Electricity Industry Participation Code Audit Report

For

Electrix Limited (trading as Omexom New Zealand)
Class A Approved Test House
NZBN: 9429040717128

Prepared by Brett Piskulic – Provera

Date of Audit: 17/01/2023

Date Audit Report Complete: 31/01/2024

Date Audit Report Due: 03/02/2024

Executive Summary

Electrix Limited (trading as Omexom New Zealand) (Omexom) is a Class A Approved Test House and is required to undergo an audit by 3 February 2023, in accordance with clause 16A.19(b).

The audit was conducted in accordance with the ATH Audit Guidelines V1.3 produced by the Electricity Authority.

During the audit period Omexom has expanded its operation after winning the national metering contract for all Transpower metering. All certification and inspection work conducted is for the Transpower MEP.

Compliance continues to be of a high standard and the audit identified four non-compliances. The non-compliances relate to:

- Omexom is using the measured accuracy of the meter in error calculations when using fully calibrated method as was also identified in the last audit, and I have repeated the previously raised issue for consideration by the Authority as the use of measured accuracy has been deemed to be compliant with ISO 17025 but conflicts with the requirements of clause 13(7) of schedule 10.7 the code - non-compliance is recorded in **section 5.24**,
- code changes introduced in February 2021 require an ATH to determine and record the in-service burden range of measuring transformers when they are certified - Omexom has not been meeting this requirement and non-compliance is recorded in **sections 5.67** and **5.68**, and
- five Category 5 metering installations where the uncertainty recorded in the certification records was greater than the maximum permitted in table 1 of schedule 10.1 - this is discussed in **section 5.30**.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The future risk rating table provides some guidance on this matter and recommends a next audit frequency of 24 months. I have considered this after reviewing Omexom's responses and recommend an audit period of 36 months as Omexom has updated its processes to resolve the three non-compliances related to reporting of uncertainty and burden ranges in certification reports. The non-compliance related to use of meter class accuracy is disputed and unable to be resolved until a response is received from the Authority in relation to the issue raised in this and previous audits.

The matters raised are shown in the tables below.

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Fully Calibrated – Use Meter Class Accuracy	5.24	13(7) Of Schedule 10.7	Measured accuracy of meter used in error calculations when using fully calibrated method.	Strong	Low	1	Disputed
Error Calculation	5.30	22 of Schedule 10.7	Five Category 5 metering installations where the uncertainty recorded in the certification records was greater than the maximum permitted in table 1 of schedule 10.1.	Strong	Low	1	Cleared
Measuring Transformers in service burden range	5.67	Clause 3 of Schedule 10.8	Burden range not recorded when measuring transformers are certified.	Strong	Low	1	Cleared
Measuring Transformers in service burden range	5.68	Clause 2(1)(E) Of Schedule 10.8	Burden range not recorded when measuring transformers are certified.	Strong	Low	1	Cleared
					Future Risk Rating	**4**	
					Indicative Audit Frequency	**24 months**	

Future risk rating	1-3	4-6	7-8	9-17	18-26	27+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Remedial Action
			Nil	

Table of Issues

Issue	Description
Regarding: clause 13(7) of schedule 10.7	Use of meter class accuracy when determining errors The use of measured accuracy has been deemed to be compliant with ISO 17025 but conflicts with the requirements of clause 13(7) of schedule 10.7 the code.

Persons Involved in This Audit

Auditor:

Brett Piskulic
Provera
Electricity Authority Approved Auditor

Omexom personnel assisting in this audit were:

Name	Title
Adrian Green	Contract Manager - Revenue Metering
Darko Radjenovic	Test House Engineer
Tyronne Wilkinson	Metering Supervisor
Sarah Hatfull	Administrator

Contents

1. ADMINISTRATIVE

1.1 Exemptions from Obligations to Comply with Code (Section 11 of Electricity Industry Act 2010)

Code related audit information

Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

Audit observation

I checked the Authority's website for any relevant exemptions.

Audit commentary

There are no exemptions in place.

1.2 Scope of Audit

Omexom is a Class A ATH and this audit was performed at their request, to encompass the Electricity Industry Participation Code requirement for an audit, in accordance with clause 16A.19(b). The Authority has stipulated that the next audit was due by 3 February 2024.

The audit was conducted in accordance with the ATH Audit Guidelines V1.3 produced by the Electricity Authority.

Omexom has a Class A laboratory which provides services to metering equipment owners. Omexom also provides field Test House services to metering equipment owners and participants and is approved for all categories of metering installations. This work is conducted by Omexom staff. Omexom provides training and also audits the quality and competence of these staff by internal audit.

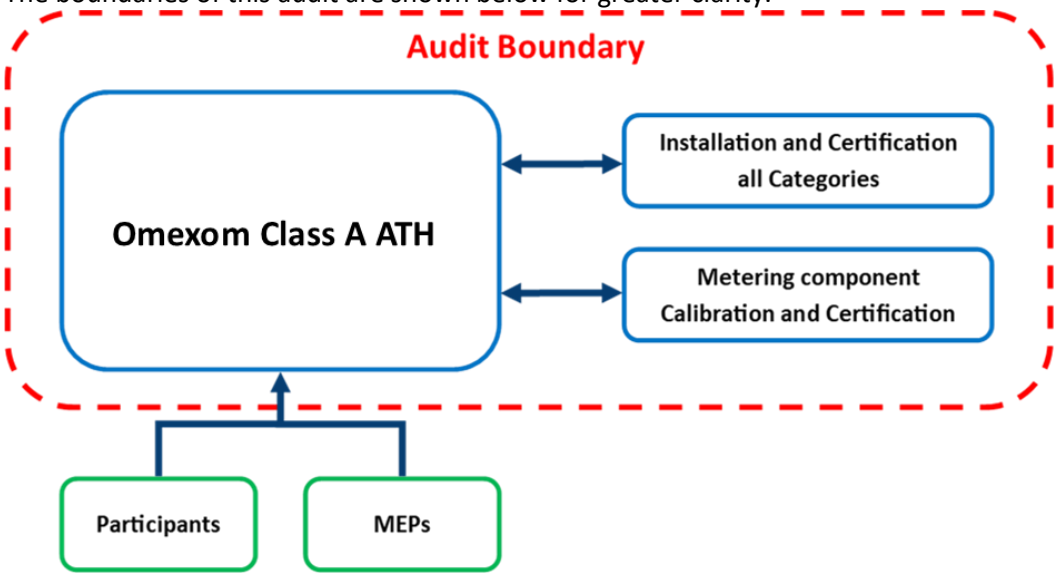
Most audit requirements of the Class A ATH are covered in their external ISO 17025 Audit, conducted annually by IANZ.

Omexom wishes its ATH approval to include the following functions of Clauses 3(2) 4(2) of Schedule 10.3:

Class A Approval:
(a) calibration of—
(i) working standards:
(ii) metering components (other than a calibration referred to in paragraph (c)):
(iii) metering installations:
(b) issuing calibration reports:
(c) calibration of metering components on site:
(d) installation and modification of metering installations:
(e) installation and modification of metering components:
(f) certification of all categories of metering installations under this Code, and issuing of certification reports:
(g) testing of metering installations under clause 10.44 and production of statements of situation under clause 10.46:

(h) inspection of metering installations.

The boundaries of this audit are shown below for greater clarity.



1.3 Previous Audit Results

The last audit was conducted in February 2021 by Brett Piskulic. This audit found one non-compliance and one issue was raised, the current status of these is shown in the tables below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Fully Calibrated – Use Meter Class Accuracy	5.24	13(7) Of Schedule 10.7	Measured accuracy of meter used in error calculations when using fully calibrated method.	Still existing

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Status
			Nil	

Table of Issues

Issue	Description	Status
Regarding: Clause 13(7) Of Schedule 10.7	Use of meter class accuracy when determining errors The use of measured accuracy has been deemed to be compliant with ISO 17025 but conflicts with the requirements of clause 13(7) of schedule 10.7 the code.	Still existing

2. ATH REQUIREMENTS

2.1 Use of Contractors (Clause 10.3 of Part 10)

Code related audit information

A participant may perform its obligations and exercise its rights under this Part by using a contractor. A participant who uses a contractor to perform the participant's obligation under this Part remains responsible and liable for, and is not released from, the obligation, or any other obligation under this Part.

Audit observation

I checked if Omexom uses contractors to perform any of its ATH obligations.

Audit commentary

Omexom confirmed that they do not use contractors to perform ATH obligations. They have used another ATH to calibrate measuring transformers, this work is done under the other ATHs approval.

Audit outcome

Compliant

2.2 Provision of Accurate Information (Clause 10.6 of Part 10)

Code related audit information

A participant must take all practicable steps to ensure that information that it provides under this Part is:

- *complete and accurate,*
- *not misleading or deceptive,*
- *not likely to mislead or deceive.*

If a participant, having provided information under this Part, becomes aware that the participant has not complied with these requirements, the participant must, except if clause 10.43 applies, as soon as practicable provide such further information, or corrected information, as is necessary to ensure that the participant complies.

Audit observation

I checked compliance with this clause at the end of the audit to determine whether compliance had been achieved.

Audit commentary

I did not find any information that was not complete and accurate, or likely to mislead or deceive.

Audit outcome

Compliant

2.3 Dispute Resolution (Clause 10.50(1) to (3) of Part 10)

Code related audit information

Participants must in good faith use best endeavours to resolve any disputes related to Part 10 of the Code. Disputes that are unable to be resolved may be referred to the Authority for determination. Complaints that are not resolved by the parties or the Authority may be referred to the Rulings Panel by the Authority or participant.

Audit observation

I checked whether any disputes had been dealt with by Omexom during the audit period.

Audit commentary

Omexom has not needed to resolve any disputes in accordance with these clauses.

Audit outcome

Compliant

2.4 ATH Approval (Clause 10.40 of Part 10)

Code related audit information

A person wishing to be approved as an ATH, or an ATH wishing to renew its approval, must apply to the Authority:

- *at least two months before the intended effective date of the approval or renewal,*
- *in writing,*
- *in the prescribed form,*
- *in accordance with Part 16A.*

A person making an application must satisfy the Authority (providing, where appropriate, suitable evidence) that the person:

- *has the facilities and procedures to reliably meet, for the requested term of the approval, the minimum requirements of this Code for the class or classes of ATH for which it is seeking approval,*
- *has had an audit under Part 16A,*
- *is a fit and proper person for approval.*

Audit observation

I checked that the most recent application for re-certification met the requirements of this clause.

Audit commentary

Omexom has appropriate approval and appropriate facilities and procedures to meet the minimum requirements of the Code.

Audit outcome

Compliant

2.5 ATH Requirements (Clause 10.41 of Part 10)

Code related audit information

An ATH must, when carrying out activities under this Part:

- *only carry out activities for which it has been approved by the Authority,*
- *exercise a degree of skill, diligence, prudence, foresight, and economic management, taking into account the technological complexity of the metering components and metering installations being tested:*
  - *determined by reference to good industry practice,*
  - *that would reasonably be expected from a skilled and experienced ATH engaged in the management and operation of an approved ATH,*
- *comply with all applicable safety, employment, environmental, and other enactments ,*
- *exercise any discretion given to it under this Part by:*
  - *taking into account the relevant circumstances of the particular instance,*
  - *acting professionally,*
- *recording the manner in which it carried out its activities and its reasons for carrying the activities out in that manner.*

Audit observation

I checked policy and process documentation to confirm compliance with these clauses.

Audit commentary

Omexom has only conducted activities that fall within the scope of their approval. I have concluded from this audit that Omexom has met the requirements of this clause.
Procedures which ensure compliance with health and safety and electrical regulations are stored in an organisation wide Sharepoint location. Each metering site has a specific set of safety requirements and documentation. Technicians are required to complete a WSMP form before commencing work to ensure safe work practices are maintained, I checked an example to confirm compliance.
Metering specific technical procedures are stored in a metering specific file location.

Audit outcome

Compliant

2.6 Quality Management Systems (Clauses 3(1) & 4(1) of Schedule 10.3)

Code related audit information

An ATH must establish, document, implement, maintain, and comply with a quality management system which records its processes and procedures to ensure compliance with this Part.

An applicant applying for approval or renewal of approval, as a class A ATH must, as part of its application, confirm that it holds and complies with AS/NZS ISO 17025 accreditation, for at least the requested term of the approval.

An applicant applying for approval, or renewal of approval, as a class B ATH must, as part of its application to the Authority, confirm that it holds and complies with AS/NZS ISO 9001:2008 or AS/NZS ISO 9001:2016 certification for at least the requested term of the approval.

Audit observation

I obtained and reviewed the most recent ISO report to confirm the scopes were appropriate and that certification was in place.

Audit commentary

Omexom has ISO 17025 registration for the Class A Test House and the scope is as follows:

Programme: Metrology and Calibration Laboratory
Testing Services Summary: - 5.85 Inductors and Transformers, 5.89 Indicating Instruments and Recording Instruments
The scope also includes Certification of metering installations in accordance with EIPC 2010 Part 10 Metering to Category 5.
The Key Technical Personnel is noted as:

- Darko Radjenovic

The May 2023 ISO 17025 Technical Assessment, conducted by IANZ, contained one corrective action request, and five recommendations were made.

The CAR and recommendations are shown in the table below along with their current status.

Corrective action request	**Resolution**
CAR No:1 Estimation of uncertainty of measurement a) The laboratory was using the MSL Metering Installation Error (MIE) Calculator to evaluate and report metering installation site errors and uncertainty with regard to compliance with the EIPC 2010. Temperature effects were input as 18 °C ± 1 °C for all metering sites. However, not all sites are in a temperature-controlled environment and the actual site average annual temperature and variation needs to be input in order to get the correct MIE uncertainty for a 12-month period using the site load profile. Please confirm that the laboratory will assess temperature conditions for an annual cycle and enter this in the MIE calculator. b) The CT CMC calculation sheet had not been updated for some time and included references to the old comparator and did not list the latest uncertainty information. As this is one of the major uncertainty contributions identified in the MIE Calculator data it needs to be reviewed and updated with the most recent reference device calibration data. Please provide an updated CT CMC calculation.	Cleared
Recommendations	**Resolution**
1. It is recommended to add a management review agenda item to review risks to impartiality as stated in the quality manual. [4.1]	In-progress
2. While temperature and CT contributions are likely to dominate the site uncertainty calculations, the laboratory should review and update all default influence variables and coefficients for each metering installation site. [7.6]	In-progress
3. It is recommended to review and update the internal audit checklist to cover all applicable ISO 17025 clauses. [8.8.1]	In-progress

4. It is recommended to amend reported phase angle and ratio errors to the same level of significance as the reported uncertainty. For example, for a phase error uncertainty of 1.9 minutes the errors should be rounded to one decimal place, not three decimal places. [AS LAB C5 clause 12.1(b)]	In-progress
5. The laboratory may seek to have its reference CT calibrated at 1% rated current to improve site error calculations for sites where the current may be expected to be this low, or the load profile suggests this.	In-progress

Audit outcome

Compliant

2.7 Organisation and Management (Clause 15 of Schedule 10.4)

Code related audit information

An ATH must ensure that it has managerial staff who, unless otherwise permitted in the relevant approval, all have the authority and resources needed to discharge their duties; and the responsibilities, authority, and functional relationships of all its personnel are fully and accurately specified and recorded in the ATH's records.

An ATH must appoint a technical manager (however named) with overall responsibility for technical operations, who must have appropriate engineering qualifications and experience in the operation of an approved ATH; and a quality manager (however named), with responsibility for the quality management certification and the implementation of the quality management system.

Audit observation

I checked records in the quality manual to confirm compliance.

Audit commentary

Omexom has a clear system of authority that includes the functions of Quality Manager (David Yaxley) and Technical Manager (Adrian Green).

An ATH must ensure that all staff who perform or supervise work or activities regulated under this Part are technically competent, experienced, qualified, and trained for the functions they perform. I checked the Omexom competency records, which are held in an excel spreadsheet maintained by the Technical Manager. They are appropriate for the functions performed and are up to date.
Technicians have annual competency assessments. An assessment form is completed which records competency against all required tasks. Competency is ranked on a scale of 1 to 5, with 1 indicating the technician is under training, 3 is the level at which a technician can work unsupervised and 5 is an expert.

Audit outcome

Compliant

2.8 Document Processes and Procedures (Clause 16 Of Schedule 10.4)

Code related audit information

An ATH must establish, document, implement, maintain, and comply with a quality management system which records its processes and procedures.

Audit observation

I checked the Class A quality documentation, and I reviewed the relevant ISO 17025 report.

Audit commentary

The quality management system is detailed in the Omexom Metering Test House(MTH) Manual and meets the requirements of the Code.

Audit outcome

Compliant

2.9 Quality Standard Required For Field Work (Clause 17 Of Schedule 10.4)

Code related audit information

If a class A ATH arranges for another person to carry out field work, it must ensure that person is certified to the relevant AS/NZS ISO9001:2008 or AS/NZS ISO9001:2016 standard at all times while the person carries out the work.

Audit observation

Omexom has not required other parties to carry out field work.

Audit commentary

Omexom has not required other parties to carry out field work.

Audit outcome

Not applicable

2.10 Material Change Requirements (Clause 16A.11)

Code related audit information

If the ATH intends to make a material change to any of its facilities, processes, procedures, or the scope of the ATH's ISO accreditation is reduced, the ATH must arrange for an additional audit at least five business days before the change or reduction in scope take place.

Audit observation

I checked whether Omexom had made any material changes during the audit period.

Audit commentary

I confirmed that no changes have occurred during the audit period that would require a material change audit.

Omexom is currently planning to move the location of its calibration laboratory and is aware of the requirement to conduct a material change audit within the required timeframe.

Audit outcome

Compliant

2.11 Audit Required for ATH Approval (Clause 16A.12 and 16A.13)

Code related audit information

The ATH must provide an audit report to the Authority by the due date. If there are areas where compliance is not achieved, the ATH must also submit a compliance plan which specifies the actions that the ATH intends to address, any issues identified in the audit report and the time frames to complete those actions.

Audit observation

Omexom is currently undergoing an audit and the report will be provided with a compliance plan.

Audit commentary

Omexom is currently undergoing an audit and the report will be provided with a compliance plan.

Audit outcome

Compliant

2.12 Accommodation & Environment (Clause 1 of Schedule 10.4)

Code related audit information

An ATH must maintain a list of personnel who are authorised to access and use its laboratory and *storage facilities and restrict access to its laboratory and storage facilities to:*
(i) the personnel specified,
(ii) the Authority,
(iii) an auditor conducting an audit,
(iv) any other person who is, at all times, directly supervised by a member of personnel specified.

Audit observation

I checked records to confirm compliance.

Audit commentary

Access to the site is controlled by access cards and the calibration laboratory is locked and there is a list of authorised personnel on the door.

Audit outcome

Compliant

2.13 Compensation Factors (Clause 8 of Schedule 10.4)

Code related audit information

If an ATH is approved to certify metering installations, the ATH must have a documented process for the determination of compensation factors.

Audit observation

I checked the documentation in relation to compensation factors.

Audit commentary

The documentation achieves compliance with the Code. Loss compensation factors are calculated and recorded in the design reports for each metering installation. Loss factors are programmed into the meter and are confirmed as part of the meter configuration checks on-site.

Audit outcome

Compliant

2.14 Metering Component Stickers (Clause 8(3) of Schedule 10.8)

Code related audit information

An ATH must ensure that a certification sticker is:
- made of weather-proof material,
- permanently attached,
- filled out using permanent markings.

Audit observation

I checked the Omexom component stickers to confirm compliance.

Audit commentary

All component stickers are compliant with this clause.

Audit outcome

Compliant

2.15 Interference with Metering Installations (Clause 10.12)

Code related audit information

An ATH may not directly or indirectly interfere with a metering installation unless it is also the MEP or has been instructed to do so by the existing or gaining MEP for the installation.

Audit observation

I audited this clause by exception.

Audit commentary

I did not identify any interference by Omexom during the audit.

Audit outcome

Compliant

3. METERING RECORDS AND REPORTS

3.1 Physical Location of Metering Installations (Clause 10.35 of Part 10)

Code related audit information

If it is not practical in the circumstances to locate the metering installation at the point of connection, the reconciliation participant must calculate the quantity of electricity conveyed through the point of connection using a loss compensation process approved by the certifying ATH.

If this occurs the ATH must record the calculation, measurements, and assumptions in the installation certification report.

Audit observation

I checked whether Omexom had certified any installations with loss compensation.

Audit commentary

Omexom deals with metering installations that are not located at the point of connection. The losses are calculated by the ION meters based on certain inputs, such as cable and transformer details. The inputs are determined by Transpower. The details are recorded in the design reports, which become part of the metering installation certification reports.

Audit outcome

Compliant

3.2 Metering Installation Type (Clause 8(2) of Schedule 10.7)

Code related audit information

The metering installation certification report must specify whether the installation is half hour, non-half hour or half hour and non-half hour metering.

The metering installation certification report must also record each services access interface and the conditions under which each services access interface may be used.

Audit observation

I checked 39 certification records to confirm compliance.

Audit commentary

The "Metering Installation Requirements" section of the "Revenue Metering Installation Compliance" document includes metering installation type and services access interface fields which were correctly populated in all 39 certification records checked.

Audit outcome

Compliant

3.3 Record Metering Installation Category (Clause 8(4) Of Schedule 10.7)

Code related audit information

An ATH must record the category of the metering installation in the metering installation certification report.

Audit observation

I checked 39 certification records to confirm compliance.

Audit commentary

All records correctly recorded the metering category.

Audit outcome

Compliant

3.4 Calibration Test Points (Clause 7(7) Of Schedule 10.4)

Code related audit information

An ATH may select a test point other than those specified in the relevant standard listed in Table 5 of Schedule 10.1, or at a lower burden than specified in the standard, but must, if it does this, document its reasons for the selection of these test points in the calibration report.

Audit observation

I checked with Omexom whether any different test points had been used.

Audit commentary

There are additional test points specified by Transpower of 90% and 110% for VTs and 10% and 50% for CTs. The reasons for additional test points are documented as required by this clause.

Audit outcome

Compliant

3.5 Services Access Interface (Clause 10 of Schedule 10.4)

Code related audit information

An ATH must, when preparing a metering installation certification report, determine, and record in the certification report, the services access interfaces and the conditions under which each services access interface may be used. The services access interface means the point, at which access may be gained to the services available from a metering installation, that is:

- *recorded in the certification report by the certifying ATH for the metering installation,*
- *where information received from the metering installation can be made available to another person*
- *where signals for services such as remote control of load (but not ripple control) can be injected.*

Audit observation

I checked a sample of 39 certification records to confirm compliance.

Audit commentary

The "Metering Installation Requirements" section of the "Revenue Metering Installation Compliance" document includes services access interface fields which were correctly populated in all 39 certification records checked.

Audit outcome

Compliant

3.6 Certification & Calibration Reports (Clause 11(1) of Schedule 10.4)

Code related audit information

An ATH must, for each metering installation that it certifies, produce a certification report in accordance with Schedule 10.7. An ATH must, for each metering component:

- *that it calibrates, produce a calibration report in accordance with Schedule 10.8,*
- *that it certifies, produce a certification report in accordance with Schedule 10.8.*

Audit observation

I requested a sample of 39 certification records to confirm compliance.

Audit commentary

Certification reports are produced for all installations and components. Calibration reports are produced for all calibrated components.

Audit outcome

Compliant

3.7 ATH Record Keeping Requirements (Clause 12 of Schedule 10.4)

Code related audit information

The ATH must document and maintain its record keeping system for certificates, reports, and any other records. The records can be stored in any media, such as hard copy or electronically. The records should be stored in a manner that prevents deterioration or damage and that retrieval of a record cannot result in change or damage to the record. Electronic storage should be backed up.
The ATH must securely store all records, certificates, and reports and ensure that each metering installation is:
- uniquely identified
- sufficiently detailed to verify the tests carried out including test conditions, the test equipment used and the personnel carrying out the tests.

Audit observation

I checked the certification records for 39 metering installations along with the storage practices.

Audit commentary

All records are uniquely identified, contain sufficient detail, and are stored securely and kept indefinitely.

Audit outcome

Compliant

3.8 Retention of Records (Clause 13 of Schedule 10.4)

Code related audit information

The ATH must keep all records, certificates, and calibration reports for all components and installations certified for at least 48 months after the date of decommissioning.

Audit observation

I checked the certification records for 39 metering installations along with the storage practices.

Audit commentary

Records are stored indefinitely.

Audit outcome

Compliant

3.9 Advise MEP of Records, Certificates or Reports for a Metering Installation (Clause 14 Of Schedule 10.4)

Code related audit information

The ATH must provide the MEP responsible for the metering installation with the record, certificate, or report for the metering installation within five business days of certification. The ATH must ensure the MEP receives the record. This can be either as an electronic copy or any other agreed format.

Audit observation

I checked the processes for provision of records to MEPs.

Audit commentary

Omexom are storing records on behalf of the MEP, therefore this is met when the record is created.

Audit outcome

Compliant

3.10 Certification at a Lower Category (Clause 6(4) Of Schedule 10.7)

Code related audit information

If the ATH makes a determination to certify a metering installation at a lower category under clause 6 of Schedule 10.7, the certification report must include all information required to demonstrate compliance.

Audit observation

I checked whether certification had occurred under this clause in the audit period.

Audit commentary

Certification had not occurred under this clause during the audit period. Omexom does not intend to certify under this clause under the class A ATH.

Audit outcome

Compliant

3.11 Meter Requirements (Clause 26(3) & (4) of Schedule 10.7)

Code related audit information

The ATH needs to document the following in the metering records:

- the meter manufacturer's required recommendations for regular maintenance
- any maintenance that has been carried out on the meter, such as battery monitoring and replacement.

An ATH must record in the metering installation certification report, the maximum interrogation cycle for the metering installation before it certifies a metering installation incorporating a meter.

Audit observation

I checked process documentation, conducted a walk-through of the process and checked 39 certification records.

Audit commentary

Omexom as a Class A ATH has not certified any installations where the meter requires maintenance and they have not conducted any maintenance on any components. All data storage devices installed have battery monitoring conducted as part of the data collection function.

The maximum interrogation cycle is recorded in the design report and metering installation certification report for each metering installation. This was confirmed in all certification records checked.

Audit outcome

Compliant

3.12 Meter Certification Expiry Date (Clause 27(5) of Schedule 10.7)

Code related audit information

The ATH must record the certification expiry date for each meter in a metering installation in the metering installation certification report and the meter certification report.

Audit observation

I checked 39 certification records to confirm compliance.

Audit commentary

Certification expiry dates were correctly calculated and recorded in all certification records checked.

Audit outcome

Compliant

3.13 Measuring Transformer Requirements (Clause 28(3) of Schedule 10.7)

Code related audit information

The ATH needs to document the following in the metering records:
- the manufacturer's recommendations for any regular maintenance required for the measuring transformer,
- any maintenance that has been carried out on the measuring transformer.

Audit observation

I checked whether any measuring transformers required maintenance.

Audit commentary

Omexom has not installed any measuring transformers where maintenance is required. Certification records confirm this fact.

Audit outcome

Compliant

3.14 Determine Maximum Interrogation Cycle (Clause 36(3) & (4) Of Schedule 10.7)

Code related audit information

An ATH must record the maximum interrogation cycle for each services access interface for the metering installation. The maximum interrogation cycle for a metering installation is the shortest of the following periods:

- the period of inherent data loss protection for the metering installation,

- the period of memory availability given the data storage device configuration,

- the period in which the accumulated drift of a data storage device clock is expected to exceed the maximum time error set out in Table 1 of clause 2 of Schedule 15.2 for the category of the metering installation.

Audit observation

I checked processes and the records for 39 metering installations to confirm compliance.

Audit commentary

The maximum interrogation cycle is recorded correctly for all 39 metering installations.

Audit outcome

Compliant

4. CALIBRATION AND CERTIFICATION OF METERING COMPONENTS

4.1 Accommodation and Environment (Clause 1(D)-(E) Of Schedule 10.4)

Code related audit information

The ATH must ensure that the environment in which its activities are undertaken is monitored, appropriate for the tests being carried out and unlikely to affect the required accuracy.

Audit observation

I checked the IANZ report which confirmed the test laboratory environment was appropriate.

Audit commentary

I checked the IANZ report which confirmed the test laboratory environment was appropriate.

Audit outcome

Compliant

4.2 Use of Measurement Standards (Clause 1(F) Of Schedule 10.4)

Code related audit information

The ATH must comply with the specific requirements of the applicable standard listed in Table 5 of Schedule 10.1.

Audit observation

I checked 39 certification records to confirm that the correct standards area being used.

Audit commentary

Omexom uses the correct standards.

Audit outcome

Compliant

4.3 Test Equipment (Clause 2 of Schedule 10.4)

Code related audit information

An ATH must, at all times, ensure that it has access to all items of equipment required for the performance of the calibrations and tests it is approved to undertake under this Part; and each item of equipment it uses is maintained in accordance with the manufacturer's recommendations and this Code. A class B ATH must have and maintain procedures for the purchase of test equipment and associated consumables.

Audit observation

I checked records in the instrument register to confirm compliance.

Audit commentary

The maintenance records for all equipment are contained in the "equipment database". The calibration records for test equipment are stored in network folders and I confirmed that the current records were available for all equipment currently in use.

Audit outcome

Compliant

4.4 Calibration of Reference & Working Standards (Clause 3(1)(a), (b)(i) and (6) of Schedule 10.4)

Code related audit information

An ATH must ensure that any reference standard is calibrated by an approved calibration laboratory and that any working standard is calibrated by an approved calibration laboratory or class A ATH. The calibration reports for the calibrated standards must be held by the ATH and indicate that the standard is within the manufacturer's accuracy specifications.

Audit observation

I checked all of the Omexom reference and working standards to confirm they had current calibration certificates.

Audit commentary

I checked the calibration records for all standards currently in use, and confirmed they are all up to date.

Details of the working and reference standards used are as follows:

Make/ Model	Type	Calibration due
Omicron CMC156	Std Wh meter	28 August 2024
Omicron CMC256	Lab Ref Wh meter	4 November 2024
KDK CT-120	Lab Ref CT KDK #23975	11 September 2028
TWS Custom made	Field Std CT TWS #013631	28 August 2024
Tettex 4820	Lab Ref 11kV VT	12 September 2028
Tettex 4820	Lab Ref 33kV VT	16 September 2025
Ritz VEN 36-01	Field Std VT 33kV	28 March 2024
Ritz VEN 36-01	Field Std VT 33kV	12 December 2023
Ritz VZS 12-02	Field Std VT 11kV	12 December 2023
Ritz VZS 12-02	Field Std VT 11kV	28 March 2024
Eltel AITTS PLUS	CT/VT Comparator	3 October 2024
Eltel AITTS PLUS	CT/VT Comparator	3 October 2024
Eltel AITTS-98	CT/VT Comparator	4 August 2023
Fluke 8846A	Lab Ref Multimeter	26 January 2024
Center 370	Lab Ref Thermometer	3 May 2028

Three standards were undergoing calibration at the time of the audit so are shown above with expired calibrations.

Audit outcome

Compliant

4.5 Calibration Interval (Clause 3(2) of Schedule 10.4)

Code related audit information

Each reference standard or working standard must be calibrated within the applicable calibration interval set out in table 1 of schedule 10.4.

Audit observation

I checked all of the Omexom reference and working standards currently in use to confirm they had current calibration certificates.

Audit commentary

Compliance is recorded in **section 4.4**.

Audit outcome

Compliant

4.6 Calibration of Reference Standards (Clause 3(1)(B)(Ii), (2), (3)(C), (4) And (5) Of Schedule 10.4)

Code related audit information

Class A ATHs must ensure that in calibration of reference standards, any uncertainties are sufficiently small so that the overall uncertainty in the measurements used to test a metering installation does not exceed one third of the maximum permitted error set out in table 1 of schedule 10.1 for the category of metering installation that the reference standard will be used to calibrate.
If a reference standard is used in conditions that deviate from those in the calibration report, the class A ATH must calculate and apply adjustments using its own processes and procedures so that the reference standard achieves the reference conditions.

Audit observation

I checked all of the Omexom reference standards to confirm they had current calibration certificates.

Audit commentary

There were no situations where calibration occurred, or standards were used in non-reference situations.

Audit outcome

Compliant

4.7 33kv Or Above Calibrated by an Approved Calibration Laboratory (Clause 3(3)(B) Of Schedule 10.4)

Code related audit information

Class A ATHs must ensure that a working standard on a system operating at a voltage of 33kV or above has been calibrated by an approved calibration laboratory.

Audit observation

I checked if Omexom uses working standards operating at or above 33kV an whether they had current calibration certificates.

Audit commentary

Omexom uses 33kV Ritz VT field working standards and a Tettex 4820 33kV laboratory working standard. I confirmed that the 33kV standards had been calibrated by approved calibration laboratories.

Audit outcome

Compliant

4.8 Metering Component Testing System (Clause 4 of Schedule 10.4)

Code related audit information

An ATH may use a complete calibrated metering component testing system (a test bench) as an alternative to a separately calibrated working standard only if the ATH:
- calibrates the test bench as if it was a working standard
- carries out a testing system accuracy test, using approved reference standards before completing the calibration report.

Audit observation

Omexom does not have a test bench.

Audit commentary

Omexom does not have a test bench.

Audit outcome

Not applicable

4.9 Calibration Errors (Clause 5 of Schedule 10.4)

Code related audit information

A Standard cannot be used if the ATH believes is has a calibration error. If an error is found then all ATH's that have used the standard must be notified. All metering installations certified using the standard must be treated as defective in accordance with Clause 10.43.

Audit observation

I checked the understanding of this requirement through interview with Omexom. I checked whether this situation had occurred.

Audit commentary

Omexom understands the requirements of this clause. There are no examples of standards with calibration errors.

Audit outcome

Compliant

4.10 Measurement Traceability (Clause 6 of Schedule 10.4)

Code related audit information

An ATH must document, maintain, and comply with a system that ensures, whenever it undertakes a calibration test or measurement, the ATH can replicate the test or measurement in every respect and the results of the measurements are traceable.

Audit observation

I checked this by reviewing the IANZ audit report.

Audit commentary

The IANZ report confirms compliance.

Audit outcome

Compliant

4.11 Calibration Methods (Clause 7(6) of Schedule 10.4)

Code related audit information

An ATH must only use components that have been certified by an ATH or calibration laboratory.

A Class B ATH must follow 17025 calibration methods for components.

The test points must be those listed in the relevant IEC standard.

An ATH must ensure that uncertainty of measurement does not exceed one third of the error listed in the relevant IEC standard listed in table 5.

If a CT is to be used in a Metering Installation is certified using the selected component method, then it must be tested for errors at 5% to 120% of rated current.

An ATH must have documented instructions for calibration that match the IEC standard.

Audit observation

I checked a sample of calibration and certification reports to confirm compliance with this clause.

Audit commentary

All components are calibrated and certified. Calibration is conducted by the Class A ATH. Uncertainty of measurement does not exceed one third of the error listed in the standard. CT test points are compliant.

Audit outcome

Compliant

4.12 Data Storage Device Certification (Clause 5 of Schedule 10.8)

Code related audit information

All data storage devices must be certified before they can be used in a metering installation. The ATH must ensure that the data storage devices in a metering installation have been type tested by an approved test laboratory, that the results for data storage devices are appropriate for that model and version and have a calibration report.

Audit observation

I checked the certification records for 39 metering installations to confirm compliance.

Audit commentary

Omexom certifies data storage devices in accordance with these clauses. The certification report is combined with the metering installation certification report and contains the required details. Omexom has a directory of type test reports for relevant devices.

Audit outcome

Compliant

4.13 Metering Component Stickers (8(1) and 8(4) of Schedule 10.8)

Code related audit information

An ATH must confirm certification by attaching a metering component certification sticker to the metering component or, if not practicable, provide the sticker with the metering component.

If an ATH certifies the metering component on the same day it certifies the metering installation that the metering component is installed in, the ATH may combine the certification stickers and attach it to the metering installation in accordance with clause 41 of Schedule 10.7.

Audit observation

I checked the Omexom component stickers to confirm compliance.

Audit commentary

All component stickers are compliant with this clause. Omexom does not use a combined installation and component sticker.

Audit outcome

Compliant

4.14 Metering Component Stickers (Clause 8(2) of Schedule 10.8)

Code related audit information

A metering component certification sticker must show:

- the name of the metering component owner (if available)
- if the metering component is a meter or a measuring transformer:
a) *the name of the ATH or the approved calibration laboratory who calibrated the metering component,*
b) the name of the ATH who certified the metering component,
c) the date on which the metering component was certified,

d) the initials or other unique identifier of the person who carried out the certification of the metering component.

Audit observation

I checked the Omexom component stickers to confirm compliance and the photos included with 39 certification records.

Audit commentary

All component stickers are compliant with this clause. Omexom has recently updated its certification stickers to include the Omexom name, and the new stickers contain the required fields.

Audit outcome

Compliant

4.15 Sealing and Monitoring of Seals (Clause 9 of Schedule 10.4 & Clause 47(7) of Schedule 10.7)

Code related audit information

An ATH is required to have a documented system for applying seals to a metering installation to ensure that each metering component in the metering installation that could be expected to affect the accuracy or reliability of the metering installation is sealed. The system of sealing will ensure monitoring of the integrity of the metering installation and that unauthorised access to the metering installation will be identifiable so that the MEP can be notified.

The sealing system will identify:
- the ATH who affixed the seal,
- the person (or the sealing tool) who applied the seal,
- when the seal was applied.

Audit observation

I checked the quality documentation and a sample of 39 certification records to confirm compliance.

Audit commentary

The Omexom quality manual contains a section on sealing and the management of seals. In most cases, individually numbered "Twist Lock" seals are used. Issued seals are recorded in a register, which was up to date.

Seal information is recorded in the inspection records in hard and soft copy. I checked photos included in the certification records for 39 metering installations to confirm the correct application and recording of seal information.

Omexom has a process to notify the relevant MEP if any seals are found to be broken or missing.

Audit outcome

Compliant

5. CALIBRATION AND CERTIFICATION OF METERING INSTALLATIONS

5.1 ATH Must Not Certify Metering Installations under Certain Circumstances (Clause 8(1) Of Schedule 10.7)

Code related audit information

The ATH must not certify a metering installation if the installation does not comply with Part 10.

Audit observation

I checked a sample of 39 certification records to confirm compliance.

Audit commentary

There were no metering installations certified that did not comply with Part 10.

I considered the five examples recorded in **section 5.30** where the uncertainty recorded in the certification records is higher than the limit prescribed in table 1. I see this as an error in the way uncertainty is recorded in certification reports and have recorded compliance in this section on the basis that when the IANZ recommendation is adopted the recorded uncertainty would meet the requirements of table 1.

Audit outcome

Compliant

5.2 Determination of Metering Categories (Clause 5 of Schedule 10.7 & Clause 10.11)

Code related audit information

An ATH is required to determine the category of the metering installation in accordance with table 1 of schedule 10.1 before it certifies a metering installation.

Audit observation

I checked certification records for 39 metering installations to confirm compliance.

Audit commentary

All 39 certification reports had the metering category recorded correctly.

Audit outcome

Compliant

5.3 Requirement for Metering Installation Design Report (Clause 2(4) Of Schedule 10.7)

Code related audit information

The ATH must receive a design report from the MEP before installing or modifying a metering installation or a component in a metering installation.

Audit observation

I checked the Omexom design report processes and the certification records for 39 metering installations.

Audit commentary

Omexom has checked and approved design reports supplied by the MEP for all metering installations certified. The design report documents are stored in folders for each metering installation. I examined a sample of these during the audit. Compliance is confirmed.

Audit outcome

Compliant

5.4 ATH Design Report Obligations (Clause 3 of Schedule 10.7)

Code related audit information

Before certifying a metering installation, the ATH must check the design report to confirm the metering installation will function as designed and that the metering installation will comply with Part 10.

The certifying ATH must update the design report with any changes and provide it to the MEP responsible for the installation within 10 days of installation certification.

Audit observation

I checked the Omexom design report processes and the certification records for 39 metering installations.

Audit commentary

Omexom has checked and approved design reports supplied by the MEP for all metering installations certified. The design report documents are stored in folders for each metering installation. I examined a sample of these during the audit. If any changes are found during certification Omexom updates the information and provides the updated information to the MEP as required. Compliance is confirmed.

Audit outcome

Compliant

5.5 Certification as a Lower Category (Clause 6(1) of Schedule 10.7)

Code related audit information

An ATH may determine that the metering category of a current transformer installation is lower than would otherwise be the case and certify the installation at that lower category only if:
- a protection device, like a fuse or a circuit breaker, is installed so that it limits the maximum current; or
- the MEP provides evidence from historical data that the maximum current will be lower than the current setting of the protection device for the category that metering installation is currently certified at; or
- the components in the metering installation will use less than 0.5 GWh in any 12-month period; or
- the MEP provides evidence from historical data that the installation will use less than 0.5 GWh in any 12-month period.

Audit observation

I checked whether any metering installations had been certified as a lower category during the audit period.

Audit commentary

Certification had not occurred under this clause during the audit period. Omexom does not intend to certify under this clause under the class A ATH.

Audit outcome

Compliant

5.6 Use of Current Transformer Rating lower than Supply Capacity (Clause 6(2)(a) of Schedule 10.7)

Code related audit information

If the ATH determines the category of a current transformer metering installation is lower than would otherwise be the case and a current limiting device is used, the ATH must:
- confirm the suitability and operational condition of the protection device,
- record the rating and setting of the protection device in the metering records,
- seal the protection device ,
- apply, if practicable, a warning tag or label to the seal.

Audit observation

I checked whether any metering installations had been certified as a lower category during the audit period.

Audit commentary

Certification had not occurred under this clause during the audit period. Omexom does not intend to certify under this clause under the class A ATH.

Audit outcome

Compliant

5.7 Determining Metering Installation Category at a Lower Category using Current Transformer Rating (Clause 6(2)(b) & (d) of Schedule 10.7)

Code related audit information

The ATH may determine the metering installation category according to the metering installation's expected maximum current, if:
- there has been a request to do so from the MEP,
- the MEP provides evidence from historical data that the maximum current will be lower than the current setting of the protection device for the category that metering installation is currently certified; and
- the ATH considers it is appropriate to do so in the circumstances.
The MEP must obtain the maximum current that flows through the installation each month from the participant interrogating the installation. From this data the ATH can calculate the maximum current from the raw meter data by either calculation from the kVA by trading period if available or from a maximum current indicator if fitted. If the MEP does not receive the monthly report from the participant interrogating the installation or if the current exceeds the maximum calculated rating of the installation, the certification of the installation is automatically cancelled.

Audit observation

I checked whether any metering installations had been certified as a lower category during the audit period.

Audit commentary

Certification had not occurred under this clause during the audit period. Omexom does not intend to certify under this clause under the class A ATH.

Audit outcome

Compliant

5.8 Suitability of Determination of a Metering Installation Category at a lower Category using Current Transformer Rating (Clause 6(3) Of Schedule 10.7)

Code related audit information

Before the ATH determines a metering installation to be a lower category, the ATH must first visit the site of the metering installation to ensure it is suitable for the metering installation to be determined to be a lower category.

Audit observation

I checked whether any metering installations had been certified as a lower category during the audit period.

Audit commentary

Certification had not occurred under this clause during the audit period. Omexom does not intend to certify under this clause under the class A ATH.

Audit outcome

Compliant

5.9 Use of Metering Installation Certification Methods (Clause 7(1) Of Schedule 10.7)

Code related audit information

When certifying a metering installation, the ATH must use either of the following methods:
a) the selected component certification method if the metering installation is category 1, 2, or 3; or
b) the fully calibrated certification method.

Audit observation

I checked certification records for 39 metering installations to confirm compliance.

Audit commentary

Omexom applied and recorded the correct certification method in the 39 records checked. All certifications completed by Omexom are conducted using the fully calibrated method.

Audit outcome

Compliant

5.10 Certification of a Metering Installation using Statistical Sampling or Comparative Recertification (Clause 7(2) Of Schedule 10.7)

Code related audit information

In addition to the selected component and fully calibrated methods, the ATH may also recertify an installation using:
a) an approved statistical sampling process for category 1 metering installations; or
b) the approved comparative recertification method for a category 2 metering installation

Audit observation

Omexom has not been requested to recertify any groups of metering installations using the statistical sampling method. Omexom does not intend to use the comparative recertification method, all metering installation certification is conducted using the fully calibrated method.

Audit commentary

Omexom has not been requested to recertify any groups of metering installations using the statistical sampling method. Omexom does not intend to use the comparative recertification method, all metering installation certification is conducted using the fully calibrated method.

Audit outcome

Compliant

5.11 Metering Installation Certification Requirements (Clause 8(3) Of Schedule 10.7)

Code related audit information

An ATH may only certify a metering installation as category 3 or higher if the metering installation incorporates a half hour meter.

Audit observation

I checked certification records for 39 metering installations to confirm compliance.

Audit commentary

All installations had HHR meters.

Audit outcome

Compliant

5.12 Certification Tests (Clause 9(1) of Schedule 10.7)

Code related audit information

An ATH, when required to carry out tests specified in Tables 3 or 4 of Schedule 10.1, must comply with the provisions of clause 9(1) of Schedule 10.7 for the following tests:

- a prevailing load test,

- an installation or component configuration test,

- a raw meter data output test.

A prevailing load test is defined in the Code as a test that is carried out by comparing the output of the metering installation against a working standard connected to the metering installation. For a category

2 or higher metering installation, the prevailing load check must be done against a calibrated instrument (working standard). For a category 1 metering installation industry, best practice has defined a prevailing load test as a measurement of disk revolutions or pulses compared with time and current measurements. The revolutions or pulses are compared against a table or chart to validate the accuracy of the measurement. The prevailing load check is more than simply confirming that the meter operates but is only intended to identify a "gross error" like a phase missing or reversed or a significant metering error.

If the ATH carries out an installation or component configuration test on a metering installation or a metering component, it must ensure that the test equipment configuration is the same as the metering installation or component configuration recorded in the design report.

To carry out a raw meter data output test for a category 1 metering installation or category 2 metering installation, the ATH must apply a load on each phase that is:

- *greater than 5% of the meter's maximum rated current for category 1 installations,*
- *10 amps on each phase for category 2 metering installations.*

In addition, the ATH must use either the working standard referred to in subclause (1)(a) or an ammeter in good working order with an accuracy range of +/-5% to measure the load applied to the metering installation and recording the resulting increment of the meter register value over a measured period of time or recording the resulting accumulation of pulses from the load over a measured period of time.

The ATH must also ensure that the change in the meter register that occurs under subclause (ii)(A) or (ii)(B) is at least "1" in the least significant digit, or one mark if the least significant digit does not have numerical markings.

If the meter is a Ferraris disc meter, the ATH must undertake two raw meter data output tests in which the second test must have a load applied to the meter that is at least double the load applied in the first test.

To carry out a raw meter data output test for a half-hour installation, the ATH must either compare the output from a working standard to the raw meter data from the metering installation for a minimum of one trading period, or if the raw meter data is to be used for the purposes of Part 15, confirm that the MEP's back-office processes include a comparison of:

- *the increment of the accumulating meter registers, and*
- *the sum of the half-hour metering raw meter data for the same period.*

Audit observation

I checked process documentation, and 39 certification reports to confirm compliance.

Audit commentary

- Prevailing load tests must be conducted on a metering installation or metering component by using a working standard connected to the metering installation. Prevailing load tests are conducted using a working standard.

- Installation or component configuration tests must ensure that the actual configuration scheme is the same as the scheme for the metering installation or metering component recorded in the design report. The design report reference is included in certification records, and this serves the purpose of confirming the configuration scheme.

- Raw meter data output tests for a HHR metering installation which are category 1 or category 2 must be conducted by either:
    - comparing the output from a working standard to the raw meter data from the metering installation for a minimum of one trading period; this test is conducted for all installations including category 1.
    - confirming that the metering equipment provider's back-office processes include a comparison of the difference in the increment of the meter registers to the half-hour metering raw meter data, if the raw meter data is to be used for the purposes of Part 15; Omexom does not require the results of monitoring because they conduct a full HHR load test for a trading period.
- Raw meter data output tests for category 3 or higher HHR metering installations must compare the output of a working standard to the raw meter data from the metering installation for a minimum of one trading period. This test is conducted for all HHR metering installations.
- Raw meter data output tests for NHH category 2 metering installations must compare the output of a working standard to the increment of the sum of the meter registers. Omexom does not conduct NHH certification, but they have the capability to conduct this test if required.

If an ATH performs a raw meter data output test, for a metering installation that will be certified for remote meter reading, the ATH must obtain the raw meter data from the back office system where the raw meter data is held or ensure that the metering equipment provider responsible for the metering installation has a process to validate a meter reading taken at the time of the metering installation certification with a meter reading from the metering equipment provider's back office system. An output to host check is conducted with the data collector during certification and the results are recorded in the certification records.

If an ATH performs a test that requires a comparison between two quantities, the ATH must not certify the metering installation unless the metering installation passes the test. A metering installation passes if the test demonstrates that the difference between the two quantities is within the applicable accuracy tolerances set out in table 1 of schedule 10.1. I checked 39 certification records and confirm compliance with this clause.

Audit outcome

Compliant

5.13 Raw Meter Data Test for all Metering Installations (Clause 9(1A) Of Schedule 10.7)

Code related audit information

If the ATH performs a raw meter data output test under sub-clause (1)(c) or sub-clause (1)(d), for a metering installation that will be certified for remote meter reading, the ATH must:

a) *obtain the raw meter data from the back-office system where the raw meter data is held; or*
b) ensure that the metering equipment provider responsible for the metering installation has a process to validate a meter reading taken at the time of the metering installation certification with a meter reading from the metering equipment provider's back-office system.

Audit observation

I checked process documentation to confirm compliance.

Audit commentary

All installations have a full HHR load test conducted.

Audit outcome

Compliant

5.14 Alternate Raw Meter Data Test for Category 1 and 2 Metering Installations (Clause 9(1)(C) Of Schedule 10.7)

Code related audit information

A raw meter data output test is carried out for a category 1 metering installation or category 2 metering installation by comparing a known load change against the increment of the sum of the meter registers.

Audit observation

I checked process documentation to confirm whether Omexom conducts this test.

Audit commentary

Omexom conducts a full HHR load test using a working standard.

Audit outcome

Compliant

5.15 Raw Meter Data Output Test (Clause 9(2) And 9(3) Of Schedule 10.7)

Code related audit information

If the ATH performs a raw meter data output test that requires a comparison between two quantities, the ATH must not certify the metering installation unless the test demonstrates that the difference between the two quantities is within the applicable accuracy tolerances set out in table 1 of schedule 10.1.

Audit observation

I checked process documentation and records for 39 metering installations to confirm compliance.

Audit commentary

The Omexom records confirmed compliance.

Audit outcome

Compliant

5.16 Test Results (Clause 10(1) & (2) of Schedule 10.7)

Code related audit information

An ATH must not certify a metering installation if the results of tests on the metering installation or any of its metering components find that:
- a metering component did not pass all the tests
- the metering installation did not meet the requirements for certification.
Within five business days of reviewing the tests, the ATH must advise the relevant MEP why it did not certify the metering installation.

Audit observation

I checked process documentation and records for 39 metering installations to confirm compliance.

Audit commentary

Omexom reviews the test results for any of the components prior to certification. Compliance is confirmed.

Audit outcome

Compliant

5.17 Selected Component Certification (Clause 11(2) of Schedule 10.7)

Code related audit information

An ATH may only use the selected component certification method to certify a metering installation which complies with the categories and component specifications set out in table 1 of schedule 10.1.

Audit observation

Omexom does not intend to use the selected component method, all metering installation certification is conducted using the fully calibrated method.

Audit commentary

Omexom does not intend to use the selected component method, all metering installation certification is conducted using the fully calibrated method.

Audit outcome

Compliant

5.18 Selected Component - Circumstances where method may be used (Clause 11(3) Of Schedule 10.7)

Code related audit information

An ATH must only use the selected component certification method to certify the metering installation if:
- the required tests in Table 3 of Schedule 10.1 are carried out,
- each data storage device, meter, and measuring transformer has been calibrated and certified,
- each data storage device is certified in accordance with clause 5 of Schedule 10.8,
- the ATH provides a certification report for the metering installation.

Audit observation

Omexom does not intend to use the selected component method, all metering installation certification is conducted using the fully calibrated method.

Audit commentary

Omexom does not intend to use the selected component method, all metering installation certification is conducted using the fully calibrated method.

Audit outcome

Compliant

5.19 Comparative Recertification – Circumstances where method may be used (Clause 12(2) of Schedule 10.7)

Code related audit information

An ATH may only use the comparative recertification method to recertify a category 2 metering installation if:
- the certification of the current transformers in the metering installation expires before the meter certification expiry date,
- each data storage device and/or meter has been calibrated and certified.

Audit observation

Omexom does not intend to use the comparative recertification method, all metering installation certification is conducted using the fully calibrated method.

Audit commentary

Omexom does not intend to use the comparative recertification method, all metering installation certification is conducted using the fully calibrated method.

Audit outcome

Compliant

5.20 Comparative Recertification Tests (Clause 12(3) And 12(5)(A) Of Schedule 10.7)

Code related audit information

An ATH must, when recertifying the category 2 metering installation using the comparative recertification metering installation certification method, ensure that:
- the metering installation has passed the tests set out in Table 3 of Schedule 10.1 using a working standard
- the accuracy of the current measurement sensor (current transformer or high accuracy Rogowski coil) enables the metering installation to meet the specified accuracy requirements of table 1 of schedule 10.1,
- the overall metering installation accuracy meets the requirements of table 1 of schedule 10.1 and
- the ATH provides a certification report for the metering installation.

Audit observation

Omexom does not intend to use the comparative recertification method, all metering installation certification is conducted using the fully calibrated method.

Audit commentary

Omexom does not intend to use the comparative recertification method, all metering installation certification is conducted using the fully calibrated method.

Audit outcome

Compliant

5.21 Fully Calibrated – Circumstances Where Method May be Used (Clause 13(3) of Schedule 10.7)

Code related audit information

An ATH must use the fully calibrated certification method to certify the metering installation:
- by carrying out the tests set out in table 4 of schedule 10.1,
- if each of the components (the data storage device, meter, and measuring transformer) has been calibrated and certified.

Audit observation

I checked process documentation, and certification records for 39 metering installation to confirm compliance.

Audit commentary

The certification records confirm the appropriate tests are performed and components are calibrated and certified.

Audit outcome

Compliant

5.22 Fully Calibrated - Certify each Metering Component (Clause 13(4) Of Schedule 10.7)

Code related audit information

Each individual metering component in the metering installation must have a current certification report that confirms that the metering component complies with the requirements of its accuracy class; and includes the certification date of the metering component.

Audit observation

I checked process documentation and certification records for 39 metering installations to confirm compliance.

Audit commentary

The certification records confirmed that appropriate testing was conducted, and that all components were certified, and certification reports were prepared.

Audit outcome

Compliant

5.23 Fully Calibrated - Additional Metering Installation Certification Report Requirements (Clause 13(5) & (6) Of Schedule 10.7)

Code related audit information

The ATH must provide a certification report for the metering installation. The certification report must include confirmation that:
- the ATH has checked the design report of the metering installation to confirm the metering installation functions in accordance with the report,
- the overall metering installation accuracy meets the requirements of table 1 of schedule 10.1,
- the accuracy of the metering installation remains within the maximum permitted error for the relevant metering installation,
- each metering component in the metering installation is used only in a permitted combination as set out in table 1 of schedule 10.1.

Audit observation

I checked process documentation, and certification records for 39 metering installations to confirm compliance.

Audit commentary

The certification records confirmed that appropriate testing was conducted, and that all components were certified, and certification reports were prepared. The certification report recorded all of the points listed above.

Audit outcome

Compliant

5.24 Fully Calibrated – use Meter Class accuracy (Clause 13(7) Of Schedule 10.7)

Code related audit information

An ATH must, before it certifies a metering installation, ensure that the ATH uses the meter class accuracy, and not the actual accuracy, to calculate whether the actual error is within the maximum permitted error.

Audit observation

I checked process documentation and records for 39 metering installations to confirm compliance.

Audit commentary

In the last audit it was recorded that Omexom previously conducted two tests. Firstly, using measured accuracy, then another test using meter class accuracy. On advice from MSL during the last audit period Omexom began using the measured accuracy of the meter only. The use of measured accuracy has been deemed to be compliant with ISO 17025 but conflicts with the requirements of the code. This has previously been raised as an issue and has been the subject of on-going discussion. I have recorded non-compliance and have also repeated this as an issue for consideration by the Authority. Omexom has not received any further communication on this matter from the Authority.

Issue	Description
Regarding: Clause 13(7) Of Schedule 10.7	Use of meter class accuracy when determining errors The use of measured accuracy has been deemed to be compliant with ISO 17025 but conflicts with the requirements of Clause 13(7) Of Schedule 10.7 the code.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.24 With: Clause 13(7) Of Schedule 10.7 From: 25-Feb-20 To: 17-Jan-24	Measured accuracy of meter used in error calculations when using fully calibrated method. Potential impact: Low Actual impact: None Audit history: Once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls as strong as the error calculation process is compliant with ISO 17025. There is no impact on settlement or other participants therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
The Omexom ATH is unable to make any changes, which would satisfactorily resolve the issue. As stated by the Auditor, there is a direct contravention with the requirements of ISO 17025, which would potentially put the ATH in breach of Accreditation with IANZ.	26/01/24	Disputed
Preventative actions taken to ensure no further issues will occur	**Completion date**	
This has been raised at the Electrical Industry Forum 2020 where the MSL did NOT support using the Meter's Stated Accuracy, and strongly recommended a Code Amendment, which would resolve this conflict between the EIPC 2010 and ISO 17025.	26/01/24	

5.25 Insufficient Load (Clause 14 of Schedule 10.7)

Code related audit information

Every metering installation requires a test to ensure that the installation is correctly recording the energy used at the installation. The tests required are defined in tables 3 and 4 of schedule 10.1. The

checks range from a minimum check that the meter registers increment through to a full raw meter data output check against a working standard and a check against the back-office data for a half hour installation.
If the ATH decides to certify half hour metering installation that has insufficient load to complete a prevailing load check, the ATH must ensure that:
- it performs an additional integrity check of the metering installation wiring, and records the results of this check in the certification report
- it records in the certification report that the metering installation is certified under clause 14 of schedule 10.7.
Once load is present and following a request from the MEP, the ATH must carry out prevailing load tests. If the tests demonstrate that the metering installation performs within the maximum permitted error, the certifying ATH must:
- update the metering installation certification report, within five business days of completing the tests, to include the results of the tests carried out,
- leave the original metering installation certification expiry date unchanged.

Audit observation

I checked three examples of insufficient load certification.

Audit commentary

The process and records are compliant. The certification reports contain details of the checks conducted and advice to the MEP that the certification was completed with insufficient load. In one of the three certification reports checked load subsequently became available. Omexom returned to site, completed testing and the certification records were updated with the original certification expiry date unchanged.

Audit outcome

Compliant

5.26 Statistical Sampling (Clause 16 of Schedule 10.7)

Code related audit information

A group of meters can be sampled by the ATH and the results of the sample group can be extended to a larger group of the same meters. This is a process of certification by statistical sampling. The ATH must select a sample using a statistical sampling process that is:
- detailed in AS/NZS1284 (or approved and published by the Authority),
- recertify the group by recertifying each metering installation in the sample using the fully calibrated certification method,
- advise the MEP as soon as reasonably practicable whether the sample passes or fails the recertification requirements.
If the ATH carries out a statistical sampling process when recertifying a group of category 1 metering installations on behalf of an MEP, it must document and record:
- the process it follows for selecting samples,
- any assumptions about those samples,
- the metering installations in the sample,
- the metering installations in the recertified group.

An ATH that recertifies a group of metering installations using a statistical sampling process does not need to apply a certification sticker to the remainder of the metering installations in the family or group that was sample tested.

Audit observation

Omexom has not been requested to recertify any groups of metering installations using the statistical sampling method.

Audit commentary

Omexom has not been requested to recertify any groups of metering installations using the statistical sampling method.

Audit outcome

Not applicable

5.27 Statistical Sampling - Certification Method (Clause 7(3) Of Schedule 10.7)

Code related audit information

If the ATH uses statistical sampling, it must use either the selected component method or the fully calibrated method, as applicable, to certify each metering installation in the sample.

Audit observation

Omexom has not been requested to recertify any groups of metering installations using the statistical sampling method.

Audit commentary

Omexom has not been requested to recertify any groups of metering installations using the statistical sampling method.

Audit outcome

Not applicable

5.28 Certification Validity Periods (Clause 17 of Schedule 10.7)

Code related audit information

A metering installation certification expiry date is the earliest of:
a) the date of commissioning plus the maximum certification validity period for the relevant category of metering installation, as set out in table 1 of schedule 10.1; or
b) the earliest metering component certification expiry date; or
c) a date determined by the ATH if the ATH believes that the circumstances and condition of the components in a metering installation warrant deviation from table 1 of schedule 10.1.
The expiry date for a metering installation in a group recertified using a statistical sampling process, is the earliest expiry date of the metering installations in the sample.

Audit observation

I checked 39 metering installation certification records to confirm compliance.

Audit commentary

The commissioning date, validity period and expiry date are recorded correctly in the metering installation certification reports.

Omexom calculates the expiry date from the earliest component certification date rather than the commissioning date. The code allows Omexom to determine the date, therefore compliance is achieved.

Audit outcome

Compliant

5.29 Metering Installation Accuracy (Clause 21 of Schedule 10.7)

Code related audit information

An ATH must, before it certifies a metering installation, ensure that the metering installation does not exceed the relevant maximum permitted error after the application of any external compensation factors.

Audit observation

I checked 39 metering installation certification records to confirm compliance.

Audit commentary

The process documentation stipulates the maximum permitted errors for certification. I checked a sample of 39 certification records that confirmed this was being applied correctly.

Audit outcome

Compliant

5.30 Error Calculation (Clause 22 of Schedule 10.7)

Code related audit information

If a metering installation is certified using the comparative recertification or fully calibrated methods, the ATH must calculate and record the percentage of overall error of the metering installation. The ATH must calculate this using appropriate mathematical methods that include:
- all sources of measurement error including test instrument errors, reference standard variations when used in conditions that deviate from those in the calibration report, variations in repeated observations, the instrument resolution or discrimination threshold and any assumptions incorporated in the measurement method and procedure:
- the error calculation must include the uncertainty in the measurement at a 95% level of confidence using JCGM 100:2008,
- the error and its calculation must be recorded in the certification report.
The ATH must not certify the metering installation if the uncertainty is greater than the maximum permitted site uncertainty or the combined error that includes the measured error and the uncertainty, is greater than the maximum permitted installation error.

Audit observation

I checked 39 metering installation certification records and discussed the process for error calculation.

Audit commentary

Omexom uses the fully calibrated method for all certifications. The MSL calculator is used, and all sources of uncertainty are considered, including temperature. Omexom uses a "worst case" load profile covering all possible load points as part of their calculations.

For all 39 certification records checked the sum of the measured error and the uncertainty of the metering installation was less than the maximum permitted error from table 1 of schedule 10.1. The recorded metering installation uncertainty was less than the maximum permitted site uncertainty for 34 of the metering installations checked. There were five category 5 metering installations where the uncertainty recorded in the certification records was greater than the maximum permitted in table 1 of schedule 10.1; details of these five are as follows:

Metering Installation	Date of certification	Recorded Error	Recorded Uncertainty	Maximum error from Table 1	Maximum uncertainty from Table 1
MPE-M-CB222	24 August 2023	0.52	0.22	0.75	0.2
TKU-M-CB1062	12 December 2023	0.52	0.21	0.75	0.2
WEL-M-VT1042	27 October 2023	0.40	0.21	0.75	0.2
WKO-M-T1-CB2162	6 September 2023	0.39	0.21	0.75	0.2
WRK-M-CT2002	24 February 2021	0.04	0.21	0.75	0.2

The recorded uncertainty exceeds the maximum permitted by 0.02% for one metering installation and 0.01% for four metering installations. In Omexom's most recent IANZ 17025 audit it was recommended that reported error and uncertainty figures are reported to the same level of significance at one decimal place. If this recommendation were adopted and rounding to one decimal place applied, all five of the examples above would have recorded uncertainties of 0.2% and comply with table 1. I have recorded non-compliance as the recorded uncertainty figures exceed the maximum permitted in table 1. I have determined that the impact is low considering that adoption of the IANZ recommendation would result in the recorded uncertainty meeting the requirements of table 1, and the magnitude of the total error and uncertainty was within the prescribed limits in all five cases.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.30 With: Clause 22 of Schedule 10.7 From: 24-Feb-21 To: 17-Jan-24	Five Category 5 metering installations where the uncertainty recorded in the certification records was greater than the maximum permitted in table 1 of schedule 10.1. Potential impact: Low Actual impact: None Audit history: None Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	I have rated the controls as strong as prior to completion of the audit Omexom had updated its processes for reporting uncertainties and reissued all certification reports that had previously been issued with uncertainty values higher than 0.2%. There is no impact on settlement or other participants therefore the audit risk rating is low.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
The Omexom ATH has updated the Certification Report Template to report the expanded uncertainty to the same number of significant figures as per the required values in Table 1 of Schedule 10.1. The Omexom ATH always assesses total site error and uncertainty against +/-0.75% limit for category 5 installations and all the above certifications have passed that condition. This approach is in line with IANZ requirements. All Certs, with uncertainty values higher than 0.2%, have been re-issued, with the values rounded to one decimal place, rendering them compliant with Table 1 of Schedule 10.1.		30/01/24	Cleared
Preventative actions taken to ensure no further issues will occur		**Completion date**	
The ATH has added the following statement in to the Certification Report Template "Reported site uncertainty has been rounded to the same number of significant figures as the stated maximum site uncertainty for category 5 installation."		30/01/24	

5.31 Compensation Factors (Clause 24(1)(b) of Schedule 10.7)

Code related audit information

Before it certifies a metering installation that requires a compensation factor to adjust raw meter data, the ATH must:
- advise the MEP of the compensation factor
- ensure that the compensation factor that will be applied to raw meter data external to the metering installation is applied as follows:
a) for ratio compensation, on a category 1 metering installation or higher category of metering installation; or
b) for error compensation, on a metering installation that quantifies electricity conveyed through a point of connection to the grid; or
c) for loss compensation, only on a category 3 or higher metering installation.

Audit observation

I checked 39 metering installation certification records, and process documentation.

Audit commentary

Omexom has a comprehensive documented process for the management of compensation factors. Compensation factors are calculated and recorded in the design reports for each metering installation.

Loss factors are programmed into the meter and are confirmed as part of the meter configuration checks on-site.

Audit outcome

Compliant

5.32 Record Metering Installation Compensation Factor (Clause 24(2) Of Schedule 10.7)

Code related audit information

If a compensation factor is applied to a metering installation, the ATH must record in the certification report, the methodology, assumptions, measurements, calculation and details of each compensation factor that is included within the internal configuration of the metering installation and each compensation factor that must be applied to the raw meter data.

Audit observation

I checked 39 metering installation certification records, and process documentation.

Audit commentary

Omexom has a comprehensive documented process for the management of compensation factors. Compensation factors are calculated and recorded in the design reports for each metering installation. Loss factors are programmed into the meter and are confirmed as part of the meter configuration checks on-site.

Audit outcome

Compliant

5.33 Installation of Metering Components (Clause 25 of Schedule 10.7)

Code related audit information

Before it certifies a metering installation, the ATH must ensure that the installation of the metering components was carried out by an ATH. However, a suitably qualified person such as a switchboard manufacturer may install the measuring transformers and any required associated burden, the test facilities, potential fuses and switchboard wiring.
Before it certifies a metering installation, the ATH must ensure that each metering component is installed in accordance with the installation design report.

Audit observation

I checked process documentation and conducted a walk-through of the process.

Audit commentary

Omexom conducts appropriate tests and checks to ensure components are installed in accordance with the design report.

Audit outcome

Compliant

5.34 Determine Metering Installation Certification Expiry Date (Clause 27(1) & (2) Of Schedule 10.7)

Code related audit information

The ATH needs to determine the meter certification expiry date for each meter in a metering installation. The meter certification expiry date must be the earliest end date of the following periods, calculated from the date of commissioning of the metering installation:
a) the maximum metering installation certification validity period for the relevant category of metering installation; or
b) the maximum meter certification validity period set out in Table 2 of Schedule 10.1 for the relevant class of meter for the metering installation; or
c) the certification period specified in the meter certification report.

Audit observation

I checked 39 certification records to confirm compliance.

Audit commentary

All meter and metering installation certification expiry dates were correct.

Omexom calculates the expiry date from the earliest component certification date rather than the commissioning date, which the code allows.

Audit outcome

Compliant

5.35 Meter Certification Shelf Life (Clause 27(4) Of Schedule 10.7)

Code related audit information

If a meter is not installed in a metering installation within 24 months of the date of the meter's certification report, the meter must be recertified before it is installed.

Audit observation

I checked 39 certification records to confirm compliance.

Audit commentary

Omexom understands the requirements of this clause and ensures that all meters are certified less than 24 months prior to the time of installation.

Audit outcome

Compliant

5.36 Measuring Transformers must be Certified (Clause 28(2) Of Schedule 10.7)

Code related audit information

All measuring transformers must be certified before they can be used in a metering installation. If a measuring transformer has previously been used in another metering installation, the ATH must ensure that the measuring transformer has been recalibrated since it was removed from the previous metering installation. This must be undertaken either by an approved calibration laboratory or an ATH.

Audit observation

I checked 39 certification records to confirm compliance.

Audit commentary

All of the installations had certified measuring transformers. Omexom has a clear understanding of this requirement.

Audit outcome

Compliant

5.37 Measuring Transformers used in a Certified Metering Installation (Clause 28(4) Of Schedule 10.7)

Code related audit information

To certify any metering installation incorporating measuring transformers, the ATH must ensure that:

- the installation has certified measuring transformers,

- the installation has a test facility which has provision for isolation, installed as physically close to the meter as practical in the circumstances,

- the test facility is fitted with a transparent cover,

- the installation has securely mounted measuring transformers which are, if practicable, in a sealed enclosure,

- the maximum permitted error is calculated in accordance with clause 22 for the fully calibrated certification method or the comparative recertification method,

- any voltage supplies from a voltage transformer to a meter or that other equipment in the metering installation is protected by appropriately rated fuses or circuit breakers dedicated to the supply. All fuses and circuit breakers must be suitably sealed or located in sealed enclosures,

- the measuring transformer's secondary circuit is earthed and that it is earthed at no more than one point,

- the total in-service burden (magnitude and phase angle, where appropriate), complies with clause 31.

Audit observation

I checked 39 certification records, and process documentation to confirm compliance.

Audit commentary

Omexom has process documentation to ensure compliance with all of the points above. I checked the records for 39 metering installations and found that measuring transformer installation and sealing practices were all compliant.

Non-compliance is recorded in **sections 5.67** and 5**.68** as Omexom has not been determining and recording the burden range when measuring transformers are certified. I have recorded compliance in this section as the in-service burden of measuring transformers calibrated at in-service burden is within the range for the transformer.

Audit outcome

Compliant

5.38 Measuring Transformer Certification Expiry Date (Clause 29 of Schedule 10.7)

Code related audit information

The ATH needs to determine the measuring transformer certification expiry date for each measuring transformer in a metering installation. The measuring transformer certification expiry must be within the validity period specified in the measuring transformer certification report.

Audit observation

I checked 39 certification records to confirm compliance.

Audit commentary

The metering installation certification report contains a field for measuring transformer expiry date and a check of 39 records confirmed this was being calculated and used correctly.

Audit outcome

Compliant

5.39 Other Equipment Connected to Measuring Transformers (Clause 30 of Schedule 10.7)

Code related audit information

If the ATH certifies a metering installation incorporating a measuring transformer used by another metering installation, it must ensure that where voltage transformers are connected to more than one meter:
- the meters are included in the metering installation being certified,
- appropriate fuses or circuit breakers are provided to protect the metering circuit from short circuits or overloads affecting the other meter.
While it is desirable that only metering equipment is connected to measuring transformers in a metering installation if, in some circumstances, the MEP connects other equipment to measuring transformers, the ATH must ensure that:
- the accuracy of the metering installation remains within the maximum permitted error for the relevant metering installation category,
- the metering installation certification report confirms that the accuracy of the metering installation remains within the maximum permitted error for the relevant metering installation,
- any wiring between the equipment and any part of the metering installation is continuous,
- the equipment is labelled appropriately, including with any de-energisation restrictions,
- the connection details of the other equipment are recorded in the metering installation design report,
- there are appropriate fuses or circuit breakers provided to protect the voltage transformer and metering circuit from short circuits or overloads affecting the other equipment.

Audit observation

I checked whether the situation arises where other equipment is connected to measuring transformers.

Audit commentary

Some installations certified by Omexom have other equipment connected to the same VT. The design report and certification records include all relevant details and calculations in relation to non-metering equipment connected. The additional equipment normally has its own set of fuses.

Audit outcome

Compliant

5.40 Burden & Compensation (Clause 31 of Schedule 10.7)

Code related audit information

An ATH may certify a metering installation for a POC to the grid that includes error compensation factors as an alternative to the use of burden resistors only if the ATH is satisfied the error compensation factors will provide a more accurate result than the use of burden resistors.

An ATH may change the burden on a voltage transformer, without obtaining the approval of the MEP, if the ATH confirms in the certification report that the difference between the new burden and the burden at the time of the most recent metering installation certification is:

a) less than or equal to 1/30th of the VA rating of the voltage transformer, if the voltage transformer is rated at less than 30 VA; or

b) no greater than 1 VA, if the voltage transformer is rated at equal to or greater than 30 VA.

Before it certifies a metering installation incorporating a measuring transformer:

- *ensure that the in-service burden does not exceed the upper limit of the range specified for the measuring transformer, if specified in the design report for the metering installation,*
- *ensure that the in-service burden on the measuring transformer is within the range specified in the certification report by installing burdening resistors, if necessary,*
- *confirm that a class A ATH has confirmed by calibration that the accuracy of the measuring transformer will not be adversely affect by the in-service burden being less than the lowest burden test point specified in the standard, if the primary voltage of the measuring transformer is greater than 1kV,*
- *confirm that the measuring transformer's manufacturer has confirmed that the accuracy of the measuring transformer will not be adversely affected by the in-service burden being less than the lowest burden test point specified in the standard.*

Audit observation

I checked processes and the records for 39 metering installations to confirm compliance.

Audit commentary

The Omexom ATH uses the fully calibrated certification method for all certifications. Any changes in VT burden are notified to Omexom and result in recertification of the metering installation. All measuring transformers are calibrated and certified at the in-service burden. Non-compliance is recorded in **section 5.67** as Omexom has not been recording the burden range when measuring transformers are certified. I have recorded compliance in this section as the in-service burden of measuring transformers calibrated at in-service burden is within the range for the transformer.

Audit outcome

Compliant

5.41 Alternative Certification (Clause 32(1) of Schedule 10.7)

Code related audit information

If the ATH cannot comply with the requirements for certifying a measuring transformer solely due to the inability to obtain physical access to test the measuring transformers, it can certify the metering installation for a period not exceeding 24 months only if:
- the measuring transformer has not previously been certified due to failure to obtain access

- the ATH is satisfied that the metering installation will comply with the applicable accuracy requirements,
- the ATH has advised the MEP that the metering installation has been certified by this method,
- the MEP has advised the registry of the certification.

Audit observation

I checked and examined one example to confirm compliance of the process.

Audit commentary

The process and records are compliant, the example checked was certified using the alternative certification method due to the inability to access the measuring transformers due to the effects of damage caused by an adverse weather event.

Audit outcome

Compliant

5.42 Installations Incorporating Control Devices (Clause 33(2) of Schedule 10.7)

Code related audit information

Before the ATH can certify a metering installation incorporating a control device that must be certified, it must ensure:
- that the certification expiry date for each control device is the same as the metering installation certification expiry date and record that date in the installation certification report,
- that the control device complies with the applicable standards listed in table 5 of schedule 10.1
- the control device is fit for purpose ,
- if the metering installation contains a control device that has previously been used in another metering installation, that the control device is still fit for service.
- that the control device is:
a) likely to receive control signals,
b) correctly connected,
c) correctly programmed.

Audit observation

Omexom has not certified any metering installations incorporating control devices.

Audit commentary

Omexom has not certified any metering installations incorporating control devices.

Audit outcome

Compliant

5.43 Control Device Reliability (Clause 34(1) & (3) to (5) of Schedule 10.7)

Code related audit information

In order to ensure control device accuracy or the completeness of reconciliation information, the ATH must determine the likelihood of the control device not receiving control signals before it certifies a metering installation incorporating a control device.
If the ATH believes the likelihood of the control device not receiving control signals would affect the accuracy or completeness of the information for consumption reconciliation, the ATH may certify the

remainder of the metering components and the installation, excluding the control device. The ATH must advise the MEP within three business days of its decision. The MEP is then responsible for advising both the reconciliation participant for the POC for the metering installation and the control signal provider of the ATH's determination.

Audit observation

Omexom has not certified any metering installations incorporating control devices.

Audit commentary

Omexom has not certified any metering installations incorporating control devices.

Audit outcome

Compliant

5.44 Data Storage Devices (Clauses 36(2) of Schedule 10.7)

Code related audit information

If a data storage device has previously been used in another metering installation, the ATH must ensure that the data storage device has been recalibrated since it was removed from the previous metering installation by an approved calibration laboratory, an approved test laboratory, or an ATH.

Audit observation

I checked processes and the records for 39 metering installations to confirm compliance.

Audit commentary

All data storage devices are recertified prior to be reinstalled.

Audit outcome

Compliant

5.45 Data storage device requirements (Clause 38(1) and (2) of Schedule 10.7 and clause 5(1) of Schedule 10.8)

Code related audit information

An ATH must ensure that each data storage device in the metering installation:
- is installed so that on-site interrogation is possible without the need to interfere with seals,
- has a dedicated power supply unless the data storage device is integrated with another metering component,
- is compatible with each other metering component of the metering installation,
- is suitable for the electrical and environmental site conditions in which it is installed,
- has all of its outputs and inputs appropriately electrically isolated and rated for purpose,
- has no outputs that will interfere with the operation of the metering installation,
- records periods of data identifiable or deducible by both date and time on interrogation,
- has memory capacity and functionality that is suitable for the proposed functions of the data storage device specified in the design report for the metering installation,
- has availability of memory for a period that is suitable for the proposed functions as set out in the design report for the metering installation, and at least for a minimum continuous period of 15 days.
The data storage device must have an event log which records the following:
a) loss of power supply,

b) critical internal alarms,
c) meter phase failure if integral to the meter,
d) software configuration changes,
e) a record of time changes.

Audit observation

I checked the availability of type test reports, and processes for determining environmental suitability.

Audit commentary

The points above, apart from point "d" are documented in the type test reports, which is checked as part of the certification process for the data storage device. Omexom is ensuring data storage devices are certified and the maximum interrogation cycle is recorded.

Audit outcome

Compliant

5.46 Location of Metering Installation Certification Stickers (Clause 41(1) and 41(9) of Schedule 10.7)

Code related audit information

An ATH must confirm the metering installation certification by attaching a metering installation certification sticker as close as possible to the meter, while maintaining reasonable visibility of the certification sticker and the meter.

When attaching a metering installation certification sticker, the ATH must remove or obscure any invalid or expired certification stickers.

Audit observation

I checked the processes for application of stickers and photos included in the certification records for 39 metering installations to confirm compliance.

Audit commentary

In all cases, the certification stickers contained the appropriate detail and were correctly applied, and previous expired stickers were adequately obscured.

Audit outcome

Compliant

5.47 Alternate Location of Metering Installation Certification Sticker (Clause 41(4) Of Schedule 10.7)

Code related audit information

If attaching a certification sticker is not practicable, the ATH must devise and use an alternative means of documenting the information and keep any metering component certification sticker with the documented information.

Audit observation

I checked with Omexom whether this scenario had arisen.

Audit commentary

This scenario has not arisen and is unlikely to arise.

Audit outcome

Not applicable

5.48 Contents of Metering Installation Certification Sticker (Clause 41(2) Of Schedule 10.7)

Code related audit information

The metering installation certification sticker must show:
- the name of the ATH who certified the metering installation,
- the certification date of the installation,
- the metering installation category,
- the ICP,
- the certification number for the metering installation.

Audit observation

I checked the Omexom certification stickers, and the photos included in the certification records for 39 metering installations to confirm compliance.

Audit commentary

The certification stickers contain the above information. The examples checked contained the appropriate detail and were correctly applied. Omexom has recently updated its certification stickers to include the Omexom name, and the new stickers contain the required fields.

Audit outcome

Compliant

5.49 Combining certification stickers (Clause 41(5) – Clause 41(8) of Schedule 10.7)

Code related audit information

If an ATH certifies a metering component on the same day that the ATH certifies the metering installation, the ATH may combine the metering installation certification sticker with the metering component certification sticker.
If the certification sticker is combined, the ATH must:

- *ensure that the combined sticker shows all the information required by subclause (2) and clause 8(2) of Schedule 10.8,*
- *meet the requirements of subclauses (1), (3) and (4), as if the combined sticker were a metering installation certification sticker.*

The combined sticker is immediately invalid if:

- *the metering installation certification expiry date changes; or*
- *a metering component to which the combined certification sticker relates is removed from the metering installation.*

Audit observation

Omexom has not used a combined metering installation and component sticker.

Audit commentary

Omexom has not used a combined metering installation and component sticker.

Audit outcome

Compliant

5.50 Enclosures (Clause 42 of Schedule 10.7)

Code related audit information

An ATH must, before it certifies a metering installation, ensure that, if a metering component in the metering installation is housed in a separate enclosure from the meter enclosure, the enclosure is appropriate to the environment in which it is located and has a warning label attached stating that the enclosure houses a metering component.

Audit observation

I checked the process documentation in relation to this clause.

Audit commentary

Although this clause only refers to enclosures other than the metering enclosure, I have considered this clause to apply to metering enclosures as well.

Omexom applies stickers to all enclosures that contain metering equipment which is compliant with this clause.

Audit outcome

Compliant

5.51 Metering Component Certification (Clause 43(1) of Schedule 10.7)

Code related audit information

Before certifying an installation, the ATH must ensure that each component has been certified by an ATH and has been stored appropriately since component certification.

Audit observation

I checked the processes for storage of components, and the records for 39 metering installations to confirm compliance.

Audit commentary

Omexom conducts calibration of components in their laboratory, and they have appropriate arrangements for storage and transportation. Omexom is ensuring components are certified as required by the code.

Audit outcome

Compliant

5.52 Sealing Requirements (Clause 47(2) (3) (4) and (5) Of Schedule 10.7)

Code related audit information

Before an ATH certifies a metering installation or leaves it unattended, the ATH must ensure that each metering component that could reasonably be expected to affect the accuracy or reliability of the metering installation is sealed.
The metering components which must be sealed include:
- each part and connection of a data storage device in, or attached to, the metering installation except for a port for on-site reading that is not capable of carrying out any other function,
- the main switch cover, if the main switch:

a) is on the supply side of the metering installation,
b) has provision for sealing.

Audit observation

I checked process documentation, design reports and photos included in the certification records for 39 metering installations to confirm compliance.

Audit commentary

The process documentation, design reports and certification records confirm compliance.

Audit outcome

Compliant

5.53 Seals for Metering Component Enclosures (Clause 47(6) Of Schedule 10.7)

Code related audit information

When applying a seal to a metering component in an enclosure, the ATH must attach a warning label in a prominent position inside the enclosure.

Audit observation

I checked process documentation and photos included in the certification records for 39 metering installations to confirm compliance.

Audit commentary

Compliance is confirmed. The warning label is installed in a prominent position.

Audit outcome

Compliant

5.54 Requirements for Sealing System (Clause 47(7) Of Schedule 10.7)

Code related audit information

An ATH must use a sealing system that enables identification of:
- the ATH who affixed the seal,
- the person (or the sealing tool) who applied the seal,
- when the seal was applied.

Audit observation

I checked process documentation and records for 39 installations.

Audit commentary

The certification records contain the details of all seals applied as required by this clause.

Audit outcome

Compliant

5.55 Removal or Breakage of Seals (Clause 48(6) of Schedule 10.7)

Code related audit information

When the ATH investigates an unauthorised removal or breakage, it must assess the accuracy and continued integrity of the metering installation. If the ATH considers the accuracy and continued integrity is unaffected, it must replace the removed or broken seals.
If the accuracy and continued integrity is affected, the ATH must replace the removed or broken seal and advise the MEP that the metering installation is potentially inaccurate, defective, or not fit for purpose.

Audit observation

I checked the process documentation to confirm compliance.

Audit commentary

Omexom has appropriate instructions in relation to this requirement and there is the ability to record this information in the certification records for the installation. There were no recent examples.

Audit outcome

Compliant

5.56 Wiring (Clause 6 of Schedule 10.8)

Code related audit information

An ATH must, before it certifies a metering installation, ensure that all wiring in the metering installation is suitable for the environment in which the metering installation is located, fit for purpose, securely fastened, and compliant with all applicable requirements and enactments.
The ATH must ensure that the wiring between metering components in the metering installation:
- is run as directly as practicable,
- is appropriately sized and protected,
- does not, to the extent practicable, include intermediate joints for any measuring transformer circuits
- includes conductors that are clearly and permanently identified, by the use of any one or more of the following:
a) colour coding,
b) marker ferrules,
c) conductor numbering,
If it is not practicable to exclude intermediate joints for any measuring transformer circuits, the ATH must ensure that the intermediate joints are sealed or in a sealed enclosure.

Audit observation

I checked process documentation, design reports, and the photos included in the certification records for 39 metering installations to confirm compliance.

Audit commentary

The process documentation, design reports and the photos confirm compliance. The design reports include wiring diagrams which include conductor numbering which is checked and confirmed during certification.

Audit outcome

Compliant

5.57 Fuses and Circuit Breakers (Clause 7 of Schedule 10.8)

Code related audit information

An ATH must, before it certifies a metering installation, ensure that all fuses and circuit breakers that are part of the metering installation are appropriately rated for the electrical duty and discrimination required, clearly labelled and sealed or located in sealed enclosures.

Audit observation

I checked process documentation to confirm compliance.

Audit commentary

The documentation demonstrated compliance with this requirement. All fuses and circuit breakers are specified in the design report and checked and confirmed during certification.

Audit outcome

Compliant

5.58 Calibration of Metering Components Where Relevant (Clause 7(1) Of Schedule 10.4)

Code related audit information

Before the ATH certifies a metering installation or metering component, it must ensure that the metering components have been calibrated by an approved calibration laboratory or an ATH with appropriate approval under Schedule 10.3.

Audit observation

I checked process documentation and 39 certification records to confirm compliance.

Audit commentary

All certified components have been calibrated appropriately.

Audit outcome

Compliant

5.59 Requirement for Calibration of Metering Components (Clause 7(2) Of Schedule 10.4)

Code related audit information

Before the ATH certifies a metering component it must ensure that the component is calibrated or adjusted under the physical and electrical conditions specified in Table 5 of schedule 10.1 and the conditions permit the calculation of uncertainties at the reference conditions.

Audit observation

I checked process documentation, and 39 certification reports to confirm compliance.

Audit commentary

All certified components have been calibrated appropriately.

Audit outcome

Compliant

5.60 Metering Component Calibration Method (Clause 7(3) Of Schedule 10.4)

Code related audit information

A class B ATH must follow the relevant requirements of ISO17025 for calibration of components and only use methodologies that have been verified in their most recent audit.

Audit observation

Omexom is not a Class B ATH.

Audit commentary

Omexom is not a Class B ATH.

Audit outcome

Not applicable

5.61 Metering Component Calibration Test Points (Clause 7(4) Of Schedule 10.4)

Code related audit information

If the ATH calibrates a component, it must ensure that the test points that it uses are either:
- no less than the test points in table 5 of schedule 10.1 or
- sufficient to calculate the metering installation error as defined in clause 22 of Schedule 10.7.

Audit observation

I checked the test points used by Omexom.

Audit commentary

Omexom uses the test points stipulated in the relevant standards. There are additional test points specified by Transpower of 90% and 110% for VTs and 10% and 50% for CTs.

Audit outcome

Compliant

5.62 Determine Metering Component Error and Record (Clause 7(5) Of Schedule 10.4)

Code related audit information

An ATH must, when calibrating a metering component:
- if necessary, adjust and document the error compensation,
- ensure that any adjustment carried out is appropriate to achieve an error as close as practicable to zero,
- ensure that the uncertainty of measurement during the calibration of the metering component does not exceed one third of the maximum permitted error in the relevant standard listed in table 5 of schedule 10.1.
If the metering component is intended for a metering installation which will be certified using the selected component certification method, the ATH must ensure that the ATH records the errors of a current transformer from 5 % to 120 % of rated primary current.

Audit observation

I checked the Omexom IANZ report to confirm compliance.

Audit commentary

The IANZ report confirms compliance with these points.

Audit outcome

Compliant

5.63 Class B ATH Calibrating Metering Components (Clause 2(3) Of Schedule 10.3)

Code related audit information

If a class B ATH wishes to calibrate components (such as class 0.5 meters, class 1 meters, class 2 meters, class 0.5 current transformers, and class 1.0 current transformers) this must be carried out under the relevant provisions and methodologies of ISO 17025. The final audit report must include a list of all relevant requirements of ISO 17025 for calibrating these metering components and all relevant methodologies audited.

Audit observation

Omexom is not a Class B ATH.

Audit commentary

Omexom is not a Class B ATH.

Audit outcome

Not applicable

5.64 Meter Certification (Clause 1 of Schedule 10.8)

Code related audit information

All meters must be certified before they can be used in a metering installation. The ATH must ensure that the meters in a metering installation have been type tested by an approved test laboratory, that the results for the meter are appropriate for that meter model and version and have a calibration report.

Audit observation

I checked the certification records for 39 metering installations and the availability of type test reports to confirm compliance.

Audit commentary

All meters are certified and Omexom has a directory of type test reports which contains reports for the meters certified.

Audit outcome

Compliant

5.65 Meter Requirements When Meter Is Relocated (Clause 26(2) Of Schedule 10.7 and Clause 43(2) Of Schedule 10.7)

Code related audit information

If a meter has previously been used in another metering installation, the ATH must ensure that the meter has been recalibrated since it was removed from the previous metering installation by an approved calibration laboratory or an ATH unless it is less than 12 months since the meter was commissioned in the previous installation.

Audit observation

I checked the process documentation in relation to this clause.

Audit commentary

Omexom ensures that all meters are recalibrated after being removed from a metering installation.

Audit outcome

Compliant

5.66 Measuring Transformer Error Testing (Clause 2(1)(A) & (B) Of Schedule 10.8)

Code related audit information

Before certifying a measuring transformer, an ATH must test the measuring transformer's errors at a range of primary values at their rated burdens. If the measuring transformer is a multi-tap current transformer, an ATH must carry out the calibration tests and only certify the transformer for the ratios that have been calibrated.

Audit observation

It is rare for Omexom to certify multi tap CTs, but the process documentation is compliant.

Audit commentary

It is rare for Omexom to certify multi tap CTs, but the process documentation is compliant.

Audit outcome

Compliant

5.67 Measuring Transformer Certification (Clause 3 of Schedule 10.8)

Code related audit information

Before it certifies a measuring transformer, the ATH must ensure that:

- the measuring transformer has a current calibration report issued by an approved calibration laboratory or an ATH approved to carry out calibration,

- the measuring transformer calibration report:

- confirms that the measuring transformer complies with the standards listed in Table 5 of Schedule 10.1,

- records any tests the ATH has performed to confirm compliance,

- confirms that the measuring transformer has passed the tests,

- records any recommendations made by the ATH on error compensation,

- includes any manufacturer's calibration test reports.

The ATH is required to produce a measuring transformer certification report that includes:

- the date on which it certified the measuring transformer,

- the certification validity period for the measuring transformer, which must be no more than 120 months,

- whether the certification was based on batch test certificates,

- if the certification was based on batch test certificates, confirmation that the manufacturer's batch testing facility is, in the ATH's opinion, of an acceptable standard,

- the range that the in-service burden must be within,

The ATH must provide confirmation that the ATH has inspected the manufacturer's test certificates, and carried out any additional tests it considers necessary, to satisfy itself that the measuring transformer meets the accuracy requirements.

Audit observation

I checked the certification records for 39 metering installations to confirm compliance.

Audit commentary

The process documentation and records are compliant with all of the above requirements except the recording of burden range.

Changes to the code implemented in February 2021 require the ATH to determine and record the range that the in-service burden must be within when certifying a measuring transformer. Omexom calibrates and certifies all measuring transformers at in-service burden but has not been recording the burden range in the certification records. Non-compliance is recorded in this section for not recording the burden range in all 28 of the 39 certifications checked where measuring transformers were calibrated and certified at the time of metering installation certification. Whilst the burden range is not recorded, I have determined that there is no impact on accuracy of the metering installations as the Omexom processes have ensured that the measuring transformers are operating correctly at the in-service burden.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 5.67 With: Clause 3 of Schedule 10.8 From: 01-Feb-21 To: 17-Jan-24	Burden range not recorded when measuring transformers are certified. Potential impact: Low Actual impact: None Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	**Rationale for audit risk rating**		
Low	I have rated the controls as strong as prior to completion of the audit Omexom had updated its processes to include determining and recording of the burden range when certifying measuring transformers. There is no impact on settlement or other participants therefore the audit risk rating is low.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**

The ATH has added a "Recommended VT/CT Burden Range" for each phase of measuring transformer into the Certification Report Template. This range is the: - In-Service Burden Value, measured at the last calibration, to the Rated Burden Value for the relevant accuracy class and ratio.	26/01/24	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
The ATH has updated the Certification Template to include the measurement transformers recommended burden range.	26/01//24	

5.68 Measuring Transformers in service burden range (Clause 2(1)(E) Of Schedule 10.8)

Code related audit information

Before certifying a measuring transformer, the ATH must determine the range that the in-service burden must be within to ensure the measuring transformer remains accurate, by using one or more of the following:

- *the measuring transformer's nameplate rating,*
- *the calibration report for the measuring transformer,*
- *the manufacturer's documentation for the measuring transformer,*
- *the standard set out in Table 5 of Schedule 10.1 the measuring transformer was manufactured to.*

Audit observation

I checked processes and the records for 39 metering installations to confirm compliance.

Audit commentary

The Omexom ATH uses the fully calibrated certification method for all certifications. All measuring transformers are calibrated and certified at the in-service burden.

Changes to the code implemented in February 2021 require the ATH to determine and record the range that the in-service burden must be within when certifying a measuring transformer. Omexom calibrates and certifies all measuring transformers at in-service burden but has not been recording the burden range in the certification records. Non-compliance is recorded in this section for not recording the burden range in all 28 of the 39 certifications checked where measuring transformers were calibrated and certified at the time of metering installation certification. Whilst the burden range is not recorded, I have determined that there is no impact on accuracy of the metering installations as the Omexom processes have ensured that the measuring transformers are operating correctly at the in-service burden.

Audit outcome

Non-compliant

Non-compliance	Description

Audit Ref: 5.68 With: Clause 2(1)(E) Of Schedule 10.8 From: 01-Feb-21 To: 17-Jan-24	Burden range not recorded when measuring transformers are certified. Potential impact: Low Actual impact: None Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls as strong as prior to completion of the audit Omexom had updated its processes to include determining and recording of the burden range when certifying measuring transformers. There is no impact on settlement or other participants therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
The ATH has added a "Recommended VT/CT Burden Range" for each phase of measuring transformer into the Certification Report Template. This range is: - The In-Service Burden Value, measured at the last calibration, to the Rated Burden Value for the relevant accuracy class and ratio.	26/01/24	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
The ATH has updated the Certification Template to include the measurement transformers recommended burden range.	26/01/24	

5.69 Measuring Transformer - Epoxy Insulated (Clause 2(2) Of Schedule 10.8)

Code related audit information

Before it certifies an epoxy insulated current transformer, the ATH must ensure that the certification tests allow for, and the metering installation certification report shows, the current transformer's age, temperature, and batch.

Audit observation

I checked the policy regarding epoxy measuring transformers.

Audit commentary

Epoxy insulated transformers are not normally certified, but the Omexom processes would ensure the requirements of this clause would be met if encountered.

Audit outcome

Compliant

5.70 Control Device Certification (Clause 4 of Schedule 10.8)

Code related audit information

Before it certifies a new control device, the ATH must produce a certification report that:
- confirms that the control device complies with the applicable standards listed in Table 5 of Schedule 10.1,
- includes the details and results of any test that the ATH has carried out to confirm compliance under paragraph (a),
- confirms that the control device has passed such tests.
Before it certifies an existing installed control device, the ATH must produce a certification report that confirms:
- that the control device is fit for purpose,
- the control device certification validity period that the ATH considers appropriate, which must be no more than 180 months.

Audit observation

Omexom does not deal with any control devices.

Audit commentary

Omexom does not deal with any control devices.

Audit outcome

Not applicable

5.71 Data Storage Devices (Clause 36(2) Of Schedule 10.7)

Code related audit information

If a data storage device has previously been used in another metering installation, the ATH must ensure that the data storage device has been recalibrated since it was removed from the previous metering installation by an approved calibration laboratory, an approved test laboratory, or an ATH.

Audit observation

I checked the certification records for 39 metering installations and the process documentation to confirm compliance.

Audit commentary

The process documentation and certification records confirmed that data storage devices are calibrated and certified prior to installation.

Audit outcome

Compliant

5.72 On-site Calibration and Certification (Clause 9(1) of Schedule 10.8)

Code related audit information

An ATH may only calibrate a metering component on site in the metering component's normal environment by measuring the influence of all on-site variables and including their estimated effects in the uncertainty calculation. An ATH must ensure that:
- the effects of any departures from the reference conditions can accurately and reliably be calculated,
- the metering installation, in which the metering component is incorporated, is within the applicable accuracy tolerances set out in table 1 of schedule 10.1 after taking into account all known influences including temperature and temperature co-efficient measurements.

Audit observation

I checked the processes for on-site calibration of metering components.

Audit commentary

Meter and data storage device calibration occurs in the laboratory. CTs and VTs are calibrated on-site, and the influence of on-site variables are accounted for in the error and uncertainty calculations. This was also confirmed by the IANZ audit report.

Audit outcome

Compliant

5.73 On Site Metering Component Calibration (Clause 9(2) Of Schedule 10.8)

Code related audit information

If the ATH calibrates a metering component on site using manual methods, computers, or automated equipment for the capture, processing, manipulation, recording, reporting, storage, or retrieval of calibration data, it must ensure that its computer software:
- is documented in the ATH's procedures,
- can manipulate the variables that affect the performance of the metering component in a manner that will produce results that would correctly indicate the level of compliance of the metering component with this code.

Audit observation

I checked the processes for on-site calibration of metering components.

Audit commentary

Meter and data storage device calibration occurs in the laboratory. CTs and VTs are calibrated on-site, and the processes meet the requirements of this clause. This was also confirmed by the IANZ audit report.

Audit outcome

Compliant

5.74 On site metering component calibration records (Clause 9(3) of Schedule 10.8)

Code related audit information

An ATH that certifies a metering component on site must include confirmation in the metering component certification report that:
- it has calculated the uncertainty of measurement taking into account all environmental factors for both the metering component being calibrated and the working standards
- the calculation of the uncertainty comprises all uncertainties in the chain of calibration
- the ATH has used a calibration procedure to calibrate the metering component that was included in the ATH's most recent audit and is appropriate for on-site calibration.

Audit observation

I checked the processes for on-site calibration of metering components.

Audit commentary

Meter and data storage device calibration occurs in the laboratory. CTs and VTs are calibrated on-site, and the influence of on-site variables are accounted for in the error and uncertainty calculations. This was also confirmed by the IANZ audit report.

Audit outcome

Compliant

5.75 Data Storage Device Certification Expiry Date (Clause 37 of Schedule 10.7)

Code related audit information

Before certifying a meter installation which incorporates a data storage device, the ATH must determine the expiry date of the data storage device. The ATH must record the expiry date in the certification report for the metering installation and the certification report for the data storage device.

Audit observation

I checked the records for 39 metering installations to confirm compliance.

Audit commentary

Omexom is correctly applying certification in accordance with this clause.

Audit outcome

Compliant

5.76 All Functions and Activities must be completed (Clause 10.42(2))

Code related audit information

Where Part 10 requires the ATH to complete a function or activity before a metering installation is certified, the ATH must complete that function or activity as part of the process for certifying the metering installation.

Audit observation

I checked the records for 39 metering installations to confirm compliance.

Audit commentary

There was no evidence of incomplete functions.

Audit outcome

Compliant

6. INSPECTION OF METERING INSTALLATIONS

6.1 General Inspection Requirements (Clause 44 (1) (a) to (e) of Schedule 10.7)

Code related audit information

When carrying out an inspection of a metering installation, the ATH must:
- check and confirm that the data storage device in the metering installation operates as required,
- check and confirm that the expected remaining lifetime of each battery in the metering installation will be reasonably likely to meet or exceed the metering installation certification expiry date,
- ensure that no modifications have been made to the metering installation without the change having been documented and certification requirements satisfied,
- visually inspect all seals, enclosures, metering components, and wiring of the metering installation for evidence of damage, deterioration, or tampering,
- ensure that the metering installation and its metering components carry appropriate certification stickers.

Audit observation

I checked ten recent inspection records to confirm compliance.

Audit commentary

The records checked confirmed that Omexom completes all of the checks required by these clauses.

Audit outcome

Compliant

6.2 Raw Meter Data Test (Clause 44(1)(F) Of Schedule 10.7)

Code related audit information

When carrying out an inspection of a category 1 metering installation, the ATH must also check and confirm there is no difference between the volume of electricity recorded by the master accumulation register of a data storage device, and the sum of the meter registers.

Audit observation

Omexom does not conduct any inspections of category 1 metering installations.

Audit commentary

Omexom does not conduct any inspections of category 1 metering installations.

Audit outcome

Not applicable

6.3 Prepare Inspection Report (Clause 44(2) Of Schedule 10.7)

Code related audit information

An ATH must prepare an inspection report for each inspection of a metering installation that it carries out, which includes the following:
- details of the checks carried out, the results, and the installation certification expiry date,
- the serial numbers of all components in the metering installation,
- any non-compliances and the action taken to remedy the non-compliance,
- the name of the inspector and the date on the inspection.

Audit observation

I checked ten recent inspection records to confirm compliance.

Audit commentary

The records checked contained all of the relevant information above.

Audit outcome

Compliant

6.4 Provide Inspection Report to MEP (Clause 44(3) Of Schedule 10.7)

Code related audit information

The ATH must, within ten business days of carrying out the inspection, provide the inspection report to the MEP.

Audit observation

I checked the timeframes for sending inspection reports to MEPs for ten examples.

Audit commentary

Omexom acts as an agent to the Transpower MEP for the storage of records and does not send them inspection reports. All of the inspections conducted by Omexom were for the Transpower MEP, so the report is deemed to be provided once the inspection is completed.

Audit outcome

Compliant

6.5 Inspections for Category 2 & Above Installations (Clause 46(2) of Schedule 10.7)

Code related audit information

When carrying out an inspection of a category 2 or higher metering installation, the ATH must also conduct the following additional checks:
- a visual inspection of each metering component in the metering installation for damage, tampering, or defect,
- if the current transformer can be safely accessed, check the position of the current transformer tap to ensure it is still appropriate for the expected maximum current for the metering installation,
- check for the presence of appropriate voltages at the metering installation,
- check the voltage circuit alarms and fault indicators.

Audit observation

I checked the content of ten inspection reports to confirm compliance.

Audit commentary

The records checked confirmed that Omexom completes all of the checks required by this clause.

Audit outcome

Compliant

7. PROCESS FOR HANDLING FAULTY METERING INSTALLATIONS

7.1 Investigation of Faulty Metering Installations (Clause 10.43(3) of Part 10)

Code related audit information

As a participant, the ATH must inform the MEP if it believes a metering installation is faulty, inaccurate, defective, or not fit for purpose.

Audit observation

I checked the Omexom process documentation and checked if there were any examples to examine.

Audit commentary

The process documentation confirmed compliance. There were no examples of faulty metering installations during the audit period.

Audit outcome

Compliant

7.2 Testing of Faulty Metering Installations (Clause 10.44 of Part 10)

Code related audit information

When advised by an MEP that a metering installation is faulty, inaccurate, defective, or not fit for purpose, the ATH must test the metering installation as soon as practical and provide a statement of situation.

Audit observation

I checked the Omexom process documentation and checked if there were any examples to examine.

Audit commentary

The process documentation confirmed compliance. There were no examples of faulty metering installations during the audit period. Omexom provided a statement of situation for a faulty meter prior to the audit period which contained all the required information.

Audit outcome

Compliant

7.3 Statement of Situation (Clause 10.46(1) of Part 10)

Code related audit information

The ATH must include the following in the statement of situation:
- the details and results of the tests carried out,
- a conclusion, with reasons, as to whether or not the metering installation is faulty,
- an assessment of the risk to the completeness and accuracy of the raw meter data,
- the remedial action proposed or undertaken,
- any correction factors to apply to raw meter data to ensure that the volume information is accurate,
- the period over which the correction factor must be applied to the raw meter data.

Audit observation

I checked the Omexom process documentation and checked if there were any examples to examine.

Audit commentary

The process documentation confirmed compliance. There were no examples of faulty metering installations during the audit period. Omexom provided a statement of situation for a faulty meter prior to the audit period which contained all the required information.

Audit outcome

Compliant

7.4 ATH to keep records of modifications to correct defects (Clause 10.47 of Part 10)

Code related audit information

When taking action to remedy an inaccuracy or defect within a metering installation, the ATH must ensure that records of any modifications that are carried out to the metering installation are kept for each metering component of the metering installation in the metering records and in a manner reasonable in the circumstances to ensure that further investigation can be carried out.

Audit observation

I checked the Omexom process documentation and checked if there were any examples to examine.

Audit commentary

The process documentation confirmed compliance. There were no examples of faulty metering installations during the audit period. I confirmed that metering records are kept for all metering components and installations which meets the requirements of this clause.

Audit outcome

Compliant

8. Conclusions

During the audit period Omexom has expanded its operation after winning the national metering contract for all Transpower metering. All certification and inspection work conducted is for the Transpower MEP.

Compliance continues to be of a high standard and the audit identified four non-compliances. The non-compliances relate to:

- Omexom is using the measured accuracy of the meter in error calculations when using fully calibrated method as was also identified in the last audit, and I have repeated the previously raised issue for consideration by the Authority as the use of measured accuracy has been deemed to be compliant with ISO 17025 but conflicts with the requirements of clause 13(7) of schedule 10.7 the code - non-compliance is recorded in **section 5.24**,
- code changes introduced in February 2021 require an ATH to determine and record the in-service burden range of measuring transformers when they are certified - Omexom has not been meeting this requirement and non-compliance is recorded in **sections 5.67** and **5.68**, and
- five Category 5 metering installations where the uncertainty recorded in the certification records was greater than the maximum permitted in table 1 of schedule 10.1 - this is discussed in **section 5.30**.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The future risk rating table provides some guidance on this matter and recommends a next audit frequency of 24 months. I have considered this after reviewing Omexom's responses and recommend an audit period of 36 months as Omexom has updated its processes to resolve the three non-compliances related to reporting of uncertainty and burden ranges in certification reports. The non-compliance related to use of meter class accuracy is disputed and unable to be resolved until a response is received from the Authority in relation to the issue raised in this and previous audits.

9. Omexom Response

The Omexom ATH has responded to the non-compliances in the appropriate tables, related to Audit References 5.24, 5.30, 5.67 and 5.68.
The ATH notes that the non-compliance for 5.24, (which relates to the IEC17025 requirement to use the actual measured accuracies of the energy meters) has become a recurring theme. We are unable to reach a resolution to this issue, until the requested Code change or Clarification is considered.

The ATH notes that the non-compliance in Audit Reference 5.30 relates to several Certs with reported and calculated (component) uncertainties, which have used a much higher resolution and extra decimal place, than the value used in the table. When the calculations are re-run, with one decimal place, al values become "compliant". The affected Certs have been re-issued.

The ATH notes that the non-compliances in Audit References 5.67 and 5.68 both relate to a Code change that post dates the ATH's last Audit. The notification and significance, or relevance to Grid Exit Metering, of this change, was not noted, until this audit. Changes to the template, for all future Certs have been implemented, and now make a statement of "burden range", as required.