ELECTRICITY INDUSTRY PARTICIPATION CODE
METERING EQUIPMENT PROVIDER AUDIT REPORT

For

INTELLIHUB LIMITED
NZBN:9429047189027

Prepared by: Brett Piskulic – Veritek Limited

Date audit commenced: 11 February 2022

Date audit report completed: 12 May 2022

Audit report due date: 12-May-22

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EXECUTIVE SUMMARY

Intellihub Limited (Intellihub) is a Metering Equipment Provider (MEP) and is required to undergo an audit by 12th May 2022 in accordance with clause 16A.14.

This is the first audit since Intellihub acquired the Nova Energy MEP business on 1st June 2021. This audit encompasses ICPs under both the MTRX and BOPE MEP identifiers.

Fourteen non-compliances were identified.

Non-compliance continues to exist in relation to missing and inaccurate fields in certification records from ATHs. I have repeated three recommendations from the last to audits to improve controls in relation to the monitoring of ATH practices and records.

The other main areas of non-compliance related to following issues:

- late updating of registry information,
- inaccurate registry information,
- discrepancy reporting not run since 1st October 2021 for BOPE ICPs,
- expired and cancelled certification,
- time not monitored every 12 months for one ICP with time dependant registers,
- incorrect compensation factor recorded for one ICP, and
- missed inspection for two metering installations.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The table below provides some guidance on this matter and recommends an audit frequency of three months. After considering Intellihub's responses to the areas of non-compliance I recommend an audit frequency of nine months.

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Services access interface	2.1	10.9(2)	MTRX - Each services access interface not identified for 16 metering installations. BOPE - Each services access interface not identified for 29 metering installations.	Moderate	Low	2	Investigating
Provision of accurate information	2.5	11.2 and 10.6	All practicable steps not taken to ensure data is correct and that incorrect data is corrected as soon as practicable.	Moderate	Low	2	Investigating
Registry updates	3.2	2 of Schedule 11.4	355 registry updates later than 15 business days.	Moderate	Low	2	Investigating
Changes to registry records	4.10	3 of Schedule 11.4	Some records updated on the registry later than 10 business days.	Moderate	Low	2	Investigating
Accurate and complete records	5.1	4(1)(a) and (b) of Schedule 10.6	A high number of fields not accurate and complete in a sample of 130 Certification records.	Weak	Low	3	Investigating
Provision of registry information	6.2	7 (1), (2) and (3) of Schedule 11.4	Some registry records incomplete or incorrect.	Moderate	Low	2	Investigating
Error correction	6.3	6 of Schedule 11.4	MTRX - Discrepancies not resolved within five business days. BOPE – Discrepancy report not run since 1st October 2021.	Moderate	Low	2	Investigating
Certification cancellation	6.4	20 of Schedule 10.7	Certification not cancelled on the registry within 10 business days for:	Moderate	Medium	4	Investigating

			- six metering installations where low burden is present, and - one Category 3 ICP with missed inspection.				
Certification of metering installations	7.1	10.38 (a), clause 1 and clause 15 of Schedule 10.7	Certification expired or cancelled for 4,798 ICPs.	Moderate	Medium	4	Identified
Certification Tests	7.2	10.38(b)	Prevailing load test not conducted for eight Category 1 and one Category 2 metering installations.	Moderate	Low	2	Investigating
Timekeeping	7.10	23 of Schedule 10.7	One ICP with time dependant meter registers with time not monitored every 12 months.	Moderate	Low	2	Investigating
Compensation factors	7.14	24(3) of Schedule 10.7	Compensation factor incorrectly recorded as "1" on the registry for ICP 0001930005TG97E.	Moderate	Low	2	Investigating
Category 2 to 5 Inspections	8.2	46(1) of Schedule 10.7	One Category 2 and one Category 3 metering installation not inspected within the maximum inspection period.	Strong	Low	1	Identified
Time errors	10.7	8(4) of Schedule 10.6	15 examples of clock errors outside the allowable thresholds in the most recent daily reporting.	Strong	Low	1	Identified
					Future Risk Rating	**31**	
					Indicative Audit Frequency	**3 months**	

Future risk rating	1-2	3-6	7-9	10-19	20-24	25+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Recommendation	Remedial action
Accurate and complete records	5.1	Check metering installation certification reports to ensure compliance and improve controls to ensure certification records are complete and accurate.	Investigating
Accurate and complete records	5.1	Require Wells to change the layout of the certification report to include the more relevant items clearly on the front page.	Investigating
Certification Tests	7.2	Require ATHs to include details and results of all testing completed in the metering installation certification reports provided.	Identified

ISSUES

Subject	Section	Recommendation	Description
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code (Section 11)

Code reference

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 Electricity Authority website for any exemptions in place.

Audit commentary

I checked the Electricity Authority website and I confirm there are three exemptions in place.

Exemption 305 regarding the sum-check process for four meter types. The exemption came into force on 3rd May 2021 and expires on 31st May 2023.

Intellihub NZ Limited ("Intellihub") is exempted from the complying with the obligation in clause 8(9) in Schedule 10.6 of the Electricity Industry Participation Code 2010 to ensure that each electronic interrogation of the metering installation that retrieves half hour raw meter data compares the sum of that data against the increment of the metering installation's accumulating meter registers for the same period.

The meter types have been redacted from the gazette notice.

Exemption 310 allowing the recertification of metering installations with certification cancelled due to failed sum-checks. The exemption came into force on 16th June 2021 and expired on 31st December 2021.

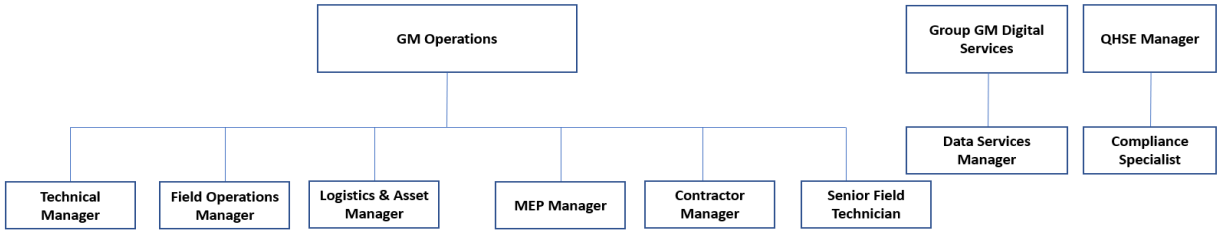
Intellihub Limited ("Intellihub") is exempted from complying with the obligation in clauses 8(2)(a), 9, 10, 11(3)(a), 11(4)(a), 11(4)(c), 11(4)(d), 11(5) and 41(1) in Schedule 10.7 of the Electricity Industry Participation Code 2010 ("Code") to conduct certification testing, issue a certification report and affix a certification sticker to the metering installation. This exemption applies only to Honeywell meters with certification that was cancelled due to clause 20(1)(j)(iii) in Schedule 10.7 of the Code between 1 February 2021 and 5 May 2021.

Exemption 276 Nova Energy Limited ("Nova") is exempted from complying with the obligation in clause 7(1) of Schedule 11.4 of the Electricity Industry Participation Code 2010 ("Code") to provide to the registry manager the information indicated in line 30 of Table 1 in Schedule 11.4 of the Code. This exemption allows Nova to record the settlement indicator for unused EG data channels as "N" for devices with an AMI flag of "Y".

1.2. Structure of Organisation

Intellihub provided the organisation charts below showing the team members involved in the audit.

Team Members involved in MEP Audit



1.3. Persons involved in this audit

Auditor: Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

Intellihub personnel assisting in this audit were.

Name	Title
David Boyle	GM Operations Manager NZ
Niu Nelson	MEP Manager
Chris Chambers	Quality & Compliance Officer
Paul Thornton	Technical Manager
Paul Wilson	Contractor Manager
Dennis Baldwin	Engineering Performance Operations Manager
Hamish Sukha	Meter Data Manager NZ
Gus Wolfgramm	Asset Engineer
George Diederen	Technical Specialist
Shane Broome	Logistics and Assets Manager
Andrew Doel	Senior Field Technician
Chris Otutaha	Field Operations Manager
Lee Walker	Metering Development Technician

1.4. Use of Agents (Clause 10.3)

Code reference

Clause 10.3

Code related audit information

A participant who uses a contractor

- *remains responsible for the contractor's fulfillment of the participants Code obligations*
- *cannot assert that it is not responsible or liable for the obligation due to the action of a contractor, and*

- *must ensure that the contractor has at least the specified level of skill, expertise, experience, or qualification that the participant would be required to have if it were performing the obligation itself.*

Audit observation

MTRX

Intellihub engages with ATHs to conduct certification activities, and Intellihub is an ATH. As an MEP, they have copies of all relevant records for installations above Category 1. They have copies of records attached to IWS for recent ICPs, but they rely on ATHs to manage and store Category 1 certification records for most ICPs. I requested certification reports for 100 ICPs to confirm their compliance and availability.

BOPE

BOPE engages with ATHs to conduct certification activities and they were also an ATH prior to the closing of the Nova ATH on 30th October 2021. After the closing of the Nova ATH certification activities are conducted by the Intellihub contracted ATHs and records for Category 1 installations will be stored by the ATHs as detailed in the MTRX comments above. I requested certification reports for 30 ICPs to confirm their compliance and availability.

Audit commentary

MTRX

All certification records were provided, which achieves compliance with this clause.

BOPE

All certification records were provided, which achieves compliance with this clause.

1.5. Hardware and Software

MTRX

MTRX MEP data is held in IWS, which is subject to backup arrangements in accordance with standard industry protocols.

AMI data collection occurs using four different head ends and the data is stored and managed in a Meter Data Management System (MDM), which is described further in **section 10**. These systems are also subject to backup arrangements in accordance with standard industry protocols.

BOPE

BOPE MEP data was held in a metering database (CMMS) prior to the acquisition by Intellihub. CMMS was subject to backup arrangements in accordance with standard industry protocols. Intellihub has transferred all BOPE metering asset information to IWS, and metering certification records and process documents are stored in Intellihub folders.

1.6. Breaches or Breach Allegations

Intellihub confirmed there are no breach allegations relevant to the scope of this audit.

1.7. ICP Data

MTRX

Metering Category	Number of Active ICPs

1	412,591
2	3,111
3	14
4	2
5	0
9	1

BOPE

Metering Category	Number of Active ICPs
1	19,418
2	298
3	22
4	0
5	0
9	2

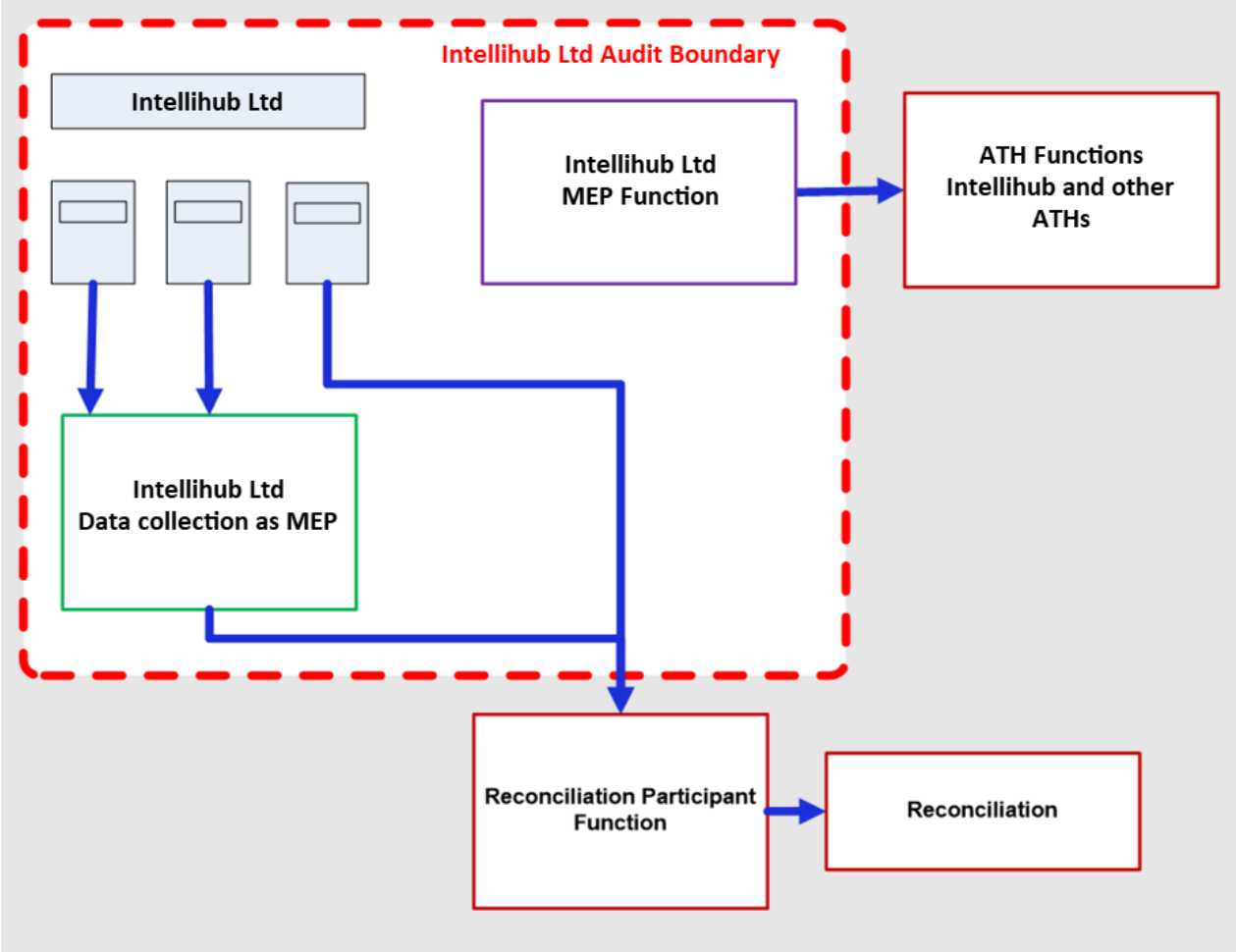
1.8. Authorisation Received

A letter of authorisation was not required or requested.

1.9. Scope of Audit

This audit was conducted in accordance with the Guideline for Metering Equipment Provider Audits V2.2, which was published by the Electricity Authority.

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



1.10. Summary of previous audit

The previous audits were conducted in June 2020 for the BOPE MEP identifier, and June 2021 for the MTRX MEP identifier, by Brett Piskulic of Veritek Limited. The table below shows the current status of the non-compliances identified.

TABLE OF NON-COMPLIANCE

Subject	Section	Clause	Non-Compliance	Status
Services access interface	2.1	10.9(2)	MTRX - Each services access interface not identified for 67 metering installations.	Still existing
Provision of accurate information	2.5	11.2 and 10.6	MTRX - All practicable steps not taken to ensure data is correct and that incorrect data is corrected as soon as practicable.	Still existing
Registry updates	3.2	2 of Schedule 11.4	MTRX - 480 registry updates later than 15 business days. BOPE - Some registry updates later than 15 business days.	Still existing
Changes to registry records	4.10	3 of Schedule 11.4	MTRX & BOPE - Some records updated on the registry later than 10 business days.	Still existing
Accurate and complete records	5.1	4(1)(a) and (b) of Schedule 10.6	MTRX - A high number of fields not accurate and complete in a sample of 100 Certification records.	Still existing
MEP Response to Switch Notification	6.1	1(1) of Schedule 11.4	BOPE - Two late MN files.	Cleared
Provision of registry information	6.2	7 (1), (2) and (3) of Schedule 11.4	MTRX & BOPE - Some registry records incomplete or incorrect.	Still existing
Error correction	6.3	6 of Schedule 11.4	MTRX - Discrepancies not resolved within 5 business days. BOPE - Discrepancy report not run for five months.	Still existing
Certification cancellation	6.4	20 of Schedule 10.7	MTRX - Certification not cancelled on the registry for three metering installations where low burden is present.	Still existing
Certification of metering installations	7.1	10.38 (a), clause 1 and clause 15 of Schedule 10.7	MTRX - Certification expired, cancelled or late for 2,859 ICPs. BOPE - Certification expired for 56 ICPs.	Still existing
Certification Tests	7.2	10.38(b)	MTRX - Testing not conducted for one category 2 metering installation. Meter register not incrementing when raw meter data tests conducted on Intellihub meters with no decimal place.	Cleared Cleared
Interim certification	7.18	18 of Schedule 10.7	BOPE - 37 ICPs with expired interim certification.	Cleared

Interim certification	7.19	18 of Schedule 10.7	MTRX - 560 ICPs with expired interim certification.	Cleared
Max interrogation cycle	10.5	8 of Schedule 10.6	MTRX - Some meters not read during the maximum interrogation cycle.	Cleared
Time errors	10.7	8(4) of Schedule 10.6	MTRX - 80 examples of clock errors outside the allowable thresholds in the most recent reports. BOPE - Clock errors greater than the threshold for 5 ICPs.	Still existing
Sum-check validation	10.9	8(9) of Schedule 10.6	MTRX - 1,886 meters failed sum-check prior to exemption coming into effect. Interrogation not successful within 25% of maximum interrogation cycle or 30 days for an unknown number of meters.	Cleared
Investigation of AMI interrogation failures	10.12	8(11), 8(12) and 8(13) of Schedule 10.6	MTRX - Reporting and processes not in place to resolve interrogation issues or change the AMI flag to "N" at 25% of the MIC or 30 days.	Cleared

TABLE OF RECOMMENDATIONS

Subject	Section	Clause	Description	Status
Accurate and complete records	5.1	4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4	MTRX - Check metering installation certification reports to ensure compliance and improve controls to ensure certification records are complete and accurate.	Still existing
Accurate and complete records	5.1	4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4	MTRX - Require Wells to change the layout of the certification report to include the more relevant items clearly on the front page.	Still existing
Certification Tests	7.2	10.38(b) and clause 9 of Schedule 10.6	MTRX - Require ATHs to include details and results of all testing completed in the metering installation certification reports provided.	Still existing

2. OPERATIONAL INFRASTRUCTURE

2.1. MEP responsibility for services access interface (Clause 10.9(2)

Code reference

Clause 10.9(2)

Code related audit information

The MEP is responsible for providing and maintaining the services access interface.

Audit observation

MTRX

I checked certification records for 100 metering installations, covering all relevant ATHs.

BOPE

I checked certification records for 30 metering installations completed by the Nova ATH.

Audit commentary

MTRX

The Code places responsibility for maintaining the services access interface on the MEP and places responsibility for determining and recording it with ATHs. The code was changed from 1st February 2021 to require the ATH to record each services access interface and the conditions under which each services access interface may be used.

84 of the 100 certification records identified all services access interfaces.

16 of the 100 certification records identified the services access interface as remote only for AMI metering installations. It is also possible that the services access interface may be local for these metering installations if there are problems communicating with the meters. All of the ATHs currently used have improved their processes to record each services access interface but there were still 16 examples where each option was not recorded.

A breakdown of each ATH is shown in the table below:

ATH	Each SAI recorded	Each SAI not recorded
Delta	4	9
Intellihub	34	0
AMS	21	3
Wells	23	0
Accucal	2	1
Nova	0	3

BOPE

The Code places responsibility for maintaining the services access interface on the MEP and places responsibility for determining and recording it with ATHs. The code was changed from 1st February 2021

to require the ATH to record each services access interface and the conditions under which each services access interface may be used.

All 30 certification records checked were for certifications conducted by the Nova ATH and 29 of the 30 were certified after 1st February 2021. The 29 certification records identified the services access interface as remote only for AMI metering installations. It is also possible that the services access interface may be local for these metering installations if there are problems communicating with the meters.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 10.9(2) From: 01-Feb-21 To: 05-Apr-22	MTRX - Each services access interface not identified for 16 metering installations. BOPE - Each services access interface not identified for 29 metering installations. Potential impact: None Actual impact: None Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as moderate as whilst the ATHs have adopted processes to record each services access interface there are still examples where they are not recorded. There is no impact because the MEP normally determines the location of the services access interface; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Intellihub in collaboration with our ATH will reissue communications to contracted ATH's to ensure their respective processes and related systems are set up to cover this requirement on-going. Intellihub will include this communication within the summary of all technical and compliance issues identified with Installation Certification Reports during the course of this audit.	31/07/2022	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above. Instances of the SAI missing from Metering Installation Certification Reports issued by the NOVA ATH will no longer recur, as this ATH was closed down, effective 30/09/21	31/07/2022	

2.2. Dispute Resolution (Clause 10.50(1) to (3))

Code reference

Clause 10.50(1) to (3)

Code related audit information

Participants must in good faith use its 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

MTRX

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

BOPE

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

Audit commentary

MTRX

MTRX has not been required to resolve any disputes in accordance with this clause.

BOPE

BOPE has not been required to resolve any disputes in accordance with this clause.

Audit outcome

Compliant

2.3. MEP Identifier (Clause 7(1) of Schedule 10.6)

Code reference

Clause 7(1) of Schedule 10.6

Code related audit information

The MEP must ensure it has a unique participant identifier and must use this participant identifier (if required) to correctly identify its information.

Audit observation

MTRX

I checked the registry data to ensure the correct MEP identifier was used.

BOPE

I checked the registry data to ensure the correct MEP identifier was used.

Audit commentary

MTRX

MTRX uses the MTRX identifier in all cases.

BOPE

BOPE uses the BOPE identifier in all cases.

Audit outcome

Compliant

2.4. Communication Equipment Compatibility (Clause 40 Schedule 10.7)

Code reference

Clause 40 Schedule 10.7

Code related audit information

The MEP must ensure that the use of its communication equipment complies with the compatibility and connection requirements of any communication network operator the MEP has equipment connected to.

Audit observation

MTRX

MTRX is the MEP for AMI metering installations where communication equipment is present. I checked that the ATHs have processes in place to check the relevant type test certificates to ensure compliance with this clause.

BOPE

BOPE is the MEP for AMI metering installations where communication equipment is present. I checked that the ATHs have processes in place to check the relevant type test certificates to ensure compliance with this clause.

Audit commentary

MTRX

MTRX ensures all communication equipment is appropriately certified with the relevant telecommunications standards. This is recorded in type test certificates and other approval documents. A copy of the type test schedule was provided, which contains a list of all components used and the type test report reference.

BOPE

BOPE ensures all communication equipment is appropriately certified with the relevant telecommunications standards. This is recorded in type test certificates.

Audit outcome

Compliant

2.5. Participants to Provide Accurate Information (Clause 11.2 and Clause 10.6)

Code reference

Clause 11.2 and Clause 10.6

Code related audit information

The MEP must take all practicable steps to ensure that information that the MEP is required to provide to any person under Parts 10 and 11 is complete and accurate, not misleading or deceptive and not likely to mislead or deceive.

If the MEP becomes aware that in providing information under Parts 10 and 11, the MEP has not complied with that obligation, the MEP must, as soon as practicable, provide such further information as is necessary to ensure that the MEP does comply.

Audit observation

MTRX

The content of this audit report was reviewed to determine whether all practicable steps had been taken to provide accurate information.

BOPE

The content of this audit report was reviewed to determine whether all practicable steps had been taken to provide accurate information.

Audit commentary

MTRX

As recorded in **sections 5** and **6** there are some registry and certification records which are not complete and accurate. MTRX is attempting to correct information as soon as practicable. There are some metering installations with cancelled certification and the registry has not been updated as soon as practicable.

BOPE

As recorded in **sections 5** and **6** there are some registry and certification records which are not complete and accurate. BOPE is attempting to correct information as soon as practicable.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11.2 and Clause 10.6 From: 01-Apr-20 To: 11-Feb-22	All practicable steps not taken to ensure data is correct and that incorrect data is corrected as soon as practicable. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as moderate in this area because there are still a small number of areas where improvement can be made. Very few of the registry related discrepancies have an impact on participants, customers or settlement. The only relevant ones in this regard are tariff related and there were only a small number. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status

Intellihub will put in place resource to focus on data quality for all ATH's. Intellihub is working with ATH's, Traders and our IT team to implement long term solutions as we continue to identify areas for improvement; This work is part of our continuous improvement cycle.	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	Ongoing	

3. PROCESS FOR A CHANGE OF MEP

3.1. Change of metering equipment provider (Clause 10.22)

Code reference

Clause 10.22

Code related audit information

The MEP for a metering installation may change only if the responsible participant enters into an arrangement with another person to become the MEP for the metering installation, and if certain requirements are met in relation to updating the registry and advising the reconciliation manager.

The losing MEP must notify the gaining MEP of the proportion of the costs within 40 business days of the gaining MEP assuming responsibility. The gaining MEP must pay the losing MEP within 20 business days of receiving notification from the losing MEP.

The costs are those directly and solely attributable to the certification and calibration tests of the metering installation or its components from the date of switch until the end of the current certification period.

The gaining MEP is not required to pay costs if the losing MEP has agreed in writing that the gaming MEP is not required to pay costs, or the losing MEP has failed to provide notice within 40 business days.

Audit observation

MTRX

MTRX has not sent or received any invoices in relation to this clause.

BOPE

BOPE has not sent or received any invoices in relation to this clause.

Audit commentary

MTRX

MTRX has not sent or received any invoices in relation to this clause.

BOPE

BOPE has not sent or received any invoices in relation to this clause.

Audit outcome

Compliant

3.2. Registry Notification of Metering Records (Clause 2 of Schedule 11.4)

Code reference

Clause 2 of Schedule 11.4

Code related audit information

The gaining MEP must advise the registry of the registry metering records for the metering installation within 15 days of becoming the MEP for the metering installation.

Audit observation

MTRX

I checked the audit compliance report for the period 1 July 2021 to 11 February 2022 for all records where MTRX became the MEP to evaluate the timeliness of updates.

BOPE

I checked the audit compliance report for the period 1 April 2020 to 11 February 2022 for all records where BOPE became the MEP to evaluate the timeliness of updates.

Audit commentary

MTRX

The table below shows that there were 250 late updates to the registry out of 732 events. 64 of the 732 late updates were due to the trader's nomination being later than five business days. MTRX provided details of the causes of the late updates for a sample of 16 records which are listed below:

- corrections of incorrect details from original update for five examples,
- MTRX was unable to upload data due to incorrect nomination or event by another MEP for nine examples,
- exceptions found in information from ATH requiring follow-up for one example, and
- a system error leading to late updating for one example.

Event	Year	Total ICPs	ICPs Notified Within 15 Days	ICPs Notified Greater Than 15 Days	Average Notification Days	Percentage Compliant
New MEP	2017	19	9	10	49	47%
	2018	188	163	25	15	87%
	2019	2,343	2,144	199	8	92%
	2020	1,026	722	304	Not calculated	70.37%
	2021	1,272	792	480	Not calculated	62.26%
	2022	**732**	**482**	**250**	Not calculated	**65.85%**

BOPE

The table below shows that there were 105 late updates to the registry out of 3,560 events. Six of the 105 late updates were due to the trader's nomination being later than five business days. BOPE provided details of the causes of the late updates for a sample of 38 records which are listed below:

- corrections of incorrection details from original update for 33 examples, and
- delays in validation of paperwork from the field for five examples.

Event	Year	Total ICPs	ICPs notified within 15 days	ICPs Notified Greater Than 15 Days	Percentage compliant
New MEP	Jan 2020	4,082	2,885	1,197	70.68%
	Mar 2022	**3,665**	**3,560**	**105**	**97.14%**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 2 of Schedule 11.4 From: 01-Apr-20 To: 11-Feb-22	355 registry updates later than 15 business days. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are in place to manage timeliness, but improvements are required to ensure late notifications from the field and exceptions are reduced. The impact on other participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Instances of late updates have reduced since 2021: (355, down from 480 last year) Intellihub is continuing to review the mechanisms for interacting with contracted ATH's with a view to reducing time delays in retrieving data. Intellihub will also be investigating opportunities to improve work order exchanges with Traders. We will also be working with our IT team to implement long term solutions.	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above Intellihub will continue to provide feedback on exceptions to ATH's and remind them of their obligations to promptly return paperwork.	Ongoing	

3.3. Provision of Metering Records to Gaining MEP (Clause 5 of Schedule 10.6)

Code reference

Clause 5 of Schedule 10.6

Code related audit information

During an MEP switch, a gaining MEP may request access to the losing MEP's metering records.

On receipt of a request from the gaining MEP, the losing MEP has 10 business days to provide the gaining MEP with the metering records or the facilities to enable the gaining MEP to access the metering records.

The losing MEP must ensure that the metering records are only received by the gaining MEP or its contractor, the security of the metering records is maintained, and only the specific metering records required for the purposes of the gaining MEP exercising its rights and performing its obligations are provided.

Audit observation

MTRX

I checked with MTRX to confirm whether there had been any requests from other MEPs.

BOPE

I checked with BOPE to confirm whether there had been any requests from other MEPs.

Audit commentary

MTRX

This has not occurred, and no examples are available to examine. MTRX have stated that any information will be provided as necessary.

BOPE

This has not occurred, and no examples are available to examine. BOPE have stated that any information will be provided as necessary.

Audit outcome

Compliant

3.4. Termination of MEP Responsibility (Clause 10.23)

Code reference

Clause 10.23

Code related audit information

Even if the MEP ceases to be responsible for an installation, the MEP must either comply with its continuing obligations; or before its continuing obligations terminate, enter into an arrangement with a participant to assume those obligations.

The MEP is responsible if it:

- *is identified in the registry as the primary metering contact or*
- *is the participant who owns the meter for the POC or to the grid or*
- *has accepted responsibility under clause 1(1)(a)(ii) of schedule 11.4 or*
- *has contracted with a participant responsible for providing the metering installation.*

MEPs obligations come into effect on the date recorded in the registry as being the date on which the metering installation equipment is installed or, for an NSP the effective date set out in the NSP table on the Authority's website.

An MEP's obligations terminate only when;

- *the ICP changes under clause 10.22(1)(a);*
- *the NSP changes under clause 10.22(1)(b), in which case the MEPs obligations terminate from the date on which the gaining MEP assumes responsibility,*
- *the metering installation is no longer required for the purposes of Part 15; or*
- *the load associated with an ICP is converted to be used solely for unmetered load.*

Audit observation

MTRX

I confirmed that MTRX has ceased to be responsible for some metering installations and checked if records were still available.

BOPE

I confirmed that BOPE has ceased to be responsible for some metering installations and checked if records were still available.

Audit commentary

MTRX

MTRX has ceased to be responsible for some metering installations and they still continue with their responsibilities, mainly in relation to the storage or records, which are kept indefinitely.

BOPE

BOPE has ceased to be responsible for some metering installations and they still continue with their responsibilities, mainly in relation to the storage or records, which are kept indefinitely.

Audit outcome

Compliant

4. INSTALLATION AND MODIFICATION OF METERING INSTALLATIONS

4.1. Design Reports for Metering Installations (Clause 2 of Schedule 10.7)

Code reference

Clause 2 of Schedule 10.7

Code related audit information

The MEP must obtain a design report for each proposed new metering installation or a modification to an existing metering installation, before it installs the new metering installation or before the modification commences.

Clause 2(2) and (3)—The design report must be prepared by a person with the appropriate level of skills, expertise, experience and qualifications and must include a schematic drawing, details of the configuration scheme that programmable metering components are to include, confirmation that the configuration scheme has been approved by an approved test laboratory, maximum interrogation cycle for each services access interface, any compensation factor arrangements, method of certification required, and name and signature of the person who prepared the report and the date it was signed.

Clause 2(4)—The MEP must provide the design report to the certifying ATH before the ATH installs or modifies the metering installation (or a metering component in the metering installation).

Audit observation

MTRX

I checked the suite of design reports provided by MTRX to relevant ATHs, and I checked that ATHs were correctly recording the design report in the certification records.

BOPE

I checked the suite of design reports provided by BOPE to relevant ATHs, and I checked that ATHs were correctly recording the design report in the certification records.

Audit commentary

MTRX

The design reports include all relevant details required by the Code, and ATHs had correctly recorded the design for all 100 metering installations checked. Intellihub implemented a new suite of design reports in September 2021. All relevant details are included in the new design reports and approval was gained from relevant distributors and traders.

BOPE

The design reports include all relevant details required by the Code, and ATHs had correctly recorded the design for all 30 metering installations checked. Intellihub implemented a new suite of design reports in September 2021. All relevant details are included in the new design reports and approval was gained from relevant networks and traders.

Audit outcome

Compliant

4.2. Contracting with ATH (Clause 9 of Schedule 10.6)

Code reference

Clause 9 of Schedule 10.6

Code related audit information

The MEP must, when contracting with an ATH in relation to the certification of a metering installation, ensure that the ATH has the appropriate scope of approval for the required certification activities.

Audit observation

MTRX

I confirmed which ATHs had been used during the audit period, in order to check the Authority's website for scope of approval.

BOPE

I confirmed which ATHs had been used during the audit period, in order to check the Authority's website for scope of approval.

Audit commentary

MTRX

MTRX has used the Accucal, AMS, Delta, Intellihub and Wells ATHs during the audit period and they all have a current and appropriate scope of approval. The Nova ATH was used during the audit period and closed down on 30th October 2021. I confirmed that it had appropriate scope of approval and confirmed that no MTRX ICPs were certified by the Nova ATH after 30th October 2021.

BOPE

BOPE has used the Nova and Wells ATHs during the audit period. The Wells ATH has current and appropriate scope of approval. The Nova ATH was closed down on 30th October 2021. I confirmed that it had appropriate scope of approval prior to closing and confirmed that no BOPE ICPs were certified by the Nova ATH after 30th October 2021.

Audit outcome

Compliant

4.3. Metering Installation Design & Accuracy (Clause 4(1) of Schedule 10.7)

Code reference

Clause 4(1) of Schedule 10.7

Code related audit information

The MEP must ensure:

- *that the sum of the measured error and uncertainty does not exceed the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of the metering installation*
- *the design of the metering installation (including data storage device and interrogation system) will ensure the sum of the measured error and the smallest possible increment of the energy value of the raw meter data does not exceed the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of installation,*
- *the metering installation complies with the design report and the requirements of Part 10.*

Audit observation

MTRX

I checked the processes used by MTRX to ensure compliance with the design and error thresholds stipulated in Table 1. I also checked the certification records for 100 metering installations.

BOPE

I checked the processes used by BOPE to ensure compliance with the design and with the error thresholds stipulated in Table 1. I also checked the certification records for 30 metering installations.

Audit commentary

MTRX

All selected component processes are compliant, as confirmed by checking certification records.

For Category 2 comparative certification, Accucal, AMS, Delta, Intellihub, Nova and Wells ATHs have compliant practices for the calculation of uncertainty.

With regard to the design of the installation (including data storage device and interrogation system), MTRX ensures the sum of the measured error and the smallest possible increment of the energy value of the raw meter data does not exceed the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of installation.

MTRX ensures the metering installation complies with the design report and the requirements of Part 10 by requiring ATH's to confirm the installation matches the design, or by requiring updates to be provided if the installation does not match the design. The design report was correctly recorded in the certification records for the 100 installations I checked.

BOPE

The Nova ATH uncertainty calculator was developed in conjunction with MSL for use when conducting comparative certification. The uncertainty calculator is updated after working standard calibrations are completed.

With regard to the design of the installation (including data storage device and interrogation system), BOPE ensures the sum of the measured error and the smallest possible increment of the energy value of the raw meter data does not exceed the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of installation. There are no components installed where "coarse" rounding is in place for the data, or where meters with a low pulse rate are connected to separate data storage devices.

BOPE ensures the metering installation complies with the design report and the requirements of Part 10 by requiring ATH's to confirm the installations matches the design, or by requiring updates to be provided if the installation does not match the design. The design report was recorded correctly for all 30 metering installations checked.

Audit outcome

Compliant

4.4. Net Metering metering and Subtractive Metering (Clause 10.13A and 4(2)(a) of Schedule 10.7)

Code reference

Clause 10.13A and Clause 4(2)(a) of Schedule 10.7

Code related audit information

MEPs must ensure that the metering installation records imported electricity separately from exported electricity. For category 1 and 2 installations the MEP must ensure the metering installation records imported and exported electricity separately for each phase.

For metering installations for ICPs that are not also NSPs, the MEP must ensure that the metering installation does not use subtraction to determine submission information used for the purposes of Part 15.

Audit observation

MTRX

I asked MTRX to confirm whether subtraction was used for any metering installations where they were the MEP.

BOPE

I asked BOPE to confirm whether subtraction was used for any metering installations where they were the MEP.

Audit commentary

MTRX

MTRX does not have any metering installations where subtractive metering is used.

BOPE

BOPE does not have any metering installations where subtractive metering is used.

Audit outcome

Compliant

4.5. HHR Metering (Clause 4(2)(b) of Schedule 10.7)

Code reference

Clause 4(2)(b) of Schedule 10.7

Code related audit information

For metering installations for ICPs that are not also NSPs, the MEP must ensure that all category 3 or higher metering installations must be half-hour metering installations.

Audit observation

MTRX

I checked the list file for all 16 ICPs where the metering category was greater than Category 2.

BOPE

I checked the list file for all 22 ICPs where the metering category was greater than Category 2.

Audit commentary

MTRX

All 16 metering installations have HHR metering.

BOPE

All 22 metering installations have HHR metering.

Audit outcome

Compliant

4.6. NSP Metering (Clause 4(3) of Schedule 10.7)

Code reference

Clause 4(3) of Schedule 10.7

Code related audit information

The MEP must ensure that the metering installation for each NSP that is not connected to the grid does not use subtraction to determine submission information used for the purposes of Part 15 and is a half-hour metering installation.

Audit observation

MTRX

MTRX is not responsible for any NSP metering.

BOPE

BOPE is not responsible for any NSP metering.

Audit commentary

MTRX

MTRX is not responsible for any NSP metering.

BOPE

BOPE is not responsible for any NSP metering.

Audit outcome

Not applicable

4.7. Responsibility for Metering Installations (Clause 10.26(10))

Code reference

Clause 10.26(10)

Code related audit information

The MEP must ensure that each point of connection to the grid for which there is a metering installation that it is responsible for has a half hour metering installation.

Audit observation

MTRX

MTRX is not responsible for any grid metering.

BOPE

BOPE is not responsible for any grid metering.

Audit commentary

MTRX

MTRX is not responsible for any grid metering.

BOPE

BOPE is not responsible for any grid metering.

Audit outcome

Not applicable

4.8. Suitability of Metering Installations (Clause 4(4) of Schedule 10.7)

Code reference

Clause 4(4) of Schedule 10.7

Code related audit information

The MEP must, for each metering installation for which it is responsible, ensure that it is appropriate having regard to the physical and electrical characteristics of the POC.

Audit observation

MTRX

I checked the certification records for all ATHs to confirm this point is being considered at the time of certification.

BOPE

I checked the certification records for all ATHs to confirm this point is being considered at the time of certification.

Audit commentary

MTRX

The certification records for all ATHs contain a field or a statement in relation to this clause and the technician is required to confirm that installations are compliant and safe.

BOPE

The certification records for all ATHs contain a field or a statement in relation to this clause and the technician is required to confirm that installations are compliant and safe.

Audit outcome

Compliant

4.9. Installation & Modification of Metering Installations (Clauses 10.34(2), (2A), (2D) and (3))

Code reference

Clauses 10.34(2), (2A), (2D) and (3)

Code related audit information

If a metering installation is proposed to be installed or modified at a POC, other than a POC to the grid, the MEP must consult with and use its best endeavours, to agree with the distributor and the trader for that POC, before the design is finalised, on the metering installation's:

- *required functionality,*
- *terms of use,*
- *required interface format,*
- *integration of the ripple receiver and the meter,*
- *functionality for controllable load.*

This includes where the MEP is proposing to replace a metering component or metering installations with the same or similar design and functionality but excludes where the MEP has already consulted on the design with the distributor and trader.

Each participant involved in the consultations must use its best endeavours to reach agreement and act reasonably and in good faith.

Audit observation

MTRX

I checked whether there were any new or modified designs during the audit period.

BOPE

I checked whether there were any new or modified designs during the audit period.

Audit commentary

MTRX

MTRX implemented a new suite of design reports in September 2021. All relevant details are included in the new design reports and approval was gained from relevant distributors and traders prior to implementation.

BOPE

The design reports used by BOPE for all certifications completed during the audit period have previously been provided to all distributors and traders. Intellihub implemented a new suite of design reports in September 2021. All relevant details are included in the new design reports and approval was gained from relevant distributors and traders prior to implementation.

Audit outcome

Compliant

4.10. Changes to Registry Records (Clause 3 of Schedule 11.4)

Code reference

Clause 3 of Schedule 11.4

Code related audit information

If the MEP has an arrangement with the trader the MEP must advise the registry manager of the registry metering records, or any change to the registry metering records, for each metering installation for which it is responsible at the ICP, no later than 10 business days following:

a) the electrical connection of the metering installation at the ICP
b) any subsequent change to the metering installation's metering records

If the MEP is update the registry in accordance with 8(11)(b) of Schedule 10.6, 10 business days after the most recent unsuccessful interrogation.

If update the registry in accordance with clause 8(13) of Schedule 10.6, 3 business days following the expiry of the time period or date from which the MEP determines it cannot restore communications.

Audit observation

MTRX

I checked the audit compliance report for the period 1 July 2021 to 11 February 2022 to evaluate the timeliness of registry updates.

BOPE

I checked the audit compliance report for the period 1 April 2020 to 11 February 2022 to evaluate the timeliness of registry updates.

Audit commentary

MTRX

The table below shows that registry updates were on time for 85.97% of new connections. 146 of the 550 late updates had trader nominations later than five business days. MTRX provided details of the causes of the late updates for a sample of 30 records which are listed below:

- late field notification or generation of certification report for 13 examples,
- corrections of incorrect details from original update for 12 examples,
- updates of AMI flag for four examples, and
- incorrect nomination by trader causing late update for one example.

The table below shows that registry updates were on time for 1.65% of updates after recertification. There were 223,203 late updates and 3,745 updates were on time. 220,521 of the late updates were in relation to certifications conducted under exemption 310 in October 2021 for ICPs where certification was cancelled between 1st February 2021 and 5th May 2021 due to failed sum-checks under clause 20(1)(j)(iii) in Schedule 10.7. After the exemption was granted in June 2021 MTRX were advised by the Authority to recertify the ICPs with certification dates of the day after certification had been cancelled. MTRX provided details of the causes of the late updates for a sample of 30 records of the remaining 2,682 late updates which are listed below:

- late field notification or generation of certification report for 11 examples,
- corrections of incorrect details from original update for 12 examples,
- updates of AMI flag for four examples,
- incorrect nomination by trader causing late update for two examples, and
- unable to determine the reason for lateness for one example.

Event	Year	Total ICPs	ICPs Notified Within 10 Days	ICPs Notified Greater Than 10 Days	Average Notification Days	Percentage Compliant
New connection	2017	897	815	82	5.8	91%
	2018	1,699	1,435	264	7.7	85%
	2019	2,315	2,093	222	7.0	90%
	2020	4,400	3,704	696	Not calculated	84.18%
	2021	5,981	5,121	860	Not calculated	85.62%
	2022	**3,920**	**3,370**	**550**	Not calculated	**85.97%**
	2017	139,000	5,000	134,000	N/A	3.6%

Update (recertification updates only from 2020 onwards)	2018	7,336	2,052	5,284	626	28%
	2019	22,503	20,864	1,639	5.0	93%
	2020	7,001	5,236	1,765	17.66	74.79%
	2021	8,157	6,599	1,558	24.14	80.90%
	2022	**226,948**	**3,745**	**223,203**	**182.95**	**1.65%**

BOPE

The table below shows that registry updates were on time for 93.30% of new connections. One of the 46 late updates had trader nomination later than five business days. BOPE provided details of the causes of the late updates for a sample of 10 records which are listed below:

- late field notification or generation of certification report for one example, and
- corrections of incorrect details from original update for nine examples.

The table below shows that registry updates were on time for 95.15% of updates after recertification. BOPE provided details of the causes of the late updates for a sample of 20 records which are listed below:

- corrections of incorrection details from original update for 12 examples,
- delays in validation of paperwork from the field for seven examples, and
- unable to determine the reason for lateness for one example.

Event	Year	Total ICPs	ICPs Notified Within 10 Days	ICPs Notified Greater Than 10 Days	Average Notification Days	Percentage Compliant
New connection	2016	20	12	8	Not calculated	60%
	2017	53	53	0	2.8	100%
	2018	40	40	0	1.9	100%
	2020	180	97	83	Not calculated	53.89%
	2022	**686**	**640**	**46**	**Not calculated**	**93.30%**
Update	2016	589	383	206	109.4	65%
	2017	5,174	498	4,676	469	11%
	2018	3,833	3,708	125	21	97%
	2020	8,463	5,699	2,765	28.32	67.34%
	2022	**6,127**	**5,830**	**297**	**7.95**	**95.15%**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 3 of Schedule 11.4 From: 01-Apr-20 To: 11-Feb-22	Some records updated on the registry later than 10 business days. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as moderate in this area because they haven't changed since the last audit, and they are sufficient to ensure most updates are on time but there is room for improvement. The late updates for new connections occurred after the trader had populated their records, therefore the impact on participants, customers or settlement is minor, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Field technicians have been advised of the importance of the accurate and timely return of paperwork, as well as the timely generation of certification reports. (These accounted for 11 out of the 30 examples sampled)	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Intellihub will continue to provide feedback on exceptions to contractors and remind them of their obligations to return paperwork promptly. We are reviewing our B2B processes and reporting to improve this issue.	Ongoing	

4.11. Metering Infrastructure (Clause 10.39(1))

Code reference

Clause 10.39(1)

Code related audit information

The MEP must ensure that for each metering installation:

- *an appropriately designed metering infrastructure is in place,*
- *each metering component is compatible with, and will not interfere with any other component in the installation,*
- *collectively, all metering components integrate to provide a functioning system,*
- *each metering installation is correctly and accurately integrated within the associated metering infrastructure.*

Audit observation

MTRX

MTRX has AMI data collection systems, and these are considered "metering infrastructure". I checked that the systems operate as intended and are compatible with all metering components interrogated.

BOPE

BOPE has an AMI data collection system, and this is considered "metering infrastructure". I checked that the system operates as intended and is compatible with all metering components interrogated.

Audit commentary

MTRX

There were no obvious issues with the operation of the AMI systems. All components operate as intended in an integrated manner.

BOPE

There were no obvious issues with the operation of the AMI system. All components operate as intended in an integrated manner.

Audit outcome

Compliant

4.12. Responsibility for Metering at ICP (Clause 10.23A)

Code reference

Clause 10.23A

Code related audit information

If a metering installation at an ICP is to be decommissioned, but the ICP is not being decommissioned, the MEP that is responsible for decommissioning the metering installation must:

- *if the MEP is responsible for interrogating the metering installation, arrange for a final interrogation to take place before the metering installation is decommissioned, and provide the raw meter data from the interrogation to the responsible trader*
- *if another participant is responsible for interrogating the metering installation, advise the other participant not less than 3 business days before the decommissioning of the time and date of the decommissioning, and that the participant must carry out a final interrogation.*

To avoid doubt, if a metering installation at an ICP is to be decommissioned because the ICP is being decommissioned:

- *the trader, not the MEP, is responsible for arranging a final interrogation of the metering installation*
- *the responsible trader must arrange for a final interrogation of the metering installation*

Audit observation

MTRX

I checked whether MTRX was the MEP at any decommissioned metering installations and whether notification had been provided to relevant traders.

BOPE

I checked whether BOPE was the MEP at any decommissioned ICPs and whether notification had been provided to relevant traders.

Audit commentary

MTRX

There were no examples of decommissioned metering installations where the ICP was not also decommissioned.

BOPE

There were no examples of decommissioned metering installations where the ICP was not decommissioned.

Audit outcome

Compliant

4.13. Measuring Transformer Burden and Compensation Requirements (Clause 31(4) and (5) of Schedule 10.7)

Code reference

Clause 31(4) and (5) of Schedule 10.7

Code related audit information

The MEP must, before approving the addition of, or change to, the burden or compensation factor of a measuring transformer in a metering installation, consult with the ATH who certified the metering installation.

If the MEP approves the addition of, or change to, the burden or compensation factor, it must ensure the metering installation is recertified by an ATH before the addition or change becomes effective.

Audit observation

MTRX

I asked MTRX whether they had approved any burden changes during the audit period.

BOPE

I asked BOPE whether they had approved any burden changes during the audit period.

Audit commentary

MTRX

There have not been any examples of burden changes occurring during the audit period except at the time of recertification.

BOPE

There have not been any examples of burden changes occurring during the audit period except at the time of recertification.

Audit outcome

Compliant

4.14. Changes to Software ROM or Firmware (Clause 39(1) and 39(2) of Schedule 10.7)

Code reference

Clause 39(1) and 39(2) of Schedule 10.7

Code related audit information

The MEP must, if it proposes to change the software, ROM or firmware of a data storage device installed in a metering installation, ensure that, before the change is carried out, an approved test laboratory:

- *tests and confirms that the integrity of the measurement and logging of the data storage device would be unaffected,*
- *documents the methodology and conditions necessary to implement the change,*
- *advises the ATH that certified the metering installation of any change that might affect the accuracy of the data storage device.*

The MEP must, when implementing a change to the software, ROM or firmware of a data storage device installed in a metering installation:

- *carry out the change in accordance with the methodology and conditions identified by the approved test laboratory under clause 39(1)(b)*
- *keep a list of the data storage devices that were changed,*
- *update the metering records for each installation affected with the details of the change and the methodology used.*

Audit observation

MTRX

I checked if there any examples of changes in accordance with these clauses.

BOPE

I checked if there any examples of changes in accordance with these clauses.

Audit commentary

MTRX

MTRX advised that there were no firmware or software changes during the audit period.

BOPE

BOPE advised that there were no firmware or software changes during the audit period.

Audit outcome

Compliant

4.15. Temporary Electrical Connection (Clauses 10.29A)

Code reference

Clause 10.29A

Code related audit information

An MEP must not request that a grid owner temporarily electrically connect a POC to the grid unless the MEP is authorised to do so by the grid owner responsible for that POC and the MEP has an arrangement with that grid owner to provide metering services.

Audit observation

MTRX

MTRX is not responsible for any grid metering.

BOPE

BOPE is not responsible for any grid metering.

Audit commentary

MTRX

MTRX is not responsible for any grid metering.

BOPE

BOPE is not responsible for any grid metering.

Audit outcome

Compliant

4.16. Temporary Electrical Connection (Clause 10.30A)

Code reference

Clause 10.30A

Code related audit information

An MEP must not request that a distributor temporarily electrically connect an NSP that is not a POC to the grid unless the MEP is authorised to do so by the reconciliation participant responsible for that NSP and the MEP has an arrangement with that reconciliation participant to provide metering services.

Audit observation

MTRX

MTRX is not responsible for any NSP metering.

BOPE

BOPE is not responsible for any NSP metering.

Audit commentary

MTRX

MTRX is not responsible for any NSP metering.

BOPE

BOPE is not responsible for any NSP metering.

Audit outcome

Compliant

4.17. Temporary Electrical Connection (Clause 10.31A)

Code reference

Clause 10.31A

Code related audit information

Only a distributor may, on its network, temporarily electrically connect an ICP that is not an NSP. A MEP may only request the temporary electrical connection of the ICP if it is for the purpose of certifying a metering installation, or for maintaining, repairing, testing, or commissioning a metering installation at the ICP.

Audit observation

MTRX

I checked for examples where the metering installation certification date was prior to the initial electrical energisation date of the ICP to determine whether there were any examples of temporary electrical connection for the purposes of testing and certification.

BOPE

I checked for examples where the metering installation certification date was prior to the initial electrical energisation date of the ICP to determine whether there were any examples of temporary electrical connection for the purposes of testing and certification.

Audit commentary

MTRX

There were no temporary connections of ICPs where MTRX is the MEP during the audit period.

BOPE

There were no temporary connections of ICPs where BOPE is the MEP during the audit period.

Audit outcome

Compliant

5. METERING RECORDS

5.1. Accurate and Complete Records (Clause 4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4)

Code reference

Clause 4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4

Code related audit information

The MEP must, for each metering installation for which it is responsible, keep accurate and complete records of the attributes set out in Table 1 of Schedule 11.4. These include:

- *a) the certification expiry date of each metering component in the metering installation*
- *b) all equipment used in relation to the metering installation, including serial numbers and details of the equipment's manufacturer,*
- *c) the manufacturer's or (if different) most recent test certificate for each metering component in the metering installation*
- *d) the metering installation category and any metering installations certified at a lower category,*
- *e) all certification reports and calibration reports showing dates tested, tests carried out, and test results for all metering components in the metering installation,*
- *f) the contractor who installed each metering component in the metering installation*
- *g) the certification sticker, or equivalent details, for each metering component that is certified under Schedule 10.8 in the metering installation:*
- *h) any variations or use of the 'alternate certification' process,*
- *i) seal identification information*
- *j) any applicable compensation factors,*
- *k) the owner of each metering component within the metering installation*
- *l) any applications installed within each metering component,*
- *m) the signed inspection report confirming that the metering installation complies with the requirements of Part 10.*

Audit observation

MTRX

I checked certification records for 100 metering installations, and I also checked all available inspection records to evaluate compliance with this clause.

BOPE

I checked certification records for 30 metering installations, and I also checked all available inspection records to evaluate compliance with this clause.

Audit commentary

MTRX

All 100 certification reports were available. I also requested meter calibration reports and CT calibration reports for all 100 certifications, which were provided. I found a number of errors in the metering installation certification reports. The table below shows a breakdown of the number of records checked for each ATH.

		Quantity incorrect or missing					
Clause	**Field required**	**ACCL (3)**	**BOPE (3)**	**DELT (13)**	**MTRX (34)**	**VCOM (24)**	**WELL (23)**
10.9(3)(b) & Clause 10 of Schedule 10.4 & Clause 8(2)(c) of Schedule 10.7	All services access interfaces and conditions under which each may be used.	1	3	9		3	
9(1)(c) of Schedule 10.7	Record of increment in register value of accumulation of pulses over a measured time. Record that the register has advanced.			10	3	11	1
2(1)(e) of Schedule 10.8	For CT certification reports, determine and record the range that the in-service burden must be within	1	N/A	1 (CTs certified by TWS)	9 (CTs certified by TWS)	3	7
31(7) of schedule 10.7	Ensure and record appropriate in-service burden						
10.11 & 8(4) of Schedule 10.7	Metering installation category						
6(4) of Schedule 10.7	Certification as a lower category detail	N/A	N/A	N/A	N/A	N/A	N/A
8(2) of Schedule 10.7	Whether the installation is HHR or NHH or both	1	3	9		4	
11(5)(a) & 13(4) of Schedule 10.7	Confirmation ATH has checked the design report						
11(5)(b) of Schedule 10.7	Confirmation that components have been calibrated and certified						
11(5)(c) of Schedule 10.7	Confirmation that table 3 tests have been conducted and passed			3		1	4
11(5)(d) of Schedule 10.7	Confirmation that wiring is correct						
11(5)(e) of Schedule 10.7	Details of tests and checks to confirm the integrity of the installation			10	2	11	1
11(6) of Schedule 10.7	Details of compensation factors						
12(5) of Schedule 10.7	Confirmation that components in comparative certified installations are fit for purpose	N/A					

14(2) of Schedule 10.7	Additional integrity checks for insufficient load certification	N/A	N/A	N/A	N/A		N/A
17(1) of Schedule 10.7	Installation certification and expiry date						
22(3) of Schedule 10.7	Percentage error and uncertainty						
26(4) of Schedule 10.7	Maximum interrogation cycle	3		11		23	1
27(5) of Schedule 10.7	Meter certification expiry date						
29(3) of Schedule 10.7	Measuring transformer expiry date						1
33(2)(b) of Schedule 10.7	Control device certification expiry date	N/A	N/A			N/A	
33(2)(d) of Schedule 10.7	Confirmation that control device is compliant and fit for purpose	N/A	N/A			N/A	
37(1) of Schedule 10.7	Data storage device expiry date						
1(1)(d) of Schedule 10.8	Validity period						
9(1)(c)(i)(A) of Schedule 10.7	Raw meter data output test load greater than 5% for Cat 1	N/A	N/A	10	2	10	1
9(1)(c)(i)(B) of Schedule 10.7	Raw meter data output test load greater than10A per phase for Cat 2					1	
3 of schedule 10.8	Ensure CTs are calibrated prior to certification						1
Table 3	Prevailing load test conducted using a working standard for recertification without meter replacement.	N/A	N/A	3			4
	Total	**6**	**6**	**66**	**16**	**67**	**21**

I repeat the recommendation from the last two audits that Intellihub checks all certification reports from relevant ATHs to ensure they are compliant and fit for purpose and improve controls to ensure certification records are complete and accurate. A common definition of "fit for purpose" is "good enough to do the job it was designed to do". Certification reports are designed to record and convey information about metering installations. If they are inaccurate and/or unclear, they are not fit for purpose and should be changed.

In the last two audits it was recommended that Intellihub requires better clarity in the Wells ATHs metering installation certification reports. There have been improvements made to the Wells reports but they are still difficult to interpret, and the relevant information is spread throughout many different pages of the reports. I recommend that Intellihub requires Wells to change the layout of the report to include the more relevant items clearly on the front page, as follows:

- ICP,
- metering installation certification date,
- metering installation certification expiry date,
- metering category,
- certification type (selected component, comparative, fully calibrated, alternative, insufficient load, lower category),
- HHR or NHH,
- compensation factor, and
- electrical connection date (if known and if the ATH is also the agent).

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 4(1)(a) and (b) of Schedule 10.6	Check metering installation certification reports to ensure compliance and improve controls to ensure certification records are complete and accurate.	Intellihub MEP will include this communication within the summary of all technical and compliance issues identified with Installation Certification Reports to all ATH's during the course of this audit. We will also look to enhance our internal audit of the certification reports	Investigating

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 4(1)(a) and (b) of Schedule 10.6	Require Wells to change the layout of the certification report to include the more relevant items clearly on the front page.	Intellihub MEP will review this issue with the WELLS ATH on how to resolve this issue and we will include this communication within the summary of all technical and compliance issues identified with Installation Certification Reports during the course of this audit.	Investigating

BOPE

All 30 certification reports were available. I also requested meter calibration reports and CT calibration reports for all 30 certifications, which were provided. I found a number of errors in the metering installation certification reports. All certifications checked were conducted by the Nova ATH which was closed down on 30th October 2021. The table below shows a breakdown of the number of records checked for each ATH.

Clause	Field required	Quantity incorrect or missing (BOPE ATH)
10.9(3)(b) & Clause 10 of Schedule 10.4 &	All services access interfaces and conditions under which each may be used.	29

Clause 8(2)(c) of Schedule 10.7		
9(1)(c) of Schedule 10.7	Record of increment in register value of accumulation of pulses over a measured time. Record that the register has advanced.	14
2(1)(e) of Schedule 10.8	For CT certification reports, determine and record the range that the in-service burden must be within	1
31(7) of schedule 10.7	Ensure and record appropriate in-service burden	
10.11 & 8(4) of Schedule 10.7	Metering installation category	
6(4) of Schedule 10.7	Certification as a lower category detail	N/A
8(2) of Schedule 10.7	Whether the installation is HHR or NHH or both	1 (CTs certified by TWS)
11(5)(a) & 13(4) of Schedule 10.7	Confirmation ATH has checked the design report	
11(5)(b) of Schedule 10.7	Confirmation that components have been calibrated and certified	
11(5)(c) of Schedule 10.7	Confirmation that table 3 tests have been conducted and passed	1
11(5)(d) of Schedule 10.7	Confirmation that wiring is correct	
11(5)(e) of Schedule 10.7	Details of tests and checks to confirm the integrity of the installation	21
11(6) of Schedule 10.7	Details of compensation factors	
12(5) of Schedule 10.7	Confirmation that components in comparative certified installations are fit for purpose	
14(2) of Schedule 10.7	Additional integrity checks for insufficient load certification	N/A
17(1) of Schedule 10.7	Installation certification and expiry date	
22(3) of Schedule 10.7	Percentage error and uncertainty	

26(4) of Schedule 10.7	Maximum interrogation cycle	
27(5) of Schedule 10.7	Meter certification expiry date	
29(3) of Schedule 10.7	Measuring transformer expiry date	
33(2)(b) of Schedule 10.7	Control device certification expiry date	
33(2)(d) of Schedule 10.7	Confirmation that control device is compliant and fit for purpose	
37(1) of Schedule 10.7	Data storage device expiry date	
1(1)(d) of Schedule 10.8	Validity period	
9(1)(c)(i)(A) of Schedule 10.7	Raw meter data output test load greater than 5% for Cat 1	
9(1)(c)(i)(B) of Schedule 10.7	Raw meter data output test load greater than10A per phase for Cat 2	
3 of schedule 10.8	Ensure CTs are calibrated prior to certification	
Table 3	Prevailing load test conducted using a working standard for recertification without meter replacement.	1
	Total	**68**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.1 With: Clause 4(1)(a) and (b) of Schedule 10.6 From: 01-Apr-20 To: 11-Feb-22	A high number of fields not accurate and complete in a sample of 130 Certification records. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**

Low	The controls require strengthening to ensure record accuracy issues are identified as soon as possible. The impact is minor for most fields. Incorrect certification dates and methods can be misleading and can lead to re-work.

Actions taken to resolve the issue	Completion date	Remedial action status
Intellihub MEP will continue to communicate with ATHs and provide them with the summary of all technical and compliance issues identified with Installation Certification Reports during the course of this audit. We will also look to enhance our internal audit of the certification reports	31/07/2022	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Intellihub will continue to engage with ATH's on better clarity and presentation of certification reports to ensure these are fit for purpose. Over the past nine months, Intellihub has instigated monthly Technical Compliance sessions with contracted Approved Test Houses Wells and Delta with the objectives of improving communication, alignment and ensuring we both meet Code Compliance. We have already seen good value out of these meetings, these will remain ongoing as avenues to discuss any Code or Technical issues as they arise.	Ongoing	

5.2. Inspection Reports (Clause 4(2) of Schedule 10.6)

Code reference

Clause 4(2) of Schedule 10.6

Code related audit information

The MEP must, within 10 business days of receiving a request from a participant for a signed inspection report prepared under clause 44 of Schedule 10.7, make a copy of the report available to the participant.

Audit observation

MTRX

I asked MTRX whether any requests had been made for copies of inspection reports.

BOPE

I asked BOPE whether any requests had been made for copies of inspection reports.

Audit commentary

MTRX

MTRX has not been requested to supply any inspection reports, but these are available and can be supplied on request.

BOPE

BOPE has not been requested to supply any inspection reports, but these are available and can be supplied on request.

Audit outcome

Compliant

5.3. Retention of Metering Records (Clause 4(3) of Schedule 10.6)

Code reference

Clause 4(3) of Schedule 10.6

Code related audit information

The MEP must keep metering installation records for 48 months after any metering component is removed, or any metering installation is decommissioned.

Audit observation

MTRX

I checked the MTRX record keeping processes to confirm compliance.

BOPE

I checked the BOPE record keeping processes to confirm compliance.

Audit commentary

MTRX

MTRX keeps records indefinitely.

BOPE

BOPE keeps records indefinitely.

Audit outcome

Compliant

5.4. Provision of Records to ATH (Clause 6 Schedule 10.6)

Code reference

Clause 6 Schedule 10.6

Code related audit information

If the MEP contracts with an ATH to recertify a metering installation and the ATH did not previously certify the metering installation, the MEP must provide the ATH with a copy of all relevant metering records not later than 10 business days after the contract comes into effect.

Audit observation

MTRX

MTRX has provided information to ATH's in the past, and this may occur in future. There are no current examples to examine.

BOPE

BOPE has provided information to ATH's in the past, and this may occur in future. There are no current examples to examine.

Audit commentary

MTRX

MTRX has provided information to ATH's in the past, and this may occur in future. There are no current examples to examine.

BOPE

BOPE has provided information to ATH's in the past, and this may occur in future. There are no current examples to examine.

Audit outcome

Compliant

6. MAINTENANCE OF REGISTRY INFORMATION

6.1. MEP Response to Switch Notification (Clause 1(1) of Schedule 11.4)

Code reference

Clause 1(1) of Schedule 11.4

Code related audit information

Within 10 business days of being advised by the registry that it is the gaining MEP for the metering installation for the ICP, the MEP must enter into an arrangement with the trader and advise the registry it accepts responsibility for the ICP and of the proposed date on which it will assume responsibility.

Audit observation

MTRX

I checked the switch breach detail report for the period 1 July 2021 to 11 February 2022 to confirm whether all responses were within 10 business days.

BOPE

I checked the switch breach detail report for the period 1 April 2020 to 11 February 2022 to confirm whether all responses were within 10 business days.

Audit commentary

MTRX

All MN files were sent within 10 business days.

BOPE

All MN files were sent within 10 business days.

Audit outcome

Compliant

6.2. Provision of Registry Information (Clause 7 (1), (1A), (2) and (3) of Schedule 11.4)

Code reference

Clause 7 (1), (1A) (2) and (3) of Schedule 11.4

Code related audit information

The MEP must provide the information indicated as being 'required' in Table 1 of clause 7 of Schedule 11.4 to the registry manager, in the prescribed form for each metering installation for which the MEP is responsible.

The MEP does not need to provide 'required' information if the information is only for the purpose of a distributor direct billing consumers on its network.

From 1 April 2015, a MEP is required to ensure that all the registry metering records of its category 1 metering installations are complete, accurate, not misleading or deceptive, and not likely to mislead or deceive.

The information the MEP provides to the registry manager must derive from the metering equipment provider's records or the metering records contained within the current trader's system.

Audit observation

MTRX

I checked the audit compliance report and list file for 100% of records and I checked the Category 1 inspection records to identify discrepancies.

BOPE

I checked the audit compliance report and list file for 100% of records and I checked the Category 1 inspection records to identify discrepancies.

Audit commentary

MTRX

Analysis of the list file and audit compliance report for the period 1 July 2021 to 11 February 2022 for all MTRX ICPs found the issues detailed in the table below.

Quantity of ICPs March 2022	Quantity of ICPs May 2021	Quantity of ICPs Mar 2020	Quantity of ICPs May 2019	Quantity of ICPs July 2018	Issue	Comments
0	1	6	10	52	Blank records on the registry.	-
0	0	0	0	0	Category 1 ICPs with CTs.	-
0	0	0	0	0	Interim certified installations over Category 1.	
1	0	0	0	0	Incorrect compensation factor.	Under investigation.
0	0	0	0	0	Category 3 NHH.	-
0	54	124	205	9,044	Incorrect interim expiry dates. These appear to be fully certified with incorrect "I" flag.	-
0	0	0	0	0	Category 1 with certification duration of more than 15 years.	-
0	0	0	0	0	Category 1 with certification date the same as certification expiry date.	-
0	0	0	1	1	Incorrect certification date or	-

					certification expiry date for Cat 2.	
0	0	3	7	4	Incorrect certification date or certification expiry date for Cat 1.	-
0	0	0	0	0	IN24 as register content code and period of availability.	-
0	0	0	0	0	IN0 as register content code and period of availability.	-
0	0	0	0	0	CN24 as register content code and period of availability. Some of these should be CN13.	-
0	0	0	0	0	D24 and should be D16.	-
0	0	0	0	0	N24.	-
0	0	0	0	0	UN0.	-
0	0	0	0	0	UN12 or UN19.	-
0	0	0	0	0	Day with no night.	-
0	0	0	0	0	Night with no day.	-
0	0	0	7	0	CN only on residential.	-
2,851	2,823	2,823	25 22 excluding duplicates	78	UN with a control device	UNL/VECT where MTRX have an arrangement /agreement with Traders; as the pilot is decommissioned in this network, we have changed the RCC to UN and in most cases, left the LCD on site.
0	2 both have meter cat9 (removed)	2 both have meter cat9 (removed)	7 2 have meter cat9 (removed)	10	Max interrogation cycle of zero days.	-

1,377	1,121	1,235	1,148	1,248	Controlled tariff with no load control device.	1,344 identified as needing site visits to resolve.
142	127	119	40	31	Export ICPs with no injection register.	Intellihub have process in place to capture when the Network changes the installation type to B. In those cases, we reach out to Retailers to see if the current meter on site is fit for purpose or if a site visit is required to change metering. Intellihub will not alter metering unless authorised by the Retailer to do so.
8	1	11	1	13	Stat sampled with a certification duration greater than 7 years	Resolved.
0	0	0	0	7	Incorrect ATH recorded	-
12,743 2,327 during audit period	11,573	-	-	-	Incorrect ATH identifier of VEMS used, should be recorded as VCOM since 28/9/2018	The required system changes have commenced and are due to be completed in coming weeks.

Intellihub conducted sample inspection of MTRX and BOPE Category 1 installations in 2021 and the following issues were found:

Count of ICPs	Description
108	The inspector could not report on the installation certification expiry date, because the installation certification sticker was unreadable, faded, damaged and missing.
36	The installation certification expiry date in the MEP's records did not match the installation certification sticker.
40	The inspector could not report on the installation certification date, because the installation certification sticker was unreadable, faded, damaged or missing.
67	The installation certification date in the MEP's records did not match the installation certification sticker.
117	The installation certification number in the MEP's records did not match the installation certification sticker.
34	The installation certifying ATH in the MEP's records did not match the installation certification sticker.
4	Control device recorded in Intellihub systems, but not found on site.
12	Load control found on site, but no serial number recorded in Intellihub systems.
1	Load control device was found on site with a serial number that was not readable.

3	Load control devices were found on site in a bridged state.
2	Load control devices were found in a disconnected state and not in use.
15	Load control devices were found in a damaged state.

BOPE

Analysis of the list file and audit compliance report for the period 1 April 2020 to 11 February 2022 for all BOPE ICPs found the issues detailed in the table below.

Quantity 2022	Quantity 2020	Quantity 2018	Quantity 2017	Quantity 2016	Issue	Resolved?
0	0	0	1	1	Installations without CT information populated on the registry.	-
0	0	0	1	2	Metering installation with blank records.	-
0	0	0	0	2	ICPs with compensation factors above 3 but recorded as Category 1.	-
0	0	0	0	1	Incorrect compensation factor of 109 recorded in the registry. Has been corrected to 100.	-
0	0	0	0	1	"Invalid" certification date recorded on the registry.	-
0	0	0	0	40	Category 1 installations with certification duration of more than 15 years.	-
0	1	0	0	2	Category 2 installations certified for longer than the period allowed in Table 1.	-
6	5	3	7	246	ICPs with IN24.	Resolved.
1	1	0	1	2	CN only with a residential ANZSIC code indicating domestic use. This is a pump and it's possible the ANZSIC code may be incorrect (this is a trader field outside the MEPs control). The CN code is correct.	CN only for a flood pump. Retailer Anzsic code is Residential so working with the Retailer to have this corrected.
2	4	0	1	0	Night without Day, these are NC there is no day required. (compliant)	Not required

2	-	-	-	-	Day + Night not equal to 24	Same icps per above section – Compliant.
937	0	0	9	1,300	No control device information on the registry for certified control devices.	Require further investigation and potential site visits
0	1	1	-	-	UN without 24	Yes
0	7	-	-	-	Incorrect ATH	Yes
1	-	-	-	-	Compensation factor of 3 on recently certified installations	Requires meter board upgrade to accommodate 3 phase meter. An ATH has been instructed to install a 3-phase meter at this ICP. Standard business practice is to remove any single phase meters on 3 phase installations.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.2 With: Clause 7 (1), (2) and (3) of Schedule 11.4 From: 01-Apr-20 To: 11-Feb-22	Some registry records incomplete or incorrect. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**

Low	I have recorded the controls as moderate in this area because there are still a small number of areas where improvement can be made. ATH accuracy is a good example. Very few of the discrepancies have an impact on participants, customers or settlement. The only relevant ones in this regard are tariff related and there were only a small number. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Intellihub have good controls in place to ensure no new data discrepancies are sent to the Registry. Intellihub will continue to work with Participants for access to sites where site visits are required to help resolve some of the discrepancies identified in the table above, and have placed a lot of focus on achieving quality outcomes	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Our trainer will continue to work with our staff, particularly with new employees to ensure a robust focus on quality	Ongoing	

6.3. Correction of Errors in Registry (Clause 6 of Schedule 11.4)

Code reference

Clause 6 of Schedule 11.4

Code related audit information

By 0900 hours on the 13th business day of each reconciliation period, the MEP must obtain from the registry:

- *a list of ICPs for the metering installations the MEP is responsible for*
- *the registry metering records for each ICP on that list.*

No later than five business days following collection of data from the registry, the MEP must compare the information obtained from the registry with the MEP's own records.

Within five business days of becoming aware of any discrepancy between the MEP's records and the information obtained from the registry, the MEP must correct the records that are in error and advise the registry of any necessary changes to the registry metering records.

Audit observation

MTRX

I conducted a walkthrough of the validation processes to confirm compliance. I checked all records in the audit compliance report to confirm whether the timeliness requirements were being met.

BOPE

I checked if a validation process was being conducted before and after the acquisition by Intellihub to confirm compliance.

Audit commentary

MTRX

This clause is specific and prescriptive, and it requires a complete metering record comparison to be undertaken. MTRX is conducting a complete validation, but errors are not always being corrected within five business days, as recorded in **section 4.10**.

BOPE

Prior to the acquisition by Intellihub BOPE used daily discrepancy reporting from the metering database (CMMS) and all issues were resolved within five business days. Intellihub stopped using CMMS on 1st October 2021 and discrepancy reporting has not taken place since then.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.3 With: Clause 6 of Schedule 11.4 From: 01-Apr-20 To: 05-Apr-22	MTRX - Discrepancies not resolved within five business days. BOPE – Discrepancy report not run since 1st October 2021. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as moderate in this area because discrepancy reporting processes are strong for MTRX but are not currently in place for BOPE. Very few of the discrepancies have an impact on participants, customers or settlement. The only relevant ones in this regard are tariff related and there were only a small number. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Intellihub will continue to resolve discrepancies which have the highest impact on participants and work on solution to cater for BOPE discrepancy reporting.	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Intellihub is committed to an ongoing focus on continuous improvements regarding the quality and completeness of all of transactions.	Ongoing	

6.4. Cancellation of Certification (Clause 20 of Schedule 10.7)

Code reference

Clause 20 of Schedule 10.7

Code related audit information

The certification of a metering installation is automatically cancelled on the date on which one of the following events takes place:

- *a) the metering installation is modified otherwise than under sub clause 19(3), 19(3A) or 19(3C)*
- *b) the metering installation is classed as outside the applicable accuracy tolerances set out in Table 1 of Schedule 10.1, defective or not fit for purpose under this Part or any audit,*
- *c) an ATH advises the metering equipment provider responsible for the metering installation of a reference standard or working standard used to certify the metering installation not being compliant with this Part at the time it was used to certify the metering installation, or the failure of a group of meters in the statistical sampling recertification process for the metering installation, or the failure of a certification test for the metering installation,*
- *d) the manufacturer of a metering component in the metering installation determines that the metering component does not comply with the standards to which the metering component was tested,*
- *e) an inspection of the metering installation, that is required under this Part, is not carried out in accordance with the relevant clauses of this Part,*
- *f) if the metering installation has been determined to be a lower category under clause 6 and:*
  - *(i) the MEP has not received the report under 6(2A)(a) or 6(2A)(b); or*
  - *(ii) the report demonstrates the maximum current is higher than permitted; or*
  - *(iii) the report demonstrates the electricity conveyed exceeds the amount permitted,*
- *g) the metering installation is certified under clause 14 and sufficient load is available for full certification testing and has not been retested under clause 14(4)*
- *h) a control device in the metering installation certification is, and remains for a period of at least 10 business days, bridged out under clause 35(1)*
- *i) the metering equipment provider responsible for the metering installation is advised by an ATH under clause 48(6)(b) that a seal has been removed or broken and the accuracy and continued integrity of the metering installation has been affected.*
- *j) the installation is an HHR AMI installation certified after 29 August 2013 and*
  - *(i) the metering installation is not interrogated within the maximum interrogation cycle; or*
  - *(ii) the HHR and NHH register comparison is not performed; or*
  - *(iii) the HHR and NHH register comparison for the same period finds a difference of greater than 1 kWh and the issue is not remediated within three business days.*

A metering equipment provider must (unless the installation has been recertified within the 10 business days) within 10 business days of becoming aware that one of the events above has occurred in relation to a metering installation for which it is responsible, update the metering installation's certification expiry date in the registry.

If any of the events in Clause 20(1)(j) of Schedule 10.7 have occurred, update the AMI flag in the registry to 'N'.

Audit observation

MTRX

I checked for examples of all the points listed above, and checked whether certification had been cancelled, and whether the registry had been updated within 10 business days.

BOPE

I checked for examples of all the points listed above, and checked whether certification had been cancelled, and whether the registry had been updated within 10 business days.

Audit commentary

MTRX

I checked all of the points mentioned above as follows:

Bridged meters

I checked six examples of bridged meters from the audit period, and they were all recertified. Certification was cancelled as soon as MTRX was advised of the bridging. Compliance is confirmed.

Current transformer in-service burden

Clause 31 of schedule 7 was changed from 1st February 2021 to require the ATH to ensure that the in-service burden is within the burden range of the measuring transformers when certifying metering installations. I checked a sample of 60 Category 2 and above certifications from all ATHs used. All 60 certification records checked had in-service burden within the range of the current transformers. Analysis of all certification records by the Wells ATH during their ATH audit found six metering installations were certified with in-service burden lower than the burden range of the current transformers as detailed in the table below:

ICP	ATH	CT make & model	CT Ratio	Rated burden	Burden range VA	Lowest in-service burden
0000542869TU8A7	Wells	Unknown	200/5	10	2.5 - 5	0.77
0001412905UNE07	Wells	TWS EV86A	200/5	5	1.25 - 5	0.28
0000048576TR37C	Wells	TWS EV84A	300/5	5	1.25 - 5	0.62
1000503659PCFA3	Wells	TWS SEV86A	300/5	5	1.25 - 5	0.37
0001255466UN6AD	Wells	TWS EV86A	300/5	5	1.25 - 5	0.65
0000956104TUDAA	Wells	TWS EV86A	300/5	5	1.25 - 5	0.16

I have recorded non-compliance for the six metering installations with in-service burden lower than the burden range of the current transformers. The current transformers are not fit for purpose when operating outside their burden range and certification has not been cancelled.

Insufficient load certification

Three metering installations which were certified in accordance with the insufficient load clause and required monitoring were identified in my checks of 60 Category 2 and above certification records. I checked and confirmed that all three had been added to the list maintained by MTRX of installations requiring monitoring and confirmed that monitoring had taken place each month. Compliance is confirmed.

Certification at a lower category

I checked the list maintained by MTRX of installations requiring monitoring and confirmed that monitoring had taken place each month. Compliance is confirmed.

Inspection

One Category 2, and one Category 3 ICP were due for inspection. Inspections were not conducted for either ICP within the applicable period. Certification has subsequently been cancelled for these ICPs. Non-compliance is recorded as the certification for ICP 0426505034LC22D was not cancelled within 10 business days. Non-compliance is recorded in **section 8.2** for the missed inspections.

Details of the ICPs are included in the following table.

ICP	Category	Certification Date	Latest inspection date	Certification cancelled	Business days to cancel
0441593518LCD7D	2	22/08/2011	22/02/2022	8/03/2022	10
0426505034LC22D	3	25/08/2016	25/11/2021	15/03/2022	74

Sample inspection was completed for Category 1 metering installations as required. Compliance is confirmed.

Maximum interrogation cycle

I checked for examples where meters were not interrogated within the maximum interrogation cycle and the AMI flag is still "Y" and certification was not cancelled. As recorded in **section 10.5** no examples were identified.

Sum-check Failure

I checked for examples where meters had not passed sum-check and certification was not cancelled. As recorded in **section 10.9** the MTRX process ensures that failures are resolved within three business days or certification is cancelled within 10 business days.

BOPE

I checked all of the points mentioned above as follows:

Bridged meters

I checked an example of a bridged meter from the audit period. The meter was unbridged, and the metering installation recertified within 10 business days. Compliance is confirmed.

Inspection

There were no inspections due for Category 2 and above metering installations during the audit period.

Sample inspection was completed for Category 1 metering installations as required. Compliance is confirmed.

Maximum interrogation cycle

I checked for examples where meters were not interrogated within the maximum interrogation cycle and the AMI flag is still "Y" and certification was not cancelled. As recorded in **section 10.5** no examples were identified.

Sum-check Failure

I checked for examples where meters had not passed sum-check and certification was not cancelled. As recorded in **section 10.9** the BOPE process ensures that failures are resolved within three business days or certification is cancelled within 10 business days.

Audit outcome

Non-compliant

Non-compliance	Description

Audit Ref: 6.4 With: Clause 20 of Schedule 10.7 From: 16-Jun-21 To: 05-Apr-22	Certification not cancelled on the registry within 10 business days for: - six metering installations where low burden is present, and - one Category 3 ICP with missed inspection. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	I have recorded the controls as moderate in this area because most processes are managed with sufficient controls to avoid cancellation of certification. The controls have improved with regard to installations with low burden as ATHs are adopting new processes in line with the code change of 1st February 2021. Whilst the overall error has been recorded as less than the 2.5% maximum it has been shown that under burdened CTs can result in an increase in error of 0.5%. I have recorded the impact as medium.

Actions taken to resolve the issue	Completion date	Remedial action status
6 x Low Burden Installations – reports to be carefully checked, and if required, certification to be cancelled and return visits arranged. Inspections missed – both installations have now been recertified. Improvements have been made to the reporting to ensure timely inspections are completed.	31/08/2022	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Intellihub will investigate implementing 100% Category 2 metering installation certification report ”engineering checks” This should identify any further instances of low burden not being identified.	31/05/2022	

6.5. Registry Metering Records (Clause 11.8A)

Code reference

Clause 11.8A

Code related audit information

The MEP must provide the registry with the required metering information for each metering installation the MEP is responsible for and update the registry metering records in accordance with Schedule 11.4.

Audit observation

MTRX

This clause refers to schedule 11.4 which is discussed in **section 6.2**, apart from the requirement to provide information in the "prescribed form". I checked for examples of MTRX not using the prescribed form.

BOPE

This clause refers to schedule 11.4 which is discussed in **section 6.2**, apart from the requirement to provide information in the "prescribed form". I checked for examples of BOPE not using the prescribed form.

Audit commentary

MTRX

This clause refers to schedule 11.4 which is discussed in **section 6.2**, apart from the requirement to provide information in the "prescribed form". I checked for examples of MTRX not using the prescribed form.

BOPE

This clause refers to schedule 11.4 which is discussed in **section 6.2**, apart from the requirement to provide information in the "prescribed form". I checked for examples of BOPE not using the prescribed form.

Audit outcome

Compliant

7. CERTIFICATION OF METERING INSTALLATIONS

7.1. Certification and Maintenance (Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7)

Code reference

Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7

Code related audit information

The MEP must obtain and maintain certification, for all installations and metering components for which it is responsible. The MEP must ensure it:

- *performs regular maintenance, battery replacement, repair/replacement of components of the metering installations,*
- *updates the metering records at the time of the maintenance,*
- *has a recertification programme that will ensure that all installations are recertified prior to expiry.*

Audit observation

MTRX

I conducted the following checks to identify metering installations with expired, cancelled or late certification:

- the audit compliance report was checked to identify ICPs with expired certification, and
- I checked ICPs where certification was cancelled to ensure the registry was updated accordingly.

BOPE

I conducted the following checks to identify metering installations with expired, cancelled or late certification:

- the audit compliance report was checked to identify ICPs with expired certification, and
- I checked ICPs where certification was cancelled to ensure the registry was updated accordingly.

Audit commentary

MTRX

The registry shows 4,635 ICPs with uncertified metering installations including 4,555 at Category 1, 79 at Category 2 and one at Category 4. 464 of these ICPs show as previously interim certified. 2,096 ICPs were previously certified, and certification expired or was cancelled within the audit period.

MTRX provided a breakdown of the uncertified ICPs as detailed in the following table:

Cancelled or expired	Reason for cancellation	Actions	Number of ICPs
Expired	-	Site visit to be arranged. Recert project	3,274
Cancelled	Bridged	Comms sent, awaiting SR	47
Cancelled	Low burden	MS checking updates on this job	1
Cancelled	CAT1 inspection - Customer refusal for smart meter	MS to advise action	1

Cancelled	Failed Sum-check (cert number CSREC) - MS to advise action	Site visit to be arranged. Sum check project	143
Cancelled	MIC	MS to advise action	1
Cancelled	Sum-check	Site visit to be arranged. Sum check project	1,168

As recorded in **section 6.4**, six metering installations have cancelled certification due to low burden and one Category 3 metering installation has cancelled certification due to a missed inspection.

BOPE

The registry shows 156 ICPs with uncertified metering installations including 147 at Category 1, six at Category 2 and three at Category 3. 30 of these ICPs show as previously interim certified. 114 ICPs were previously certified, and certification expired or was cancelled within the audit period.

BOPE provided a breakdown of the uncertified ICPs as detailed in the following table:

Cancelled or expired	Reason for cancellation	Actions	Number of ICPs
Expired	-	Site visit to be arranged. Part of Recert project	125
Expired	-	Have since switched to another MEP	6
Expired	-	Have since been recertified	2
Cancelled	Not provided	Site visit to be arranged	23

Intellihub provided a copy of a letter sent to the Authority dated 29th October 2021 detailing it's plans for recertification of uncertified metering installations under the MTRX and BOPE identifiers by December 2022 through statistical sampling, meter replacement and recertification of ICPs with cancelled certification. It is noted in the letter that this is dependent on retailers to provide the service requests, enable access and work collaboratively to solve UTCs (unable to completes) along with engagement from their customers.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 7.1 With: Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7 From: 01-Jan-98 To: 11-Feb-22	Certification expired, cancelled or late for 4,798 ICPs. Potential impact: High Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	I have recorded the controls as moderate in this area because certification has been expired for a number of years for some ICPs and because some of the expired installations were fully certified at one point. The impact on settlement is recorded as moderate because of the increased likelihood of failure or inaccuracy for metering installations with expired certification, therefore the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
Intellihub has an ongoing program of recertification using the selected component method for legacy, uncertified meters (for which statistical sampling is not an available option). For example, unknown meter makes and models. Intellihub has also commenced a programme of recertification by statistical sampling project, commencing in May 2022. This should address a significant proportion of the 3,274 expired Category 1 ICP's.	31/12/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	31/12/2022	

7.2. Certification Tests (Clause 10.38(b) and clause 9 of Schedule 10.6)

Code reference

Clause 10.38(b) and clause 9 of Schedule 10.6

Code related audit information

For each metering component and metering installation an MEP is responsible for, the MEP must ensure that:

- *an ATH performs the appropriate certification and recertification tests,*
- *the ATH has the appropriate scope of approval to certify and recertify the metering installation.*

Audit observation

MTRX

I checked the certification records for 100 metering installations to confirm compliance.

BOPE

I checked the certification records for 30 metering installations to confirm compliance.

Audit commentary

MTRX

Certification activities have been conducted by the Accucal, AMS, Nova, Delta, Intellihub and Wells ATHs.

Category 2 certification tests

The certification records for 59 of the 60 Category 2 and above metering installations included test results which confirmed that all required testing had been completed.

The certification report provided by the AMS ATH for ICP 1002143434LC225 contained the following "Certification Condition", "Meter Hang Only - Board live up to Main Switch - No load for PL Test. Unable to take load bank in as access is via stairs only as lifts not yet operational. New job needed to return to site for certification." In this case the registry has been updated to indicate that the installation was certified but the certification report indicates that no testing was conducted. Non-compliance is recorded.

Category 1 certification tests

I checked a sample of 40 Category 1 certification records to confirm if all required testing had been completed. The certification records included confirmation that testing had been conducted. As recorded in **section 5.1** there were a high number of certification records with inaccurate or missing information including the results of testing conducted by the AMS, Delta and Intellihub ATHs. I repeat the recommendation from the previous audit that Intellihub requires ATHs to include details and results of all testing completed in the metering installation certification reports provided.

A breakdown of the certification reports checked and recording of test results is detailed in the table below:

ATH	Total Cat 1 reports checked	Reports with test results not recorded
AMS	10	10
Delta	10	10
Intellihub	10	2
Wells	10	0
Total	40	22

In the previous audit non-compliance was recorded for the meter register not incrementing when raw meter data tests were conducted on MTRX meters with no decimal place. The Authority released a memo on 29th October 2021 providing clarification on raw meter data output tests for category 1 and 2 metering installations where the least significant digit is not a numeral. This memo confirms compliance is achieved for the MTRX meters where the least significant digit is not a numeral.

There were seven examples where Category 1 metering installations were recertified without a meter change taking place. Table 3 of Schedule 10.1 requires that a prevailing load test is conducted when a Category 1 metering installation is recertified without the meter being changed. Clause 9(1)(a) requires that prevailing load tests must be conducted using a working standard connected to the metering installation. I have recorded non-compliance as the ATH did not conduct a prevailing load test using a working standard for these seven examples. Details of the seven ICPs are listed in the following table:

ICP	ATH	Certification date	Reason for recertification
0000013026TR2E5	Wells	1/10/2021	Control device replaced
0000066424TR3F8	Wells	10/12/2021	Control device replaced
0100466143LC7A4	Delta	16/12/2021	Meter unbridged
0173412963LC0BF	Wells	25/11/2021	Meter unbridged
0176774688LC4A0	Delta	16/12/2021	Meter unbridged
0344534049LCC81	Delta	28/01/2022	Meter unbridged
0000074224TRE5F	Wells	8/10/2021	One meter removed

BOPE

Certification activities have been conducted by the BOPE and Wells ATHs.

Category 2 certification tests

The certification records for 10 of the 15 Category 2 and above metering installations included test results which confirmed that all required testing had been completed. Five of the certification records did not include the test results.

Category 1 certification tests

I checked a sample of 15 Category 1 certification records to confirm if all required testing had been completed. The certification records included a statement confirming testing had been completed. As recorded in **section 5.1** there were a high number of certification records with inaccurate or missing information including the results of testing conducted by the Nova ATH. I have recommended that Intellihub requires ATHs to include details and results of all testing completed in the metering installation certification reports provided.

There was one example where a Category 1 metering installation was recertified without a meter change taking place. Table 3 of Schedule 10.1 requires that a prevailing load test is conducted when a Category 1 metering installation is recertified without the meter being changed. Clause 9(1)(a) requires that prevailing load tests must be conducted using a working standard connected to the metering installation. I have recorded non-compliance as the ATH did not conduct a prevailing load test using a working standard in this example. Details of the ICP are included in the following table:

ICP	ATH	Certification date	Reason for recertification
1000022129BP4B2	Nova	8/03/2021	Meter unbridged

Recommendation	Description	Audited party comment	Remedial action

Regarding Clause 10.38(b)	Require ATHs to include details and results of all testing completed in the metering installation certification reports provided.	Intellihub will include this recommendation along with any identified areas of non compliance, when communicating with Approved Test Houses	Identified

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 7.2 With: Clause 10.38(b) From: 01-Oct-21 To: 28-Jan-22	Prevailing load test not conducted for eight Category 1 and one Category 2 metering installations. Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate as ATH processes ensure that testing requirements are met in most scenarios but there is room for improvement. The impact is low as the accuracy of the metering installation is unlikely to have been impacted by the prevailing load test not being completed, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status

It was not possible for the ATH to carry out A load test at ICP 1002143434LC225 due to access / health and safety reasons. The Approved Test house commentary was as follows: "Insufficient Load for full certification - Unable to use load bank due to access issues. MSB located in Basement and Lifts not yet operational. Driveway to basement carpark having concrete poured and no vehicle access. Unable to carry load bank down stairs. Applied Low-load certification" Full certification will be completed as soon as sufficient load is available and access restrictions are resolved. Prevailing load test not conducted for 8x Category 1 ICP's: Intellihub interpretation of Line 2 of Table 3 in Part 10 is that a Prevailing Load Test should not be required when a meter is not being changed, and the installation certification expiry date remains unchanged. We are currently awaiting a response from the Authority to clarify this. In the interim, Intellihub is ensuring that all other tests and checks are completed including a raw meter data output test to confirm installation accuracy.	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As Above	Ongoing	

7.3. Active and Reactive Capability (Clause 10.37(1) and 10.37(2)(a))

Code reference

Clause 10.37(1) and 10.37(2)(a)

Code related audit information

For any category 2 or higher half-hour metering installation that is certified after 29 August 2013, the MEP must ensure that the installation has active and reactive measuring and recording capability.

Consumption only installations that is a category 3 metering installation or above must measure and separately record:

a) import active energy,
b) import reactive energy,
c) export reactive energy.

Consumption only installations that are a category 2 metering installation must measure and separately record import active energy.

All other installations must measure and separately record:

a) import active energy,
b) export active energy,
c) import reactive energy,
d) export reactive energy.

All grid connected POCs with metering installations which are certified after 29 August 2013 should measure and separately record:

a) *import active energy,*
b) *export active energy,*
c) *import reactive energy,*
d) *export reactive energy.*

Audit observation

MTRX

I checked the certification records for 60 metering installations to confirm compliance.

BOPE

I checked the certification records for 15 metering installations to confirm compliance.

Audit commentary

MTRX

All relevant metering is compliant with this clause.

BOPE

All relevant metering is compliant with this clause.

Audit outcome

Compliant

7.4. Local Service Metering (Clause 10.37(2)(b))

Code reference

Clause 10.37(2)(b)

Code related audit information

The accuracy of each local service metering installation in grid substations must be within the tolerances set out in Table 1 of Schedule 10.1.

Audit observation

MTRX

This clause relates to Transpower as an MEP.

BOPE

This clause relates to Transpower as an MEP.

Audit commentary

MTRX

This clause relates to Transpower as an MEP.

BOPE

This clause relates to Transpower as an MEP.

Audit outcome

Not applicable

7.5. Measuring Transformer Burden (Clause 30(1) and 31(2) of Schedule 10.7)

Code reference

Clause 30(1) and 31(2) of Schedule 10.7

Code related audit information

The MEP must not permit a measuring transformer to be connected to equipment used for a purpose other than metering, unless it is not practical for the equipment to have a separate measuring transformer.

The MEP must ensure that a change to, or addition of, a measuring transformer burden or a compensation factor related to a measuring transformer is carried out only by:

a) the ATH who most recently certified the metering installation,
b) for a POC to the grid, by a suitably qualified person approved by both the MEP and the ATH who most recently certified the metering installation.

Audit observation

MTRX

I asked MTRX if there were any examples of burden changes, or the addition of non-metering equipment being connected to metering CTs.

BOPE

I asked BOPE if there were any examples of burden changes, or the addition of non-metering equipment being connected to metering CTs.

Audit commentary

MTRX

There are no examples of burden changes having occurred.

BOPE

There are no examples of burden changes having occurred.

Audit outcome

Compliant

7.6. Certification as a Lower Category (Clauses 6(1)(b) and (d), and 6(2)(b) of Schedule 10.7)

Code reference

Clauses 6(1)(b) and (d), and 6(2)(b) of Schedule 10.7

Code related audit information

A category 2 or higher metering installation may be certified by an ATH at a lower category than would be indicated solely on the primary rating of the current if the MEP, based on historical metering data, reasonably believes that:

- *the maximum current will at all times during the intended certification period be lower than the current setting of the protection device for the category for which the metering installation is certified, or is required to be certified by the Code; or*
- *the metering installation will use less than 0.5 GWh in any 12-month period.*

If a metering installation is categorised under clause 6(1)(b), the ATH may, if it considers appropriate, and, at the MEP's request, determine the metering installation's category according to the metering installation's expected maximum current.

If a meter is certified in this manner:

- *the MEP must, each month, obtain a report from the participant interrogating the metering installation, which details the maximum current from raw meter data from the metering installation by either calculation from the kVA by trading period, if available, or from a maximum current indicator if fitted in the metering installation conveyed through the point of connection for the prior month; and*
- *if the MEP does not receive a report, or the report demonstrates that the maximum current conveyed through the POC was higher than permitted for the metering installation category it is certified for, then the certification for the metering installation is automatically cancelled.*

Audit observation

MTRX

I checked all ICPs where the CT ratio was above the threshold to confirm that protection was appropriate or that monitoring was in place.

BOPE

I checked the audit compliance report for examples of ICPs where the CT ratio was above the threshold to confirm that protection was appropriate or that monitoring was in place.

Audit commentary

MTRX

MTRX maintains a list of Category 2 metering installations with CT ratios above 500/5 and conducts monthly monitoring to ensure that demand has not exceeded the allowable threshold. I checked the latest monitoring report containing 19 ICPs which confirmed monitoring had taken place and none had exceeded the threshold.

There were no examples of certification at a lower category in the sample of 60 Category 2 and above certification records checked.

BOPE

There were no ICPs certified at a lower category.

Audit outcome

Compliant

7.7. Insufficient Load for Certification Tests (Clauses 14(3) and (4) of Schedule 10.7)

Code reference

Clauses 14(3) and (4) of Schedule 10.7

Code related audit information

If there is insufficient electricity conveyed through a POC to allow the ATH to complete a prevailing load test for a metering installation that is being certified as a half hour meter and the ATH certifies the metering installation the MEP must:

- *obtain and monitor raw meter data from the metering installation at least once each calendar month to determine if load during the month is sufficient for a prevailing load test to be completed:*
- *if there is sufficient load, arrange for an ATH to complete the tests (within 20 business days).*

Audit observation

MTRX

I checked the process and three examples of insufficient load certification.

BOPE

BOPE does not allow certification in accordance with this clause. Load banks are required to be used to increase the load to conduct testing.

Audit commentary

MTRX

Three metering installations were identified in my checks of 60 Category 2 and above certification records which were certified in accordance with the insufficient load clause and required monitoring. I checked and confirmed that all three had been added to the list maintained by MTRX of installations requiring monitoring, and also confirmed that monitoring had taken place each month. When sufficient load is identified the ATH is provided with profile data to allow them to return at a time when load is available.

BOPE

BOPE does not allow certification in accordance with this clause. Load banks are required to be used to increase the load to conduct testing.

Audit outcome

Compliant

7.8. Insufficient Load for Certification – Cancellation of Certification (Clause 14(6) of Schedule 10.7)

Code reference

Clause 14(6) of Schedule 10.7

Code related audit information

If the tests conducted under clause 14(4) of Schedule 10.7 demonstrate that the metering installation is not within the relevant maximum permitted error:

- *the metering installation certification is automatically revoked:*
- *the certifying ATH must advise the MEP of the cancellation within one business day:*
- *the MEP must follow the procedure for handling faulty metering installations (clause 10.43 - 10.48).*

Audit observation

MTRX

I checked three examples of insufficient load certification and the process to confirm compliance.

BOPE

BOPE does not allow certification in accordance with this clause. Load banks are required to be used to increase the load to conduct testing.

Audit commentary

MTRX

In all three cases sufficient load for certification tests has yet to be identified. MTRX demonstrated that it understands the requirement to complete testing when sufficient load is identified.

BOPE

BOPE does not allow certification in accordance with this clause. Load banks are required to be used to increase the load to conduct testing.

Audit outcome

Compliant

7.9. Alternative Certification Requirements (Clauses 32(2), (3) and (4) of Schedule 10.7)

Code reference

Clauses 32(2), (3) and (4) of Schedule 10.7

Code related audit information

If an ATH cannot comply with the requirements to certify a metering installation due to measuring transformer access issues, and therefore certifies the metering installation in accordance with clause 32(1) of Schedule 10.7, the MEP must:

- *advise the market administrator, by no later than 10 business days after the date of certification of the metering installation, of the details in clause 32(2)(a) of Schedule 10.7,*
- *respond, within five business days, to any requests from the market administrator for additional information,*
- *ensure that all of the details are recorded in the metering installation certification report,*
- *take all steps to ensure that the metering installation is certified before the certification expiry date.*

If the market administrator determines the ATH could have obtained access the metering installation is deemed to be defective, and the MEP must follow the process of handling faults metering installations in clauses 10.43 to 10.48.

Audit observation

MTRX

I checked the registry records to confirm whether alternative certification had been applied.

BOPE

I checked the registry records to confirm whether alternative certification had been applied.

Audit commentary

MTRX

Alternative certification has not been applied to any metering installations.

MTRX

Alternative certification has not been applied to any metering installations.

Audit outcome

Compliant

7.10. Timekeeping Requirements (Clause 23 of Schedule 10.7)

Code reference

Clause 23 of Schedule 10.7

Code related audit information

If a time keeping device that is not remotely monitored and corrected controls the switching of a meter register in a metering installation, the MEP must ensure that the time keeping device:

a) *has a time keeping error of not greater than an average of 2 seconds per day over a period of 12 months,*
b) *is monitored and corrected at least once every 12 months.*

Audit observation

MTRX

I asked MTRX whether there were any metering installations with time switches switching meter registers or any metering installations with time dependant register content codes where the AMI flag had been changed to "N" for more than 12 months.

BOPE

I asked BOPE whether there were any metering installations with time switches switching meter registers or any metering installations with time dependant register content codes where the AMI flag had been changed to "N" for more than 12 months.

Audit commentary

MTRX

MTRX confirmed that there are no metering installations with meter registers controlled by time switches.

MTRX has AMI meters with configurations using multiple registers that are remotely monitored to meet the requirements of Clause 8(4) of Schedule 10.6. In cases where AMI meters fail to communicate the MEP switches the AMI flag in the registry to "N" to avoid cancellation of certification. When the meter is not communicating its time is no longer monitored and it becomes subject to the requirements of this clause if there are registers switched by the time of meter. One active ICP with time dependant register content codes (D/N) where the AMI flag had been changed to "N" due to an inability to communicate for more than 12 months was identified. I have recorded non-compliance for this ICP as the requirement to monitor and correct time at least once every 12 months has not been met.

BOPE

BOPE confirmed there are no metering installations with time switches and no metering installations with time dependant registers content codes where the AMI flag had been changed to "N" for more than 12 months.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 7.10 With: Clause 23 of Schedule 10.7 From: 14-Aug-21 To: 05-Apr-22	One ICP with time dependant meter registers with time not monitored every 12 months. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**

Low	I have recorded the controls as moderate as MTRX has the capability to identify this, but regular monitoring has not taken place. The impact on settlement and participants could be minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Intellihub will arrange a site visit to appropriately resolve this issue.	30/06/2022	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Intellihub will develop a specific report to identify D/N meters with AMI Comms = N. Intellihub will where appropriate replace equipment to ensure reliable AMI communications Intellihub will develop a process to perform local time synchronization appropriate for each of our meter types, locations and available technicians.	30/06/2022	

7.11. Control Device Bridged Out (Clause 35 of Schedule 10.7)

Code reference

Clause 35 of Schedule 10.7

Code related audit information

The participant must, within 10 business days of bridging out a control device or becoming aware of a control device being bridged out, notify the following parties:

- *the relevant reconciliation participant*
- *the relevant metering equipment provider.*

If the control device is used for reconciliation, the metering installation is considered defective in accordance with 10.43.

Audit observation

MTRX

I checked the process for the management of bridged control devices, and I checked whether any notifications were required to other parties.

BOPE

I checked the process for the management of bridged control devices, and I checked whether any notifications were required to other parties.

Audit commentary

MTRX

Control device bridging sometimes occurs by contractors on behalf of traders and MTRX will then be notified in order to conduct remedial action, if the contractor is not operating under an ATH. Notification

is not required to any other party because the request comes from the trader. The process is compliant, and I checked 40 examples to confirm compliance and to confirm timeliness. All 40 examples were resolved within 10 business days.

BOPE

BOPE has a process in place for the management of bridged control devices. BOPE provided details of two installations with bridged control devices. In both cases the control devices were unbridged, and notifications provided as required.

Audit outcome

Compliant

7.12. Control Device Reliability Requirements (Clause 34(5) of Schedule 10.7)

Code reference

Clause 34(5) of Schedule 10.7

Code related audit information

If the MEP is advised by an ATH that the likelihood of a control device not receiving signals would affect the accuracy or completeness of the information for the purposes of Part 15, the MEP must, within three business days inform the following parties of the ATH's determination (including all relevant details):

a) the reconciliation participant for the POC for the metering installation
b) the control signal provider.

Audit observation

MTRX

I checked the steps MTRX had taken to identify regions with signal propagation issues.

BOPE

I checked the steps BOPE had taken to identify regions with signal propagation issues.

Audit commentary

MTRX

MTRX has previously asked all relevant distributors for information on areas with signal propagation issues. Vector responded with some specific areas in the "United" region and MTRX is ensuring control devices are not installed in these areas. The other responses indicated that no issues were present.

BOPE

BOPE has not received any notification from ATHs in accordance with this clause.

Audit outcome

Compliant

7.13. Statistical Sampling (Clauses 16(1) and (5) of Schedule 10.7)

Code reference

Clauses 16(1) and (5) of Schedule 10.7

Code related audit information

The MEP may arrange for an ATH to recertify a group of category 1 metering installations for which the MEP is responsible using a statistical sampling process.

The MEP must update the registry in accordance with Part 11 on the advice of an ATH as to whether the group meets the recertification requirements.

Audit observation

MTRX

I checked whether recertification by statistical sampling had occurred during the audit period.

BOPE

I checked whether recertification by statistical sampling had occurred during the audit period.

Audit commentary

MTRX

No recertification by statistical sampling has taken place in the audit period.

BOPE

No recertification by statistical sampling has taken place in the audit period.

Audit outcome

Compliant

7.14. Compensation Factors (Clause 24(3) of Schedule 10.7)

Code reference

Clause 24(3) of Schedule 10.7

Code related audit information

If an external compensation factor must be applied to a metering installation that is an NSP, the MEP must advise the reconciliation participant responsible for the metering installation of the compensation factor within 10 days of certification of the installation.

In all other cases the MEP must update the compensation factor recorded in the registry in accordance with Part 11.

Audit observation

MTRX

I checked the records for 60 Category 2 and above metering installations to confirm that compensation factors were correct.

BOPE

I checked the records for 15 Category 2 and above metering installations to confirm that compensation factors were correct.

Audit commentary

MTRX

The compensation factors were correct for all 60 metering installations checked. MTRX meters are programmed with the current transformer multiplier, so compensation factors are recorded as “1” on the registry. MTRX does not have any installations with loss or error compensation factors.

During the recent Delta ATH audit a MTRX Category 2 metering installation (ICP 0001930005TG97E) with a compensation factor of "100" was identified. The certification report included test results confirming that the compensation factor was correctly recorded as "100". It appears that in this case the meter was not programmed with the multiplier. MTRX were arranging a site visit to confirm at the time of the audit. I have recorded non-compliance as MTRX has recorded the compensation factor as "1" on the registry.

BOPE

The compensation factors were correct for all 15 metering installations.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 7.14 With: 24(3) of Schedule 10.7 From: 26-Jan-22 To: 05-Apr-22	Compensation factor incorrectly recorded as "1" on the registry for ICP 0001930005TG97E. Potential impact: High Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as moderate as the process for checking certification reports did not identify the variance in compensation factor. The impact on settlement is still under investigation and it has not been determined if the incorrect compensation factor is being used. I have recorded the impact as low due to the short timeframe since certification; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
The assessment of the correct compensation factor ICP 0001930005TG97E is still under investigation.	30/06/2022	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
As above.	30/06/2022	

7.15. Metering Installations Incorporating a Meter (Clause 26(1) of Schedule 10.7)

Code reference

Clause 26(1) of Schedule 10.7

Code related audit information

The MEP must ensure that each meter in a metering installation it is responsible for is certified.

Audit observation

MTRX

I checked the certification records for 100 metering installations to confirm compliance.

BOPE

I checked the certification records for 30 metering installations to confirm compliance.

Audit commentary

MTRX

Meters were certified for all 100 installations.

BOPE

Meters were certified for all 30 installations.

Audit outcome

Compliant

7.16. Metering Installations Incorporating a Measuring Transformer (Clause 28(1) of Schedule 10.7)

Code reference

Clause 28(1) of Schedule 10.7

Code related audit information

The MEP must ensure that each measuring transformer in a metering installation it is responsible for is certified.

Audit observation

MTRX

I checked the certification records for 38 Category 2 and above metering installations certified using the selected component and fully calibrated methods to confirm compliance.

BOPE

I checked the certification records for 10 Category 2 and above metering installations certified using the selected component method to confirm compliance.

Audit commentary

MTRX

Measuring transformers were certified for all 38 Category 2 and above metering installations certified using the selected component and fully calibrated methods.

BOPE

Measuring transformers were certified for all 10 Category 2 and above metering installations certified using the selected component method.

Audit outcome

Compliant

7.17. Metering Installations Incorporating a Data Storage Device (Clause 36(1) of Schedule 10.7)

Code reference

Clause 36(1) of Schedule 10.7

Code related audit information

The MEP must ensure that each data storage device in a metering installation it is responsible for is certified.

Audit observation

MTRX

I checked the certification records for 92 metering installations containing data storage devices to confirm compliance.

BOPE

I checked the certification records for 30 metering installations containing data storage devices to confirm compliance.

Audit commentary

MTRX

Data storage devices were certified for all 92 metering installations.

BOPE

Data storage devices were certified for all 30 metering installations.

Audit outcome

Compliant

7.18. Notification of ATH Approval (Clause 7 (3) Schedule 10.3)

Code reference

Clause 7 (3) Schedule 10.3

Code related audit information

If the MEP is notified by the Authority that an ATH's approval has expired, been cancelled or been revised, the MEP must treat all metering installations certified by the ATH during the period where the ATH was not approved to perform the activities as being defective and follow the procedures set out in 10.43 to 10.48.

Audit observation

MTRX

I checked the ATH register to confirm compliance.

BOPE

I checked the ATH register to confirm compliance.

Audit commentary

MTRX

All relevant ATHs have appropriate approval.

BOPE

All relevant ATHs have appropriate approval.

Audit outcome

Compliant

7.19. Interim Certification (Clause 18 of Schedule 10.7)

Code reference

Clause 18 of Schedule 10.7

Code related audit information

The MEP must ensure that each interim certified metering installation on 28 August 2013 is certified by no later than 1 April 2015.

Audit observation

MTRX

I checked the registry records to identify any ICPs with interim certification recorded.

BOPE

I checked the registry records to identify any ICPs with interim certification recorded.

Audit commentary

MTRX

There are 464 previously interim certified installations with expired certification. This clause required the MEP to recertify each interim certified metering installation by 1 April 2015. Compliance is recorded in this section as Intellihub was not the MEP at that time. Non-compliance is recorded in **section 7.1** for the 464 ICPs.

BOPE

There are 30 previously interim certified installations with expired certification. This clause required the MEP to recertify each interim certified metering installation by 1 April 2015. Compliance is recorded in this section as Intellihub was not the MEP at that time. Non-compliance is recorded in **section 7.1** for the 30 ICPs.

Audit outcome

Compliant

8. INSPECTION OF METERING INSTALLATIONS

8.1. Category 1 Inspections (Clause 45 of Schedule 10.7)

Code reference

Clause 45 of Schedule 10.7

Code related audit information

The MEP must ensure that category 1 metering installations (other than interim certified metering installations):

- *have been inspected by an ATH within 126 months from the date of the metering installation's most recent certification or*
- *for each 12-month period, commencing 1 January and ending 31 December, ensure an ATH has completed inspections of a sample of the category 1 metering installations selected under clause 45(2) of Schedule 10.7.*

Before a sample inspection process can be carried out, the MEP must submit a documented process for selecting the sample to the Electricity Authority, at least 2 months prior to first date on which the inspections are to be carried out, for approval (and promptly provide any other information the Authority may request).

The MEP must not inspect a sample unless the Authority has approved the documented process.

The MEP must, for each inspection conducted under clause 45(1)(b), keep records detailing:

- *any defects identified that have affected the accuracy or integrity of the raw meter data recorded by the metering installation,*
- *any discrepancies identified under clause 44(5)(b)*
- *relevant characteristics, sufficient to enable reporting of correlations or relationships between inaccuracy and characteristics,*
- *the procedure used, and the lists generated, to select the sample under clause 45(2).*

The MEP must, if it believes a metering installation that has been inspected is or could be inaccurate, defective or not fit for purpose:

- *comply with clause 10.43,*
- *arrange for an ATH to recertify the metering installation if the metering is found to be inaccurate under Table 1 of Schedule 10.1, or defective or not fit for purpose.*

The MEP must by 1 April in each year, provide the Authority with a report that states whether the MEP has, for the previous 1 January to 31 December period, arranged for an ATH to inspect each category 1 metering installation for which it is responsible under clause 45(1)(a) or 45(1)(b).

This report must include the matters specified in clauses 45(8)(a) and (b).

If the MEP is advised by the Authority that the tests do not meet the requirements under clause 45(9) of Schedule 10.7, the MEP must select the additional sample under that clause, carry out the required inspections, and report to the Authority, within 40 business days of being advised by the Authority.

Audit observation

MTRX

I checked the process, and the results for the Category 1 inspection regime to confirm compliance.

BOPE

I checked the process, and the results for the Category 1 inspection regime to confirm compliance.

Audit commentary

MTRX

Intellihub conducted Category 1 inspections by sample in accordance with this clause for its MTRX and BOPE installations in 2021. I viewed the report which was sent to the Authority on 25th March 2022. The process and reporting of results is compliant.

BOPE

Intellihub conducted Category 1 inspections by sample in accordance with this clause for its MTRX and BOPE ICPs in 2021. I viewed the report which was sent to the Authority on 25th March 2022. The process and reporting of results is compliant.

Nova conducted Category 1 inspections by sample in accordance with this clause for BOPE ICPs in 2020. I viewed the report which was sent to the Authority on 11th December 2020. The process and reporting of results is compliant.

Audit outcome

Compliant

8.2. Category 2 to 5 Inspections (Clause 46(1) of Schedule 10.7)

Code reference

Clause 46(1) of Schedule 10.7

Code related audit information

The MEP must ensure that each category 2 or higher metering installation is inspected by an ATH at least once within the applicable period. The applicable period begins from the date of the metering installation's most recent certification and extends to:

- *120 months for Category 2*
- *60 months for Category 3*
- *30 months for Category 4*
- *18 months for Category 5.*

Audit observation

MTRX

I checked the registry information to confirm which ICPs were due for inspection.

BOPE

I checked the registry information to confirm which ICPs were due for inspection.

Audit commentary

MTRX

One Category 2, and one Category 3 ICP were due for inspection. Inspections were not conducted for either ICP within the applicable period. Certification has subsequently been cancelled for these ICPs. Timeliness of the cancellation of certification is discussed in **section 6.4**.

Details of the ICPs are included in the following table:

ICP	Category	Certification Date	Latest inspection date
0441593518LCD7D	2	22/08/2011	22/02/2022

0426505034LC22D	3	25/08/2016	25/11/2021

BOPE

There were no ICPs due for inspection.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 8.2 With: 46(1) of Schedule 10.7 From: 25-Nov-21 To: 22-Feb-22	One Category 2 and one Category 3 metering installation not inspected within the maximum inspection period. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as strong as Intellihub has a regime in place and only two inspections were not conducted within the maximum inspection period. It is unlikely that the missed inspections will impact on other participants and on settlement. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Two inspections were missed as a result of: 1) A one-off data-entry error for a Category 3 ICP and 2) One (1) Category 2 metering installation which was certified for a period in excess of 10 years. Steps have been taken to correct these as follows: Improved reporting for predicting the inspection-due dates for Category 3 and above installations A check of all Category 2 installations certification periods has been completed and has confirmed that there no other instances of certification periods exceeding 120 months. Therefore there are no further inspections required for any of our Category 2 metering installations.	31/05/2022	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	

Both ICP's are in the process of being recertified. ICP 0426505034LC22D was completed on 31/03/2022 (prior to the date of the audit), the other is awaiting a Service Request from the Trader.	31/05/2022	

8.3. Inspection Reports (Clause 44(5) of Schedule 10.7)

Code reference

Clause 44(5) of Schedule 10.7

Code related audit information

The MEP must, within 20 business days of receiving an inspection report from an ATH:

- *undertake a comparison of the information received with its own records,*
- *investigate and correct any discrepancies,*
- *update the metering records in the registry.*

Audit observation

MTRX

I checked the process and results from inspection regimes to ensure any incorrect records were updated.

BOPE

I checked the process and results from inspection regimes to ensure any incorrect records were updated.

Audit commentary

MTRX

MTRX checked the relevant details during inspections, and I observed evidence that updates had occurred where discrepancies were found.

BOPE

BOPE checked the relevant details during inspections, and I observed evidence that updates had occurred where discrepancies were found.

Audit outcome

Compliant

8.4. Broken or removed seals (Clause 48(4) and (5) of Schedule 10.7)

Code reference

Clause 48(4) and (5) of Schedule 10.7

Code related audit information

If the MEP is advised of a broken or removed seal it must use reasonable endeavours to determine

a) who removed or broke the seal,
b) the reason for the removal or breakage.

and arrange for an ATH to carry out an inspection of the removal or breakage and determine any work required to remedy the removal or breakage.

The MEP must make the above arrangements within

a) *3 business days, if the metering installation is category 3 or higher,*
b) *10 business days if the metering installation is category 2,*
c) *20 business days if the metering installation is category 1.*

If the MEP is advised under 48(1B)(c) or (48(1F)(d) the MEP must update the relevant meter register content code for the relevant meter channel.

Audit observation

MTRX

I checked 30 examples of notification of missing seals, which were all as a result of inspection processes.

BOPE

I checked 30 examples of notification of missing seals, which were all as a result of inspection processes.

Audit commentary

MTRX

In all cases the installation was re-sealed following confirmation that the integrity of the installation was not compromised.

BOPE

In all cases the installation was re-sealed following confirmation that the integrity of the installation was not compromised.

Audit outcome

Compliant

9. PROCESS FOR HANDLING FAULTY METERING INSTALLATIONS

9.1. Investigation of Faulty Metering Installations (Clause 10.43(4) and (5))

Code reference

Clause 10.43(4) and (5)

Code related audit information

If the MEP is advised or becomes aware that a metering installation may be inaccurate, defective, or not fit for purpose, it must investigate and report on the situation to all affected participants as soon as reasonably practicable after becoming aware of the information, but no later than:

(a) 20 business days for Category 1,
(b) 10 business days for Category 2 and
(c) five business days for Category 3 or higher.

Audit observation

MTRX

I checked six examples where MTRX had become aware of faulty metering installations.

BOPE

I checked an example where BOPE had become aware of a faulty metering installation.

Audit commentary

MTRX

All six of the examples were Category 1 metering installations where the meters had been bridged. In all six examples the installations were recertified, and notification was provided to the traders within 20 business days.

BOPE

The example checked was a Category 1 metering installation where the meter had been bridged. The installation was recertified, and notification was provided to the trader within 20 business days.

Audit outcome

Compliant

9.2. Testing of Faulty Metering Installations (Clause 10.44)

Code reference

Clause 10.44

Code related audit information

If a report prepared under clause 10.43(4)(c) demonstrates that a metering installation is inaccurate, defective, or not fit for purpose, the MEP must arrange for an ATH to test the metering installation and provide a 'statement of situation'.

If the MEP is advised by a participant under clause 10.44(2)(a) that the participant disagrees with the report that demonstrates that the metering installation is accurate, not defective and fit for purpose, the MEP must arrange for an ATH to:

(a) test the metering installation,
(b) provide the MEP with a statement of situation within five business days of:

(c) *becoming aware that the metering installation may be inaccurate, defective or not fit for purpose; or*
(d) *reaching an agreement with the participant.*

The MEP is responsible for ensuring the ATH carries out testing as soon as practicable and provides a statement of situation.

Audit observation

MTRX

I checked six examples where MTRX had become aware of faulty metering installations.

BOPE

I checked an example where BOPE had become aware of a faulty metering installation.

Audit commentary

MTRX

All six of the examples were Category 1 metering installations where the meters had been bridged. In all six examples the meters were unbridged, and the installations were recertified. The forms completed in the field by the ATHs contain sufficient information to report to relevant parties and meet the requirement for the provision of a statement of situation.

BOPE

The example checked was a Category 1 metering installation where the meter had been bridged. The meter was unbridged, and the installation recertified. The forms completed in the field by the ATH contained sufficient information to report to relevant parties and meet the requirement for the provision of a statement of situation.

Audit outcome

Compliant

9.3. Statement of Situation (Clause10.46(2))

Code reference

Clause10.46(2)

Code related audit information

Within three business days of receiving the statement from the ATH, the MEP must provide copies of the statement to:
- *the relevant affected participants*
- *the market administrator (for all category 3 and above metering installations and any category 1 and category 2 metering installations) on request.*

Audit observation

MTRX

I checked six examples where MTRX had become aware of faulty metering installations.

BOPE

I checked an example where BOPE had become aware of a faulty metering installation.

Audit commentary

MTRX

All six of the examples were Category 1 metering installations where the meters had been bridged. In all six examples the meters were unbridged, and the installations were recertified. The forms completed in the field by the ATHs contain sufficient information to report to relevant parties and meet the requirement for the provision of a statement of situation.

BOPE

The example checked was a Category 1 metering installation where the meter had been bridged. The meter was unbridged, and the installation recertified. The forms completed in the field by the ATH contained sufficient information to report to relevant parties and meet the requirement for the provision of a statement of situation.

Audit outcome

Compliant

9.4. Timeframe for correct defects and inaccuracies (Clause10.46A)

Code reference

Clause 10.46A

Code related audit information

When the metering equipment provider is advised under 10.43 or becomes aware a metering installation it is responsible for is inaccurate, defective or not fit for purpose the metering equipment provider must undertake remedial actions to address the issue.

The metering equipment provider must use its best endeavours to complete the remedial action within 10 business days of the date it is required to provide a report to participants under 10.43(4)(c).

Audit observation

MTRX

I checked six examples where MTRX had become aware of faulty metering installations.

BOPE

I checked an example where BOPE had become aware of a faulty metering installation.

Audit commentary

MTRX

All six of the examples were Category 1 metering installations where the meters had been bridged. In all six examples the meters were unbridged, and the installations were recertified. In all six examples the recertification was completed within the required timeframe.

BOPE

The example checked was a Category 1 metering installation where the meter had been bridged. The meter was unbridged, and the installation recertified. The recertification was completed within the required timeframe.

Audit outcome

Compliant

9.5. Meter bridging (Clause 10.33C)

Code reference

Clause 10.33(C)

Code related audit information

An MEP may only electrically connect an ICP in a way that bypasses a meter that is in place ("bridging") if the MEP has been authorised by the responsible trader.

The MEP can then only proceed with bridging the meter if, despite best endeavours:

- *the MEP is unable to remotely electrically connect the ICP*
- *the MEP cannot repair a fault with the meter due to safety concerns*
- *the consumer will likely be without electricity for a period which would cause significant disadvantage to the consumer*

If the MEP bridges a meter, the MEP must notify the responsible trader within one business day and include the date of bridging in its advice.

Audit observation

MTRX

I checked for examples of bridged meters.

BOPE

I checked for examples of bridged meters.

Audit commentary

MTRX

MTRX provided details of six examples where meters had been bridged. In all six examples the meters were bridged by the trader not the MEP. MTRX does not bridge meters as an MEP.

BOPE

BOPE provided details of one example where a meter had been bridged. The meter was bridged by the trader not the MEP. BOPE does not bridge meters as an MEP.

Audit outcome

Compliant

10. ACCESS TO AND PROVISION OF RAW METER DATA AND METERING INSTALLATIONS

10.1. Access to Raw Meter Data (Clause 1 of Schedule 10.6)

Code reference

Clause 1 of Schedule 10.6

Code related audit information

The MEP must give authorised parties access to raw meter data within 10 business days of receiving the authorised party making a request.

The MEP must only give access to raw meter data to a trader or person, if that trader or person has entered into a contract to collect, obtain, and use the raw meter data with the end customer.

The MEP must provide the following when giving a party access to information:

a) the raw meter data; or
b) the means (codes, keys etc.) to enable the party to access the raw meter data.

The MEP must, when providing raw meter data or access to an authorised person use appropriate procedures to ensure that:

- *the raw meter data is received only by that authorised person or a contractor to the person,*
- *the security of the raw meter data and the metering installation is maintained,*
- *access to the raw meter data is limited to only the specific raw meter data under clause 1(7)(c) of Schedule 10.6.*

Audit observation

MTRX

I checked whether any parties had requested access to raw meter data.

BOPE

I checked whether any parties had requested access to raw meter data.

Audit commentary

MTRX

No requests have been received but MTRX advised access could be granted in accordance with this clause if necessary.

BOPE

No requests have been received but BOPE advised access could be granted in accordance with this clause if necessary.

Audit outcome

Compliant

10.2. Restrictions on Use of Raw Meter Data (Clause 2 of Schedule 10.6)

Code reference

Clause 2 of Schedule 10.6

Code related audit information

The MEP must not give an authorised person access to raw meter data if to do so would breach clause 2(1) of Schedule 10.6.

Audit observation

MTRX

I checked whether any parties had requested access to raw meter data.

BOPE

I checked whether any parties had requested access to raw meter data.

Audit commentary

MTRX

No requests have been received but MTRX advised access could be granted in accordance with this clause if necessary.

BOPE

No requests have been received but BOPE advised access could be granted in accordance with this clause if necessary.

Audit outcome

Compliant

10.3. Access to Metering Installations (Clause 3(1), (3) and (4) of Schedule 10.6)

Code reference

Clause 3(1), (3) and (4) of Schedule 10.6

Code related audit information

The MEP must within 10 business days of receiving a request from one of the following parties, arrange physical access to each component in a metering installation:

- *a relevant reconciliation participant with whom it has an arrangement (other than a trader)*
- *the Authority*
- *an ATH*
- *an auditor*
- *a gaining MEP.*

This access must include all necessary means to enable the party to access the metering components.

When providing access, the MEP must ensure that the security of the metering installation is maintained and physical access is limited to only the access required for the purposes of the Code, regulations in connection with the party's administration, audit and testing functions.

Audit observation

MTRX

I checked whether any parties had requested access to metering installations.

BOPE

I checked whether any parties had requested access to metering installations.

Audit commentary

MTRX

No requests have been received but MTRX advised access could be granted in accordance with this clause if necessary.

BOPE

No requests have been received but BOPE advised access could be granted in accordance with this clause if necessary.

Audit outcome

Compliant

10.4. Urgent Access to Metering Installations (Clause 3(5) of Schedule 10.6)

Code reference

Clause 3(5) of Schedule 10.6

Code related audit information

If the party requires urgent physical access to a metering installation, the MEP must use its best endeavours to arrange physical access.

Audit observation

MTRX

I checked whether any parties had requested access to metering installations.

BOPE

I checked whether any parties had requested access to metering installations.

Audit commentary

MTRX

No requests have been received but MTRX advised access could be granted in accordance with this clause if necessary.

BOPE

No requests have been received but BOPE advised access could be granted in accordance with this clause if necessary.

Audit outcome

Compliant

10.5. Electronic Interrogation of Metering Installations (Clause 8(2), 8(3), 8(5) and 8(6) of Schedule 10.6)

Code reference

Clause 8(2), 8(3), 8(5) and 8(6) of Schedule 10.6

Code related audit information

When raw meter data can only be obtained from an MEP's back office, the MEP must

- *ensure that the interrogation cycle does not exceed the maximum interrogation cycle shown in the registry,*
- *interrogate the metering installation at least once within each maximum interrogation cycle.*

When raw meter data can only be obtained from an MEP's back office, the MEP must ensure that the internal clock is accurate, to within ±5 seconds of:

- *New Zealand standard time; or*
- *New Zealand daylight time.*

When raw meter data can only be obtained from an MEP's back office, the MEP must record in the interrogation and processing system logs, the time, the date, and the extent of any change in the internal clock setting in the metering installation.

The MEP must compare the time on the internal clock of the data storage device with the time on the interrogation and processing system clock, calculate and correct (if required by this provision) any time error, and advise the affected reconciliation participant.

When raw meter data can only be obtained from an MEP's back office, the MEP must, when interrogating a metering installation, download the event log, check the event log for evidence of an events that may affect the integrity or operation of the metering installation, such as malfunctioning or tampering.

The MEP must investigate and remediate any events and advise the reconciliation participant.

The MEP must ensure that all raw meter data that can only be obtained from the MEPs back office, that is downloaded as part of an interrogation, and that is used for submitting information for the purpose of Part 15 is archived:

- *for no less than 48 months after the interrogation date*
- *in a form that cannot be modified without creating an audit trail*
- *in a form that is secure and prevents access by any unauthorised person*
- *in a form that is accessible to authorised personnel.*

Audit observation

MTRX

Interrogation cycle

I conducted a walk-through of the process and I checked reporting of meters not read during the maximum interrogation cycle.

Clock synchronisation

Clock synchronisation is discussed in **section 10.7**.

Event logs

Event logs are discussed in **section 10.8**.

Security of raw meter data

I checked the security and storage of data by looking at examples of data more than 48 months old and by checking security protocols.

BOPE

Interrogation cycle

I conducted a walk-through of the process and I checked reporting of meters not read during the maximum interrogation cycle.

Clock synchronisation

Clock synchronisation is discussed in **section 10.7**.

Event logs

Event logs are discussed in **section 10.8**.

Security of raw meter data

I checked the security and storage of data by looking at examples of data more than 48 months old and by checking security protocols.

Audit commentary

MTRX

Interrogation cycle

A daily report is run by MTRX to identify any meters that have not communicated for the earliest of 30 days or 25% of the maximum interrogation cycle. All meters identified have the AMI Comm flag to "N" on the registry. This is backed up by a second report run weekly which will identify meters that have not communicated within 60% of the maximum interrogation cycle.

Security of raw meter data

All users have login and password to access working data and only certain IT experts can access raw data. There are no business processes that allow data to be edited. Event data is archived along with consumption data. This part of the process is compliant.

Event logs and clock synchronisation processes are discussed in **sections 10.7** and **10.8**.

BOPE

Interrogation cycle

Intellihub adopted the process which had been previously used by Nova, this process has been run by Intellihub staff since October 2021. A daily report compares the last read date to the AMI Comm flag in the registry. Any meters identified as not being read for 10 or more days with an AMI Comm flag of "Y" are changed to AMI "N". The maximum interrogation cycle for all BOPE meters is 90 days.

Security of raw meter data

Data is stored indefinitely and is transmitted securely by SFTP and is only accessible to authorised persons with appropriate passwords.

Audit outcome

Compliant

10.6. Security of Metering Data (Clause 10.15(2))

Code reference

Clause 10.15(2)

Code related audit information

The MEP must take reasonable security measures to prevent loss or unauthorised aaccess, use, modification or disclosure of the metering data.

Audit observation

MTRX

I conducted a walkthrough of the data security processes.

BOPE

I conducted a walkthrough of the data security processes.

Audit commentary

MTRX

Data is transmitted securely by SFTP and is only accessible to authorised persons with appropriate passwords.

BOPE

Data is transmitted securely by SFTP and is only accessible to authorised persons with appropriate passwords.

Audit outcome

Compliant

10.7. Time Errors for Metering Installations (Clause 8(4) of Schedule 10.6)

Code reference

Clause 8(4) of Schedule 10.6

Code related audit information

When raw meter data can only be obtained from the MEPs back office, the MEP must ensure that the data storage device it interrogates does not exceed the maximum time error set out in Table 1 of clause 8(5) of Schedule 10.6.

Audit observation

MTRX

I checked the clock synchronisation processes and reporting for all head ends.

BOPE

I checked the clock synchronisation processes and reporting.

Audit commentary

MTRX

Intellihub has four different systems. Time synchronisation occurs as follows:

1. Multidrive. The clock setting is five seconds to 30 seconds for Category 1 and five seconds to ten seconds for Category 2. All errors in these bands are adjusted automatically and those over the maximum setting are adjusted manually. This task is conducted daily. If the manual adjustment fails due to a communications issue, then a field visit is booked to fix the issue and synchronise the clock. There is a "repeat offenders" list of installations where the clock has drifted outside the threshold every interrogation. These devices are replaced.

2. Command Centre. The clock setting is ten seconds, so any error less than ten seconds is adjusted automatically and those over ten seconds are adjusted manually. A separate "time synchronisation" report is run on a weekly basis to manage clock errors. Repeat offenders are also monitored and managed.

3. Connexo. This is an RF mesh system, which has "Gatekeepers" and "meters". Gatekeepers are synchronised during every communication with Connexo, this typically occurs hundreds of times each day. The Gatekeeper time sync setting is five to 30 seconds. Any large time errors over 30 seconds are managed manually.

4. Silverspring. The clock setting is ten seconds to 20 minutes. For errors over 20 minutes a user must manually set the time.

Intellihub advises affected reconciliation participants of time error adjustments or any potential effect on raw meter data. Intellihub monitors devices with multiple clock errors to ensure the meters are replaced.

This clause is slightly different to the clause in Part 15 for reconciliation participants. This clause requires MEPs to ensure the time is not outside the allowable thresholds, therefore non-compliance exists for those examples where time has drifted outside the allowable threshold.

I checked the most recent daily time synchronisation reports for each head end, and they contained a total of nine examples.

BOPE

The MEP must ensure that a data storage device in a metering installation does not exceed the maximum time error set out in Table 1 of clause 8(5) of Schedule 10.6. The MEP must compare the time on the internal clock of the data storage device with the time on the interrogation and processing system clock, calculate and correct (if required by this provision) any time error, and advise the affected reconciliation participant. The relevant part of this table is shown below:

Metering Installation Category	HHR Metering Installations (seconds)	NHH Metering Installations (seconds)
1	±30	±60
2	±10	±60

BOPE meters are interrogated by the "Storm" Head-end. The clock synchronisation setting is 10 seconds. Any clock errors less than 10 seconds are adjusted automatically. Any errors outside these times are also adjusted automatically and reporting is provided to retailers as required by the Code. I checked the latest daily clock synchronisation reports and found six examples of errors greater than 30 seconds.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 10.7 With: Clause 8(4) of Schedule 10.6 From: 01-Jul-21 To: 04-Apr-22	15 examples of clock errors outside the allowable thresholds in the most recent daily reporting. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as strong because clocks are synchronised during every successful interrogation. The impact is considered minor because most clock errors are small and are corrected within one half hour. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
There are no further preventative actions identified that we can reasonably implement	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	Ongoing	

10.8. Event Logs (Clause 8(7) of Schedule 10.6)

Code reference

Clause 8(7) of Schedule 10.6

Code related audit information

When raw meter data can only be obtained from the MEP's back office, the MEP must, when interrogating a metering installation:

- *a) ensure an interrogation log is generated,*
- *b) review the event log and:*
  - *i. take appropriate action,*
  - *ii. pass the relevant entries to the reconciliation participant.*
- *c) ensure the log forms part of an audit trail which includes:*
  - *i. the date and*
  - *ii. time of the interrogation*
  - *iii. operator (where available)*
  - *iv. unique ID of the data storage device*
  - *v. any clock errors outside specified limits,*
  - *vi. method of interrogation*
  - *vii. identifier of the reading device used (if applicable).*

Audit observation

MTRX

I checked the interrogation logs and event logs to ensure the items above were managed in a compliant manner.

BOPE

I checked the interrogation logs and event logs to ensure the items above were managed in a compliant manner.

Audit commentary

MTRX

The interrogation logs contain all of the information above. I checked all head ends to confirm this.

MTRX downloads the event log as required by this clause. All critical events are evaluated, and appropriate action is taken. Relevant events are sent to reconciliation participants, including:

- tampering when related to other events and no coinciding field work has taken place,
- memory failure,
- battery,
- temperature,
- reverse power with no export, and
- VT failure.

I examined the process for filtering and managing events and I confirm that this is complete and robust.

Where MTRX acts as an agent to other MEPs, those MEPs are required to investigate and manage event information, MTRX does not conduct this activity for them.

BOPE

BOPE provided copies of event reports provided to retailers and the results of their review of the events. Events are reviewed daily, and jobs are created for field work to address relevant events. The relevant events include the following:

- tamper,
- reverse power (indicating generation where generation is not expected),
- time changes, and
- phase failure.

Audit outcome

Compliant

10.9. Comparison of HHR Data with Register Data (Clause 8(9) of Schedule 10.6)

Code reference

Clause 8(9) of Schedule 10.6

Code related audit information

When raw meter data can only be obtained from the MEP's back office, the MEP must ensure that each electronic interrogation that retrieves half-hour metering information compares the information against the increment of the metering installations accumulating meter registers for the same period.

Audit observation

MTRX

The sum-check process was examined along with the business rules and associated reporting.

BOPE

The sum-check process was examined along with the business rules and associated reporting.

Audit commentary

MTRX

As recorded in **section 1.1** an exemption came into force on 4th May 2021 and expires on 31 May 2023. Intellihub NZ Limited ("Intellihub") is exempted from complying with the obligation in clause 8(9) in Schedule 10.6 of the Electricity Industry Participation Code 2010 to ensure that each electronic interrogation of the metering installation that retrieves half hour raw meter data compares the sum of that data against the increment of the metering installation's accumulating meter registers for the same period for some of their meter types. The meter types have been redacted from the gazette notice. MTRX applies the same process to all meter types but has applied a higher threshold of 2 kWh for these meter types. My observations in this section apply to all meter types and have taken into account the higher threshold for the specified meter types.

The MTRX process ensures that sum-check failures are investigated and resolved within three business days or certification is cancelled within 10 business days. MTRX provided a report detailing all sum-check failures which occurred dating back to 1st June 2021. The report identified 1,190 meters, I checked a sample of 10 meters and confirmed that certification had been cancelled.

BOPE

Sum-check validation occurs with each interrogation and is based on midnight-to-midnight NZST. The "fail" setting is a maximum of 0.70% with a maximum absolute setting of 0.004 kWh and all trading periods must be present for a pass to occur. Any failures are investigated to determine the cause, in most cases the failures are data issues such as missing intervals due to comms problems which are resolved during subsequent validations.

The BOPE process ensures that sum-check failures are investigated and resolved within three business days or certification is cancelled within 10 business days. BOPE provided a report detailing all sum-check failures which occurred dating back to 23rd October 2021. The report identified three meters, certification had been cancelled for two and the third was investigated and resolved within three business days.

Audit outcome

Compliant

10.10. Correction of Raw Meter Data (Clause 10.48(2),(3))

Code reference

Clause 10.48(2),(3)

Code related audit information

If the MEP is notified of a question or request for clarification in accordance with clause 10.48(1), the MEP must, within 10 business days:

- *respond in detail to the questions or requests for clarification,*
- *advise the reconciliation participant responsible for providing submission information for the POC of the correction factors to apply and period the factors should apply to.*

Audit observation

MTRX

MTRX has not received any requests in relation to this clause.

BOPE

BOPE has not received any requests in relation to this clause.

Audit commentary

MTRX

MTRX has not received any requests in relation to this clause.

BOPE

BOPE has not received any requests in relation to this clause.

Audit outcome

Compliant

10.11. Raw meter data and compensation factors (Clause 8(10) of Schedule 10.6)

Code reference

Clause 8(10) of Schedule 10.6

Code related audit information

The MEP must not apply the compensation factor recorded in the registry to raw meter data downloaded as part of the interrogation of the metering installation.

Audit observation

MTRX

I checked whether MTRX was applying compensation factors to raw meter data.

BOPE

I checked whether BOPE was applying compensation factors to raw meter data.

Audit commentary

MTRX

MTRX is not applying compensation factors to raw meter data.

BOPE

BOPE is not applying compensation factors to raw meter data.

Audit outcome

Compliant

10.12. Investigation of AMI interrogation failures (Clause 8(11), 8(12) and 8(13) of Schedule 10.6)

Code reference

Clause 8(11), 8(12) and 8(13) of Schedule 10.6

Code related audit information

If an interrogation does not download all raw meter data, the MEP must investigate the registry why or update the registry to show the meter is no longer AMI.

If the MEP choses to investigate the reasons for the failure the MEP has no more than 30 days or 25% of the maximum interrogation cycle, from the date of the last successful interrogation (whichever is shorter).

If the MEP does not restore communications within this time or determines they will be unable to meet this timeframe they must update the registry to show the meter is no longer AMI.

Audit observation

MTRX

I checked the process for ensuring the AMI flag is changed where data is incomplete.

BOPE

I checked the process for ensuring the AMI flag is changed where data is incomplete.

Audit commentary

MTRX

A "missing data export" report identifies meters where there are gaps in either the interval or register data. These are followed up to attempt to retrieve the missing data from the meter or update the AMI flag to "N" on the registry or certification is cancelled and a recertification job is created.

BOPE

A daily report compares the last read date to the AMI Comm flag in the registry. Any meters identified as not being read for 10 or more days with an AMI Comm flag of "Y" are changed to AMI "N".

Audit outcome

Compliant

CONCLUSION

This is the first audit since Intellihub acquired the Nova Energy MEP business on 1st June 2021. This audit encompasses ICPs under both the MTRX and BOPE MEP identifiers.

Fouteen non-compliances were identified.

Non-compliance continues to exist in relation to missing and inaccurate fields in certification records from ATHs. I have repeated three recommendations from the last to audits to improve controls in relation to the monitoring of ATH practices and records.

The other main areas of non-compliance related to following issues:

- late updating of registry information,
- inaccurate registry information,
- discrepancy reporting not run since 1st October 2021 for BOPE ICPs,
- expired and cancelled certification,
- time not monitored every 12 months for two ICPs with time dependant registers,
- incorrect compensation factor recorded for one ICP, and
- missed inspection for two metering installations.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The table below provides some guidance on this matter and recommends an audit frequency of three months. After considering Intellihub's responses to the areas of non-compliance I recommend an audit frequency of nine months.

PARTICIPANT RESPONSE

Since the date of the last Intellihub Limited (MTRX) audit, Intellihub acquired the NOVA (BOPE) MEP and Class B ATH as of 01/06/2021.

A successful project to integrate NOVA operations into the Intellihub business model was initiated during the following months.

This audit was the first audit of the NOVA (BOPE) MEP against the changed Code requirements which came into effect on 01 Feb 2021. We are pleased with the level of compliance following the onboarding on NOVA.

Over the past 12 months, Intellihub has continued with its expansion plans and has increased its footprint into new Network areas.

There is one area of the 2021 Code changes where Intellihub has concerns that the Code was not implemented in line with the "Decision Document" published in December 2020, as follows: Intellihub interpretation of Line 2 of Table 3 in Part 10 is that a Prevailing Load Test should not be required when a meter is not being changed, and the installation certification expiry date remains unchanged.

Our understanding is that this view is also shared by the majority of MEP's and ATH's.

Intellihub formally sought clarification from the Authority on this matter, soon after the Code changes came into effect on 01/02/2021. We are still currently awaiting a response to clarify this. In the interim, Intellihub is ensuring that all other metering installation commissioning tests and checks are completed including the raw meter data output test to confirm overall installation accuracy.

Over the past nine months, Intellihub has instigated monthly Technical Compliance sessions with contracted Approved Test Houses Wells and Delta with the objectives of improving communication, alignment and ensuring we both meet Code Compliance. We have already seen good value out of these meetings, these will remain ongoing as avenues to discuss any Code or Technical issues as they arise.