

**ELECTRICITY INDUSTRY PARTICIPATION CODE
METERING EQUIPMENT PROVIDER AUDIT REPORT**

For

**SMARTCO LIMITED
(NZBN: 9429031538077)**

Prepared by: Brett Piskulic – Veritek Limited

Date audit commenced: 12 April 2022

Date audit report completed: 28 June 2022

Audit report due date: 30-Jun-22

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EXECUTIVE SUMMARY

SmartCo is a Metering Equipment Provider (MEP) and is required to undergo an audit by 30 June 2022, in accordance with clause 16A.17(b).

SmartCo is an MEP that is owned by a consortium of electricity network companies. SmartCo provides AMI data to retailers in member networks using mesh communications technology. The individual network companies that make up the consortium are the owners of the meters in their networks. Vector Metering has been appointed by SmartCo to provide metering, data collection and asset management services on SmartCo member networks. SmartCo is the MEP on the registry (SMCO).

The audit identified 17 non-compliances.

Non-compliance continues to exist in relation to missing and inaccurate fields in certification records from ATHs. There has been improvement in this area with the ATHs updating their processes to meet the requirements of Code changes introduced in February 2021. I have recommended that SmartCo require ATHs to include details and results of all testing completed in the metering installation certification reports provided.

SmartCo conducted its first inspections of Category 1 metering installations by statistical sampling in 2021. The requirement for determining the number of ICPs to be inspected was changed as part of Code changes introduced on 1st February 2021. Prior to the change the MEP produced a list of ICPs certified more than 84 months prior to the date the list was created. The Code change requires the list to include ICPs certified more than 84 months prior to 31st December in the year the list was produced. Non-compliance is recorded and certification is cancelled for 1,676 ICPs as SmartCo selected an insufficient sample due to the selection being made under the previous Code requirement.

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

- late updating of registry information,
- inaccurate registry information,
- expired and cancelled certification,
- time not monitored and corrected every 12 months for ICPs with time dependent registers,
- meters not reinstated after bridging within five business days of bridging for two ICPs, and
- time errors for meters.

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 it recommends an audit frequency of six months. After reviewing SmartCo's responses to the areas of non-compliance I recommend an audit frequency of 12 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)	Each services access interface not identified for two metering installations.	Strong	Low	1	Cleared
Provision of accurate information	2.5	11.2 and Clause 10.6	Registry not always accurate and not always updated as soon as practicable by SmartCo. Certification records not always accurate. Replacement AMI data only provided for 60 days.	Moderate	Low	2	Investigating
Registry notification timeframe	3.2	2 of schedule 11.4	Some registry updates later than 15 business days.	Moderate	Low	2	Identified
Design reports	4.1	2 of Schedule 10.7	The maximum interrogation cycle is not recorded for each services access interface.	Strong	Low	1	Investigating
Changes to registry records	4.10	3 of schedule 11.4	Some records updated on the registry later than 10 business days.	Strong	Low	1	Identified
Accurate and Complete Records	5.1	4(1)(a) and (b) of Schedule 10.6	Certification records not accurate and complete in a sample of 50 certification reports.	Moderate	Low	2	Investigating
MEP response to switch notification	6.1	Clause 1 (1) of Schedule 11.4	MN file not sent within 10 days for three ICPs.	Strong	Low	1	Cleared
Provision of registry information	6.2	7 (1), (2) and (3) of Schedule 11.4	Some registry records incomplete or incorrect.	Strong	Low	1	Cleared
Correction of registry errors	6.3	6 of schedule 11.4	Corrections not made within five business days.	Strong	Low	1	Identified
Cancellation of certification	6.4	20 of Schedule 10.7	Certification cancelled, and registry not updated within 10 business days for: - 1,676 Category 1 ICPs with minimum number	Moderate	Low	2	Identified

			<ul style="list-style-type: none"> of sample inspections not conducted, - six ICPs where sum-check failures were not resolved within three business days, - an unknown number of ICPs where sum-check failures were not resolved within three business days prior to implementation of cancellation process. 				
Expired certification	7.1	10.38 (a)	Certification expired or cancelled for more than 1,682 ICPs.	Moderate	Low	2	Identified
Certification Tests	7.2	10.38(b)	Prevailing load tests not conducted for two Category 1 metering installations.	Moderate	Low	2	Disputed
Timekeeping	7.10	23 of Schedule 10.7	38 ICPs with time dependent meter registers are not monitored every 12 months.	Moderate	Low	2	Investigating
Category 1 Inspections	8.1	45 of Schedule 10.7	Incorrect sample size inspected for Category 1 sample inspections.	Strong	Low	1	Investigating
Timeframe for correct defects and inaccuracies	9.4	10.46A	Remedial action not completed in required timeframe after notification of a faulty metering installation for one ICP.	Strong	Low	1	Cleared
Meter bridging	9.5	10.33C	Meters not reinstated after bridging within five business days of bridging for two ICPs.	Strong	Low	1	Cleared
Time errors	10.7	8(4) of Schedule 10.6	343 examples of clock errors outside the allowable thresholds.	Strong	Low	1	Identified
Future Risk Rating						24	
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
Design reports	4.1	Work with Delta to ensure that the design reports used for SmartCo include all required information in a single document.	Investigating
Certification tests	7.2	Require ATHs to include details and results of all testing completed in the metering installation certification reports provided.	Investigating
Timekeeping Requirements	7.10	Develop a process to identify meters which become subject to the timekeeping requirements of Clause 23 of Schedule 10.7 and ensure the time is monitored and corrected as required.	Investigating

ISSUES

Subject	Section	Issue	Remedial Action
		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

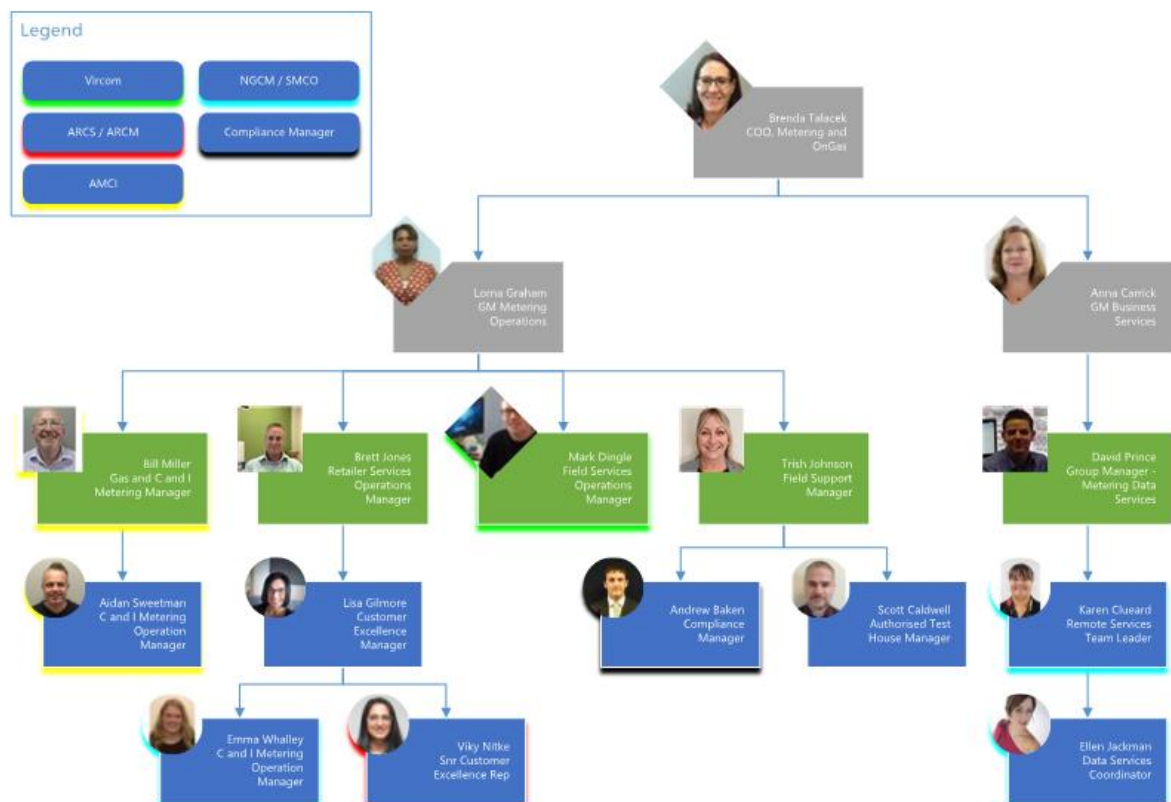
I checked the Electricity Authority website and I confirm there are no exemptions in place.

Audit commentary

I checked the Electricity Authority website and I confirm there are no exemptions in place.

1.2. Structure of Organisation

All SmartCo functions are performed by Advanced Metering Services Limited (Vector Metering); therefore, I have included the Vector Metering organisation chart below.



1.3. Persons involved in this audit

Auditor: Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

SmartCo personnel assisting in this audit were:

Name	Title
Andrew Baken	Compliance Manager
Karen Clueard	Remote Services and Data Manager
Arohanoa Biel-Nicholson	Data Service Coordinator
Steven Xie	AMI Solutions Specialist
Daniel Martin	AMI Solutions Lead

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,*
- *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

SmartCo engages ATHs to conduct certification activities. ATHs are also engaged as agents to store records in accordance with clauses 4(1)(v) & (viii) of schedule 10.6. I checked that records were available from the relevant ATHs.

The ATHs engaged are as follows:

- Wells,
- Delta, and
- AMS.

Audit commentary

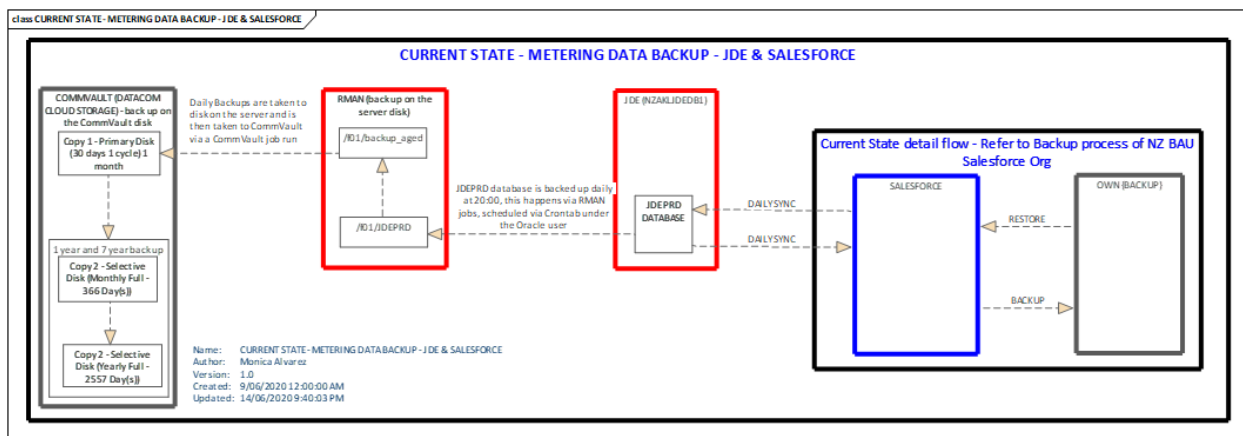
The agreements between SmartCo and ATHs clearly specify that the ATHs are acting as an agent for these activities, and they are required to produce records within five business days. The provision and accuracy of records is discussed further in **section 6**.

1.5. Hardware and Software

SmartCo MEP data is held in JDE and Salesforce.

JDE is the Vector Metering master repository, the database is backed up daily to the server then to CommVault. The CommVault archive is kept for seven years.

ServiceMax BAUT (Salesforce) is a cloud-based application used by Vector Metering for work order workflows. A full synchronisation occurs daily between Salesforce and JDE. SmartCo provided the following diagram detailing the back-up arrangements.



1.6. Breaches or Breach Allegations

SmartCo confirmed there are no breach allegations related to the scope of this audit.

1.7. ICP Data

Metering Category	Number of ICPs
1	158,885
2	1,804
3	0
4	0
5	0
9	3

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.

SmartCo is an MEP that is owned by a consortium of electricity network companies. SmartCo provides AMI data to retailers in member networks using mesh communications technology. The individual network companies that make up the consortium are the owners of the meters in their networks. Vector Metering has been appointed by SmartCo to provide metering, data collection and asset management services on SmartCo member networks. SmartCo is the MEP on the registry (SMCO).

The table below shows the relevant networks and metering equipment ownership for legacy and AMI equipment.

Metering Equipment Owner Codes

Network	MEO code (AMI Meters)	MEO Code (Relays, legacy meters)	Meter Type
Alpine Network	ALPS	ALPE	L+G
Electricity Invercargill Network	ELIS	ELIN	EDMI
The Power Company Network (including Smart Net embedded network)	TPCS	TPCO	EDMI
OtagoNet Joint Venture	TPCS	TPCO	EDMI
Lakeland Network Limited	TPCS	TPCO	EDMI
MainPower	MPOS	MPOW	EDMI
Tasman Network	TASS	*	L+G
Nelson Electricity	TASS	*	L+G
Top Energy	TOPS	WASN (LCD)	L+G

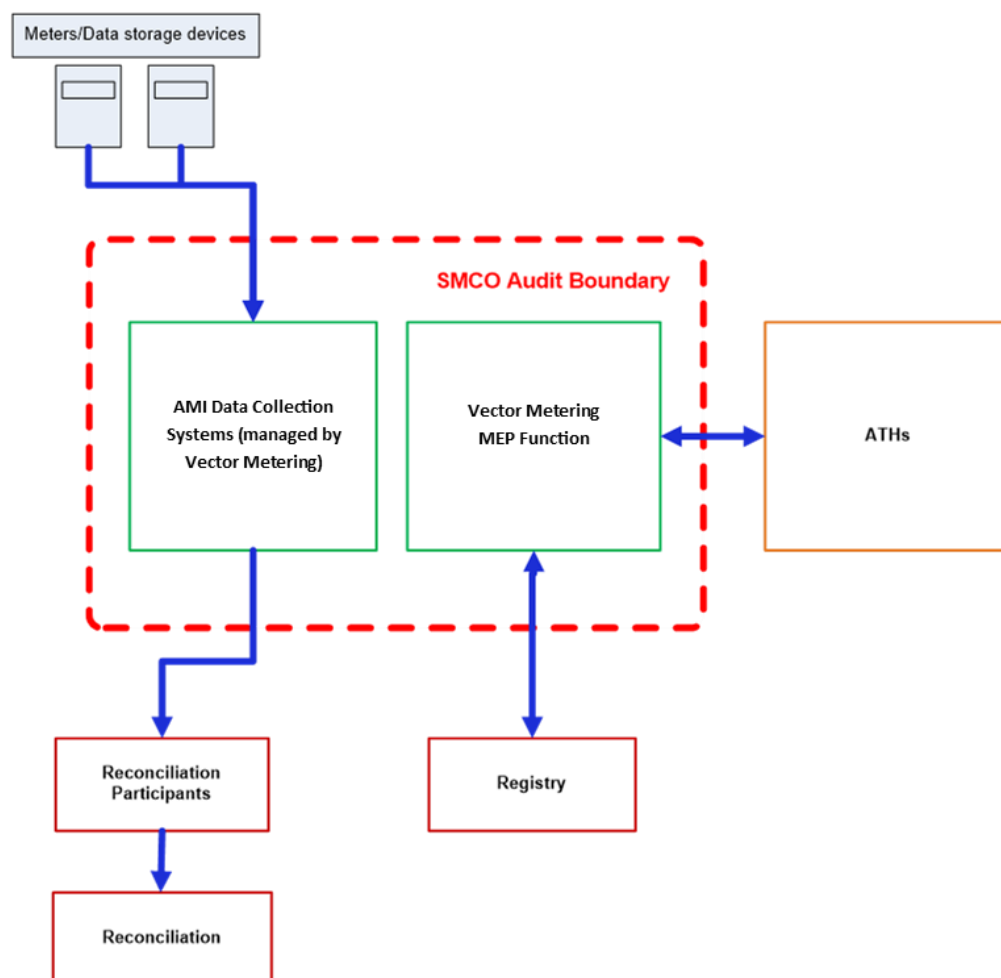
*Tasman Network and Nelson Electricity will not have external load control devices left on site.

The table below shows a breakdown of ICPs per network as of May 2022.

Network	Quantity 2022	Quantity 2021	Quantity 2020	Quantity 2019	Quantity 2018	Quantity 2017
Top Energy	20,564	20,119	19,594	18,842	16,863	14,183
Alpine	27,661	27,215	26,849	24,888	18,994	12,375
Electricity Invercargill	15,773	15,353	14,550	11,697	8,650	5,877
Mainpower	30,001	28,530	27,603	26,605	24,690	16,136

Network Tasman	32,026	31,102	29,193	26,897	25,836	22,373
The Power Company	33,979	32,591	30,682	25,868	18,184	10,635
Mountain Power	187	162	133	107	77	38
OtagoNet Joint Venture	-	1	1	-	-	-
Smart Net Limited	12	11	11	-	-	-
Nelson Electricity	42	-	-	-	-	-
Lakeland Network Limited	447	-	-	-	-	-
Total	160,692	155,084	149,663	134,904	113,294	81,617

SmartCo collects AMI data as an MEP. The boundaries of this audit are shown below for greater clarity.



1.10. Summary of previous audit

The previous audit was conducted in July 2021 by Steve Woods of Veritek Limited. The table below shows the current status of the non-compliances raised.

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Provision of accurate information	2.5	11.2 and Clause 10.6	Registry not always accurate and not always updated as soon as practicable by SmartCo. Certification records not always accurate. Replacement AMI data only provided for 60 days.	Still existing
Registry notification timeframe	3.2	2 of schedule 11.4	Some registry updates later than 15 business days.	Still existing
Design reports	4.1	2 of Schedule 10.7	Design reports are not signed by the person who prepared the reports. The maximum interrogation cycle is not recorded for each services access interface.	Still existing
Installation accuracy	4.3	4(1)(a) of schedule 10.7	One metering installation certified by Wells ATH with a 32% error. Seven installations with errors greater than 1.5%.	Cleared
Net metering and Subtractive Metering	4.4	4(2)(a) of Schedule 10.7	Submission information determined by subtraction for ICP 0000233229MPC5B for the period 03/12/20 to 08/12/20.	Cleared
Changes to registry records	4.10	3 of schedule 11.4	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	Certification records not accurate and complete for most certification reports.	Still existing
Provision of registry information	6.2	7 (1), (2) and (3) of Schedule 11.4	Some registry records incomplete or incorrect.	Still existing
Correction of registry errors	6.3	6 of schedule 11.4	Corrections not made within five business days.	Still existing

Subject	Section	Clause	Non-compliance	Status
Cancellation of certification	6.4	20 of Schedule 10.7	Certification cancelled, and registry not updated within 10 business days for: <ul style="list-style-type: none"> - 37 ICPs with low burden, - ICP 0003860754TP8CD with an error of 32%, - ICP 0000010432TE735 with insufficient load certification where monitoring was not conducted, - 1097 ICPs not read within the maximum interrogation cycle, and - 161 ICPs where sum-check failures were not resolved within 3 business days. 	Still existing
Expired certification	7.1	10.38 (a)	Certification expired or cancelled for 1,303 ICPs.	Still existing
Insufficient load certification	7.7	14(3) and (4) of Schedule 10.7	Monitoring not conducted for one ICP certified with insufficient load.	Cleared
Investigation of Faulty Metering Installations	9.1	10.43(4) and (5)	Trader not notified of faulty metering installation for ICP 0000373816MP18E.	Cleared
Statement of Situation	9.3	10.46(2)	Trader not notified of faulty metering installation for ICP 0000373816MP18E.	Cleared
Electronic Interrogation of Metering Installations	10.5	8(2)(b) of schedule 10.6	1,097 ICPs not read within the maximum interrogation cycle.	Cleared
Time errors	10.7	8(4) of Schedule 10.6	1,472 examples of clock errors outside the allowable thresholds.	Still existing

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Status
Design reports	4.1	2 of Schedule 10.7	Ensure Delta design report changes have the version date included.	Cleared
Certification tests	7.2	10.38(b) and clause 9 of Schedule 10.6	Table 3 requires a prevailing load test be conducted using a working standard if recertification occurs with existing meters and the same expiry date. Liaise with ATHs to ensure certification practices are compliant in future if this scenario arises.	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

I checked certification records for 50 metering installations, covering all relevant ATHs.

Audit commentary

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.

I checked 50 certification records and found that each services access interface was recorded correctly by the ATHs for 48 of the certifications. Two of the 50 certification records identified the services access interface as remote only for AMI metering installations. One was certified by the Delta ATH and one by the AMS ATH. It is also possible that the services access interface may be local for these metering installations if there are problems communicating with the meters. Non-compliance is recorded.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 10.9(2) From: 14-Jul-21 To: 07-Oct-21	Each services access interface not identified for two metering installations. Potential impact: Medium 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 the ATHs have now adopted processes to record each services access interface. 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
Delta cat 2 certs were updated in August of 2021, the one identified was used prior to then, all certs since state all service access interfaces as required in the code. Similar explanation for AMS test house, certs were updated and officially used in the field in November 2021, the one identified was an older certificate issued prior to Nov 2021. All certs issued since then meet all the code requirements.	Completed	Cleared
Preventative actions taken to ensure no further issues will occur	Completion date	
Certificates are now correct and contain all information required in the code.	Completed	

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

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

Audit commentary

SmartCo 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

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

Audit commentary

SmartCo uses the SMCO identifiers for all MEP functions.

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

Relevant documentation was checked to ensure the compatibility of communication equipment.

Audit commentary

SmartCo ensures all communication equipment is appropriately certified with the relevant telecommunications standards. This is recorded in type test certificates and other approval documents.

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

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

Audit commentary

As recorded in **section 5** and **6** there are some records which are not complete and accurate. SmartCo is attempting to correct information as soon as practicable, bearing in mind that there is often liaison with other parties and/or fieldwork involved. There are some metering installations with cancelled certification and the registry was not updated as soon as practicable.

When AMI data has not all been provided to participants and is later obtained, replacement data is only provided for a period of 60 days. It is expected that there will not be a time limit for the provision of replacement data.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11.2 and Clause 10.6 From: 01-Aug-21 To: 10-Apr-22	Registry not always accurate and not always updated as soon as practicable by SmartCo. Certification records not always accurate. Replacement AMI data only provided for 60 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 recorded as moderate because there is room to improve processes. 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
Work was undertaken during the last audit period with the test houses to correct their certificates to include all relevant information as stated in the code. Good progress was made but we are still not 100% there. SmartCo continues to work with ATH's on these matters through the quarterly ATH forums. The majority of incorrect ATH identifiers is due to the way some ICPs are transitioned in back office systems. We have identified a mapping issue which is now corrected to always map to VCOM. Existing incorrect ATH codes have been corrected in the Registry and reminder sent to staff re; paperwork returns.		20 Dec 2022	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Actively working with test houses to ensure all required and correct information is included in the certification records.		20 Dec 2022	

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 gaining MEP is not required to pay costs, or the losing MEP has failed to provide notice within 40 business days.*
- *within 3 business days, the gaining MEP replaces, removes or recertifies the metering component or metering installation*
- *the losing MEP has failed to provide notice of the costs to the gaining MEP within 40 business days.*

Audit observation

I checked if SmartCo had sent or received any invoices.

Audit commentary

SmartCo has not sent or received any invoices. The table below shows that there is only one scenario where costs will be payable, and this is unlikely to occur.

Scenario	Likelihood of occurring	Costs payable
Gaining MEP replaces losing MEPs component	High	No
Gaining MEP removes losing MEPs component	High	No
Gaining MEP recertifies losing MEPs component	High	No
Gaining MEP replaces losing MEPs installation	High	No
Gaining MEP removes losing MEPs installation	High	No
Gaining MEP recertifies losing MEPs installation	High	No
Gaining MEP retains losing MEPs components and metering installation	Zero	Yes

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

I checked the audit compliance report for the period 1 August 2021 to 10 April 2022 for all records where SmartCo became the MEP to evaluate the timeliness of updates.

Audit commentary

I examined the audit compliance report for 2,626 switches in relation to this clause and the findings are shown in the table below. 628 late updates occurred where the trader had nominated the MEP within five business days.

SmartCo provided details of the reasons for the late updates for 219 of the 628 late updates where the trader had nominated within five business days as follows:

- seven updates of the AMI flag,
- 12 corrections to the metering data, and
- 200 late updates due to the process to transition ICPs to SmartCo being run as a monthly batch.

Year	ICPs Switched	Notified to registry within 15 days	Percentage compliant
2016	13,960	12,787	92%
2017	30,460	28,837	95%
2018	15,763	14,021	90%
2019	14,812	11,407	77%
2020	18,408	9,841	53%
2021	6,673	3,082	46%
2022	2,626	1,456	55%

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.2 With: Clause 2 of Schedule 11.4 From: 01-Aug-21 To: 10-Apr-22	Some 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 recorded as moderate because there is room to improve the timeliness by ensuring more regular updates. 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
The reason for the percentage compliant is as per last year and primarily due to the SMCO transition program, this is an ongoing process to update ICPs and assets to SMCO owned in our system and the registry.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
As above		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

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

Audit commentary

This has not occurred, and no examples are available to examine.

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

I confirmed that SmartCo has ceased to be responsible for some metering installations by checking the event detail report.

Audit commentary

SmartCo 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. As mentioned in **section 2.3**, some of these responsibilities will be met by ATHs on behalf of SmartCo.

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

I checked the design reports provided by SmartCo to the ATHs to confirm compliance, and I checked that ATHs were correctly recording the design report in the certification records.

Audit commentary

The design reports used by the ATHs include all the relevant details with the exception of the requirement to record the maximum interrogation cycle for each services access interface which was introduced from 1st February 2021.

The Delta design reports comprise multiple documents, it was recommended in the recent Delta ATH audit that Delta reviews its current design reports and combines all required information into single documents to improve clarity in this area. I have included a recommendation in this audit that SmartCo works with Delta to ensure that the design reports used for SmartCo include all required information in a single document.

Recommendation	Description	Audited party comment	Remedial action
Regarding clause 2 of Schedule 10.7	Work with Delta to ensure that the design reports used for SmartCo include all required information in a single document.	Delta informed us after last audit that they were updating their design reports, we will continue to work with them to ensure they are fit for purpose and meet the relevant code requirements.	Investigating

The ATHs had correctly recorded the design for all 50 metering installations checked.

Audit outcome

Non-compliant

Non-compliance	Description
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Audit Ref: 4.1 With: Clause 2 of Schedule 10.7 From: 01-Aug-21 To: 10-Apr-22	The maximum interrogation cycle is not recorded for each services access interface. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as strong as the majority of design reports have now been updated with the correct maximum interrogation cycles. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
SmartCo will continue to work with Delta to ensure their design reports are fit for purpose and meet the relevant code requirements, however ATH’s must comply with the code so SmartCo part in this is supportive only.		20 Dec 2022	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Review design documents when they are updated to ensure all required information is included and correct.		20 Dec 2022	

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

I confirmed that SmartCo uses the AMS, Delta and Wells ATHs.

Audit commentary

Vector Metering, on behalf of SmartCo, has the scope statements on record for all ATHs to ensure they are appropriate.

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

I checked the processes used by SmartCo to ensure compliance with the design and with the error thresholds stipulated in Table 1. I also checked the certification records for 50 metering installations.

Audit commentary

With regard to the design of the installation (including data storage device and interrogation system), SmartCo 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. Data from meters and data storage devices has a minimum of two decimal places.

There is a requirement for SmartCo to ensure the metering installation complies with the design report and the requirements of Part 10. The ATHs have a field in their certification reports to record the design report reference. I checked 50 certification reports and the design report was recorded for all installations.

The ATHs have compliant practices and are now calculating uncertainty for metering installations certified using the comparative method. My checks of the metering installation certification reports for three Category 2 installations certified using the comparative recertification method confirmed that the correct procedures were followed.

In the previous audit non-compliance was recorded as the Delta ATH had certified seven Category 2 metering installations with error and uncertainty results greater than 1.5% when the CTs were class 0.5, and the meters were class 1.0. It was confirmed in the recent Delta ATH audit that the Delta has updated it's the pass/fail threshold for Category 2 comparative recertification testing to take into account the class of the metering components.

Audit outcome

Compliant

4.4. Net 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 category 3 or higher installations, the

MEP does not need to ensure that imported and exported electricity is recorded separately for each phase.

If the metering installation contains multiple phases, the MEP may aggregate together the amounts of imported electricity recorded on different phases, or the amounts of exported electricity recorded on different phases. However, the MEP must not aggregate imported and exported electricity together. 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

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

Audit commentary

SmartCo 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

I checked SmartCo's list file to confirm compliance with this requirement.

Audit commentary

I checked SmartCo's list file to confirm compliance with this requirement. There are no installations over Category 2.

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

I checked if SmartCo is responsible for any NSP metering.

Audit commentary

SmartCo is not the MEP 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

SmartCo is not responsible for any grid metering.

Audit commentary

SmartCo 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

I checked the SmartCo installation guidelines with regard to this clause.

Audit commentary

SmartCo provides ATH's with a "Specific installation requirements and guidelines" document for each network. These are a comprehensive manual which covers all aspects of metering installation and certification. I checked an example for one network and confirmed that the requirements in relation to physical and electrical characteristics were included.

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) and (3))

Code reference

Clauses 10.34(2), (2A) 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

SmartCo has provided copies of the design reports to all distributors and traders in order to achieve compliance with this requirement.

Audit commentary

SmartCo has provided copies of the design reports to all distributors and traders in order to achieve compliance with this requirement.

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

I checked the audit compliance report for the period 1 August 2021 to 10 April 2022 to evaluate the timeliness of registry updates.

Audit commentary

I checked the audit compliance report for the period 1 August 2021 to 10 April 2022 and the table below shows the results relating to late updates after new connections:

Event type	Year	Total	Total within 10 days	% Compliant
New connection	2016	924	800	87%
	2017	2,055	1,826	89%
	2018	1,471	1,292	88%
	2019	2,158	2,022	94%
	2020	2,789	1,999	72%
	2021	2,500	2,302	92%
	2022	1,838	1,607	87%

98 of the 231 late updates were due to late nomination by the trader.

SmartCo provided details of the reasons for the late updates for 108 of the 133 late updates where the trader had nominated within five business days as follows:

- 90 updates of the installation type from NHH to HHR and addition of 7304 channel after FSPs had incorrectly recorded as NHH in initial update,
- 12 corrections to the metering data, and
- two were due late field notification.

I was unable to accurately determine the total number of updates after recertification due to duplicates in the audit compliance report AC020MEP04 (Metering update after recertification). None of the reports account for reversed and replaced events, which leads to inaccurate reporting.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 3 of Schedule 11.4 From: 01-Aug-21 To: 10-Apr-22	Some records updated to the registry later than 10 business days. 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 they mitigate risk to an acceptable level. Late updates for new connections can have a minor impact on participants and settlement, therefore the audit risk rating is low.
Actions taken to resolve the issue	
Completion date	Remedial action status

Late nominations from traders is still a major issue causing non-compliance to MEPs. 90 updates of the installation type from NHH to HHR and addition of 7304 channel after FSPs had incorrectly recorded as NHH in initial update. Process put in place and staff trained to ensure they check this prior to updating the registry.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
We are always looking for ways to improve on this clause.	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

The AMI metering and data collection system is considered “metering infrastructure”. The design report and type test report were checked to confirm compliance.

Audit commentary

The type test report, design report and this audit report confirm that the system will operate in a compliant manner.

Audit outcome

Compliant

4.12. Decommissioning of an 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

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

Audit commentary

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

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

Audit commentary

There have not been any examples of this occurring during the audit period.

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

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

Audit commentary

There have been no examples of software, ROM or firmware changes for SmartCo, and a compliant process exists.

Audit outcome

Compliant

4.15. Temporary Electrical Connection (Clause 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

SmartCo is not responsible for any grid metering.

Audit commentary

SmartCo 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

SmartCo is not responsible for any NSP metering.

Audit commentary

SmartCo 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

I checked examples of insufficient load certification to determine whether there were any examples of temporary electrical connection for the purposes of testing. None were identified.

Audit commentary

I checked examples of insufficient load certification to determine whether there were any examples of temporary electrical connection for the purposes of testing. None were identified.

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

I checked certification records for 61 metering installations to evaluate compliance with this clause.

Audit commentary

As mentioned in **section 1.4**, agreements between SmartCo and ATHs clearly specify to the ATHs that they are acting as an agent for the management of certification records, and they are required to produce these within five business days. I requested records for 50 metering installations and records were supplied for all 50. I found errors and missing information in a number of the metering installation certification reports. I have recorded this as non-compliance as the records with errors are not deemed to be accurate and complete. The errors identified are shown in the table below.

Error	Wells	Delta	AMS
Incorrect maximum interrogation cycle	3	-	-
Each option of installation type and services access interface not recorded		1	1
All test results not recorded	-	19	15
Incorrect meter certification expiry date recorded	-	-	1
Burden range not recorded in CT certification reports	-	2	2

Category 1 metering installation recertified after one of two meters replaced, certification report did not record any details of the second meter	-	-	1
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Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 5.1 With: Clause 4(1)(a) and (b) of Schedule 10.6 From: 01-Aug-21 To: 10-Apr-22	Certification records not accurate and complete in a sample of 50 certification reports. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	I have recorded the controls as moderate because there is room for improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Improvements were made to the certification report information last audit period after Vector metering (VM) raised the accuracy of certification reports with test houses in our regular test house forums and provided clear requirements of what is required. All test houses are actively improving their reports to ensure the missing or incorrect fields are right going forward and SmartCo will review this going forward to ensure all comply. Two ATHs require system changes to get test results onto the certifications.		20 Dec 2022	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Our regular test house forums are discussing new code requirements and ensuring we are all aware of our obligations.		20 Dec 2022	

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

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

Audit commentary

SmartCo has not been requested to supply any inspection reports and no inspections were conducted during the audit period.

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

I checked historic metering records to confirm compliance.

Audit commentary

SmartCo intends to keep records indefinitely and the ATHs are required to keep them for seven years after the installation is decommissioned or components are removed.

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

SmartCo will comply with this requirement as it arises. There are no current examples where this has occurred.

Audit commentary

SmartCo will comply with this requirement as it arises. There are no current examples where this has occurred.

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

I checked the switch breach history detail report to confirm whether all responses were within 10 business days.

Audit commentary

There were three cases where SmartCo did not send the MN file within 10 business days as detailed in the following table:

ICP	Trader sent nomination	Expected MN date	Actual MN date	Days late
0004052255TP1B0	01-12-21	15-12-21	16-12-21	1
0002361276TP0C4	08-09-21	22-09-21	30-09-21	6
0000714448NVFA5	01-09-21	15-09-21	30-09-21	11

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.1 With: Clause 1 (1) of Schedule 11.4 From: 15-Sep-21 To: 16-Dec-21	MN file not sent within 10 days for three ICPs. 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 because SmartCo has an automated process in place to accept nominations. There is a minor impact on other participants; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
<p>We discovered an issue in May 2021 where some nomination files from the Registry were not processed fully so rather than accepting the nomination in our system, the files sat awaiting MN acceptance in the Registry. To update the Registry, we had to manually accept the nomination. While most MN are still accepted automatically, we check daily to ensure any that are not accepted, are done manually.</p> <p>As an added level of protection, we recently started running a daily reconciliation file for the registry to catch any updates not performed, and then push the update.</p>	Completed	Cleared
Preventative actions taken to ensure no further issues will occur	Completion date	
As above, manual checks are done daily and MN's accepted manually if found, also a reconciliation file is run in the background daily as a backstop process.	Completed	

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

Code reference

Clause 7 (1), (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

I checked the audit compliance report, and the list file to identify discrepancies.

Audit commentary

Analysis of the audit compliance report and list file for all ICPs found some discrepancies. The table below shows these and includes a comparison with the previous audit results.

Issue	2022 Quantity	2021 Quantity	2020 Quantity	2019 Quantity	2018 Quantity	2017 Quantity	Comments

SMCO is recorded on the registry as the MEP, but the metering records have not been populated on the registry	0	0	0	0	0	0	N/A
Night with no day	0	0	1	0	0	1	N/A
CN only on residential ICP	0	0	0	6	1	4	N/A
Day and night not = 24	0	0	0	0	0	2	N/A
ICPs have "IN24". This is not a valid combination	0	0	15,438	15,532	16,205	17,695	N/A
UN only with a control device.	331	0	305	353	266	Not checked	Still existing
Incorrect certification duration	2	0	0	0	1	0	Still existing
Category 2 without CTs recorded in the registry	0	3	2	1	0	2	N/A
Incorrect metering category	0	0	0	0	9	0	N/A
CTs on Category 1 installation	0	0	0	0	1	0	N/A
Incorrect certification dates	0	4	38	31	5	-	N/A
Invalid ATH identifier recorded. (VEMS identifier used after 28/09/2018)	46	34	17	-	-	N/A	Still existing
Incorrect ATH	0	0	1				N/A

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 6.2</p> <p>With: Clause 7 (1), (2) and (3) of Schedule 11.4</p> <p>From: 01-Aug-21</p> <p>To: 10-Apr-22</p>	<p>Some registry records incomplete or incorrect.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p>

Audit risk rating	Rationale for audit risk rating		
Low	<p>I have recorded the controls as strong because they mitigate risk to an acceptable level.</p> <p>Some of the discrepancies have a minor impact on participants, customers or settlement. The relevant ones in this regard are tariff related. The audit risk rating is low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>The majority of incorrect ATH identifiers is due to the way some ICPs are transitioned in back office systems. We have identified a mapping issue which is now corrected to always map to VCOM. Existing incorrect ATH codes have been corrected in the Registry and reminder sent to staff re; paperwork returns. The 46 ICPs in question have been corrected to VCOM.</p> <p>UN only with a control device can be a valid combination when the LCD is a network device measuring energy quality, such as on the Wel Network who require one of their devices on each ICP for collecting network information.</p>		Completed	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Invalid ATH identifier cleared now. LCDs on UN sites cannot be avoided on some networks such as Wel Networks, who require their load control device on each ICP to monitor network energy.</p>		Completed	

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

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

Audit commentary

SmartCo has a number of checks in place to ensure registry data is correct. They are as follows:

- mandatory data missing from files being sent to registry,
- awaiting MEP nomination after eight days,
- registry rejections,
- MEP responsibility is lost, leading to a removal of assets and a stop of interrogation,
- a new MEP has accepted a switch request, but SmartCo has a works order in progress,
- difference between SmartCo and the registry data for files sent,
- MEP switch reversal but a works order is in progress,
- ICP status is not valid on the registry (e.g., ready instead of active), and
- no MEP switch response file within the time period.

In addition to the points noted above, SmartCo is also conducting a complete validation for all fields in accordance with this clause. Whilst the validation processes are robust, some corrections are not made within five business days, which is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.3 With: Clause 6 of Schedule 11.4 From: 01-Aug-21 To: 10-Apr-22	Discrepancies not resolved within five business days. 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 there is a thorough process to identify errors and steps are taken to correct errors as quickly as possible. Some of the discrepancies have a minor impact on participants, customers or settlement. The relevant ones in this regard are tariff related. The audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
We have a thorough process where we reconcile data between our systems and the Registry daily, however some updates still occur after 5 days, most often this is due to reliance on third parties for additional information.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Continue to reconcile daily and update within the required timeframes. Chase those cases where third parties are requested for information.		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:
 - a. the MEP has not received the report under 6(2A)(a) or 6(2A)(b); or*
 - b. the report demonstrates the maximum current is higher than permitted; or*
 - c. 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
 - a. the metering installation is not interrogated within the maximum interrogation cycle; or*
 - b. the HHR and NHH register comparison is not performed; or*
 - c. 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

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

Audit commentary

Inspection

SmartCo conducted inspections of its Category 1 metering installations for the first time in 2021. There were 1,676 Category 1 ICPs that were certified more than 84 months prior to 31 December 2021, from which a sample of 125 were required to be inspected. The Code was changed on 1st February 2021 requiring the MEP to determine the number of inspections required to be calculated by producing a list of all ICP identifiers of each category 1 metering installation for which it is responsible and removing from the list of ICP identifiers any ICP identifier for a metering installation that has been certified or inspected in the 84 months prior to 31 December in the year in which the list was produced. Prior to the Code change the MEP was able to remove from the list of ICP identifiers any ICP identifier for a metering installation that has been certified or inspected in the 84 months prior to the date on which the list was produced.

SmartCo produced its list of ICP identifiers in March 2021 and determined the number requiring inspection using the previous Code requirement of removing ICP identifiers for metering installations certified in the 84 months prior to the date the list was produced. Three ICPs were identified requiring a minimum sample of two to be inspected. The two inspections were completed. As SmartCo did not correctly determine the number of ICPs and conduct inspections of the required sample size of 125 ICPs certification is cancelled for the 1,676 ICPs. Non-compliance is recorded in this section as the registry was not updated with the cancellations within 10 business days.

I checked for Category 2 metering installations due for inspection. No Category 2 metering installations were due for inspection.

Current transformer in-service burden

Analysis of the certification records for 11 Category 2 metering installations found that all had appropriate burden applied.

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, were not resolved within three business days and certification was not cancelled within 10 business days. As recorded in **section 10.9**, SmartCo implemented a process to identify sum-check failures and cancel certification if not resolved within three business days in May 2022. The reporting provided by SmartCo identified six meters that had failed sum-check and were not resolved within three business days. Due to processing delays the registry was not updated within 10 business days for these six ICPs as detailed in the following table:

ICP	Date of sum-check failure	Cert cancelled date	Date registry updated	Business days to update registry
0000054315NT17B	1/05/2022	1/05/2022	18/05/2022	12
0000324344MPD19	1/05/2022	1/05/2022	18/05/2022	12
0000207430MP90D	27/04/2022	27/04/2022	19/05/2022	15
0000353410TEF24	1/05/2022	1/05/2022	19/05/2022	13
0000630916TPE4F	1/05/2022	1/05/2022	18/05/2022	12
0000697110TE5C2	1/05/2022	1/05/2022	19/05/2022	13

I was unable to determine the number of ICPs requiring cancellation due to unresolved sum-check failures in the period prior to SmartCo implementing the process to cancel certification in May 2022. I have recorded non-compliance for the late cancellation of the six ICPs above and an undetermined number prior to implementation of the process.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 6.4</p> <p>With: Clause 20 of Schedule 10.7</p> <p>From: 01-Aug-21</p> <p>To: 10-Apr-22</p>	<p>Certification cancelled, and registry not updated within 10 business days for:</p> <ul style="list-style-type: none"> - 1,676 Category 1 ICPs with minimum number of sample inspections not conducted, - six ICPs where sum-check failures were not resolved within three business days, - an unknown number of ICPs where sum-check failures were not resolved within three business days prior to implementation of cancellation process. <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>I have recorded the controls as moderate in this area because most processes are managed with sufficient controls to avoid cancellation of certification.</p> <p>The responsibility for SmartCo is to cancel certification on the registry once they know certification is cancelled and the impact of not doing this is minor, therefore the audit risk rating is low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Missing inspections was an unintended mistake due to not fully understanding a code change that was made back in 2021. The SmartCo inspection process was not updated to ensure the population for inspections was taken from the 31 December of the year in which the list was created. This has been corrected for 2022. We will now focus on correcting the 1,676 ICPs that were missed.</p> <p>The sumcheck process, another that was changed in 2021, took a long time to change our systems and create a process. Whilst we cannot explain exactly why the 6 identified above were not updated in the Registry within the 10 days, they were all cancelled but there was a disconnect between the teams as to the time frames, and they were missed. This miscommunication has been shared with the teams and they are now aware.</p>		20 Dec 2022	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

Inspections process has been updated for 2022. Sumcheck process link failure that ensures cancelled ICPs are updated in the registry has been identified and process improved.	Completed	
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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

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 SmartCo not using the prescribed form.

Audit commentary

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 SmartCo not using the prescribed form and did not find any exceptions.

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 certifications 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

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,
- the new connections process was checked by using the event detail report, PR255 and the list file to identify ICPs where the certification was not conducted within five business days of energisation, and
- I checked ICPs where certification was cancelled to ensure the registry was updated accordingly.

Audit commentary

At the time of my analysis, 737 ICPs were showing as having expired or cancelled certification, of which 680 were Category 1 and 57 were Category 2. The table below summarises the details and comments provided by SmartCo.

Number of cancelled or expired certifications	Category	Reason for cancelled or expired certification
672	1	Certification cancelled due to meter not being interrogated and AMI flag not being changed within the maximum interrogation cycle.
21	2	Certification cancelled due to meter not being interrogated and AMI flag not being changed within the maximum interrogation cycle.
35	2	Certification cancelled due to certification taking place with low CT burden.
2	1	Certification cancelled due to bridged meters.
3	1	Registry was updated with incorrect expiry date, have now been corrected.
1	1	Expired certification, unable to install new meters and certify due to lack of space on switchboard requiring alterations by the customer.
1	2	Certification cancelled, unable to recertify until non-compliant CTs are replaced.
1	1	Certification cancelled after ATH removed two meters and did not recertify.

As mentioned in **section 6.4**, certification is cancelled for:

- 1,676 Category 1 ICPs with minimum number of sample inspections not conducted,
- six ICPs where sum-check failures were not resolved within three business days,
- an unknown number of ICPs where sum-check failures were not resolved within three business days prior to implementation of cancellation process.

SmartCo provided a copy of an email sent to the Authority in April 2022 detailing its plans to recertify the majority of Category 1 ICPs with cancelled certification by statistical sampling in 2022.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 7.1 With: Clause 10.38 (a) From: 01-Aug-21 To: 10-Apr-22	Certification expired or cancelled for more than 1,682 ICPs. Potential impact: High 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 the SmartCo processes have been improved to avoid cancellation of certification. The impact on settlement is recorded as low because it is unlikely that there are accuracy issues with the metering installations with cancelled certification, therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
The majority of the above cancelled ICPs are in planning to be recertified this year (2022) using a statistical sampling process. This is due to get underway in the field in August once customers have been notified and technicians workloads planned. The category 2 ICPs are being managed as 'Business as usual' jobs.		20 Dec 2022	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We strive to ensure metering installations always remain certified, however from time to time we are made aware of issues that lead to cancellation of metering installations. We continue to improve systems and processes to minimize these.		Ongoing	

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

I checked the certification records for 50 metering installations to confirm compliance.

Audit commentary

Category 1 certification tests

All certification activities have been conducted by Wells, AMS and Delta ATHs. I checked a sample of 39 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 number of certification records with inaccurate or missing information including the results of testing conducted by the AMS and Delta ATHs. I have recommended that SmartCo 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	15	15
Delta	19	19
Wells	5	0
Total	39	34

There were two 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 ATHs did not conduct prevailing load tests using a working standard in these examples. Details of the ICPs are included in the following table:

ICP	ATH	Certification date	Reason for recertification
0000010518TE1F5	AMS	1/12/2021	Unknown
0009595083LNB57	Wells	11/3/2022	Metering moved from BTS to permanent

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.	In progress, two ATHs require major system changes which is taking time.	Investigating

Category 2 certification tests

The certification records for all 11 Category 2 metering installations included test results which confirmed that all required testing had been completed.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 7.2 With: Clause 10.38(b) From: 01-Dec-21 To: 01-Jun-22	Prevailing load tests not conducted for two Category 1 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
The two ICPs in question moved a meter from a builder's temporary supply to a permanent installation. The Wells installation physically moved the meter to a new box, this was treated as a new installation and the relevant new installation tests were performed. Cert expiry remained as it was because the meter had been initially certified as BTS. The AMS job didn't move the meter but modifications were done cancelling the BTS cert. This was also treated as a new installation and the correct tests completed. We do not believe a prevailing load is required in this situation and would like a ruling from the Authority on this clause and the intent.		Ongoing	Disputed
Preventative actions taken to ensure no further issues will occur		Completion date	
Where we believe prevailing load test is required, our policy is to replace meters as the test houses do not have provision of expensive equipment to undertake this testing.		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

I checked the certification records for 35 metering installations to confirm compliance.

Audit commentary

Category 2 AMI metering installations are predominantly “consumption only” and therefore the meters are required to measure and separately record export reactive energy. The data storage devices are capable of this but are not configured this way, however compliance is achieved because the Code does not require the reactive energy channel to be interrogated and returned.

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

This clause relates to Transpower as an MEP.

Audit commentary

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

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

Audit commentary

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

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

Audit commentary

The audit compliance report identified eight nominally Category 3 metering installations certified as a Category 2. All eight installations have protection rated at 500A or less therefore monitoring is not required.

The ICPs are shown in the table below:

ICP	ATH	Certification date	CT ratio	Comments
0000365665MP339	VEMS	27/02/17	800/5	Main switch rating is less than 500A
0000373718MPD1A	VEMS	24/08/16	600/5	Fusing is 300A
0001031002AL012	WELL	17/01/17	600/5	315A fuses
0003586034ALCAD	WELL	24/01/17	600/5	400A fuses
0005721110ALC3F	WELL	13/01/17	600/5	400A fuses
0005742234AL3DB	WELL	30/10/16	600/5	400A fuses
0007600616AL3C1	DELT	18/02/20	600/5	355A Fuses
0001072686ALB21	DELT	20/03/20	600/5	Fusing less than 500A

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

I checked if there were any examples of Insufficient load certifications.

Audit commentary

There were no examples of insufficient load certification during the audit period. SmartCo has previously instructed ATHs that load must be added to perform certification testing and that insufficient load certification should not be conducted.

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

I checked if there were any examples of Insufficient load certifications.

Audit commentary

There were no examples of insufficient load certification during the audit period. SmartCo has previously instructed ATHs that load must be added to perform certification testing and that insufficient load certification should not be conducted.

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

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

Audit commentary

Alternative certification has not occurred. I confirmed this by checking the list file.

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:

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

Audit observation

I asked SmartCo 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

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

SmartCo 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. 38 active ICPs with time dependent 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 were identified. I have recorded non-compliance for these ICPs as the requirement to monitor and correct time at least once every 12 months has not been met.

I recommend that SmartCo develops a process to identify meters which become subject to the timekeeping Requirements of Clause 23 of Schedule 10.7 and ensure the time is monitored and corrected as required.

Recommendation	Description	Audited party comment	Remedial action
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Regarding Clause 10.38(b)	Develop a process to identify meters which become subject to the timekeeping Requirements of Clause 23 of Schedule 10.7 and ensure the time is monitored and corrected as required.	We will discuss how we best address this and what will work. This could be anything from replacing the meter at the 12-month period or suggesting the retailer change the tariff from one that has time switched registers.	Investigating
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Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 7.10 With: Clause 23 of Schedule 10.7 From: 01-Aug-21 To: 10-Apr-22	38 ICPs with time dependent meter registers with time are 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 SmartCo 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
We will discuss how we best address this and what will work. This could be anything from replacing the meter at the 12-month period or suggesting the retailer change the tariff from one that has time switched registers.		20 Dec 2022	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Once we have arrived at a solution, we will look to implement it to ensure no meters with time dependent meter registers that are not monitored, remain.		20 Dec 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

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

Audit commentary

There were no examples of bridged control devices available from the audit period. Notification of control device bridging is normally received from the traders therefore notification is not required. The SmartCo process is to un-bridge control devices within 10 business days or cancel certification.

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

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

Audit commentary

Most control devices are integrated within the meters and there is back-office reporting to confirm switching has occurred, i.e., that a signal has been received. The event is called "relay stuck". This achieves compliance with the intent of this clause. In cases where the control device is not integrated, there has not been any notification under 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

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

Audit commentary

Smartco has not conducted any recertification by statistical sampling during the audit period. As recorded in **section 7.1** there are some installations with cancelled certification which SmartCo plan to recertify by statistical sampling.

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

I checked the records for 11 Category 2 metering installations to confirm that compensation factors were correctly recorded on the registry. I also checked the audit compliance report for unusual compensation factors.

Audit commentary

Compensation factors were updated accurately on the registry for the 11 ICPs checked. No examples of incorrect compensation factors were identified by the audit compliance report.

Audit outcome

Compliant

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

I checked the certification records for 50 metering installations to confirm compliance.

Audit commentary

Meters were certified for all 50 metering 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

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

Audit commentary

I checked the records for eight Category 2 metering installations certified using the selected component method and confirmed the CTs are certified in accordance with this clause.

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

I checked the certification records for 50 metering installations to confirm compliance.

Audit commentary

Data storage devices were certified for all 50 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

I checked the ATH register to confirm compliance.

Audit commentary

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

I checked the registry records (PR255) to identify any ICPs with interim certification recorded.

Audit commentary

There are no metering installations with interim certification.

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

I checked if SmartCo was required to conduct any Category 1 inspections.

Audit commentary

My analysis determined that SmartCo was required to complete its first sample inspections of Category 1 metering installations in the 2021 calendar year. There were 1,676 Category 1 ICPs that were certified more than 84 months prior to 31 December 2021, from which a sample of 125 were required to be

inspected. The Code was changed on 1st February 2021 requiring the MEP to determine the number of inspections required to be calculated by producing a list of all ICP identifiers of each category 1 metering installation for which it is responsible and removing from the list of ICP identifiers any ICP identifier for a metering installation that has been certified or inspected in the 84 months prior to 31 December in the year in which the list was produced. Prior to the Code change the MEP was able to remove from the list of ICP identifiers any ICP identifier for a metering installation that has been certified or inspected in the 84 months prior to the date on which the list was produced.

SmartCo produced its list of ICP identifiers in March 2021 and determined the number requiring inspection using the previous Code requirement of removing ICP identifiers for metering installations certified in the 84 months prior to the date the list was produced. Three ICPs were identified requiring a minimum sample of two to be inspected. The two inspections were completed. I have recorded non-compliance as the number of inspections completed did not meet the requirements of this clause. The certification is cancelled for the 1,676 ICPs, and non-compliance is also recorded in **section 6.4** as the registry was not updated with the cancelled certification for the 1,676 ICPs.

The inspection report was provided to the Authority in November 2021.

Audit outcome

Non-compliant

Non-compliance	Description	
Audit Ref: 8.1 With: Clause 45 of Schedule 10.7 From: 01-Jan-21 To: 31-Dec-21	Incorrect sample size inspected for Category 1 sample inspections. Potential impact: Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1	
Audit risk rating	Rationale for audit risk rating	
Low	I have recorded the controls as strong as SmartCo has updated its processes to ensure that the correct sample size will be selected in future inspections. 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
Missing inspections was an unintended mistake due to not fully understanding a code change that was made back in 2021. The SmartCo inspection process was not updated to ensure the population for inspections was taken from the 31 December of the year in which the list was created. This has been corrected for 2022. We will now focus on recertifying the 1,676 ICPs that were missed. We discuss this non-compliance further in the participant response section at the end of this report.		20 Dec 2022
		Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
Our process has been updated for the 2022 inspections.	Completed	

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

SmartCo has not been required to conduct any Category 2 inspections.

Audit commentary

SmartCo has not been required to conduct any Category 2 inspections.

Audit outcome

Compliant

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

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

Audit commentary

I checked the inspection reports for the two inspections completed and confirmed that the information was checked against the SmartCo records within the required timeframe.

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

SmartCo has a documented process in place for the management of seals and any subsequent investigation and reporting. There were no specific examples to examine where seals were broken.

Audit commentary

SmartCo has a documented process in place for the management of seals and any subsequent investigation and reporting. There were no specific examples to examine where seals were broken.

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

I checked the SmartCo processes and an example where SmartCo had become aware of suspected faulty metering installation.

Audit commentary

The SmartCo processes are compliant with this clause. I checked an example where the trader had requested a Category 1 meter be removed and sent for testing following a customer query regarding the accuracy of the meter (special test). In this case the meter was confirmed to be accurate by the test laboratory. The timeframe between the initial request from the trader to the testing being completed and results being provided to the trader was within 20 business days. Compliance is confirmed.

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

I checked two examples where SmartCo had become aware of faulty metering installations, where meters had been bridged in order to reconnect.

Audit commentary

Smartco has a documented process in place to achieve compliance with this requirement.

I checked a report identifying two cases where meters had been bridged in order to reconnect during the audit period. In one case the installation was recertified when the bridge was removed therefore cancelling the previous certification. In the other case the certification was cancelled at the date of bridging and recertified when the bridge was removed. Appropriate notification was provided to other participants in both cases.

The information returned by the ATH met the requirement for the provision of a statement of situation in both examples.

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

I checked two examples where SmartCo had become aware of faulty metering installations, where meters had been bridged in order to reconnect.

Audit commentary

The information returned by the ATH met the requirement for the provision of a statement of situation in both examples. Smartco provided this information to the trader for both examples.

Audit outcome

Compliant

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

Code reference

Clause10.46A

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

I checked two examples where SmartCo had become aware of faulty metering installations, where meters had been bridged in order to reconnect.

Audit commentary

In one case the installation was recertified when the bridge was removed therefore cancelling the previous certification. In the other case the certification was cancelled at the date of bridging and recertified when the bridge was removed. The timelines for each case are detailed in the table below,

ICP	Date of bridging	Cert cancelled date	Date of un-bridging and recertification	Business days between bridging and un-bridging
0000018545NTF60	17/02/2022	28/02/2022	28/02/2022	6
0000373219MP45A	25/02/2022	25/02/2022	4/05/2022	44

The required timeframe for an MEP to complete remedial action is within 10 business days of the date it is required to provide a report to participants under 10.43(4)(c). Clause 10.43(5) specifies the time period for providing the report as 20 business days after becoming aware of the event or circumstance for a Category 1 metering installation. Therefore, to achieve compliance with these clauses the remedial work must be completed within 30 business days of SmartCo receiving notification of bridging of these meters. I have recorded non-compliance for ICP 0000373219MP45A as the remedial action was undertaken after 44 business days.

I have also recorded non-compliance in **section 9.5** for both of these examples as clause 10.33C requires the MEP to reinstate the meter so that all electricity flowing into the ICP flows through a certified metering installation within five business days of receiving the notice.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.4 With: Clause 46A From: 11-Apr-22 To: 04-May-22	Remedial action not completed in required timeframe after notification of a faulty metering installation for one ICP. 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 the SmartCo process normally ensures that remedial action is completed in the required timeframe. The impact on settlement and participants is minor as only one Category 1 ICP is affected; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
We endeavour to remediate bridged sites as soon as possible. We have a robust system that monitors these daily and proactively chases up outstanding ones. Sometimes this is not possible due to various reasons including Covid-19 or access restrictions.	Completed	Cleared
Preventative actions taken to ensure no further issues will occur	Completion date	
As stated above, we have a robust system that monitors these daily and proactively chases up outstanding ones.	Completed	

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

I checked for examples of bridged meters.

Audit commentary

SmartCo provided details of two examples where meters had been bridged by the trader in order to reconnect. SmartCo was notified by the traders on the day of bridging in both cases.

Clause 10.33C requires the MEP to reinstate the meter so that all electricity flowing into the ICP flows through a certified metering installation within five business days of receiving the notice.

The timelines for each case are detailed in the table below,

ICP	Date of bridging	Cert cancelled date	Date of unbridging and recertification	Business days between bridging and unbridging
0000018545NTF60	17/02/2022	28/02/2022	28/02/2022	6
0000373219MP45A	25/02/2022	25/02/2022	4/05/2022	44

I have recorded non-compliance for both ICPs as SmartCo did not reinstate the meter so that all electricity flowing into the ICPs flows through a certified metering installation within five business days of receiving the notice.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 9.5 With: Clause 10.33C From: 22-Feb-22 To: 04-May-22	Meters not reinstated after bridging within five business days of bridging for two Category 1 ICPs. 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 the SmartCo process normally ensures that remedial action is completed in the required timeframe. The impact on settlement and participants is minor as only two Category 1 ICPs are affected; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Clause 10.33C (6) states the metering equipment provider, after receiving the notice from the trader must reinstate the meter so that all electricity flowing into the ICP flows through a certified metering installation within 5 business days. Whilst we endeavour to and regularly meet this timeframe, due to circumstances outside our control, we are sometimes unable meet this.		Completed	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
ICPs have both been unbridged and recertified. Our process monitors this closely but sometimes delays out of our control cannot be avoided.		Completed	

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

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

Audit commentary

No requests have been received, but SmartCo 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

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

Audit commentary

No requests have been received, but SmartCo 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

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

Audit commentary

No requests have been received, but SmartCo 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

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

Audit commentary

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

Audit outcome

Compliant

10.5. Electronic Interrogation of Metering Installations (Clause 8 of Schedule 10.6)

Code reference

Clause 8 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

Vector Metering as an agent conducts AMI data collection for SmartCo as an MEP, because data can only be accessed from their back office.

I conducted a walkthrough of the process and I requested reporting of the following:

- interrogation not conducted within the maximum interrogation cycle,
- event report sent to retailers,
- clock synchronisation reports, and
- sum-check failures.

Audit commentary

The relevant parts of this clause are maximum interrogation cycle and storage of data. The other parts of the clause are discussed in other sections.

The SmartCo process is to change the AMI flag to “N” for any meters that are not successfully interrogated for a continuous period of 20 days. The AMI flag is changed back to “Y” once a successful interrogation takes place. I checked the SmartCo reporting and confirmed that there were no meters with the AMI flag set to “Y” that had exceeded the maximum interrogation cycle of 90 days. Compliance is confirmed

SmartCo has met the requirement to securely archive data for at least 48 months. This data was viewed during the audit.

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 access, use, modification or disclosure of the metering data.

Audit observation

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

Audit commentary

All data is normally provided to reconciliation participants via SFTP. One-off requests for data from traders are sent as compressed password protected files via email. The passwords are unique and not sent with the data. Data is held indefinitely.

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

I conducted a walkthrough of the management of time errors, and I checked the relevant reports.

Audit commentary

Vector Metering’s server time is verified against an internet time source several times per day to ensure compliance with the requirement to ensure it is within ± 5 seconds.

Daylight saving adjustment occurs as follows:

Meter type	NZST Winter	NZDT Summer (Daylight savings)
EDMI DRR & Interval	Meters record in local time so files will always be midnight for DRR 23:59:59 and 12 to 12 for interval	Meters record in local time so files will always be midnight for DRR and 12 to 12 for interval
L&G DRR	Midnight read 23:59:59	L&G does not adjust to local time and stays on NZST. Therefore, the midnight read is taken at 00:59:59 NZST in summer.
L&G Interval	12am to 12pm intervals Files shows "N" across all L&G	L&G does not adjust to local time and stays on NZST. However, data is "Adjusted" so are one to one but are adjusted to represent 12 to 12. File will show an "A".

The files sent to retailers contain a field indicating whether daylight saving has occurred.

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 interrogation log contains this information.

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

Clock synchronisation is conducted every four hours as a distinct process, separate to interrogation. Any errors greater than ±10 seconds but less than 20 minutes are automatically corrected and recorded. Errors greater than 20 minutes are recorded but not automatically corrected. The manual corrections are conducted by the software host, Silver Spring Networks, who then advise Vector Metering that the changes have been made. 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 a recent time synchronisation report from 3 May 2022. The report identified 10 Category 2 meters that had exceeded the 10 second limit and 333 Category 1 meters that had exceeded the 30 second limit. 41 of the 343 meters were synchronised at or shortly after the time of installation.

There is also a requirement to notify the reconciliation participant of any "...affected raw meter data..." once clock corrections have occurred. This information is provided in accordance with the Code.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 10.7 With: Clause 8(4) of Schedule 10.6 From: 01-Aug-21 To: 10-Apr-22	343 examples of clock errors outside the allowable thresholds. Potential impact: Medium Actual impact: Low Audit history: Twice 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
Our system automatically corrects clock errors and the majority do not drift outside the code limits. If any do drift outside the limit they are corrected but we become non-compliant. Any meters with excessive time errors or are repeatedly exceeding the time limits are investigated by the technical team and action is taken to resolve the issue.		Completed	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We have an automated system of correcting time errors. Should the time drift exceed the limits in the Code excessively or repeatedly, we will attempt to manually interrogate and make the necessary correction, and if unsuccessful, will replace the meter.		Completed	

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

I conducted a walkthrough of the event management process, and I checked the most recent report sent to all relevant retailers.

Audit commentary

SmartCo downloads the event log as required by this clause. All critical events are evaluated, and appropriate action is taken. SmartCo provided a list of all 62 event types, which are downloaded during interrogation. Relevant events, including tampering, are now being placed on the SFTP server for each retailer to uplift and action. The most recent event files provided to all SmartCo customers were provided. SmartCo has provided its customers with a “Metering event files user information” document which provides information on events reported to traders. The document includes possible reasons for, an assessment of the risk level and actions taken for of each event type.

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

I conducted a walkthrough of the event management process, and I checked the most recent reporting.

Audit commentary

SmartCo has a “sum-check” process where the scalar interval metering data is compared to the scalar midnight snapshot. The scalar values take daylight savings into account where if the scalar midnight snapshot was compared to the interval data (always midnight to midnight) then there would be comparison problems during the daylight-saving period. A process was put in place in May 2022 to identify failures which are unable to be resolved within three business days. A report is produced daily which identifies the unresolved failures, the report is sent to the MEP team to update the registry with cancellation of certification. Non-compliance is recorded in **section 6.4** for an unknown number of ICPs where certification was cancelled prior to the implementation of this process and for six meters that had failed sum-check and were not resolved within three business days where the registry was not updated with the cancellation within 10 business days.

Compliance is achieved with this clause because sum-check is conducted.

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

SmartCo has a process in place to achieve compliance with this requirement. No specific examples were available to examine.

Audit commentary

SmartCo has a process in place to achieve compliance with this requirement. No specific examples were available to examine.

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

I checked whether SmartCo applied compensation factors to raw meter data.

Audit commentary

SmartCo does not apply 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 chooses 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

I checked whether SmartCo had reporting in place to confirm compliance with this clause.

Audit commentary

The SmartCo process is to change the AMI flag to “N” for any meters that are not successfully interrogated for a continuous period of 20 days. This process ensures that any meters with unsuccessful interrogation are changed to AMI “N” within the required 25% of the interrogation cycle of 90 days. An interrogation is not deemed successful unless all intervals and the midnight read are obtained.

I checked the SmartCo reporting and confirmed that there were no meters with the AMI flag set to “Y” that had not completed a successful interrogation within the maximum interrogation cycle. Compliance is confirmed.

Audit outcome

Compliant

CONCLUSION

SmartCo is an MEP that is owned by a consortium of electricity network companies. SmartCo provides AMI data to retailers in member networks using mesh communications technology. The individual network companies that make up the consortium are the owners of the meters in their networks. Vector Metering has been appointed by SmartCo to provide metering, data collection and asset management services on SmartCo member networks. SmartCo is the MEP on the registry (SMCO).

The audit identified 17 non-compliances.

Non-compliance continues to exist in relation to missing and inaccurate fields in certification records from ATHs. There has been improvement in this area with the ATHs updating their processes to meet the requirements of Code changes introduced in February 2021. I have recommended that SmartCo require ATHs to include details and results of all testing completed in the metering installation certification reports provided.

SmartCo conducted its first inspections of Category 1 metering installations by statistical sampling in 2021. The requirement for determining the number of ICPs to be inspected was changed as part of Code changes introduced on 1st February 2021. Prior to the change the MEP produced a list of ICPs certified more than 84 months prior to the date the list was created. The Code change requires the list to include ICPs certified more than 84 months prior to 31st December in the year the list was produced. Non-compliance is recorded and certification is cancelled for 1,676 ICPs as SmartCo selected an insufficient sample due to the selection being made under the previous Code requirement.

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

- late updating of registry information,
- inaccurate registry information,
- expired and cancelled certification,
- time not monitored and corrected every 12 months for ICPs with time dependent registers,
- meters not reinstated after bridging within five business days of bridging for two ICPs, and
- time errors for meters.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The future risk rating provides some guidance on this matter, and it recommends an audit frequency of three months. After reviewing SmartCo's responses to the areas of non-compliance I recommend an audit frequency of 12 months.

PARTICIPANT RESPONSE

SmartCo acknowledge the non-compliances raised in the audit and will address each of these, focusing primarily on those non-compliances that have an impact on other participants and/or the market.

The inspections that were not completed in 2021 is another example of the issues faced in the industry by new code changes released late in 2020 by the Electricity Authority, that went live in February 2021. The hastily released changes and very limited consultation post release with the industry left many participants with a limited understanding of the changes and their potential consequences, and these have and continue to show themselves in subsequent audits.

SmartCo has taken a pragmatic approach to these code changes, initially directing resource to address the changes that caused major issues last audit, such as implementing automated sum-check monitoring, remedial action and updating of AMI flag status within the maximum interrogation cycle. As we were early into the inspection process at last audit, the sample selection error was unfortunately not discovered, however we have updated our process with the changes for the 2022 inspections. Planning is already underway to correct the missed inspections from 2021.

We have disputed the non-compliance for requiring prevailing load to be completed. In the two cases given, both were BTS to permanent and both BTS installations were modified and hence cancelled. This required new installation tests to be carried out but using the existing meter (as is allowed in the code). Prevailing load only applies to recertification? SmartCo would like the Authority to clarify the circumstances in which they expect this clause to be used, and the reasoning why?

SmartCo continue to work closely with our field service providers through regular catchups and quarterly face to face forums, where compliance issues are raised and discussed in an open forum. The objective is to share issues and solutions to ensure compliant, safe, and best practice with respect to installations, back office processes and customer interactions. The Authority have been invited and will attend the next forum to discuss several issues raised by the test houses at a previous forum.