreed Procedures as listed in appendix D to the Code, insofar as they are applicable to the SEMO.

The responsibilities of the Parties in respect of the Market Audit are set out in paragraph B.16 of the Code, 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. A person may only become a Party to the Code in accordance with the terms of the Code and the Framework Agreement.

Market Auditor Conclusion (Continued)

Responsibilities of the Market Auditor

The requirements for the Market Audit are set out in paragraphs B.16.1.1 to B.16.1.13 of the Code, in particular paragraph B.16.1.3 of the Code which 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 this Code at least once a year”. It is our responsibility as Market Auditor to execute the Market Audit as required under the Code and as set out in the Terms of Reference for the Market Audit 2021 and provide a reasonable assurance report thereon. We comply with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, or equivalent code, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

We apply International Standard on Quality Management 1 and accordingly maintain a comprehensive system of quality management including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and RAs requirements.

We further include issues identified during our work but which were not considered material / significant, based on the stipulated levels, in the “Other Matters” section of the report as required by the Terms of Reference. As set out above, these do not represent issues of significant non-compliance however this section is included to assist the RAs and Parties to the Code to judge for themselves the relative significance of all points reported.

We draw attention to the Market Operator Performance Reports which lists all Code breaches identified by SEMO. The Market Operator Performance Reports are issued by SEMO and are available on its website. In addition, SEMO maintains a Known Issues Report, which is also available on its website. The Market Operator is responsible for publishing the Market Operator Performance Reports and Known Issues Report and the availability and completeness of these reports is not in the scope of this Audit.

There are inherent limitations in assurance engagements on controls as because of their nature they may not detect all errors or omissions in processing or reporting of transactions. The conclusions expressed herein only relate to the period under review, and as at the period end date specified and do not provide assurance in relation to any future period or date as changes to systems or controls subsequent to the period/year covered by this report may alter the validity of our opinions.

Market Auditor Conclusion (Continued)

Basis of assurance conclusion

We conducted our assurance work in accordance with ISAE 3000. That standard requires that we plan and perform our work to obtain appropriate evidence about the subject matter of the engagement sufficient to support a conclusion providing reasonable assurance when evaluated against the applicable criteria. In the context of the Market Audit, the subject matter consists of relevant activities of the SEMO which are evaluated against the relevant paragraphs of the Code and applicable Agreed Procedures as set out in the Terms of Reference for the Market Audit 2021.

Our assurance work included examination, on a test basis, of evidence relevant to the Code and Agreed Procedures including the review of risks, control objectives and controls associated with the SEMO's performance of their duties and operation of the settlement arrangements. Our testing of the controls comprised review of documentation, corroborative enquiry with key SEMO staff and, on a sample basis, testing the operation of controls and the validity and accuracy of the calculations underlying settlement output.

We planned and performed our assurance work so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the SEMO has complied with the Code and relevant Agreed Procedures as defined in the Terms of Reference for the Market Audit 2021.

We were not required to carry out an audit conducted in accordance with International Standards on Auditing (Ireland). Consequently, our conclusion is not expressed as an audit opinion.

For the purpose of our conclusion, a qualification, in terms of material non-compliance with the Rules and relevant Agreed Procedures of the Code, would arise if the financial impact of errors identified individually or in aggregate exceeded the materiality value as set out in section 1.3 above or where we considered the breach to be of such significance that it undermined the robust operation of the settlements process.

We have prepared a Report of Significant Issues which is attached to this conclusion setting out matters identified during the course of the audit which, while not material in the context of the audit, may have a significant impact for Parties to the Code. Our conclusion should be read in conjunction with the Report of Significant Issues, but is not qualified in respect of matters contained within the Report of Significant Issues.

Market Auditor Conclusion (Continued)

Conclusion

On the basis set out above and subject to the exclusions noted in the Responsibilities of the Market Auditor section above during the period from 1 January 2021 to 31 December 2021 the SEMO has, in all material respects, complied with the Code and relevant Agreed Procedures as set out in the "Terms of Reference for the Market Audit 2021" published by the RAs on 4 November 2021.

A handwritten signature in black ink, appearing to be 'J. Smith'.

For and on behalf of
Deloitte Ireland LLP
Chartered Accountants
Deloitte & Touche House
29 Earlsfort Terrace
Dublin 2

Date: 5 April 2023

3 Report of Significant Issues

Issue	Effect	SEMO Response
Settlement Production and Reruns		
3.1 Priority Dispatch Flag incorrectly populated		
<p>Differences in the calculation of QBOA were identified due to the 'Priority Dispatch' flag for certain units not being populated during the registration process. This resulted in SEMO not calculating a QBOA for these units.</p> <p>SEMO determined the issue was in effect from 20 January 2021 to 16 February 2022, at which point a formal query was raised (7208).</p>	<p>The following payments/charges were impacted:</p> <ul style="list-style-type: none"> • CDISCOUNT • CPREMIUM • CUNIMB • CCURL <p>Affected units would not have received these charges.</p> <p>Estimated impact over the audit period circa €310k.</p>	<p>Accepted.</p>
3.2 Incorrect Commercial Offer Data (COD) selection		
<p>We identified differences in the determination of Bid Offer Acceptance Price (PBOA), No Load Cost (CNL) and Recoverable No Load Cost (CNLR). The differences were due to SEMO Systems incorrectly using the imbalance flags and tags associated with the Settlement Period corresponding to the commercial offer detail 'Accept Time' rather than the Settlement Period itself.</p> <p>This issue is captured in defects 210214 and 210215, which were resolved in Release H (November 2021).</p>	<p>The following payments/charges were impacted:</p> <ul style="list-style-type: none"> • CDISCOUNT • CPREMIUM • CNL • CNLR • CSU • CSUR <p>Estimated impact over the audit period circa €900k.</p>	<p>Accepted. Resettlement complete so no net impact.</p>

4 Other Matters Arising

Issue	Effect	SEMO Response
Accession and Registration		
4.1 Party and Unit Registration – Publications		
<p>A defect exists in the Daily Registered Units/Parties reports published on the SEMO Website causing the Registration Date field to report the last modification date instead of the Effective Date.</p> <p>We do note that an alternative “List of Registered Units” is available on the SEMO Website which is manually updated. This manually updated “List of Registered Units” contains the correct information of the Effective Date for the Units sampled and analysed.</p>	<p>There is incorrect information published on the website which may cause confusion.</p>	<p>Publication of this report has now been paused on the SEMO website, therefore this issue is resolved, as the manual report provides the requirements outlined in TSC.</p>
4.2 Unit Registration - Communication of the Initial Required Credit Cover amount to the Party or Applicant not submitted within the required timeframe		
<p>For 1 of the 8 units sampled, SEMO communicated the Initial Required Credit Cover amount to the party after 5 WDs of Stage 2 (Review and Validation) commencing.</p>	<p>This represents non-compliance with AP1/ 2.3, which requires that Initial Required Credit Cover amount and Authorised Signatory Form be issued "Within 3 WD of Stage 2 commencing"</p>	<p>Accepted. The Unit IDs were provided in advance of Stage 2 to the Transmission System Operator (“TSO”) as these were the first battery registrations in NI, which caused some confusion in reviewing this finding. We accept this was not issued to Participant within 3WD, but 5WD instead. This did not have any impact on the final registration date of this unit in the market.</p>
4.3 Party Registration – Accession Deed not submitted to Applicant within the timing required		
<p>For 1 of the 3 parties sampled, SEMO provided the Applicant with an Accession Deed after 15 WDs of final receipt of required information.</p>	<p>This represents non-compliance with AP1 / 3.1 / 5 which requires that the Market Operator “On receipt of all required information and provided the Applicant fulfils the conditions for accession, provide the Applicant with an Accession Deed. Within 10 WD of final receipt of required information”.</p>	<p>Accepted. The delay was due to ongoing discussions with the Participant on the required Party set up. Once confirmed, the deed was issued for execution.</p>

Issue	Effect	SEMO Response
4.4 Party Registration – Executed Accession Deed not submitted to Applicant within the timing required		
<p>For 3 of the 3 parties sampled SEMO submitted the executed Accession Deed to the Applicant after 114, 131 and 404 WDs of receipt of signed Accession Deed, respectively.</p>	<p>This represents non-compliance with AP1 / 3.1 / 7 which requires that the Market Operator “...executes and dates the Accession Deed and sends a copy to the Applicant. Applicant becomes a Party to the Code on the date specified in the Accession Deed. Within 10 WD of receipt of signed Accession Deed”.</p>	<p>Due to hybrid working arrangements at this time (2021) the execution of deeds could not be completed in the required timeline. A proposal to submit a modification to extend the timeline in the Agreed Procedure is currently being evaluated.</p>
4.5 Unit Deregistration – Submission of Deregistration details		
<p>For 1 of the 3 unit deregistrations sampled, SEMO submitted the Deregistration details to relevant System Operators and Relevant Meter Operator 45 WDs after the receipt of the Deregistration Form.</p>	<p>This represents non-compliance with AP 18 / 3.1 / 2 which requires that the Market Operator “Submit appropriate Deregistration details to relevant System Operators and Relevant Meter Operator. Within 5 WD of receipt of Deregistration Form”.</p>	<p>Accepted. As a deregistration must occur on the same date as the re-registration, we were awaiting the re-registration details before progressing. The deregistration / re-registration process is managed by SEMO and the TSO as one process which is why we were waiting to receive all outstanding items before progressing.</p>
Settlements Production and Reruns		
4.6 Dispatch Quantity set equal to Metered Quantity for PSUs in pumping mode		
<p>The CSB system reports QD (dispatch quantity) as equal to the QM (metered quantity) value for Pump Storage Units in pumping mode. This is done for purposes of CUNIMB not applying to Pump Storage Units in pumping or transition mode, as per TSC Part B F.9.4.2. The QD profile used in the QBOA calculation is correct however.</p> <p>This issue was reported in the 2020 Market Auditor Report and later raised as a defect (210568).</p>	<p>This represents non-compliance with TSC Part B:</p> <ul style="list-style-type: none"> • Appendix O, Table 9 <p>No financial impact as the incorrect QD value is not used in further settlement calculations.</p>	<p>Accepted. No financial impact.</p>

Issue	Effect	SEMO Response
4.7 Incorrect profiling of Dwell Time on closing of instruction profile		
<p>We identified differences in testing of Offer Price Only Accepted Offer Quantity (QAOOPO) and Bid Price Only Accepted Bid Quantity (QABBPO) due to incorrect profiling of the closing of certain instruction profiles due to dwell times not being applied.</p> <p>This is a previously unknown issue. SEMO have raised this with the settlement system software vendor for investigation and resolution.</p>	<p>The Quantities impacted are inputs into the following payments/charges:</p> <ul style="list-style-type: none"> • CDISCOUNT • CPREMIUM • CAOPO • CABBPO • CFC <p>The estimated impact over the audit period is circa €79k.</p>	<p>Accepted.</p> <p>Raised with the vendor.</p>
4.8 Incorrect profiling of Pseudo Instruction over day boundary		
<p>We identified differences in testing of Offer Price Only Accepted Offer Quantity (QAOOPO) due to incorrect profile of the PCOD pseudo dispatch instruction over a day boundary.</p> <p>This is a previously unknown issue. SEMO have raised this with the settlement system software vendor for investigation and resolution.</p>	<p>The Quantities impacted are inputs into the following payments/charges:</p> <ul style="list-style-type: none"> • CPREMIUM • CAOPO • CFC <p>The estimated impact over the audit period is circa €14k.</p>	<p>Accepted. Raised with the vendor.</p>
4.9 Incorrect ordering of Curtailment Instructions		
<p>We identified differences in the calculation of Curtailment Accepted Bid Offer Quantity (QABCURL) due to the ordering of overlapping local (LOCL) and all-Ireland (CURL) curtailment instructions being determined incorrectly. Instances were identified where a later effective CURL instruction was profiled ahead of an earlier effective LOCL instruction.</p> <p>This is a previously unknown issue. SEMO have raised this with the settlement system software vendor for investigation and resolution.</p>	<p>QABCURL is an input into the following payments/charges:</p> <ul style="list-style-type: none"> • CDISCOUNT • CCURL <p>The estimated impact over the audit period is circa €97k.</p>	<p>Accepted. Raised with vendor.</p>

Issue	Effect	SEMO Response
4.10 Error in Registration Data for a single unit		
<p>We identified differences in the determination of Curtailment Price (PCURL) and Outside Tolerance Undelivered Quantity (QUNDELOTOL) for a single unit that was incorrectly set as 'Controllable' in SEMO systems. This issue was identified by SEMO when formal query 4006 was raised on 26 March 2021. The issue was corrected on 11 May 2021.</p>	<p>PCURL and QUNDELOTOL are inputs into the following payments/charges:</p> <ul style="list-style-type: none"> • CUNIMB • CCURL <p>The estimated impact over the affected portion of the audit period is circa €10k.</p>	<p>Accepted. Resettlement complete so no net impact.</p>
4.11 Incorrect determination of Undelivered Quantities		
<p>We identified differences in the calculation of QUNDELOTOL, Outside Tolerance Undelivered Accepted Bid Quantity (QABUNDELOTOL) and Outside Tolerance Undelivered Accepted Offer Quantity (QAQUNDELOTOL) whereby an incorrect date was used to determine the volume QUNDELOTOL.</p> <p>This issue resulted from the deployment of MOD_22_19 in Release G on 30 June 2021 and was identified by SEMO following formal query 5558 being raised. A fix was deployed on 15 November 2021.</p>	<p>These quantities are inputs into the calculation of CUNIMB.</p> <p>We estimate the impact over the audit period to be circa €130k.</p>	<p>Accepted.</p> <p>This was due to an effective parameter which was not updated after the deployment of CR129 after release G.</p> <p>Formal query raised and resettlement ongoing.</p>
4.12 Incorrect determination of Non-Firm Accepted Bid Quantity (QABNF)		
<p>We identified differences in the calculation of QABNF for several units across three testing dates selected.</p> <p>This is a previously unknown issue. SEMO have raised this with the settlement system software vendor for investigation and resolution.</p>	<p>The following payments/charges are impacted:</p> <ul style="list-style-type: none"> • CDISCOUNT • CFC <p>The observed quantity impact is -77MW.</p>	<p>Currently under review with the MMS vendor.</p>

Issue	Effect	SEMO Response
4.13 Incorrect Heat States applied in Recoverable Start Up Cost determination		
<p>We identified differences in the determination of Recoverable Start Up Cost (CSUR) due to two known issues associated with heat state determination:</p> <ul style="list-style-type: none"> We identified a difference in one settlement period for a unit due to an incorrect heat state being applied because of incorrect calculation of the unit's 'off time'. This is captured in defect 156674, which had a fix deployed in Release G (June 2021). We identified differences in two settlement periods for a unit due to an incorrect heat state being calculated in the case where the start of the Period of Market Operation and the end of the previous Period of Market Operation are within the same Period of Physical Operation. This is captured in defect 206273, which arose following implementation of Release G. 	<p>The estimated impact over the audit period of the issues combined is circa €5k, with an impact of circa €92k estimated for defect 156674 and circa -€97k for defect 206273.</p>	<p>Accepted. Resettlement complete so no net impact.</p>
4.14 Incorrect Commercial Offer Data (COD) retrieved over day boundary		
<p>We identified a difference in the calculation of PBOA due to an issue in selecting the correct COD over a day boundary. The issue resulted in the COD associated with a prior settlement period being applied.</p> <p>This issue is captured in defect 227553, with a fix for this issue included in Release I.</p>	<p>The following payments/charges were impacted:</p> <ul style="list-style-type: none"> CDISCOUNT CPREMIUM CNL CNLR CSU CSUR <p>The estimated impact over the audit period is circa €50k.</p>	<p>Accepted. Expected to be resolved in M13 if full processing is required.</p>
4.15 Incorrect determination of Capacity Payment (CCP)		
<p>We identified a difference in the calculation of CCP for one settlement period for one unit due to an operational error. The unit's Commissioned Capacity was not updated and remained at zero incorrectly.</p>	<p>The estimated impact over the audit period is negligible.</p>	<p>Accepted.</p>

Issue	Effect	SEMO Response
4.16 Incorrect determination of Loss Factors for Capacity Aggregation Units		
<p>We identified difference in the calculation of Net Capacity Quantity (QCNET) due to the Loss Factor associated with the Trading Site Unit being incorrect used as that of the Capacity Aggregation Unit.</p> <p>This is a previously unknown issue. SEMO have raised this with the settlement system software vendor for investigation and resolution.</p>	<p>Non-compliance with TSC Part B, F.18.2.5</p> <p>The quantity serves as an indirect input into the calculation of the Total Difference Charges. Due to the Total Differences Charges only being calculated in cases where the Imbalance Price (PIMB) exceeds the Strike Price (PSTR), the impact over the audit period is estimated to be circa €10k.</p>	<p>Accepted.</p> <p>Raised with the vendor who confirmed issue(that the system applies the TSSU LF formula to both TSSU and CAU).</p>
4.17 Error in processing Demand Side Unit registration data		
<p>We identified difference in the calculation of Net Capacity Quantity (QCNET) due to a SEMO system issue whereby the Reliability Option and Commissioned Quantity (qC) data dropped from the system following import of registration data.</p> <p>A fix for this issue was included in Release H (November 2021).</p>	<p>As per above, an impact can only be observed in cases where PIMB exceeds the PSTR, therefore the impact over the audit period is estimated to be circa €10k.</p>	<p>Accepted. Resettlement complete so no net impact.</p>
4.18 Incorrect determination of Difference Charge Quantities		
<p>We identified difference in the calculation of Day-Ahead Difference Charge Metered Quantity (QMDIFFCDA) and Tracked Difference Quantity (QDIFFTRACK). The differences were due to SEMO systems incorrectly ordering Autoproducer Units by 'Account Name' instead of 'Charged Account' for the assigning of charges.</p> <p>This issue was discovered by SEMO during User Acceptance Testing of Release G (June 2021).</p>	<p>Non-compliance with TSC Part B, F.18.2.5</p> <p>The impact over the audit period is estimated to be circa €3k.</p>	<p>Accepted. Resettlement complete so no net impact.</p>

Issue	Effect	SEMO Response
4.19 Incorrect determination of Demand Side Non-Delivery Percentage (FNDDS)		
<p>We identified difference in the calculation of FNDDS due to FNDDS being incorrectly calculated as zero in settlement periods where PIMB exceeded PSTR.</p>	<p>Non-compliance with TSC Part B F.2.7.2.</p> <p>This factor does not act as an input to any settlement charge/payment calculations following the introduction of MOD_17_19; therefore, it has no financial impact.</p>	<p>Accepted. No financial impact.</p>
4.20 Incorrect determination of Day-Ahead Difference Quantity (QDIFFDA)		
<p>We identified difference in the calculation of QDIFFDA for a single Supplier Unit due to an issue in SEMO systems in dealing with the scenario where a unit has no day-ahead trades in a settlement period but it does have intraday trades.</p> <p>This issue is captured in defect 210787, and a fix was included in Release G (November 2021).</p>	<p>The quantity serves as an indirect input into the calculation of the Total Difference Payment. Due to the Total Differences Payments only being calculated in cases where the Imbalance Price (PIMB) exceeds the Strike Price (PSTR), and this issue was only observed to impact one unit, the impact over the audit period is estimated to be less than €10k.</p>	<p>Accepted. Resettlement complete so no net impact.</p>
4.21 Incorrect determination of No Load Cost (CNL)		
<p>We identified differences in the calculation of CNL whereby SEMO systems were incorrectly calculating a non-zero value. The issue occurred specifically in cases where the Final Physical Notification Quantity (QFPN) is zero for part, but not all, of the Settlement Period.</p> <p>This issue is captured in defect 208126, and a fix was included in Release H (November 2021).</p>	<p>Non-compliance with TSC Part B F.11.2.3.</p> <p>The estimated impact over the audit period is circa €10k.</p>	<p>Accepted. Resettlement complete so no net impact.</p>

Issue	Effect	SEMO Response
Queries and Disputes		
4.22 Settlement Queries		
<p>The following deviations from the code were identified during our testing:</p> <ul style="list-style-type: none"> For 1 of the 15 queries sampled SEMO did not communicate to the raising party the Method used to estimate Materiality. For 2 of the 15 queries sampled SEMO did not submit the Settlement Query to the External Data Provider within the timescales required by the code. In the two cases noted the queries were submitted 8 and 4 days after the query was received. 	<p>These deviations represent the following non-compliance with the Code:</p> <ul style="list-style-type: none"> This represents non-compliance with AP 13 / 3 / 22 which requires that the Market Operator “Inform the Raising Party and the Affected Participant(s) of the Market Operator’s determination, including any estimate of High Materiality or Low Materiality and the method used to estimate this.” This represents non-compliance with AP 13 / 3 / 14, which requires that the settlement query be sent to the external data provided “within 1 WD of receiving the Settlement Query.” 	<ul style="list-style-type: none"> The Stakeholder Engagement team and Settlements Team reviewed and updated the formal query procedure on 11th of October 2022. Going forward, all impacted parties will be notified. Accepted. SEMO will raise a TSC mod in relation to this timeline as it is not possible to adhere to this with 100% of queries received
Invoices, payments and credit cover		
4.23 Settlement and Billing - Settlement Calendar		
<p>The following deviations from the code were identified during our testing:</p> <ul style="list-style-type: none"> The Settlement Calendar published by the Market Operator doesn’t comprise the details of when items of input data for Settlement under section F.2 are to be submitted. 	<p>These deviations represent the following non-compliance with the Code:</p> <ul style="list-style-type: none"> This represents non-compliance with G.2.4.1 which requires that the Market Operator shall publish a Settlement Calendar for all days in the coming Year which shall also include the details of when items of input data for Settlement under section F.2 are to be submitted. 	<p>Accepted. SEMO will clarify the timelines set out under G.2.4.1(c)(vi) in a modification to the TSC.</p>

5 Update on Prior Year Findings

Title	2020 Classification	2021 Status	Update (where not resolved)
Imbalance Settlement Price Calculation and Recalculation			
Uninstructed Imbalance Charge (CUNIMB) Mod 5_19	Other Matter	Resolved	
Settlement Production and Reruns			
Incorrect application of Combined Loss Adjustment Factor (FCLAF) to Interconnector Units	Material	Resolved	
Incorrect calculation of Biased Accepted Bid Quantity (QABBIAS) for Interconnector Residual Capacity Units (IRCUs)	Material	Resolved	
Capacity Settlement FX Rate	Significant	Resolved	
Incorrect determination of No Load Cost (CNL)	Significant	Resolution in progress	Differences due to associated defect observed in 2021 testing (Finding 4.21). SEMO report a fix was deployed in Release H (November 2021)
Incorrect order of ranked set in Biased Accepted Bid Quantity (QABBIAS), Undelivered Accepted Bid Quantity (QABUNDEL) and Outside Tolerance Undelivered Accepted Bid Quantity (QABUNDELOTOL)	Other Matter	Resolved	
Dispatch Quantity set equal to Metered Quantity for PSUs in pumping mode	Other Matter	Open	Differences due to associated defect observed in two testing dates selected in 2021 testing (Finding 4.6). Associated known issue 210568 merged with CR213, not yet prioritized for release.
SEMO systems unable to correctly profile Dispatch Quantity (QD) when a unit is instructed below its Minimum Stable Generation	Other Matter	Open	Associated known issue 200756 merged with CR214a. Prioritised for Release L.

Title	2020 Classification	2021 Status	Update (where not resolved)
Incorrect profiling of ROI wind units	Other Matter	Resolved	
Incorrect determination Bid Offer Acceptance Quantity (QBOA) and Offer Price Only Accepted Bid Quantity (QAOOPO) due to errors in the profiling of pseudo dispatch instructions	Other Matter	Resolution in Progress	Fix deployed in Release H (November 2021). Similar issue observed in 2021 testing (Finding 4.7).
Error in slope within Bid Offer Acceptance Quantity (QBOA) profiling	Other Matter	Resolution in Progress	Fix deployed in Release G (June 2021), correction via resettlement ongoing as at the end of the audit period
Incorrect determination of Non-Firm Accepted Bid Quantity (QABNF)	Other Matter	Open	Fix deployed in Release I (June 2022). Differences on QABNF observed in 2021 testing (Finding 4.12)
Incorrect determination of Bid Offer Acceptance Price (PBOA)	Other Matter	Resolution in Progress	Fix deployed in Release H (November 2021). Differences due to associated defects 210214 and 210215 observed in 2021 testing (Finding 3.2)
Currency inconsistency in the Settlement Reports and Make Whole Payment Reports	Other Matter	Resolved	
Incorrect determination of Recoverable Start Up Cost (CSUR)	Other Matter	Resolution in Progress	Resolved in Release G (June 2021). Differences due to associated defect 156674 identified in 2021 testing (Finding 4.13)
Incorrect Combined Loss Adjustment Factor (FCLAF)	Other Matter	Resolved	
Accession and Registration			
Party and Unit Registration – Publications	Other Matter	Resolution in Progress	The publication of these reports has now been halted on the SEMO website. The manual reports continue to be published on the SEMO website. See related Finding 4.1.
Party Registration – Executed Accession Deed not submitted to Applicant	Other Matter	Resolved	
Unit Registration – Deviations from timelines and meeting Code Requirements	Other Matter	n/a	Status update n/a as finding related to delayed action/timing requirement.

Title	2020 Classification	2021 Status	Update (where not resolved)
Unit Deregistration – Delay in submission of Deregistration Consent Order	Other Matter	n/a	Status update n/a as finding related to delayed action/timing requirement.
Queries and Disputes			
Settlement Queries – submission of the settlement query to the External Data Provider within the timescales required by the code	Other Matter	Resolution in Progress	SEMO attempted to adhere to this timeline, however it proved difficult to reach out to External Data Providers within 1WD for 100% of queries received. SEMO are now beginning the process of raising a TSC modification in relation to this timeline. Issues noted in 2021 testing, see Finding 4.22.
Settlement Queries – communication of the timeline extension of 10 WDs for the query resolution purposes to the External Data Provider within the timescales required by the code.	Other Matter	Resolved	
Settlement Queries – communication of the Method used to estimate Materiality to the raising party.	Other Matter	Resolved	
Communication Channels, Systems and Operations			
Communication Channels - Communication Channels Qualification Testing (CCQT)	Other Matter	Resolved	
Communication Channels - Digital Certificate Cancellation	Other Matter	Resolved	
Data Storage and IT Security - User Access Management	Other Matter	Resolved	
Emergency Communications	Other Matter	Resolved	
Data Storage and IT Security - Security of Data against Loss, Modification or Misuse	Other Matter	Resolved	



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