

The Deloitte logo is positioned in the top left corner of the page. It consists of the word "Deloitte" in a bold, black, sans-serif font, followed by a small green dot. The background of the entire page is a photograph of a clear blue sky with scattered white clouds, and in the lower portion, several rows of solar panels are visible, angled towards the sun.

**Deloitte.**

## **SEM Market Audit**

Independent Market Auditor's Report  
For the period ended 31 December 2022

Date: 16 November 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 2022 dated 16 November 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").

Deloitte require that, in order for the Report to be made available to you, (on your personal behalf and, if you are accessing this Report on behalf of your employer in the scope of your employment duties, on your employer's behalf) you acknowledge that you and, if appropriate, your employer (together, "You") enjoy such receipt for information purposes only and accept the following terms:

The Report was prepared by Deloitte on the instructions of the RAs and with only the interests of the RAs in mind; this Report was not planned in contemplation of use by you. The Report cannot in any way serve as a substitute for any enquiries and procedures which you will or should be undertaking for the purposes of satisfying yourselves regarding any issue.

No work has been carried out nor have any enquiries of RAs or the management of the Single Electricity Market Operator been made since 22 September 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.

You acknowledge that Deloitte, its members, partners, employees and agents neither owe nor accept any duty or responsibility to you, whether in contract or in tort (including without limitation, negligence and breach of statutory duty) or howsoever otherwise arising, and shall not be liable in respect of any loss, damage or expense of whatsoever nature which is caused by any use you may choose to make of the Report, or which is otherwise consequent upon the provision of the Report to you.

Deloitte is not authorised to give explanations in relation to the Report. However, should any Deloitte member, partner, employee or agent provide you with any explanations or further information, you acknowledge that they are given subject to the same terms as those specified in this notice in relation to the Report.

The Report, or information obtained from it, must not be made available or copied, in whole or in part to any other person without Deloitte's prior written permission which Deloitte may, at its discretion, grant, withhold or grant subject to conditions (including conditions as to legal responsibility or absence thereof).

Unless otherwise stated, all terms and expressions used in this notice shall have the same meaning attributed to them in the Code.

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.

# Contents

<u>1</u>	<u>INTRODUCTION .....</u>	<u>1</u>
<u>2</u>	<u>MARKET AUDITOR CONCLUSION .....</u>	<u>3</u>
<u>3</u>	<u>REPORT OF SIGNIFICANT ISSUES .....</u>	<u>7</u>
<u>4</u>	<u>OTHER MATTERS ARISING.....</u>	<u>8</u>

# 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's application by SEMO, its operations and implementation and the operations, trading arrangements, procedures and processes under the Code by the SEMO. 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-23-048) on 30 June 2023 ("TOR").

As defined in the TOR, the scope of the Market Audit focused on the activities of the SEMO under Part B of the Code issued on 7 December 2022 and associated Agreed Procedures and covered the systems and processes within the control of the SEMO. The TOR require that the audit is conducted under an ISAE 3000 Reasonable Assurance Engagement, 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 TOR, the market audit covers the 12 months from 1 January 2022 to 31 December 2022 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 0.5% of estimated annual market value, with a threshold of 10% of the materiality value set for the reporting of Significant Issues. Planning materiality for the Market Audit has therefore been set at €6.3m 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 engagement, may have a significant impact on Parties to the Code. Where, in our professional judgement, matters arising may be significant to individual parties such matters have been included in the Report of Significant Issues with appropriate 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 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.

## 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 procedures in order to obtain 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 2022" (SEM-23-048) published by the RAs on 30 June 2023, during the 12 month period ending 31 December 2022. 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 to 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 under the TOR 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 ("the 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.

The 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, in a timely manner, subject to any obligations of confidentiality and without charge to the Market Auditor, such information as is reasonably required by the Market Auditor to enable the

Market Auditor to comply with the 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.

## 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 2022” 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 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 include other matters arising identified during our work but which were not considered material / significant, based on the stipulated levels, in the “Other Matters Arising” 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 the 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 engagement.

## Inherent Limitations

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 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. ISAE 3000 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 2022.

Our assurance work included examination, on a sample 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 under the Code 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 2022.

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 2022 to 31 December 2022 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 2022" published by the RAs on 30 June 2023.**

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: 16 November 2023

## 3 Report of Significant Issues

Issue	Effect	SEMO Response
<b>Settlements Production and Reruns</b>		
3.1 Incorrect Application of Start Up Costs for DSUs		
<p>We identified differences in the calculation of Start Up Cost (CSU) for DSUs on one Settlement Date. Upon investigation this was confirmed to be due to a known SEMO system defect, 291222. The defect resulted in SEMO systems being unable to process CSU for DSUs, incorrectly calculating a CSU value of zero. SEMO performed an Ad Hoc resettlement run following their identification of the defect.</p>	<p>The defect impacted two billing periods in the 2022 calendar year. Based on the Ad-Hoc runs performed the impact of the issue was underpayment of CSU of € 1.3M*.</p>	<p>Accepted. A fix has subsequently been provided for this issue. The issue was corrected in Ad Hoc resettlement included in Settlement Documents published on 20/01/2023.</p>
3.2 Incorrect Application of Complex Order Flag		
<p>In our testing of a sample of settlement period calculations we identified a difference in the calculation of Start Up Cost for one Unit in one Settlement Period due to incorrect application of the complex order flag. Investigation confirmed this was due to an existing known defect in SEMO systems, 235405. The defect was addressed and corrected in resettlement activity however much of this resettlement activity occurred in 2023 as per the normal settlement timelines.</p>	<p>The defect impacts the calculation of both CSU and CSUR. Over the 2022 calendar year the estimated impact is c. €3.4M in CSU and c. -€2.5M in CSUR, i.e. a net impact of c. €900K*.</p>	<p>Accepted. SEMO estimated a materiality impact of €3.4M in CSU and -€2.5M in CSUR based on a 6 week sample that was extrapolated for the full year. This leaves a net impact of €903K. SEMO is in discussions with the RAs to clarify the interpretation of the wording in TSC F.11.2.2.</p>
3.3 Non-Firm Access Registration Data Update Error		
<p>Differences were observed within the Non-Firm Accepted Bid Quantity (QABNF) calculation as a result of an error applying an update to the Non-Firm flag in the Registration Data. This resulted in QABNF being incorrectly calculated in SEMO systems.</p>	<p>The following payments/charges are impacted:</p> <ul style="list-style-type: none"> <li>• CDISCOUNT</li> <li>• CFC</li> </ul> <p>Financial impact over the 2022 calendar year is estimated to be €713K*.</p>	<p>Accepted. SEMO was already aware of these registration issues and had raised settlement queries to review and correct the issue. We are currently resettling any weeks above the resettlement threshold as per TSC G.3.2.8.</p>

\* Following identification of potential calculation errors in our testing, details are discussed with SEMO to confirm the finding and, where necessary, SEMO undertake additional analysis to support the estimation of the likely monetary impact of the issue over the full audit period.

## 4 Other Matters Arising

Issue	Effect	SEMO Response
<b>Accession and Registration</b>		
<b>4.1 Unit Registration - Initial registration meeting was not conducted as per the timeline requirement</b>		
For 1 of the 5 units sampled, the initial Unit registration meeting was not organized within 1 day of completion of Stage 2. There was a delay of 4 WD from the required timeframe.	This represents a non-compliance with AP 1, Section 3.2.3, step 3.1 which requires the Market Operator to organise and hold initial Unit registration meeting for the purposes of identification of a possible Meter Data Export Date and Agree a target Effective Date within 1 WD of completion of Stage 2.	Accepted. Call was arranged for the next available date based on stakeholder availability. This did not impact the Participants effective date in the market.
<b>4.2 Party Registration - Fully Executed Accession Deed not submitted to Applicant within the required timeframe</b>		
For 2 of the 2 parties sampled, SEMO did not submit the fully executed Accession Deed to the Applicant within 10 WD of receipt of signed Accession Deed. There was a delay of 2 months and 3 months in submitting the fully executed accession deed respectively.	This represents a non-compliance with AP 1, Section 3.1, step 7 which requires that the Market Operator executes and dates the Accession Deed and sends a copy to the Applicant within 10 WD of receipt of signed Accession Deed.	Accepted. SEMO are drafting a Modification submission to allow additional time for Accession Deeds to be executed and issued.
<b>Settlements Production and Reruns</b>		
<b>4.3 Incorrect Profiling of Dwell Time on Closing of Instruction Profile</b>		
We identified differences in the calculation 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. This was identified in the prior audit and has been recorded by SEMO as known issue 290255.	<p>The Quantities impacted are inputs into the following payments/charges:</p> <ul style="list-style-type: none"> <li>• CDISCOUNT</li> <li>• CPREMIUM</li> <li>• CAOPO</li> <li>• CABBPO</li> <li>• CFC</li> </ul> <p>The estimated impact over the 2022 calendar year is - € 158K*.</p>	Accepted. This defect has been prioritised but will not make Release M. This will be re-prioritised for Release N.

\* Following identification of potential calculation errors in our testing, details are discussed with SEMO to confirm the finding and, where necessary, SEMO undertake additional analysis to support the estimation of the likely monetary impact of the issue over the full audit period.

Issue	Effect	SEMO Response
<b>4.4 Incorrect determination of Heat State in Recoverable Start Up Cost Calculation</b>		
We identified differences in the calculation of Recoverable Start Up Cost (CSUR) due to an error made in the update of initial condition data following a SEMO system update. This caused the incorrect initial condition to be applied, resulting in an incorrect heat state determination.	The financial impact of the observed differences €159K*.	Accepted. The root cause of the issue was due to a manual error i.e. not a system defect as originally thought. A settlement query has been raised for this issue to allow SEMO to correct the issue. SEMO agree with the financial impact of €159K.
<b>4.5 Incorrect Determination of Price-Quantity Bands in Bid Offer Acceptance Price Calculation</b>		
We identified differences in the calculation of Bid Offer Acceptance Price (PBOA) due to the SEMO systems splitting the first price-quantity band in the Commercial Offer Data into multiple bands in the PBOA calculation. The correct price is still applied, however the band listed is incorrect. SEMO are further investigating the issue to determine whether it is a defect. Ticket raised with vendor, #318162.	This represents non-compliance with TSC Part B, D.4.4. We have not identified any financial impact.	Accepted. Vendor has confirmed this happens where the INC and DEC have different numbers of P/Q pairs in COD submissions. This is not expected. However it does not have any financial impact.
<b>4.6 Incorrect Commissioned Capacity Resisted for a Single Unit</b>		
We identified differences in the calculation of the Capacity Payment (CCP) for one unit due to an operational error resulting in the Commissioned Capacity for the unit not being updated in SEMO systems. The issue has been resolved in SEMO systems and is now being correctly settled.	The estimated financial impact is an under payment of CCP of c. € 1.3K.	Agreed. Issue has been resolved in resettlement.
<b>4.7 Incorrect Loss Factor Applied to CAUs</b>		
We identified differences in the calculation of Net Capacity Quantity (QCNET) due to a defect in SEMO systems whereby the Loss Factor (LF) for CAUs is being determined incorrectly.	The quantity serves as an indirect input into the calculation of Total Difference Charges. An impact can only be observed in cases where PIMB exceeds the PSTR, therefore, the estimated financial impact over the 2022 calendar year is - € 7K.	Accepted. Minimal impact as this is only applicable during times where PIMB > PSTR (4 ISPs in 2022).

\* Following identification of potential calculation errors in our testing, details are discussed with SEMO to confirm the finding and, where necessary, SEMO undertake additional analysis to support the estimation of the likely monetary impact of the issue over the full audit period.

Issue	Effect	SEMO Response
<b>4.8 Incorrect determination of Demand Side Non-Delivery Percentage</b>		
We identified difference in the calculation of FNDDS due to FNDDS being incorrectly calculated as zero in settlement periods where PIMB exceeded PSTR.	<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, we have not identified any financial impact.</p>	Accepted. No financial impact.
<b>4.9 Error in setting Priority Dispatch in the Registration Process</b>		
We identified differences in the calculation of Bid Offer Acceptance Quantity (QBOA) due to the Priority Dispatch flag for two units being left blank during the registration process. This resulted in SEMO not calculating a QBOA for these units. SEMO determined the issue was in effect from 20 January 2021 to 16 February 2022, at which point a formal query was raised (7208/7210).	<p>The following payments/charges were impacted:</p> <ul style="list-style-type: none"> <li>• CDISCOUNT</li> <li>• CPREMIUM</li> <li>• CUNIMB</li> <li>• CCURL</li> </ul> <p>The estimated financial impact is c. € 25K*. The issue did not meet the threshold for resettlement in any relevant billing week.</p>	<p>Accepted. SEMO was already aware of this registration issue and raised settlement queries to review and correct the issue.</p> <p>None of the billing weeks were over the Settlement Recalculation Threshold so as per TSC G.3.2.8 has not been resettled.</p>
<b>4.10 Incorrect QBOA calculated for NI Wind Units</b>		
We identified differences in the calculation of Bid Offer Acceptance Quantity (QBOA) due to an unexplained error in SEMO systems. SEMO investigation confirmed it was caused by a change in instruction profile not being captured. This has been captured as defect 320583.	The quantity impact of the observed differences amounts to 5.4 MW therefore the financial impact is expected to be negligible.	Accepted. Confirmed as defect by the vendor.

\* Following identification of potential calculation errors in our testing, details are discussed with SEMO to confirm the finding and, where necessary, SEMO undertake additional analysis to support the estimation of the likely monetary impact of the issue over the full audit period.

Issue	Effect	SEMO Response
<b>4.11 Dispatch Quantity set equal to Metered Quantity for PSUs in pumping mode</b>		
<p>We identified differences in the calculation of Dispatch Quantity (QD) due to a previously identified defect. The CSB system reports QD as equal to the Metered Quantity (QM) 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, Appendix O, Table 9.</p> <p>QD indirectly impacts several payment and charge calculations via QBOA. However, there is no financial impact as the incorrect QD value is not used in further settlement calculations.</p>	<p>Accepted. No financial impact.</p>
<b>4.12 Incorrect application of Actual Availability (QAA) in Dispatch Quantity</b>		
<p>We identified differences in the calculation of QD as a result of SEMO systems applying the QAA for the last 15 minutes of an Imbalance Settlement Period (ISP) across the full duration of the ISP. This is not expected behaviour and has been raised with the vendor for investigation.</p>	<p>The quantity impact of the observed differences amounts to 0.3 MW, therefore the financial impact is expected to be negligible.</p>	<p>Accepted. Vendor has confirmed this is a defect. This will be prioritised for Release M/N.</p>
<b>4.13 Incorrect Heat State applied in Dispatch Quantity</b>		
<p>We identified differences in the calculation of QD due to an error made in the update of initial condition data following a SEMO system update. This caused the incorrect initial condition to be applied, resulting in an incorrect heat state determination.</p>	<p>The estimated financial impact over the 2022 calendar year is -€3,670*.</p>	<p>Accepted. Root cause is the same as finding 4.4 above i.e. this was due to a manual error, not a system defect as originally thought. The estimated materiality of this is minimal (-€3,670.33).</p>
<b>4.14 Incorrect Application of Curtailment Instruction in Dispatch Quantity</b>		
<p>We identified differences in the calculation of QD for several wind units on one testing date selected due to SEMO systems applying the incorrect curtailment instruction in the profiling of QD.</p>	<p>This represents non-compliance with TSC Part B, Appendix O, O.27.</p> <p>There is no financial impact as the correct QD value is used in the QBOA calculation by SEMO systems.</p>	<p>Accepted. No financial impact.</p>

\* Following identification of potential calculation errors in our testing, details are discussed with SEMO to confirm the finding and, where necessary, SEMO undertake additional analysis to support the estimation of the likely monetary impact of the issue over the full audit period.

Issue	Effect	SEMO Response
<b>4.15 Incorrect Commercial Offer Data (COD) selection</b>		
<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). Resettlement did not occur for all 2021 M13 resettlement runs as the Instruction Profiler is not part of standard resettlement and is only rerun in the case of an upheld formal query.</p>	<p>The estimated financial impact over the 2022 calendar year is c. - € 192K*.</p>	<p>For 21/09/2021, initial was run prior to the defect fix being deployed and M+4 and M+13 were run afterwards. However, in order for this to be corrected in resettlement, the Instruction Profiler (IP) which calculates QBOAs (and PBOAs) would need to be run. The Instruction Profiler is not part of standard resettlement processing and would only be run if required (i.e. an upheld settlement querying requiring new data). As there was no upheld formal query requiring an IP rerun, this was not fixed in resettlement.</p>
<b>4.16 Incorrect ordering of Curtailment Instructions</b>		
<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 issue was identified in the 2021 Market Audit report as a previously unknown issue, however as that report was issued after the end of the 2022 Audit Period this issue remains in effect over the current audit period.</p>	<p>QABCURL is an input into the following payments/charges:</p> <ul style="list-style-type: none"> <li>• CDISCOUNT</li> <li>• CCURL</li> </ul> <p>The estimated impact is c. €100k.</p>	<p>Accepted. SEMO to raise a CR on this..</p>

\* Following identification of potential calculation errors in our testing, details are discussed with SEMO to confirm the finding and, where necessary, SEMO undertake additional analysis to support the estimation of the likely monetary impact of the issue over the full audit period.

Issue	Effect	SEMO Response
<b>4.17 Trading Site Unit Loss Factors incorrectly applied to Capacity Aggregation Units</b>		
<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 issue was identified in the 2021 Market Audit report as a previously unknown issue, however as that report was issued after the end of the 2022 Audit Period this issue remains in effect over the current audit period.</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. Vendor confirmed this is a defect (287441). This was fixed in Release K, deployed in August 2023. M+13 resettlement for the dates in 2021 were run prior to the defect fix being deployed so we would not expect this to be resolved in M+13. Only impacts CAUs when PIMB exceeds strike price and conditions met for diff payments/charges, therefore minimal impact.</p>
<b>4.18 Difference Charge Quantity reporting issue</b>		
<p>We identified difference in the calculation of Day-Ahead Difference Charge Metered Quantity (QMDIFFCDA). The differences were due to a reporting issue whereby no QMDIFFCDA was assigned to a single unit due to it being the 'Charged Account' in a multi-Autoproducer Unit grouping.</p>	<p>Non-compliance with TSC Part B, F.18.2.5.</p> <p>This is a reporting issue and therefore has no financial impact.</p>	<p>Accepted.</p>
<b>4.19 Incorrect determination of Difference Charge Quantities</b>		
<p>We identified difference in the calculation of 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>The quantity serves as an input into the calculation of Difference Charges. This issue would only effect periods when PIMB exceeds the PSTR, therefore the financial impact is expected to be negligible.</p>	<p>Accepted.</p>



Issue	Effect	SEMO Response
<b>Queries and Disputes</b>		
4.20 Settlement Query submission to the External Data Provider submitted not within the required timing		
<p>For 2 of the 7 queries sampled SEMO did not submit the Settlement Query to the External Data Provider within the timescales required by the Code. In these cases noted the query was submitted 1 days and 11 days after the deadline for submitting the Query to the External Data Provider.</p>	<p>This is a non-compliance with AP 13, Section 3, step 14 which requires that the Market Operator sends the Settlement Query to External Data Provider within 1 WD of receiving the Settlement Query.</p>	<p>Accepted. In relation to the 11 day timeline, the query was received on 31/12/2021. Timeline for reaching out to External Data Provider within 1WD would be 04/01/2022 (03/01/2022 is a Bank Holiday). Email was sent on 19/01/2022 (11 WD after the required timeline). SEMO are aware this is outside of the timeline outlined in AP13.</p> <p>SEMO have raised a modification in relation to this timeline (to change from 1WD to 3WD) and it has been approved with effective date of 22nd May 2023.</p>
<b>Invoices, payments and credit cover</b>		
4.21 Credit Cover Management - Default notice was issued earlier than the required timeframe		
<p>For 2 of the 7 samples tested, default notice was issued to the participants who failed to respond to the CCIN earlier than the required timeframe. The default notice was issued to the participants next working day after the CCIN was issued.</p>	<p>This represents a non-compliance with AP 18, Section 3.3.2, step 1 which requires that in the circumstances set out in paragraph B.18.3.2 of the Code, the Market Operator issue a Default Notice in accordance with paragraph B.18.2.3 of the Code (i) Immediately on becoming aware of a Default in relation to a Party; or (ii) if a Participant fails to comply with a Credit Cover Increase Notice, within 2 WD of its issue (or as agreed by the Regulatory Authorities in accordance with paragraph G.12.1.5 of the Code)</p>	<p>Accepted, defaults not issued within the timelines set out in Agreed Procedure 18.</p>

Issue	Effect	SEMO Response
<b>Information publication</b>		
<b>4.22 Disaster Recovery Plan was not submitted to the Regulatory Authority</b>		
<p>The Market Operator did not make available to the Regulatory Authorities details of its disaster recovery plan in 2022.</p>	<p>This represents a non-compliance with the section B.13.1.8 of the TSC Part B which requires that the Market Operator shall make available to the Regulatory Authorities details of its disaster recovery plan to the extent that it relates to its functions and obligations under the Code and it shall, to that extent, maintain and develop such disaster recovery plan.</p>	<p>We accept this finding and a review of the requirement will be actioned</p>
<b>4.23 Proposals for the parameters was not submitted to the Regulator as per the required timeframe</b>		
<p>For the below parameters, the Market Operator did not submit the proposal for the parameters to the Regulatory authority within the required timeframe as per the code.</p> <ol style="list-style-type: none"> <li>1. Setting Residual Error Volume Charges Parameters: The proposal was submitted 15 days after the required timeframe.</li> <li>2. Setting Currency Adjustment Charge Parameters: The proposal was submitted 15 days after the required timeframe.</li> <li>3. Setting Capacity Charge Parameters: The proposal for the parameters was submitted 15 days after the required timeframe.</li> </ol>	<p>This represents a non-compliance with the following sections of the TSC Part B:</p> <ol style="list-style-type: none"> <li>1. F.14.2.1, Setting Residual Error Volume Charges Parameters: "The Market Operator shall report to the Regulatory Authorities at least 4 months before the start of the Year, proposing the following parameter to be used in the calculation of Residual Error Volume Charges for that Year:               <ol style="list-style-type: none"> <li>(a) The Residual Error Volume Price (PREV<sub>y</sub>) in €/MWh for Year, y."</li> </ol> </li> <li>2. F.15.2.1, Setting Currency Adjustment Charge Parameters: "The Market Operator shall report to the Regulatory Authorities at least 4 months before the start of the Year, proposing the following parameters to be used in the calculation of Currency Adjustment Charges for that Year:               <ol style="list-style-type: none"> <li>(a) The Currency Cost Price (PCC<sub>y</sub>) in €/MWh for Year, y; and</li> <li>(b) Values of the Currency Adjustment Charge Factor (FCCA<sub>y</sub>) for each Imbalance Settlement Period, γ, in Year, y."</li> </ol> </li> </ol>	<p>Accepted</p> <p>SEMO plan to raise a TSC modification as F.14.2.1 and F.15.2.1 refer to "Year". As per TSC Glossary, "Year means a period commencing at 00:00h on 1 January and ending at 24:00h on the next occurring 31 December." and "Tariff Year means a period commencing at 00:00h on 1 October and ending at 24:00h on the next occurring 30 September."</p> <p>Changing the wording from "Year" to "Tariff Year" would not change the intent of the code, but bring it in line with what was originally intended.</p>

Issue	Effect	SEMO Response
	<p>3. F.19.1.2, Setting Capacity Charge Parameters: "The Market Operator shall report to the Regulatory Authorities at least four months before the start of the Capacity Year (or, if the final Capacity Auction for the Capacity Year is conducted later than five months before the start of the Capacity Year, in accordance with the Capacity Market Code, the Market Operator shall report to the Regulatory Authorities as soon as reasonably practicable following the results of that Capacity Auction becoming available and at least 1 month before the start of the Capacity Year), proposing the following parameters to be used in the calculation of Capacity Charges for that Capacity Year:</p> <ul style="list-style-type: none"> <li>(a) The Supplier Capacity Charge Price (PCCSUPy) in €/MWh for Capacity Year, y;</li> <li>(b) The Difference Payment Socialisation Multiplier (FSOCDIFFPy) for Capacity Year, y; and</li> <li>(c) The Annual Capacity Charge Exchange Rate (XRCCAy) for Capacity Year, y."</li> </ul>	

**Communication channels, systems and operation**

**4.24 AP 11 - Market System Operation, Testing, Upgrading and Support**

<p>Our testing identified that Help Desk requests are not classified into General Urgent Query, General Important Query and General Standard Query as required in the AP3 paragraph 2.1.4 Helpdesk Requests - Category 3, 4 and 5. All the requests are marked as General Standard Query. There is no formal documentation or procedure in place to guide the help desk operators to classify the requests in the right category and thus the prioritisation of response guidelines is not followed.</p>	<p>This represents non-compliance with 2.1.4 Helpdesk Requests - Category 3, 4 and 5 which requires the market operator to maintain a criteria for classifying a query which is defined in consultation with Participants and are kept in a list maintained by the Helpdesk."</p>	<p>The Stakeholder Engagement Team accepts this finding. We are currently carrying out analysis on a sample set of queries from the last 12 months, in order to better understand what queries would be classed as urgent. However, we are also considering submitting a housekeeping modification to have all general queries classified as General Standard Query. We believe without this modification, our KPI will not be reported accurately. We will continue to investigate the best option.</p>
--	---	--

Issue	Effect	SEMO Response
4.25 AP 3 - Communication Channel Qualification		
<p>We noted one sample assessed as part of our work where the Market Operator provided details of the tests required and fixed scripted schedule of test more than 3 working days after the request to perform Communications Channel testing submitted by the Party.</p>	<p>This represents non compliance with 2.2 Communication Channels Qualification Testing which requires the market operator to notify Party of tests required and fixed scripted schedule of test within 3 working days.</p>	<p>Accepted. The market operator has re-communicated the associated timelines with the relevant teams.</p>



At Deloitte, we make an impact that matters for our clients, our people, our profession, and in the wider society by delivering the solutions and insights they need to address their most complex business challenges. As the largest global professional services and consulting network, with over 312,000 professionals in more than 150 countries, we bring world-class capabilities and high-quality services to our clients. In Ireland, Deloitte has over 3,000 people providing audit, tax, consulting, corporate finance and risk advisory services to public and private clients spanning multiple industries. Our people have the leadership capabilities, experience and insight to collaborate with clients so they can move forward with confidence.

This document is confidential and it is not to be copied or made available to any other party. Deloitte Ireland LLP does not accept any liability for use of or reliance on the contents of this document by any person save by the intended recipient(s) to the extent agreed in a Deloitte Ireland LLP engagement contract.

Deloitte Ireland LLP is a limited liability partnership registered in Northern Ireland with registered number NC001499 and its registered office at 27-45 Great Victoria Street, Lincoln Building, Belfast, BT2 7SL, Northern Ireland.

Deloitte Ireland LLP is the Ireland affiliate of Deloitte NSE LLP, a member firm of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"). DTTL and each of its member firms are legally separate and independent entities. DTTL and Deloitte NSE LLP do not provide services to clients. Please see [www.deloitte.com/about](http://www.deloitte.com/about) to learn more about our global network of member firms.

The Deloitte Ireland LLP privacy notice is available at [www.deloitte.ie/privacy](http://www.deloitte.ie/privacy)

© 2023 Deloitte Ireland LLP. All rights reserved.