

ELECTRICITY INDUSTRY PARTICIPATION CODE
RECONCILIATION PARTICIPANT AUDIT REPORT



For

PAUA TO THE PEOPLE LIMITED

Prepared by: Tara Gannon

Date audit commenced: 20 April 2021

Date audit report completed: 29 April 2021

Audit report due date: 15 May 2021

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EXECUTIVE SUMMARY

This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of **Paua to the People Limited (Paua)**, to support their application for renewal of certification in accordance with clauses 5 and 7 of schedule 15.1. The audit was conducted in accordance with the Guideline for Reconciliation Participant Audits version 7.2.

Paua supplies HHR AMI ICPs with metering category 1, and HHR submission type. No ICPs with unmetered load are supplied, and one ICP with distributed generation is supplied.

HIKO began to be used for HHR meter data processes from 30 November 2020, following the material change audit. HIKO was fully implemented for importing and exporting registry data, estimation, correction, and submission from 23 March 2021.

Prior to the implementation of HIKO, Foxworks was used. Where the previous audits has indicated deficiencies in the Foxworks processes (such as estimation), Paua put work arounds in place until the HIKO processes were fully implemented to improve compliance.

Paua's registry management processes are robust and the overall data accuracy was found to be high. The previously found issues relating to incorrect NSP assignment have been cleared, and reconciliation report aggregation factors are based on information from a current date ranged registry list.

Switching files are generated using HIKO, and processes are compliant. A small number of non-compliances for late switch files and inaccurate last actual read dates in CS files occurred prior to the processes being automated in HIKO. Withdrawal and read renegotiation was compliant in this audit, and Paua has created new alerts to monitor read renegotiation and withdrawal files to ensure future compliance.

Paua continues to supply HHR AMI customers only, and relies on AMI reads provided by MEPS. Compliant processes are in place for estimation and correction, and revised submission data is now consistently provided.

This audit identified 11 non-compliances and makes two recommendations. The audit risk rating is 11 indicating that the next audit should be due in 18 months. This is a significant improvement from 20 non compliances and an audit risk rating of 34 in the previous audit. Where non-compliance has occurred further controls and/or corrections have been put in place to prevent recurrence. The only exception to this is the technical non-compliance relating to the HHR aggregates file contained submission rather than billed volumes, which is caused by an issue in the Code's wording.

Given the improvement from last audit, the number of ICPs supplied (which are not expected to increase) I agree with Paua's request to complete the next audit in 24 months.

The matters raised are shown in the tables below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Changes to registry information	3.3	10 Schedule 11.1	Two late status updates.	Strong	Low	1	Identified
Inform registry of switch request for ICPs - standard switch	4.1	2 Schedule 11.3	The NT files for ICPs 0000045037TR2B9 (event date 03/09/20) and 0001406533UNA1D (26/11/20) were issued three and four business days after pre-conditions were met.	Strong	Low	1	Identified
Losing trader response to switch request and event dates - standard switch	4.2	3 and 4 Schedule 11.3	Eight AN breaches.	Strong	Low	1	Identified
Losing trader must provide final information - standard switch	4.3	5 Schedule 11.3	Three CS breaches. One transfer CS file contained an incorrect last actual read date.	Strong	Low	1	Identified
Losing trader provides information - switch move	4.8	10(1) Schedule 11.3	Three AN breaches. Ten T2 breaches.	Strong	Low	1	Identified
Losing trader must provide final information - switch move	4.10	11 Schedule 11.3	Seven switch move CS files contained incorrect last actual read dates.	Strong	Low	1	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Meter data used to derive volume information	9.3	3(5) Schedule 15.2	The HHR aggregates information is truncated to two decimal places at trading period level before being summed by ICP to produce the submission information.	Strong	Low	1	Cleared
ICP days	11.2	15.6	ICP days for 0000170598TR21D were double counted in error from 12/02/21 because HIKO counted one set of ICP days for each flow direction. The issue was detected and resolved prior to the audit, and I confirmed that the current ICP days values in HIKO are correct.	Strong	Low	1	Cleared
HHR aggregates information provision to the reconciliation manager	11.4	15.8	The HHR aggregates file does not contain electricity supplied information.	Strong	Low	1	Identified
Creation of submission information	12.2	15.4	Under submission of 10 kWh for ICP 0000145867TRED0 for consumption during an inactive period.	Strong	Low	1	Identified
Accuracy of submission information	12.7	15.12	Under submission of 10 kWh for ICP 0000145867TRED0 for consumption during an inactive period.	Strong	Low	1	Identified
Future Risk Rating						11	

Future risk rating	0	1-3	4-15	16-40	41-55	55+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Description	Recommendation
Electrical Connection of Point of Connection	2.11	Reconnection of uncertified meter installations	Identify uncertified meters which are to be reconnected, and arrange for the MEP to re-certify.
Collection of information by certified reconciliation participant	6.5	Clock synchronisation corrections	Consider whether a correction to spread the consumption between the period of clock adjustment and any previous missing trading periods is required when reviewing clock synchronisation events affecting more than one trading period.

ISSUES

Subject	Section	Description	Issue
		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

Current code exemptions were reviewed on the Electricity Authority website.

Audit commentary

There are no exemptions in place that are relevant to the scope of this audit.

1.2. Structure of Organisation

The structure of the organisation was provided.

1.3. Persons involved in this audit

Auditor:

Tara Gannon

Veritek Limited

Electricity Authority Approved Auditor

Paua personnel assisting in this audit were:

Name	Title
Mark Hughes	Managing Director

1.4. Use of Agents (Clause 15.34)

Code reference

Clause 15.34

Code related audit information

A reconciliation participant who uses an agent

- remains responsible for the contractor's fulfilment of the participant's Code obligations*
- cannot assert that it is not responsible or liable for the obligation due to something the agent has or has not done.*

Audit observation

Any agents used by Paua were identified and their agent reports assessed as a part of this audit.

Audit commentary

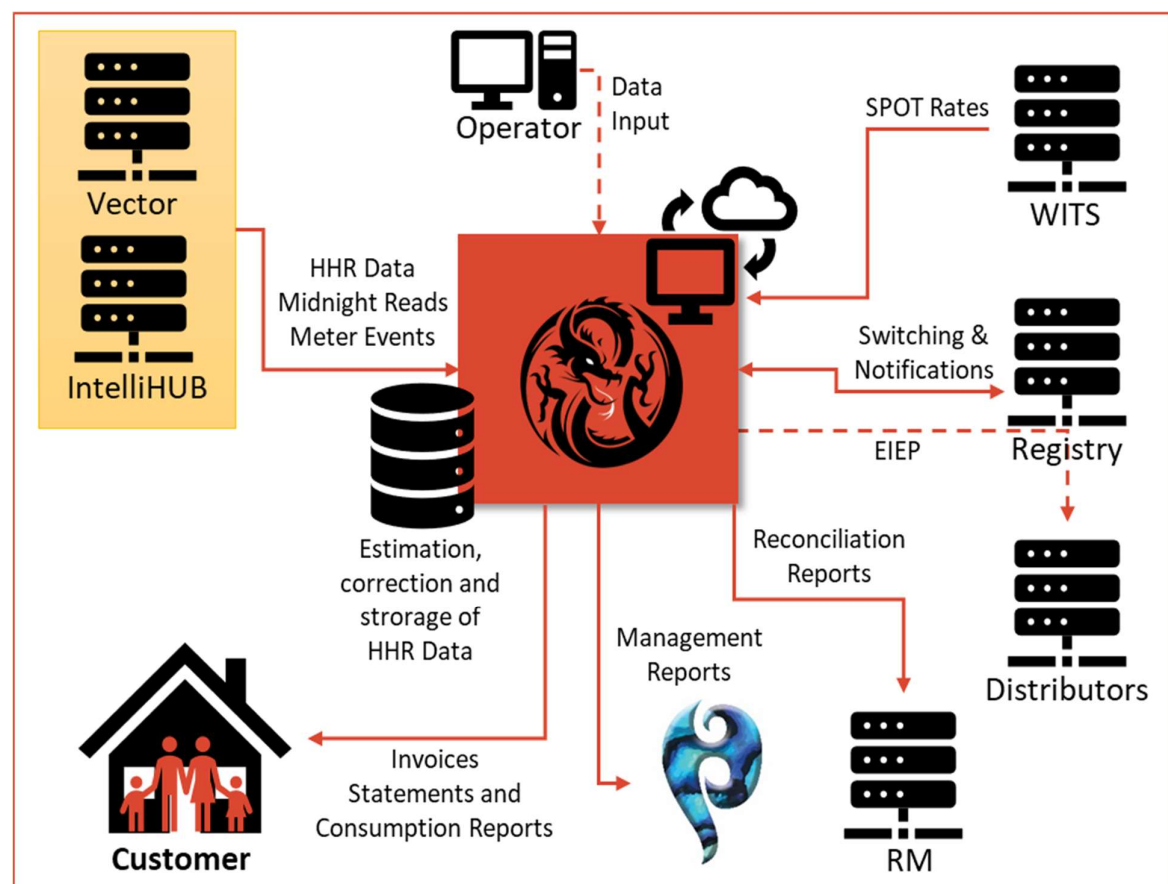
Paua receives HHR data from AMS, Intellihub and Metrix as MEPs. Paua does not use estimates created by the MEPs, and instead creates their own using HIKO.

1.5. Hardware and Software

Paua uses the HIKO database, developed by Paua to manage customer, ICP, meter, and submission data. HIKO imports and exports registry information, and generates submission files for the reconciliation manager. Status and trader updates are processed manually on the registry.

HIKO began to be used for HHR meter data processes from 30 November 2020, following the material change audit. HIKO was fully implemented for importing and exporting registry data, estimation, correction, and submission from 23 March 2021.

HIKO interacts with other systems and participants as shown below:



Paua utilises the following software:

Task	Software	Notes
Security	Norton	Remote server has full security suite protection.
SFTP	winSCP	Automated uploads and downloads of data to and from remote servers.

Task	Software	Notes
Disaster Recovery	OneDrive	Physical and one drive back-ups are performed.
CRM/Billing	HIKO application and SQL Server database	<p>The database is backed up weekly. Backups will be completed nightly when activity increases.</p> <p>Access to HIKO is restricted using Windows authentication.</p> <p>Paua confirmed that the disaster recovery and system restore processes have been tested.</p>

1.6. Breaches or Breach Allegations

There were no alleged breaches during the period between the material change audit in September 2020 and March 2021.

1.7. ICP Data

Paua's active ICPs are summarised by meter category in the table below:

Metering Category	Number of ICPs (Mar 2021)	Number of ICPs (Sep 2020)	Number of ICPs (Apr 2020)	Number of ICPs (Oct 2018)	Number of ICPs (Jan 2018)
1	444	519	577	1,205	920
2	-	-	-	-	-
3	-	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-
9	-	-	-	-	-

Paua's ICPs are summarised by status in the table below:

Status	Number of ICPs (Mar 2021)	Number of ICPs (Sep 2020)	Number of ICPs (Apr 2020)	Number of ICPs (Oct 2018)	Number of ICPs (Jan 2018)
Active (2,0)	444	517	576	1,205	920
Inactive – new connection in progress (1,12)	-	-	-	-	-
Inactive – electrically disconnected vacant property (1,4)	1	1	-	2	1

Status	Number of ICPs (Mar 2021)	Number of ICPs (Sep 2020)	Number of ICPs (Apr 2020)	Number of ICPs (Oct 2018)	Number of ICPs (Jan 2018)
Inactive – electrically disconnected remotely by AMI meter (1,7)	1	1	1	6	4
Inactive – electrically disconnected at pole fuse (1,8)	-	-	-	-	1
Inactive – electrically disconnected due to meter disconnected (1,9)	-	-	-	-	-
Inactive – electrically disconnected at meter box fuse (1,10)	-	-	-	-	-
Inactive – electrically disconnected at meter box switch (1,11)	-	-	-	-	1
Inactive – electrically disconnected ready for decommissioning (1,6)	-	-	-	-	-
Inactive – reconciled elsewhere (1,5)	-	-	-	-	-
Decommissioned (3)	-	-	-	-	-

1.8. Authorisation Received

An authorisation email was provided.

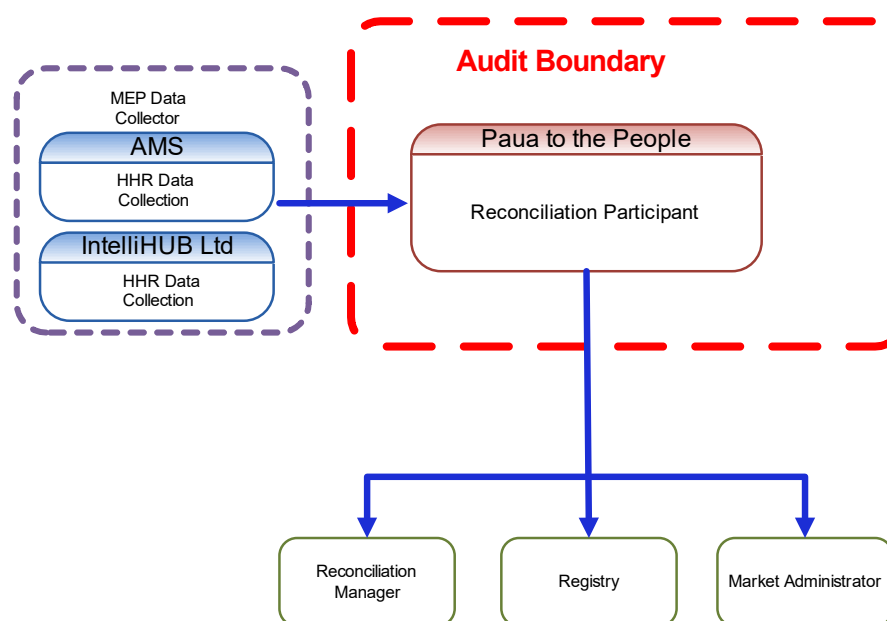
1.9. Scope of Audit

This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of Paua, to support their application for renewal of certification in accordance with clauses 5 and 7 of schedule 15.1.

The audit was conducted in accordance with the Guideline for Reconciliation Participant Audits V7.2.

The audit was carried out remotely on 20 April 2021. Registry list, event detail and audit compliance reports for 1 September 2020 to 20 March 2021 and a registry list snapshot for 20 March 2021 were reviewed.

The scope of the audit is shown in the diagram below, with the Paua audit boundary shown for clarity.



The table below shows the tasks under clause 15.38 of part 15 for which Paua requires certification. AMS, Intellihub, and Metrix provide AMI data as MEPs. Paua does not use estimates created by the MEPs, and instead creates their own using HIKO.

Tasks Requiring Certification Under Clause 15.38(1) of Part 15	Agents Involved in Performance of Tasks	MEPs Providing AMI data
(a) - Maintaining registry information and performing customer and embedded generator switching		
(b) – Gathering and storing raw meter data		AMS – HHR (AMI) MTRX - HHR (AMI) IHUB - HHR (AMI)
(c)(iii) - Creation and management of volume information		AMS – HHR (AMI) MTRX - HHR (AMI) IHUB - HHR (AMI)

Tasks Requiring Certification Under Clause 15.38(1) of Part 15	Agents Involved in Performance of Tasks	MEPs Providing AMI data
(d) – Calculation of ICP days		
(da) - delivery of electricity supplied information under clause 15.7		
(db) - delivery of information from retailer and direct purchaser half hourly metered ICPs under clause 15.8		
(e) – Provision of submission information for reconciliation		

1.10. Summary of previous audit

Paua provided a copy of their previous audit conducted in May 2020 by Rebecca Elliot of Veritek Limited. The summary tables below show the status of the non-compliances and recommendations raised in the previous audit. Further comment is made in the relevant sections of this report.

Table of Non-compliance

Subject	Section	Clause	Non compliance	Status
Material audit change request	1.11	16A.11	Material change audit not undertaken for system change that affected Paua's ability to comply with the code.	Cleared
Relevant information	2.1	10.6, 11.2, 15.2	ICP 0000123086TRFBA had an incorrect inactive status date not corrected from the last audit. CS file content incorrect for one ICP. Four RR requests contained requested readings inconsistent with the HHR data. Some revision files were not provided within the 14-month revision period resulting in corrections not being settled in the market. Three ICPs submitted against the incorrect NSP.	Cleared
Provision of information	2.2	15.35	Information was not provided as required by the code to meet the revision cycle causing corrections to not be settled to the market.	Cleared
Changes to registry information	3.3	10 Schedule 11.1	Ten late status updates.	Still existing

Subject	Section	Clause	Non compliance	Status
Losing trader response to switch request and event dates - standard switch	4.2	3 and 4 Schedule 11.3	Six late AN files.	Still existing
Losing trader must provide final information - standard switch	4.3	5 Schedule 11.3	58 late CS files. CS file content incorrect for one ICP.	Still existing
Retailers must use same reading - standard switch	4.4	6(1) and 6A Schedule 11.3	One late RR file.	Cleared
Losing trader provides information - switch move	4.8	10(1) Schedule 11.3	Two incorrect AN codes send – AD was sent when the PD code was more accurate. No AN file sent for 175 AN switches.	Still existing
Losing trader must provide final information - switch move	4.10	11 Schedule 11.3	CS file content incorrect for three ICPs (one ICP had both the incorrect average daily consumption and an incorrect estimate) checked.	Still existing
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	Four RR requests contained requested readings inconsistent with the HHR data.	Cleared
Withdrawal of switch requests	4.15	17 and 18 Schedule 11.3	One incorrect NW code. One late withdrawal acknowledgement.	Cleared
Metering information	4.16	21 Schedule 11.3	Two CS files with incorrect estimated reads. Four incorrect RR reads were provided.	Cleared
Correction of HHR metering information	8.2	19(2) of Schedule 15.2	Corrections not materially similar to the period with missing data.	Cleared
HHR Estimation	9.4	15 of Schedule 15.2	Estimations did not meet reasonable endeavours.	Cleared

Subject	Section	Clause	Non compliance	Status
ICP days	11.2	15.6	Inaccurate ICP days were reported for a small number of ICPs due to NSP changes not being processed correctly.	Cleared A temporary issue was present for a distributed generation ICP.
HHR aggregates information provision to the reconciliation manager	11.4	15.8	The HHR aggregates file does not contain electricity supplied information. Three ICPs reconciled to the incorrect NSP. Some submission inaccuracies were identified which have not been submitted within the 14-month revision cycle resulting in corrections not being settled to the market.	Still existing
Creation of submission information	12.2	15.4	One late submission file was provided in June 2019 for May 2019 Ri. Revisions not routinely being submitted. Some submission inaccuracies were identified which have not been submitted within the 14-month revision cycle resulting in corrections not being settled to the market.	Cleared A new issue was identified in relation to inactive consumption.
Allocation of submission information	12.3	15.5	Three ICPs submitted against the incorrect NSP.	Cleared
Accuracy of submission information	12.7	15.12	Some late revision files were provided. Some revision files were not provided within the 14-month revision period resulting in corrections not being settled in the market. Some incorrect submission data was provided.	Cleared A new issue was identified in relation to inactive consumption.
Provision of submission information to the RM	13.1	8 Schedule 15.3	Three ICPs reconciled to the incorrect NSP.	Cleared

Table of Recommendations

Subject	Section	Clause	Recommendation	Status
Relevant information	2.1	Unmetered load changes	Include a check for unmetered load recorded by the Distributor.	Implemented
Calculation of ICP days	11.2	ICP Missing	Review ICP missing report regularly.	Implemented

Paua provided a copy of their previous material change audit conducted in November 2020 by Tara Gannon of Veritek Limited. The summary tables below show the status of the non-compliances and recommendations raised in the previous audit. Further comment is made in the relevant sections of this report.

Table of Non-compliance

Subject	Section	Clause	Non compliance	Status
HHR aggregates information provision to the reconciliation manager	11.4	15.4	The HHR aggregates file does not contain electricity supplied information.	Still existing

Table of Recommendations

Subject	Section	Clause	Recommendation	Status
Relevant information	2.1	Meter replacement process testing	I recommend testing the meter replacement process prior to going live.	Implemented
ICPs at new or ready status for 24 months	3.10	Monitoring of "new" and "ready" ICPs	A Registry List (type P) with proposed trader = GIVE and status = 000 and 999 should be run at least quarterly to identify ICPs which have been at "new" or "ready" status for more than 18 months and require follow up.	Not implemented
Losing trader must provide final information - standard switch	4.3	Complete more comprehensive testing of the revised CS generation process prior to going live	<p>I recommend that some further testing of the revised CS logic is completed prior to going live, including:</p> <ol style="list-style-type: none"> 1. Testing to ensure the last actual read date is correctly recorded where there are actual reads after the period of supply, and where the ICP switched on an actual reading. 2. Testing to ensure that the estimated daily kWh is the average daily consumption between the last two 	Implemented

Subject	Section	Clause	Recommendation	Status
			<p>actual readings where there are two actual readings available, or consistent with the incoming CS file where there are not two actual readings available. I recommend further testing of scenarios where there are days with missing readings between the last two actual readings, only one actual reading is present, and no actual readings are present.</p>	

2. OPERATIONAL INFRASTRUCTURE

2.1. Relevant information (Clause 10.6, 11.2, 15.2)

Code reference

Clause 10.6, 11.2, 15.2

Code related audit information

A participant must take all practicable steps to ensure that information that the participant is required to provide is:

- a) complete and accurate*
- b) not misleading or deceptive*
- c) not likely to mislead or deceive.*

If the participant becomes aware that in providing information under this Part, the participant has not complied with that obligation, the participant must, as soon as practicable, provide such further information as is necessary to ensure that the participant does comply.

Audit observation

The processes to find and correct incorrect information was examined. The registry validation processes were examined in relation to the achievement of this requirement.

The registry list and AC020 reports were examined to identify any registry discrepancies, and to confirm that all information was correct and not misleading.

Audit commentary

Most trader maintained information is recorded only on the registry, including status. All status and trader updates are processed manually using the registry interface. HIKO contains fields for the MEP and ANZSIC code.

Changes to trader and status information are infrequent.

- Trader information is expected to change rarely, if ever. There have been no updates to trader information during the audit period. All ICPs in HIKO will have HHR profile and submission type, no unmetered load has been or is expected to be supplied, and Paua only accepts ICPs with AMS, Intellihub or Metrix as the MEP. Only one ICP with distributed generation is supplied.
- Status changes are processed manually on the registry once Paua has confirmed the correct status and event date. Processes are in place to identify and estimate missing data for periods with active status, and to raise field services checks for ICPs which have not received actual meter data for 28 days or more. During the audit, Paua created a new alert in HIKO where volumes are provided by the MEP during a period with inactive status, so that the status can be checked and corrected if necessary.

A daily ICP list with history (including all data from January 2015 onwards) is downloaded from the registry and imported into HIKO. This is used to determine reconciliation report aggregation factors, any changes to the ICP attributes, and whether the ICP is active and expected to be included in reconciliation reports and receive metering data. Changes to attributes are reported to the operator for investigation as alerts in the action hub, including changes to:

- Distributor unmetered load details. If unmetered load is found, Paua would relinquish responsibility for shared unmetered load if allowed under clause 11.14, or would arrange for the ICP to switch out.
- Distributed generation.
- Dedicated NSP.

Notification and acknowledgement files are not reviewed, discrepancies will be identified through action hub validation.

Prior to the implementation of HIKO, Paua downloaded an ICP List monthly and Foxworks created a report of any exceptions. This compared ICP status, network, POC, loss factor, MEP, multiplier, distributed generation, and indicators of unmetered load to the data recorded in Foxworks. Any discrepancies were investigated and corrected. Paua also completed a weekly status check. Checks for unmetered load changes were not completed prior to the implementation of HIKO, but review of the registry list confirmed that no unmetered load has ever been supplied.

The audit compliance report was reviewed and found:

Issue	Mar 2021 Qty	Sep 2020 Qty	Oct 2018 Qty	Jan 2018 Qty	Comments
Blank ANZSIC codes	-	-	-	-	Compliant.
ANZSIC "T99" series	-	-	-	-	Compliant.
UML load = zero	-	-	-	-	Compliant, no unmetered load was identified.
Incorrect UML load	-	-	-	-	Compliant, no unmetered load was identified.
Shared unmetered load incorrect	-	-	-	-	Compliant, no unmetered load was identified.
ICPs with Distributor unmetered load populated but retail unmetered load is blank and UML flag = N	-	-	-	-	Compliant, no unmetered load was identified.
No MEP recorded or nominated and UML= "N"	-	-	-	-	Compliant, all ICPs have an MEP.
Active Category 9 and UML "N"	-	-	-	-	Compliant, all ICPs have metering category 1.
Incorrect profile	-	-	-	-	Compliant, all ICPs have HHR profile.
Incorrect submission type	-	-	-	-	Compliant, all ICPs have HHR submission type.
Incorrect status or status date	-	-	1	1	Compliant.

Data accuracy issues and recommendations from the previous material change and reconciliation participant audits were re-checked:

Audit	Previous audit findings	Current audit findings
November 2020 material change	Meter replacements would be processed manually in HIKO, and recommended that the process was tested.	<p>Paua is notified of meter changes through receipt of job completion paperwork, and through their registry validation process.</p> <p>I reviewed two examples of meter replacements (0000004573TRE26 and 0000170598TR21D), and in both cases the MEP had not provided either work completion paperwork, or had missed some downloads immediately following the meter change. Paua has estimated volumes based on the information available until more data is received, and I recommend that the meter replacement process is re-checked next audit to confirm that it is operating correctly where all data is provided.</p>
May 2020	The automated estimation process was inserting a flat interval pattern which did not match the midnight read in all instances.	HIKO's process will ensure that interval data and midnight readings are consistent when creating estimates, and estimates tested during this audit were compliant.
May 2020	Revision submissions were not consistently provided.	HIKO contains a reconciliation schedule which includes the due dates for each revision, and I walked through the revision submission generation process. There have been no alleged breaches for late provision of submission information during this audit period.
May 2020	NSP changes were not always managed correctly resulting in volumes being reconciled to the incorrect NSP.	This has been resolved with the implementation of HIKO, because the NSP is determined directly from the registry information. The GR090 ICP Missing files and GR100 ICP days comparison files are imported into HIKO on publication of reconciliation results, and any exceptions are checked.

Audit outcome

Compliant

2.2. Provision of information (Clause 15.35)

Code reference

Clause 15.35

Code related audit information

If an obligation exists to provide information in accordance with Part 15, a participant must deliver that information to the required person within the timeframe specified in the Code, or, in the absence of any such timeframe, within any timeframe notified by the Authority. Such information must be delivered in the format determined from time to time by the Authority.

Audit observation

Processes to provide information were reviewed and observed throughout the audit.

Audit commentary

This area is discussed in a number of sections in this report and compliance is confirmed.

The May 2020 audit found that revision submissions were not consistently provided. HIKO contains a reconciliation schedule which includes the due dates for each revision, and I walked through the revision submission generation process. There have been no alleged breaches for late provision of submission information during the audit period.

Audit outcome

Compliant

2.3. Data transmission (Clause 20 Schedule 15.2)

Code reference

Clause 20 Schedule 15.2

Code related audit information

Transmissions and transfers of data related to metering information between reconciliation participants or their agents, for the purposes of the Code, must be carried out electronically using systems that ensure the security and integrity of the data transmitted and received.

Audit observation

HHR AMI data is provided by AMS, Intellihub and Metrix via SFTP.

To confirm the process, I traced seven monthly ICP volumes for HHR ICPs from the source data to HIKO and the HHR aggregates submissions. The sample included all MEPS.

Audit commentary

HHR AMI data is provided by AMS, Intellihub and Metrix via SFTP, and automatically imported into HIKO. Missing data is estimated on import, and replaced with actual data if it becomes available at a later date.

I traced seven monthly ICP volumes for HHR ICPs from the source data to HIKO and the HHR aggregates submissions. The volumes were recorded in HIKO and the submissions matched the raw data provided.

All readings are based on actual meter data, field services paperwork, or are provided by another trader via the switching process or estimated. In the future, if readings are not able to be obtained Paua may use customer supplied readings to estimate interval data. Paua intends to record these readings as estimates.

Audit outcome

Compliant

2.4. Audit trails (Clause 21 Schedule 15.2)

Code reference

Clause 21 Schedule 15.2

Code related audit information

Each reconciliation participant must ensure that a complete audit trail exists for all data gathering, validation, and processing functions of the reconciliation participant.

The audit trail must include details of information:

- *provided to and received from the registry manager,*
- *provided to and received from the reconciliation manager,*
- *provided and received from other reconciliation participants and their agents.*

The audit trail must cover all archived data in accordance with clause 18.

The logs of communications and processing activities must form part of the audit trail, including if automated processes are in operation.

Logs must be printed and filed as hard copy or maintained as data files in a secure form, along with other archived information.

The logs must include (at a minimum) the following:

- *an activity identifier (clause 21(4)(a))*
- *the date and time of the activity (clause 21(4)(b))*
- *the operator identifier for the person who performed the activity (clause 21(4)(c)).*

Audit observation

Audit trails were discussed and reviewed.

Audit commentary

Audit trails were reviewed and the logs include the activity identifier, date, time, and an operator identifier.

Audit outcome

Compliant

2.5. Retailer responsibility for electricity conveyed - participant obligations (Clause 10.4)

Code reference

Clause 10.4

Code related audit information

If a participant must obtain a consumer's consent, approval, or authorisation, the participant must ensure it:

- *extends to the full term of the arrangement,*
- *covers any participants who may need to rely on that consent.*

Audit observation

I reviewed Paua's current terms and conditions.

Audit commentary

Paua's Terms and Conditions include consent to access for authorised parties for the duration of the contract.

Audit outcome

Compliant

2.6. Retailer responsibility for electricity conveyed - access to metering installations (Clause 10.7(2),(4),(5) and (6))

Code reference

Clause 10.7(2),(4),(5) and (6)

Code related audit information

The responsible reconciliation participant must, if requested, arrange access for the metering installation to the following parties:

- *the Authority*
- *an ATH*
- *an auditor*
- *an MEP*
- *a gaining metering equipment provider.*

The trader must use its best endeavours to provide access:

- *in accordance with any agreements in place*
- *in a manner and timeframe which is appropriate in the circumstances.*

If the trader has a consumer, the trader must obtain authorisation from the customer for access to the metering installation, otherwise it must arrange access to the metering installation.

The reconciliation participant must provide any necessary facilities, codes, keys or other means to enable the party to obtain access to the metering installation by the most practicable means.

Audit observation

I reviewed Paua's current terms and conditions.

Audit commentary

Paua's Terms and Conditions include consent to access for authorised parties for the duration of the contract. Paua confirmed that they have been able to arrange access for other parties when requested.

Audit outcome

Compliant

2.7. Physical location of metering installations (Clause 10.35(1)&(2))

Code reference

Clause 10.35(1)&(2)

Code related audit information

A reconciliation participant responsible for ensuring there is a category 1 metering installation or category 2 metering installation must ensure that the metering installation is located as physically close to a point of connection as practical in the circumstances.

A reconciliation participant responsible for ensuring there is a category 3 or higher metering installation must:

- a) *if practical in the circumstances, ensure that the metering installation is located at a point of connection; or*
- b) *if it is not practical in the circumstances to locate the metering installation at the point of connection, calculate the quantity of electricity conveyed through the point of connection using a loss compensation process approved by the certifying ATH.*

Audit observation

The physical meter location point is not specifically mentioned in the terms and conditions, but the existing practices in the electricity industry achieve compliance.

Review of a registry list with history confirmed that Paua do not supply any ICPs with metering category 2 or above.

Audit commentary

Paua only supplies ICPs with metering category 1, and does not deal with any installations with loss compensation.

Audit outcome

Compliant

2.8. Trader contracts to permit assignment by the Authority (Clause 11.15B)

Code reference

Clause 11.15B

Code related audit information

A trader must at all times ensure that the terms of each contract between a customer and a trader permit:

- *the Authority to assign the rights and obligations of the trader under the contract to another trader if the trader commits an event of default under paragraph (a) or (b) or (f) or (h) of clause 14.41 (clause 11.15B(1)(a)); and*
- *the terms of the assigned contract to be amended on such an assignment to—*
- *the standard terms that the recipient trader would normally have offered to the customer immediately before the event of default occurred (clause 11.15B(1)(b)(i)); or*
- *such other terms that are more advantageous to the customer than the standard terms, as the recipient trader and the Authority agree (clause 11.15B(1)(b)(ii); and*
- *the terms of the assigned contract to be amended on such an assignment to include a minimum term in respect of which the customer must pay an amount for cancelling the contract before the expiry of the minimum term (clause 11.15B(1)(c)); and*
- *the trader to provide information about the customer to the Authority and for the Authority to provide the information to another trader if required under Schedule 11.5 (clause 11.15B(1)(d)); and*
- *the trader to assign the rights and obligations of the trader to another trader (clause 11.15B(1)(e)).*

The terms specified in subclause (1) must be expressed to be for the benefit of the Authority for the purposes of the Contracts (Privacy) Act 1982, and not be able to be amended without the consent of the Authority (clause 11.15B(2)).

Audit observation

I reviewed Paua's current terms and conditions.

Audit commentary

Paua's terms and conditions contain the appropriate clauses to achieve compliance with this requirement.

Audit outcome

Compliant

2.9. Connection of an ICP (Clause 10.32)

Code reference

Clause 10.32

Code related audit information

A reconciliation participant must only request the connection of a point of connection if they:

- *accept responsibility for their obligations in Parts 10, 11 and 15 for the point of connection; and*
- *have an arrangement with an MEP to provide 1 or more metering installations for the point of connection.*

Audit observation

New connections were discussed. The registry list, event detail report and audit compliance report for the audit period were examined to determine whether any new connections were completed during the audit period.

Audit commentary

Paua does not intend to handle new connections, and ICPs must be connected before they will be accepted by Paua. Review of the registry reports confirmed that Paua has not completed any new connections during the audit period.

Audit outcome

Compliant

2.10. Temporary Electrical Connection of an ICP (Clause 10.33(1))

Code reference

Clause 10.33(1)

Code related audit information

A reconciliation participant may temporarily electrically connect a point of connection, or authorise a MEP to temporarily electrically connect a point of connection, only if:

- *for a point of connection to the grid – the grid owner has approved the connection,*
- *for an NSP that is not a point of connection to the grid - the relevant distributor has approved the connection.*
- *for a point of connection that is an ICP, but is not as NSP:*
- *the reconciliation participant is recorded in the registry as the trader responsible for the ICP,*
- *if the ICP has metered load, 1 or more certified metering installations are in place,*
- *if the ICP has not previously been electrically connected, the relevant distributor has given written approval of the temporary electrical connection.*

Audit observation

New connections were discussed. The registry list, event detail report and audit compliance report for the audit period were examined to determine whether any new connections were completed during the audit period.

Audit commentary

No new connections were completed during the audit period, and no temporary connections were identified.

Audit outcome

Compliant

2.11. Electrical Connection of Point of Connection (Clause 10.33A)

Code reference

Clause 10.33A(1)

Code related audit information

A reconciliation participant may electrically connect or authorise the electrical connection of a point of connection only if:

- for a point of connection to the grid – the grid owner has approved the connection,
- for an NSP that is not a point of connection to the grid - the relevant distributor has approved the connection.
- for a point of connection that is an ICP, but is not as NSP:
 - o the trader is recorded in the registry as the trader responsible for the ICP or has an arrangement with the customer and initiates a switch within 2 business days of electrical connection,
 - o if the ICP has metered load, 1 or more certified metering installations are in place,
 - o if the ICP has not previously been electrically connected, the relevant distributor has given written approval of the electrical connection.

Audit observation

New connection, reconnection and meter bridging processes were discussed. The registry list, event detail report and audit compliance report for the audit period were examined to determine compliance.

Audit commentary

New connections

No new connections were completed during the audit period.

Reconnections

Three ICPs were reconnected on switch in. The audit compliance report confirmed that all the reconnected ICPs had certified meters installed, and Paua was listed as the responsible retailer at the time of reconnection.

Paua does not have a process to notify the MEP if reconnection of an uncertified meter is required. It is recommended that Paua has a process to identify uncertified installations which are to be reconnected and arrange for them to be re-certified.

Description	Recommendation	Audited party comment	Remedial action
Reconnection of uncertified meter installations	Identify uncertified meters which are to be reconnected, and arrange for the MEP to re-certify.	Paua have added a process to check disconnected meters for certification and arrange for the MEP to re-certify before reconnecting.	Identified

Bridged meters

Paua does not normally allow meters to be bridged, and no bridged meters were identified during the audit period.

Audit outcome

Compliant

2.12. Arrangements for line function services (Clause 11.16)

Code reference

Clause 11.16

Code related audit information

Before providing the registry manager with any information in accordance with clause 11.7(2) or clause 11.18(4), a trader must ensure that it, or its customer, has made any necessary arrangements for the provision of line function services in relation to the relevant ICP.

Before providing the registry manager with any information in accordance with clause 11.7(2) or clause 11.18(4), a trader must have entered into an arrangement with an MEP for each metering installation at the ICP.

Audit observation

The process to ensure an arrangement is in place before trading commences on a network was examined, along with the application process. The registry list was examined to confirm the networks Paua trades on.

Audit commentary

Paua only trades on the Wellington Electricity network, and has a Use of System Agreement with Wellington Electricity. Before an application is accepted, ICPs are checked on the registry to confirm the network is Wellington Electricity.

Audit outcome

Compliant

2.13. Arrangements for metering equipment provision (Clause 10.36)

Code reference

Clause 10.36

Code related audit information

A reconciliation participant must ensure it has an arrangement with the relevant MEP prior to accepting responsibility for an installation.

Audit observation

The process to ensure an arrangement is in place with the metering equipment provider before an ICP can be created or switched in was checked. The registry list was examined to confirm the MEPs for Paua's ICPs.

Audit commentary

All current Paua ICPs have AMS (439 ICPs), Intellihub (one ICP), or Metrix (four ICPs) as their MEP. Paua demonstrated that an arrangement is currently in place with each MEP. Before an application is accepted, ICPs are checked on the registry to confirm the MEP is AMS, Intellihub and Metrix.

When the Intellihub ICP switched in, Paua had believed that their existing arrangements with Metrix also covered Intellihub. Intellihub confirmed that a separate agreement was required, and arrangements, and then an agreement were put in place.

Audit outcome

Compliant

2.14. Connecting ICPs then withdrawing switch (Clause 10.33A(5))

Code reference

Clause 10.33B

Code related audit information

If a trader connects an ICP it is in the process of switching and the switch does not proceed or is withdrawn the trader must:

- *restore the disconnection, including removing any bypass and disconnecting using the same method the losing trader used,*
- *reimburse the losing trader for any direct costs incurred.*

Audit observation

The process for reconnecting ICPs during switch in was discussed.

The event detail report was reviewed to identify reconnections for switch ins where the switch was withdrawn, and the ICP was no longer supplied by the trader. If the ICP is not currently supplied by Paua, it is less likely that the switch was successfully completed at a later date.

Audit commentary

If an ICP was reconnected as part of the switching process and the switch was later withdrawn, Paua would restore the disconnection and reimburse the losing trader for any direct costs incurred if requested.

Review of the event detail report identified three ICPs reconnected as part of the switching process; all the switches were completed and not withdrawn.

Audit outcome

Compliant

2.15. Electrical disconnection of ICPs (Clause 10.33B)

Code reference

Clause 10.33B

Code related audit information

Unless the trader is recorded in the registry or is meeting its obligation under 10.33A(5) it must not disconnect or electrically disconnect the ICP, or authorise the metering equipment provider to disconnect or electrically disconnect the ICP.

Audit observation

The disconnection process was examined.

Traders are only able to update the ICP status for event dates where they are responsible for the ICP on the registry. The event detail reports were reviewed to identify all ICPs which were disconnected during the audit period where an NT was received from another trader during the audit period. I checked a sample of these ICPs where the disconnection event date was after the NT receipt date and/or NT event date to determine compliance.

Audit commentary

Paua's policy is not to disconnect any ICP in the process of switching out.

Six ICPs were disconnected during the audit period, and five of those had NT files issued by other traders. In all cases the NT event date and NT receipt date were after Paua had completed the disconnection.

Audit outcome

Compliant

2.16. Removal or breakage of seals (Clause 48(1C), 48 (1D), 48 (1E), 48 (1F) of Schedule 10.7)

Code reference

Clause 48(1C), 48 (1D), 48 (1E), 48 (1F) of Schedule 10.7

Code related audit information

A trader can remove or break a seal without authorisation from the MEP to:

- *reset a load control switch, bridge or unbridge a load control switch – if the load control switch does not control a to me block meter channel,*
- *electrically connect load or generation, of the load or generation has been disconnected at the meter,*
- *electrically disconnect load or generation, if the trader has exhausted all other appropriate methods of electrical disconnection,*
- *bridge the meter.*

A trader that removes or breaks a seal in this way must:

- *ensure personal are qualified to remove the seal and perform the permitted work and they replace the seal in accordance with the Code,*
- *replace the seal with its own seal,*
- *have a process for tracing the new seal to the personnel,*
- *update the registry (if the profile code has changed)*
- *notify the metering equipment provider.*

Audit observation

Policies and processes for removal and breakage of seals were reviewed. I checked ICPs where work had been conducted which could have resulted in seals being removed or broken, to determine compliance.

Audit commentary

All activities which could result in seals being removed or broken are completed by the MEP or their subcontractors. The MEPs are required to ensure that only qualified personnel perform work, and manage and trace seals.

Paua receives work completion paperwork from the MEPs, and uses this information to confirm the correct ICP attributes including status and update the registry. The MEPs do not usually provide details of seals in their job completion paperwork.

I checked ICPs where work had been conducted which could have resulted in seals being removed or broken:

- all disconnections and reconnections were conducted remotely, and no seals were broken in the process,

- one ICP had distributed generation added, and a new meter was installed by AMS; seal details were not included on the work completion paperwork, and
- no bridged meters were identified.

Audit outcome

Compliant

2.17. Meter bridging (Clause 10.33C and 2A of Schedule 15.2)

Code reference

Clause 10.33C and 2A of Schedule 15.2

Code related audit information

A trader, or a distributor or MEP which has been authorised by the trader, may only electrically connect an ICP in a way that bypasses a meter that is in place (“bridging”) 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 trader bridges a meter, the trader must:

- *determine the quantity of electricity conveyed through the ICP for the period of time the meter was bridged,*
- *submit that estimated quantity of electricity to the reconciliation manager,*
- *within one business day of being advised that the meter is bridged, notify the MEP that they are required to reinstate the meter so that all electricity flows through a certified metering installation.*

The trader must determine meter readings as follows:

- *by substituting data from an installed check meter or data storage device*
- *if a check meter or data storage device is not installed, by using half hour data from another period where the trader considers the pattern of consumption is materially similar to the period during which the meter was bridged,*
- *if half hour data is not available, a non half hour estimated reading that the trader considers is the best estimate during the bridging period must be used.*

Audit observation

Processes for bridged meters were discussed, and events that could have resulted in meter bridging or caused by meter bridging were reviewed.

Audit commentary

Paua only supplies HHR meters, which are disconnected and reconnected remotely. Paua does not normally allow meters to be bridged.

No bridged meters were identified during the audit period. All disconnections and reconnections were conducted remotely, and all periods of zero consumption identified were genuine and did not occur due to faults or meter bridging.

Audit outcome

Compliant

2.18. Use of ICP identifiers on invoices (Clause 11.30)

Code reference

Clause 11.30

Code related audit information

Each trader must ensure the relevant ICP identifier is printed on every invoice or document relating to the sale of electricity.

Audit observation

The process to ensure that the ICP identifier is printed on every invoice or document relating to the sale of electricity was discussed, and the invoice template was reviewed.

Audit commentary

Paua's billing run information is used to populate an invoice template, and the invoice details are stored against each ICP and customer so that invoices can be reproduced if needed, and the information remains available.

I viewed the invoice template, and confirmed that the ICP field is displayed.

Audit outcome

Compliant

2.19. Provision of information on dispute resolution scheme (Clause 11.30A)

Code reference

Clause 11.30A

Code related audit information

A retailer must provide clear and prominent information about Utilities Disputes:

- *on their website*
- *when responding to queries from consumers*
- *in directed outbound communications to consumers about electricity services and bills.*

If there are a series of related communications between the retailer and consumer, the retailer needs to provide this information in at least one communication in that series.

Audit observation

The process to ensure that information on Utilities Disputes is provided to customers was discussed. Invoices, emails, and Paua's website were reviewed to determine whether clear and prominent information on Utilities Disputes is provided.

Audit commentary

Clear and prominent information on Utilities Disputes is provided:

- on Paua's website's contact page, there is information about Utilities Disputes including a link to their telephone number and website,
- in Paua's current terms and conditions,
- on each Paua invoice, which customers receive weekly, and
- as part of the email footer for outbound emails.

Outbound communications to customers are normally via email.

Audit outcome

Compliant

2.20. Provision of information on electricity plan comparison site (Clause 11.30B)

Code reference

Clause 11.30B

Code related audit information

A retailer that trades at an ICP recorded on the registry must provide clear and prominent information about Powerswitch:

- *on their website*
- *in outbound communications to residential consumers about price and service changes*
- *to residential consumers on an annual basis*
- *in directed outbound communications about the consumer's bill.*

If there are a series of related communications between the retailer and consumer, the retailer needs to provide this information in at least one communication in that series.

Audit observation

The process to ensure that information on Consumer Powerswitch is provided to customers was discussed. Invoices and Paua's website were reviewed to determine whether clear and prominent information on Powerswitch is provided.

Audit commentary

Clear and prominent information on Powerswitch is provided:

- on Paua's website's homepage, there is a button which links to Powerswitch
- in Paua's current terms and conditions, and
- on each Paua invoice, which customers receive weekly.

Paua intends to meet the annual requirement to provide information on Powerswitch through including this information on its weekly invoices.

Any communications to customers regarding price and service changes are via email. None have occurred since clause 11.30B came into effect, and Paua will ensure that information on Powerswitch is included in any future communications.

Audit outcome

Compliant

3. MAINTAINING REGISTRY INFORMATION

3.1. Obtaining ICP identifiers (Clause 11.3)

Code reference

Clause 11.3

Code related audit information

The following participants must, before assuming responsibility for certain points of connection on a local network or embedded network, obtain an ICP identifier for the point of connection:

- a) a trader who has agreed to purchase electricity from an embedded generator or sell electricity to a consumer,*
- b) an embedded generator who sells electricity directly to the clearing manager*
- c) a direct purchaser connected to a local network or an embedded network,*
- d) an embedded network owner in relation to a point of connection on an embedded network that is settled by differencing,*
- e) a network owner in relation to a shared unmetered load point of connection to the network owner's network*
- f) a network owner in relation to a point of connection between the network owner's network and an embedded network.*

ICP identifiers must be obtained for points of connection at which any of the following occur:

- a consumer purchases electricity from a trader 11.3(3)(a)*
- a trader purchases electricity from an embedded generator 11.3(3)(b)*
- a direct purchaser purchases electricity from the clearing manager 11.3(3)(c)*
- an embedded generator sells electricity directly to the clearing manager 11.3(3)(d)*
- a network is settled by differencing 11.3(3)(e)*
- there is a distributor status ICP on the parent network point of connection of an embedded network or at the point of connection of shared unmetered load 11.3(3)(f).*

Audit observation

The new connection process was discussed. The registry list, event detail report and audit compliance report for the audit period were examined to determine whether any new connections were completed during the audit period.

Audit commentary

Paua does not intend to handle new connections, and ICPs must be connected before they will be accepted by Paua. Review of the registry reports confirmed that Paua has not completed any new connections during the audit period.

Audit outcome

Compliant

3.2. Providing registry information (Clause 11.7(2))

Code reference

Clause 11.7(2)

Code related audit information

Each trader must provide information to the registry manager about each ICP at which it trades electricity in accordance with Schedule 11.1.

Audit observation

The new connection, disconnection, reconnection, MEP nomination, and switching processes were examined. This clause links directly to **sections 3.3** below, where findings on the timeliness of updates are recorded.

The audit compliance report for the audit period was analysed in relation to updating of the registry.

Audit commentary

Paua's processes are designed to ensure that trader information is populated as required by this clause.

Audit outcome

Compliant

3.3. Changes to registry information (Clause 10 Schedule 11.1)

Code reference

Clause 10 Schedule 11.1

Code related audit information

If information provided by a trader to the registry manager about an ICP changes, the trader must provide written notice to the registry manager of the change no later than five business days after the change.

Audit observation

The processes to manage status changes are discussed in detail in **sections 3.8** and **3.9** below. The processes to manage MEP nominations and trader updates were discussed. All late updates were reviewed to determine why they were delayed.

Audit commentary

Status updates

Status is maintained in the registry and not recorded in HIKO. All changes to status are processed manually using the registry user interface once confirmation of the correct status and event date is received. When a disconnection or reconnection is requested, a reminder is set in the HIKO action hub to process the disconnection or reconnection.

The audit compliance report was examined to confirm whether the registry is notified within five business days when information referred to in clause 9 of schedule 11.1 changes.

Status	Review period end	ICPs notified greater than 5 days	Percentage on time	Average Business Days between Status Event and Status Input Dates
Active	2017	-	100.0%	8.1
	Jan 2018	3	72.7%	5.4
	Oct 2018	3	75.0%	4
	Apr 2020	6	55.6%	38.7
	Mar 2021	1	66.67%	3.67
Inactive	Jan 2018	2	90%	Not able to calculate due to table format change from earlier audit.
	Oct 2018	6	57.1%	
	Apr 2020	4	75.0%%	4.31
	Mar 2021	1	85.71	86.43

The late status updates were checked:

- ICP 0000159429CKE26 was updated to active status one business day late because the CS file was backdated, and
- ICP 0000123086TRFBA was updated to inactive status late because the status was corrected following the previous audit.

The late updates are recorded as non-compliance below.

Trader updates and MEP nominations

Trader updates including MEP nominations are processed manually using the registry user interface once the correct values and event date have been confirmed.

No MEP nominations, or trader updates other than NT updates occurred during the period. This was confirmed by checking the audit compliance reports and the event detail report for the audit period.

The AC020 report did not record any late trader ANZSIC code updates for switched in or newly connected ICPs.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.3 With: Clause 10 Schedule 11.1 From: 06-Nov-20 To: 08-Dec-20	Two late status updates. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	The controls are adequate to ensure that the registry is updated on time most of the time. One late status updated was caused by a backdated switch, and the other was a correction. The risk is low as a small number of updates were affected.		
Actions taken to resolve the issue		Completion date	Remedial action status
HIKO uses alerts to have an operator notify the MEP for disconnections and reconnections, check for response from the MEP and update the registry.		March 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
HIKO has strong controls to ensure that the Registry status is changed on disconnections and reconnections.		March 2021	

3.4. Trader responsibility for an ICP (Clause 11.18)

Code reference

Clause 11.18

Code related audit information

A trader becomes responsible for an ICP when the trader is recorded in the registry as being responsible for the ICP.

A trader ceases to be responsible for an ICP if:

- *another trader is recorded in the registry as accepting responsibility for the ICP (clause 11.18(2)(a)); or*
- *the ICP is decommissioned in accordance with clause 20 of Schedule 11.1 (clause 11.18(2)(b)).*
- *if an ICP is to be decommissioned, the trader who is responsible for the ICP must (clause 11.18(3)):*
 - o *arrange for a final interrogation to take place prior to or upon meter removal (clause 11.18(3)(a)); and*
 - o *advise the MEP responsible for the metering installation of the decommissioning (clause 11.18(3)(b)).*

A trader who is responsible for an ICP (excluding UML) must ensure that an MEP is recorded in the registry for that ICP (clause 11.18(4)).

A trader must not trade at an ICP (excluding UML) unless an MEP is recorded in the registry for that ICP (clause 11.18(5)).

Audit observation

The new connection, MEP nomination and decommissioning processes were reviewed, and the registry list and audit compliance reports were examined to confirm process compliance.

Audit commentary

Retailers Responsibility to Nominate and Record MEP in the Registry

Review of the registry list and audit compliance reports confirmed all active ICPs have a valid MEP and at least one meter channel recorded in the registry, and no MEP nominations were made.

Paua ensures that ICPs have AMS, Metrix or Intellihub as an MEP before they switch in, and MEP changes are not expected. If MEP nominations are required in the future, they will be manually processed on the registry.

ICP Decommissioning

Review of the event detail report confirmed that no ICPs were decommissioned during the audit period. Paua is aware of their responsibility to notify the MEP where an ICP is decommissioned, and to obtain a final reading. Final interrogations will occur for decommissioned ICPs because data will be provided daily.

Audit outcome

Compliant

3.5. Provision of information to the registry manager (Clause 9 Schedule 11.1)

Code reference

Clause 9 Schedule 11.1

Code related audit information

Each trader must provide the following information to the registry manager for each ICP for which it is recorded in the registry as having responsibility:

- a) the participant identifier of the trader, as approved by the Authority (clause 9(1)(a))*
- b) the profile code for each profile at that ICP, as approved by the Authority (clause 9(1)(b))*
- c) the metering equipment provider for each category 1 metering or higher (clause 9(1)(c))*
- d) the type of submission information the trader will provide to the RM for the ICP (clause 9(1)(ea))*
- e) if a settlement type of UNM is assigned to that ICP, either:*
 - the code ENG if the load is profiled through an engineering profile in accordance with profile class 2.1 (clause 9(1)(f)(i)); or*
 - in all other cases, the daily average kWh of unmetered load at the ICP (clause 9(1)(f)(ii)).*
 - the type and capacity of any unmetered load at each ICP (clause 9(1)(g))*
 - the status of the ICP, as defined in clauses 12 to 20 (clause 9(1)(j))*
 - except if the ICP exists for the purposes of reconciling an embedded network or the ICP has distributor status, the trader must provide the relevant business classification code applicable to the customer (clause 9(1)(k)).*

The trader must provide information specified in (a) to (j) above within 5 business days of trading (clause 9(2)).

The trader must provide information specified in 9(1)(k) no later than 20 business days of trading (clause 9(3)).

Audit observation

New connections were discussed. The registry list, event detail report and audit compliance report for the audit period were examined to determine whether any new connections were completed during the audit period.

Audit commentary

Paua does not intend to handle new connections, and ICPs must be connected before they will be accepted by Paua. Review of the registry reports confirmed that Paua has not completed any new connections during the audit period.

Any changes to status or trader information are processed manually using the registry user interface.

No late updates or discrepancies relating to new connections were identified on the registry list, event detail report or audit compliance report, and the AC020 report did not record any late ANZSIC code updates for switched in or newly connected ICPs.

Audit outcome

Compliant

3.6. ANZSIC codes (Clause 9 (1)(k) of Schedule 11.1)

Code reference

Clause 9 (1)(k) of Schedule 11.1

Code related audit information

Traders are responsible to populate the relevant ANZSIC code for all ICPs for which they are responsible.

Audit observation

The process to capture and manage ANZSIC codes was examined. The registry list and AC020 reports were reviewed. ANZSIC codes were checked for a sample of ICPs to determine compliance.

Audit commentary

ANZSIC codes are set based on information provided on the customer application, and appropriate processes are in place to ensure that ANZSIC codes are recorded correctly.

No active ICPs have blank or T99 (unknown) series ANZSIC codes, and no ICPs have metering category two or higher.

ANZSIC codes for a diverse sample of 20 ICPs were checked, including the only ICP with a non-residential code. All the ANZSIC codes were confirmed to be correct.

Audit outcome

Compliant

3.7. Changes to unmetered load (Clause 9(1)(f) of Schedule 11.1)

Code reference

Clause 9(1)(f) of Schedule 11.1

Code related audit information

If a settlement type of UNM is assigned to that ICP, the trader must populate:

- *the code ENG - if the load is profiled through an engineering profile in accordance with profile class 2.1 (clause 9(1)(f)(i)); or*
- *the daily average kWh of unmetered load at the ICP - in all other cases (clause 9(1)(f)(ii)).*

Audit observation

The processes to manage unmetered load were examined. The registry list audit and audit compliance reports were examined to identify ICPs where unmetered load was recorded by the distributor and/or Paua.

Audit commentary

Paua only accepts applications from customers who do not have unmetered load connected.

Review of the registry list and audit compliance reports confirmed that no unmetered load is recorded by the distributor or trader for any Paua ICP. All active ICPs are metered with an MEP recorded and at least one meter channel.

Additions or changes to unmetered load details will be identified as part of the registry validation process. A daily ICP list with history (including all data from January 2015 onwards) is downloaded from the registry and imported into HIKO. Changes to attributes are reported to the operator for investigation in the action hub, including changes to distributor unmetered load details. If unmetered load is found, Paua would relinquish responsibility for shared unmetered load if allowed under clause 11.14, or would arrange for the ICP to switch out.

Audit outcome

Compliant

3.8. Management of “active” status (Clause 17 Schedule 11.1)

Code reference

Clause 17 Schedule 11.1

Code related audit information

The ICP status of “active” is managed by the relevant trader and indicates that:

- *the associated electrical installations are electrically connected (clause 17(1)(a))*
- *the trader must provide information related to the ICP in accordance with Part 15, to the reconciliation manager for the purpose of compiling reconciliation information (clause 17(1)(b)).*

Before an ICP is given the “active” status, the trader must ensure that:

- *the ICP has only one customer, embedded generator, or direct purchaser (clause 17(2)(a))*
- *the electricity consumed is quantified by a metering installation or a method of calculation approved by the Authority (clause 17(2)(b)).*

Audit observation

As discussed in **sections 2.9** and **3.5** Paua does not complete new connections. Review of the event detail report and AC020 report confirmed this.

The reconnection process was examined using the AC020 and event detail reports. The timeliness of data for reconnections is assessed in **section 3.3**, and a sample of 20 updates were checked for accuracy.

Audit commentary

Status is maintained in the registry and not recorded in HIKO. All changes to status are processed manually using the registry user interface once confirmation of the correct status and event date is received. When a reconnection is requested, a reminder is set in the HIKO action hub to process the reconnection.

Three ICPs had status changes to “active” on the event detail report. All were reconnections on switch in and had fully certified metering installations in place. I reviewed the status codes and reconnection dates, and confirmed that they had been applied appropriately. One late registry update to active status because of a backdated CS is recorded as a non-compliance in **section 3.3**.

No new connections have been created, and the AC020 did not record any discrepancies relating to new connections.

HIKO will not allow more than one party per ICP, nor will it allow an ICP to be set up without both a meter and MEP.

Audit outcome

Compliant

3.9. Management of “inactive” status (Clause 19 Schedule 11.1)

Code reference

Clause 19 Schedule 11.1

Code related audit information

The ICP status of “inactive” must be managed by the relevant trader and indicates that:

- *electricity cannot flow at that ICP (clause 19(a)); or*
- *submission information related to the ICP is not required by the reconciliation manager for the purpose of compiling reconciliation information (clause 19(b)).*

Audit observation

The disconnection process was examined using the AC020 and event detail reports. The timeliness of data for disconnections is assessed in **section 3.3**, and a sample of updates were checked for accuracy.

Paua does not complete new connections. Review of the registry list confirmed that no ICPs are at “new”, “ready”, or “inactive new connection in progress” status.

Audit commentary

Status is maintained in the registry and not recorded in HIKO. All changes to status are processed manually using the registry user interface once confirmation of the correct status and event date is received. When a disconnection is requested, a reminder is set in the HIKO action hub to process the disconnection.

Vacant and disconnected ICPs will continue to receive readings if provided by the MEP, but ICPs will only be included in submission data if their status is active for the period with consumption. Prior to the audit there was no process in place to identify consumption during inactive periods. I checked all ICPs with inactive status during the audit period and found ICP 0000145867TRED0 had 10 kWh of volume during an inactive period which was excluded from submission. During the audit Paua added an alert to identify any ICP with a status of 001 (inactive) in the registry with HHR volumes so that the status can be corrected. The unreported inactive consumption is recorded as non-compliance in **section 12.2** and **12.7**.

Seven ICPs had status changes to “inactive” on the event detail report. I reviewed the reason codes and disconnection dates for the sample and found that they had been applied appropriately. One late registry update is recorded as a non-compliance in **section 3.3**.

The audit compliance report identified one ICP that had been recorded as an AMI-remote disconnection, but AMI was not indicated. The ICP had a communicating AMI meter at the time of disconnection, and compliance is confirmed.

I re-checked ICP 0000123086TRFBA which was identified as having an incorrect disconnection date in the 2020 audit, and found it was corrected.

Audit outcome

Compliant

3.10. ICPs at new or ready status for 24 months (Clause 15 Schedule 11.1)

Code reference

Clause 15 Schedule 11.1

Code related audit information

If an ICP has had the status of "New" or "Ready" for 24 calendar months or more, the distributor must ask the trader whether it should continue to have that status, and must decommission the ICP if the trader advises the ICP should not continue to have that status.

Audit observation

Whilst this is a Distributor's code obligation, I investigated whether any queries had been received from Distributors in relation to ICPs at the "new" or "ready" status for more than 24 months and what process is in place to manage and respond to such requests.

I analysed a registry list of ICPs with "new" or "ready" status and Paua as the proposed trader, and reviewed processes to monitor new connections.

Audit commentary

Review of the registry list confirmed that no ICPs have had "new" or "ready" status. Paua has not completed any new connections, and does not intend to.

If emails are received from distributors querying the status of "new" or "ready" ICPs they will be actioned.

Traders are normally advised of new ICPs assigned to them through registry notification files. Paua does not review these, and ICPs at "new" and "ready" status will not be included in the registry list validation because Paua will be recorded as the proposed trader rather than trader. Paua is creating a new HIKO alert for ICPs with the proposed trader "GIVE".

The registry list validation will identify any ICPs with "active" or "inactive" status which are not recorded in Paua's database. These will be displayed in the action hub as "unknown ICPs" for investigation.

Audit outcome

Compliant

4. PERFORMING CUSTOMER AND EMBEDDED GENERATOR SWITCHING

4.1. Inform registry of switch request for ICPs - standard switch (Clause 2 Schedule 11.3)

Code reference

Clause 2 Schedule 11.3

Code related audit information

The standard switch process applies where a trader and a customer or embedded generator enters into an arrangement in which the trader commences trading electricity with the customer or embedded generator at a non-half hour or unmetered ICP at which another trader supplies electricity, or the trader assumes responsibility for such an ICP.

If the uninvited direct sale agreement applies to an arrangement described above, the gaining trader must identify the period within which the customer or embedded generator may cancel the arrangement in accordance with section 36M of the Fair Trading Act 1986. The arrangement is deemed to come into effect on the day after the expiry of that period.

A gaining trader must advise the registry manager of a switch no later than two business days after the arrangement comes into effect and include in its advice to the registry manager that the switch type is TR and one or more profile codes associated with that ICP.

Audit observation

The switch gain process was examined to determine when Paua deem all conditions to be met. All three transfer switch NTs were checked to confirm that these were notified to the registry within two business days, and that the correct switch type was selected.

Audit commentary

Paua's processes are compliant with the requirements of Section 36M of the Fair Trading Act 1986. NT files will be sent as soon as all pre-conditions are met, and the withdrawal process is used if the customer changes their mind.

The information required to create the NT is manually entered into HIKO on receipt of a customer application. NT files are generated by HIKO, and uploaded to the registry each evening. Prior to the implementation of HIKO switching processes in March 2021, NT information was entered manually using the registry user interface.

Switch type is selected based on information provided by the customer on application. The customer is asked if they have recently moved into the property and their move in date as part of the application process. If they have not recently moved in, a transfer switch is requested. Paua only supplies ICPs with metering category 1.

All three transfer switch NTs had the correct switch type selected. One was sent within two business days of pre-conditions being cleared. The NT files for ICPs 0000045037TR2B9 (event date 3 September 2020) and 0001406533UNA1D (26 November 2020) were issued three and four business days after pre-conditions were met.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.1 With: Clause 2 Schedule 11.3 From: 03-Sep-20 To: 26-Nov-20	The NT files for ICPs 0000045037TR2B9 (event date 03/09/20) and 0001406533UNA1D (26/11/20) were issued three and four business days after pre-conditions were met. 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 now rated as strong because the process to issue NTs has been streamlined and automated. Both late files occurred while NT files were being created manually on the registry, before HIKO was implemented. The impact is low because the NT files were issued one and two business days late.		
Actions taken to resolve the issue		Completion date	Remedial action status
HIKO was implemented in March 2021 with automated switching processes.		March 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
HIKO produces and uploads NT files automatically so will ensure that NT files are uploaded on time.		March 2021	

4.2. Losing trader response to switch request and event dates - standard switch (Clauses 3 and 4 Schedule 11.3)

Code reference

Clauses 3 and 4 Schedule 11.3

Code related audit information

Within three business days after receiving notice of a switch from the registry manager, the losing trader must establish a proposed event date. The event date must be no more than 10 business days after the date of receipt of such notification, and in any 12 month period, at least 50% of the event dates must be no more than five business days after the date of notification. The losing trader must then:

- *provide acknowledgement of the switch request by (clause 3(a) of Schedule 11.3):*
- *providing the proposed event date to the registry manager and a valid switch response code (clause 3(a)(i) and (ii) of Schedule 11.3); or*
- *providing a request for withdrawal of the switch in accordance with clause 17 (clause 3(c) of Schedule 11.3).*

When establishing an event date for clause 4, the losing trader may disregard every event date established by the losing trader for an ICP for which when the losing trader received notice from the registry manager under clause 22(a) the losing trader had been responsible for less than 2 months.

Audit observation

The AN process was examined, and the event detail report was reviewed to:

- identify AN files issued by Paua during the audit period,
- assess compliance with the requirement to meet the setting of event dates requirement, and
- a diverse sample ANs were checked to determine whether the codes had been correctly applied.

The switch breach history report was examined for the audit period.

Audit commentary

AN timeliness

When an NT is received from the registry, HIKO automatically creates an AN unless the proposed transfer date is more than nine business days after NT receipt. If the proposed transfer date is more than nine business days after NT receipt, a withdrawal notice will be issued with date failure as the reason code.

The timeliness of AN files is monitored:

- a notification is generated in the HIKO action hub if the AN process fails to run,
- the switch breach history report is imported into HIKO daily, and updates file due dates, and
- the switch breach history report is also reviewed manually every two to three days, to check that all files have been issued as required.

Before the HIKO process was fully automated in March 2021, AN information was generated by HIKO and manually checked before being transferred to the registry. Before the material change audit in November 2020, AN files were created manually using the registry user interface.

The switch breach history report recorded eight AN breaches where the AN arrival date was more than three business days after the NT arrival date, and the AN arrived immediately after the NT. The late files all occurred before the HIKO process was fully automated, and were delayed by manual processing of the AN files.

AN content

HIKO generates AN event dates and response codes according to system rules:

- if the proposed event date is within Paua's acceptable range, the switch event date is set to match the gaining trader's proposed event date, unless it is blank or backdated, in which case it is set to the contract end date + one day or if there is no contract end date, tomorrow, and
- response codes are selected according to a hierarchy, which should ensure that correct response codes apply.

Prior to the implementation of HIKO AN event dates and response codes were manually selected by the operator.

The event detail report was reviewed for all 45 transfer ANs to assess compliance with the setting of event dates requirements:

- 40 (89%) had a proposed event date within five business days of the NT receipt date, and
- all had proposed event dates within ten business days of the NT receipt date.

A diverse sample of 14 AN files were checked, and in all cases correct response codes were applied.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.2 With: Clauses 3 and 4 Schedule 11.3 From: 08-Sep-20 To: 19-Mar-21	Eight AN breaches. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are now rated as strong because the process is automated, and all the late files occurred before the HIKO process was fully automated. The impact is low because the files were one to two business days late.		
Actions taken to resolve the issue		Completion date	Remedial action status
HIKO was implemented in March 2021 with automated switching processes.		March 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
HIKO produces and uploads AN files automatically so will ensure that AN files are all uploaded on time.		March 2021	

4.3. Losing trader must provide final information - standard switch (Clause 5 Schedule 11.3)

Code reference

Clause 5 Schedule 11.3

Code related audit information

If the losing trader provides information to the registry manager in accordance with clause 3(a) of Schedule 11.3 with the required information, no later than five business days after the event date, the losing trader must complete the switch by:

- *providing event date to the registry manager (clause 5(a)); and*
- *provide to the gaining trader a switch event meter reading as at the event date, for each meter or data storage device that is recorded in the registry with accumulator of C and a settlement indicator of Y (clause 5(b)); and*
- *if a switch event meter reading is not a validated reading, provide the date of the last meter reading (clause 5(c)).*

Audit observation

The CS process was examined, and the event detail report was reviewed to identify CS files issued by Paua during the audit period. The accuracy of the content of CS files was confirmed by checking a sample of records. The content checked included:

- correct identification of meter readings and correct date of last meter reading,
- accuracy of meter readings, and
- accuracy of average daily consumption.

I checked the event detail report for CS files with average daily kWh that was negative, zero, or over 200 kWh.

The process to manage the sending of the CS file within five business days of the event date was examined, and the switch breach history report for the audit period was reviewed to identify late CS files.

Audit commentary

CS content

All ICPs have HHR AMI meters, and are expected to switch in and out on validated readings. HIKO automatically creates a CS file as soon as a midnight reading is received, or estimated, for the day before the switch event date.

- The read quality indicator is used to determine whether reads should be classified as estimate or actual, and determine the last actual read date during the period of supply. HIKO creates an alert where there is no HHR data available to create the CS file.
- The registry functional specification requires average daily kWh to be based on the average daily consumption for the last read to read period. Paua receives daily readings, and the average daily kWh is based on the average daily consumption between the last two readings received prior to switch out, truncated to zero decimal places. Paua's average daily kWh process was considering estimates where actual readings were not available. During the audit, Paua updated the HIKO logic during to consider only actual readings and create an alert where less than two actual readings have been received, so that the average daily kWh could be updated manually. Review of the event detail report confirmed that all CS files during the audit period switched out on actual readings, and all CS files checked had compliant average daily kWh.
- The key held indicator is determined from information obtained from the customer on application and stored in HIKO. Paua have not held any customer keys to date, because all meters are read remotely.

Before the HIKO process was fully automated in March 2021, CS files were created manually using the registry user interface.

Review of the event detail report did not identify any transfer switches with average daily kWh which was negative, zero, or over 200 kWh.

One CS file had an inconsistency between the last actual read date and the switch event read type. The last actual read date was recorded as before Paua's last day of responsibility, but the read type was recorded as actual. I confirmed that the switch event reading and type were correct, but the last actual read date was incorrectly recorded due to a data entry error when manually entering the CS information using the registry user interface. The affected CS file is:

ICP	CS file	Field incorrect	Value applied	Correct value
0000156534CKBB4	CS-3652887	Last actual read date	01/02/21	09/02/21

I checked the content of a further four transfer CS files and found the data was recorded correctly.

CS timeliness

The timeliness of CS files is monitored:

- the switch breach history report is imported into HIKO daily, and updates file due dates, and
- the switch breach history report is also reviewed manually every two to three days, to check that all files have been issued as required.

The switch breach history report recorded three CS breaches where the CS arrival date was more than five business days after the CS actual transfer date, and no NW was provided. The late files all occurred before the HIKO process was fully automated, and were delayed by manual processing of the CS files.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.3 With: Clause 5 Schedule 11.3 From: 17-Sep-20 To: 02-Dec-20	Three CS breaches. One transfer CS file contained an incorrect last actual read date. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are now strong because the process to determine the last actual read date and generate CS files is now automated in HIKO. The exceptions occurred before automation of the process. The impact is low because the late files were one or two business days late, and the switch event readings in the affected file were actual. The last actual read date field is typically used to determine the likely accuracy of estimated switch event reads.		
Actions taken to resolve the issue		Completion date	Remedial action status
HIKO was implemented in March 2021 with automated switching processes.		March 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
HIKO produces and uploads CS files automatically so will ensure that CS files are uploaded on time. Where no actual data is available it will alert an operator before the CS is due to manually complete the CS.		March 2021	

4.4. Retailers must use same reading - standard switch (Clause 6(1) and 6A Schedule 11.3)

Code reference

Clause 6(1) and 6A Schedule 11.3

Code related audit information

The losing trader and the gaining trader must both use the same switch event meter reading as determined by the following procedure:

- *if the switch event meter reading provided by the losing trader differs by less than 200 kWh from a value established by the gaining trader, the gaining trader must use the losing trader's validated meter reading or permanent estimate (clause 6(a)); or*
- *the gaining trader may dispute the switch meter reading if the validated meter reading or permanent estimate provided by the losing trader differs by 200 kWh or more. (clause 6(b)).*

If the gaining trader disputes a switch meter reading because the switch event meter reading provided by the losing trader differs by 200 kWh or more, the gaining trader must, within 4 calendar months of the registry manager giving the gaining trader written notice of having received information about the switch completion, provide to the losing trader a changed switch event meter reading supported by 2 validated meter readings.

- *the losing trader can choose not to accept the reading, however must advise the gaining trader no later than five business days after receiving the switch event meter reading from the gaining trader (clause 6A(a)); or*
- *if the losing trader notifies its acceptance or does not provide any response, the losing trader must use the switch event meter reading supplied by the gaining trader (clause 6A(b)).*

Audit observation

The process for the management of read change requests was examined, and the event detail report was analysed to identify all read change requests and acknowledgements during the audit period.

I also checked for CS files with estimated readings provided by other traders where no RR was issued, to determine whether the correct readings were recorded in HIKO.

The switch breach history report for the audit period was reviewed.

Audit commentary

All ICPs switched in will have HHR AMI meters, and are expected to switch in and out on validated readings. HIKO compares the losing trader's closing read with the actual midnight read as soon as it is received by calculating the difference between the midnight reading on Paua's first day of supply and the sum of the intervals for the first day of supply. Where the CS read differs from the calculated opening reading HIKO will automatically send an RR file, because the CS read appears to be incorrect. These read change requests normally meet the requirements of 6(2) and (3) Schedule 11.3, and are required to be accepted by the losing retailer. HIKO creates an alert where there is no HHR data available to determine whether an RR is required.

Any ACs accepting Paua's proposed change are automatically processed by HIKO, and ACs rejecting the proposed change are directed to an operator who will either reissue the RR or manually change the opening read.

RRs issued by other traders are directed to an operator, who will review the request and accept or reject it. HIKO will generate the AC file which contains the operator response the evening after it is added.

The switch breach history report is also reviewed manually every two to three days, to check that all files have been issued as required.

HIKO has been used to generate RR and AC files since the material change audit in November 2020. Prior to that RR and AC files were created manually using the registry user interface.

Application of CS readings

Review of the event detail report did not identify any transfer CS files issued to Paua where an estimated reading had been provided and no RR file had been issued.

RR

No RR files were issued by Paua for transfer switches, and the switch breach history report did not record any late RR files.

AC

No AC files were issued by Paua for transfer switches, and the switch breach history report did not record any late AC files.

Audit outcome

Compliant

4.5. Non-half hour switch event meter reading - standard switch (Clause 6(2) and (3) Schedule 11.3)

Code reference

Clause 6(2) and (3) Schedule 11.3

Code related audit information

If the losing trader trades electricity from a non-half hour meter, with a switch event meter reading that is not from an AMI certified meter flagged Y in the registry: and

- *the gaining trader will trade electricity from a meter with a half hour submission type in the registry (clause 6(2)(b));*
- *the gaining trader within five business days after receiving final information from the registry manager, may provide the losing trader with a switch event meter reading from that meter. The losing trader must use that switch event meter reading.*

Audit observation

The process for the management of read requests was examined. The event detail report was analysed to identify read change requests issued and received under Clause 6(2) and (3) Schedule 11.3 and determine compliance.

Audit commentary

Paua is a HHR only trader, and will not receive any read change requests where clause 6(2) and (3) of schedule 11.3 applies.

Paua did not issue any read change requests where clause 6(2) and (3) of schedule 11.3 applied, because no RR files were issued for transfer switches.

Audit outcome

Compliant

4.6. Disputes - standard switch (Clause 7 Schedule 11.3)

Code reference

Clause 7 Schedule 11.3

Code related audit information

A losing trader or gaining trader may give written notice to the other that it disputes a switch event meter reading provided under clauses 1 to 6. Such a dispute must be resolved in accordance with clause 15.29 (with all necessary amendments).

Audit observation

I confirmed with Paua whether any disputes have needed to be resolved in accordance with this clause.

Audit commentary

Paua confirmed that no disputes have needed to be resolved in accordance with this clause.

Audit outcome

Compliant

4.7. Gaining trader informs registry of switch request - switch move (Clause 9 Schedule 11.3)

Code reference

Clause 9 Schedule 11.3

Code related audit information

The switch move process applies where a gaining trader has an arrangement with a customer or embedded generator to trade electricity at an ICP using non half-hour metering or an unmetered ICP, or to assume responsibility for such an ICP, and no other trader has an agreement to trade electricity at that ICP, this is referred to as a switch move and the following provisions apply:

If the “uninvited direct sale agreement” applies, the gaining trader must identify the period within which the customer or embedded generator may cancel the arrangement in accordance with section 36M of the Fair Trading Act 1986. The arrangement is deemed to come into effect on the day after the expiry of that period.

In the event of a switch move, the gaining trader must advise the registry manager of a switch and the proposed event date no later than two business days after the arrangement comes into effect.

In its advice to the registry manager the gaining trader must include:

- *a proposed event date (clause 9(2)(a)); and*
- *that the switch type is "MI" (clause 9(2)(b); and*
- *one or more profile codes of a profile at the ICP (clause 9(2)(c)).*

Audit observation

The switch gain process was examined to determine when Paua deem all conditions to be met. A typical sample of NTs were checked to confirm that these were notified to the registry within two business days, and that the correct switch type was selected.

Audit commentary

Paua’s processes are compliant with the requirements of Section 36M of the Fair Trading Act 1986. NT files will be sent as soon as all pre-conditions are met, and the withdrawal process is used if the customer changes their mind.

The information required to create the NT is manually entered into HIKO on receipt of a customer application. NT files are generated by HIKO, and uploaded to the registry each evening. Prior to the implementation of HIKO switching processes in March 2021, NT information was entered manually using the registry user interface.

Switch type is selected based on information provided by the customer on application. The customer is asked if they have recently moved into the property and their move in date as part of the application process. Paua only supplies ICPs with metering category 1.

The five NT files checked were sent within two business days of pre-conditions being cleared, and the correct switch type was selected.

Audit outcome

Compliant

4.8. Losing trader provides information - switch move (Clause 10(1) Schedule 11.3)

Code reference

Clause 10(1) Schedule 11.3

Code related audit information

10(1) Within five business days after receiving notice of a switch move request from the registry manager—

- *10(1)(a) If the losing trader accepts the event date proposed by the gaining trader, the losing trader must complete the switch by providing to the registry manager:*
 - o *confirmation of the switch event date; and*
 - o *a valid switch response code; and*
 - o *final information as required under clause 11; or*
- *10(1)(b) If the losing trader does not accept the event date proposed by the gaining trader, the losing trader must acknowledge the switch request to the registry manager and determine a different event date that—*
 - o *is not earlier than the gaining trader's proposed event date, and*
 - o *is no later than 10 business days after the date the losing trader receives notice; or*
- *10(1)(c) request that the switch be withdrawn in accordance with clause 17.*

Audit observation

The AN and CS processes were examined, and the event detail report was reviewed to:

- identify AN files issued by Paua during the audit period,
- assess compliance with the requirement to meet the setting of event dates requirement, and
- a diverse sample ANs were checked to determine whether the codes had been correctly applied.

The switch breach history report was examined for the audit period.

Audit commentary

AN timeliness

When an NT is received from the registry, HIKO automatically creates an AN unless the proposed transfer date is more than nine business days after NT receipt. If the proposed transfer date is more than nine business days after NT receipt, a withdrawal notice will be issued with date failure as the reason code.

The timeliness of AN files is monitored:

- a notification is generated in the HIKO action hub if the AN process fails to run,
- the switch breach history report is imported into HIKO daily, and updates file due dates, and
- the switch breach history report is also reviewed manually every two to three days, to check that all files have been issued as required.

Before the HIKO process was fully automated in March 2021, AN information was generated by HIKO and manually checked before being transferred to the registry. Before the material change audit in November 2020, AN files were created manually using the registry user interface.

The switch breach history report recorded three AN breaches where the AN arrival date is more than three business days after the NT arrival date, and the AN arrives immediately after the NT. The late files

all occurred before the HIKO process was fully automated, and were delayed by manual processing of the AN files.

CS timeliness

HIKO will automatically create a CS file as soon as a midnight reading is received, or estimated, for the day before the switch event date.

The timeliness of CS files is monitored:

- the switch breach history report is imported into HIKO daily, and updates file due dates, and
- the switch breach history report is also reviewed manually every two to three days, to check that all files have been issued as required.

The switch breach history report recorded ten T2 breaches for switch moves because the CS arrival date was more than five business days after receipt of the NT, and no NW or AN notice was provided, or an notice was provided and the NT proposed transfer date matched the AN expected transfer date. The files were issued before the HIKO process was fully automated and were delayed by manual processing of the CS files.

A check of the event detail report found that ANs were sent for 53 of the 55 switch move NTs received. The other two ICPs had a CS file issued directly after receipt of the NT file, and one of those was subject to a T2 breach. The file was late because it was issued before the HIKO process was fully automated, and was delayed by manual processing of the CS files.

AN content

HIKO generates AN event dates and response codes according to system rules:

- if the proposed event date is within Paua's acceptable range, the switch event date is set to match the gaining trader's proposed event date, unless it is blank or backdated, in which case it is set to the contract end date + one day or if there is no contract end date, tomorrow, and
- response codes are selected according to a hierarchy, which should ensure that correct response codes apply.

Prior to the implementation of HIKO AN event dates and response codes were manually selected by the operator.

The event detail report was reviewed for all 52 switch move ANs to assess compliance with the setting of event dates requirements:

- all ANs had proposed event dates within ten business days of the NT receipt date, and
- no ANs has a proposed event date before the gaining trader's requested date, in all cases the AN date matched the requested date.

A diverse sample of 30 AN files were checked, and in all cases correct response codes were applied.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.8 With: Clause 10(1) Schedule 11.3 From: 14-Jan-21 To: 23-Feb-21	Three AN breaches. Ten T2 breaches. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are now rated as strong because the process is automated, and all the late files occurred before the HIKO process was fully automated. The impact is low because the files were one to four business days late.		
Actions taken to resolve the issue		Completion date	Remedial action status
HIKO was implemented in March 2021 with automated switching processes.		March 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
HIKO produces and uploads AN files automatically so will ensure they are uploaded on time. HIKO also checks the Switch Breach report to ensure all switch events have been actioned on time.		March 2021	

4.9. Losing trader determines a different date - switch move (Clause 10(2) Schedule 11.3)

Code reference

Clause 10(2) Schedule 11.3

Code related audit information

If the losing trader determines a different date, then within 10 business days of receiving notice the losing trader must also complete the switch by providing to the registry manager as described in subclause (1)(a):

- *the event date proposed by the losing trader; and*
- *a valid switch response code; and*
- *final information as required under clause 1.*

Audit observation

The event detail report was reviewed to identify AN files issued by Paua during the audit period, and assess compliance with the requirement to meet the setting of event dates requirement.

Audit commentary

Analysis found all switch move ANs had a valid switch response code, and switches were completed as required by this clause. Paua accepted the proposed event dates for all ICPs.

Audit outcome

Compliant

4.10. Losing trader must provide final information - switch move (Clause 11 Schedule 11.3)

Code reference

Clause 11 Schedule 11.3

Code related audit information

The losing trader must provide final information to the registry manager for the purposes of clause 10(1)(a)(ii), including—

- *the event date (clause 11(a)); and*
- *a switch event meter reading as at the event date for each meter or data storage device that is recorded in the registry with an accumulator type of C and a settlement indicator of Y (clause 11(b)); and*
- *if the switch event meter reading is not a validated meter reading, the date of the last meter reading of the meter or storage device. (clause (11(c)).*

Audit observation

The CS process was examined, and the event detail report was reviewed to identify CS files issued by Paua during the audit period. The accuracy of the content of CS files was confirmed by checking a sample of records. The content checked included:

- correct identification of meter readings and correct date of last meter reading,
- accuracy of meter readings, and
- accuracy of average daily consumption.

CS files with average daily kWh that was negative, zero, or over 200 kWh were identified. A sample of these CS files were checked to determine whether the average daily consumption was correct.

Audit commentary

All ICPs have HHR AMI meters, and are expected to switch in and out on validated readings. HIKO automatically creates a CS file as soon as a midnight reading is received, or estimated, for the day before the switch event date.

- The read quality indicator is used to determine whether reads should be classified as estimate or actual, and determine the last actual read date during the period of supply. HIKO creates an alert where there is no HHR data available to create the CS file.
- The registry functional specification requires average daily kWh to be based on the average daily consumption for the last read to read period. Paua receives daily readings, and the average daily kWh is based on the average daily consumption between the last two readings received prior to switch out, truncated to zero decimal places. Paua's average daily kWh process was considering estimates where actual readings were not available. During the audit, Paua updated the HIKO logic during to consider only actual readings and create an alert where less than two actual readings have been received, so that the average daily kWh could be updated manually. Review of the event detail report confirmed that all CS files during the audit period switched out on actual readings, and all CS files checked had compliant average daily kWh.
- The key held indicator is determined from information obtained from the customer on application and stored in HIKO. Paua have not held any customer keys to date, because all meters are read remotely.

Before the HIKO process was fully automated in March 2021, CS files were created manually using the registry user interface.

Review of the event detail report did not identify any switch moves with average daily kWh which was negative or over 200 kWh. 11 switch move CS files had zero estimated daily kWh. A sample of five were checked and confirmed to be correct.

Seven CS files had inconsistencies between the last actual read date and the switch event read type in the CS file.

- For four CS files, the last actual read date was recorded as before Paua's last day of responsibility, but the read type was recorded as actual.
- For three CS files, the last actual read date was recorded as after Paua's last day of responsibility, but the read type was recorded as actual.

I confirmed that the switch event reading and type was correct for all seven files, but the last actual read date was incorrectly recorded due to a data entry error when manually entering the CS information using the registry user interface. The affected CS files are:

ICP	CS file	Field incorrect	Value applied	Correct value
0000179074TR21C	CS-3591057	Last actual read date	17/12/20	20/12/20
0000129312TRC14	CS-3593755	Last actual read date	17/12/20	21/12/20
0000048130TRC57	CS-3652888	Last actual read date	01/02/21	09/02/21
1001124004UNE3B	CS-3652889	Last actual read date	01/02/21	09/02/21
1001153419CKD68	CS-3532045	Last actual read date	08/11/20	06/11/20
0001256737UN303	CS-3532046	Last actual read date	08/11/20	04/11/20
0000161916TR181	CS-3588791	Last actual read date	17/12/20	11/11/20

I checked the content of a further three switch move CS files and found the data was recorded correctly.

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 4.10</p> <p>With: Clause 11 Schedule 11.3</p> <p>From: 16-Nov-20</p> <p>To: 10-Feb-21</p>	<p>Seven switch move CS files contained incorrect last actual read dates.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Once</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p>

Audit risk rating	Rationale for audit risk rating		
Low	<p>Controls are now strong because the process to determine the last actual read date is now automated in HIKO. The exceptions occurred before automation of the process.</p> <p>The impact is low because the switch event readings in the affected files were actual. The last actual read date field is typically used to determine the likely accuracy of estimated switch event reads.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
HIKO was implemented in March 2021 with automated switching processes.		March 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
HIKO produces and uploads CS files automatically so will eliminate these data entry errors .		March 2021	

4.11. Gaining trader changes to switch meter reading - switch move (Clause 12 Schedule 11.3)

Code reference

Clause 12 Schedule 11.3

Code related audit information

The gaining trader may use the switch event meter reading supplied by the losing trader or may, at its own cost, obtain its own switch event meter reading. If the gaining trader elects to use this new switch event meter reading, the gaining trader must advise the losing trader of the switch event meter reading and the actual event date to which it refers as follows:

- *if the switch meter reading established by the gaining trader differs by less than 200 kWh from that provided by the losing trader, both traders must use the switch event meter reading provided by the gaining trader (clause 12(2)(a)); or*
- *if the switch event meter reading provided by the losing trader differs by 200 kWh or more from a value established by the gaining trader, the gaining trader may dispute the switch meter reading. In this case, the gaining trader, within 4 calendar months of the date the registry manager gives the gaining trader written notice of having received information about the switch completion, must provide to the losing trader a changed validated meter reading or a permanent estimate supported by 2 validated meter readings and the losing trader must either (clause 12(2)(b) and clause 12(3)):*
- *advise the gaining trader if it does not accept the switch event meter reading and the losing trader and the gaining trader must resolve the dispute in accordance with the disputes procedure in clause 15.29 (with all necessary amendments) (clause 12(3)(a)); or*
- *if the losing trader notifies its acceptance or does not provide any response, the losing trader must use the switch event meter reading supplied by the gaining trader (clause 12(3)(b)).*

12(2A) If the losing trader trades electricity from a non-half hour meter, with a switch event meter reading that is not from an AMI certified meter flagged Y in the registry,

- *the gaining trader will trade electricity from a meter with a half hour submission type in the registry (clause 12(2A)(b));*

- *the gaining trader no later than five business days after receiving final information from the registry manager, may provide the losing trader with a switch event meter reading from that meter. The losing trader must use that switch event meter reading (clause 12(2B)).*

Audit observation

The process for the management of read change requests was examined.

The event detail report was analysed to identify all read change requests and acknowledgements during the audit period. A sample of RR and AC files issued for switch moves were checked to confirm that the content was correct, and that Paua's systems reflected the outcome of the RR process.

I also checked for CS files with estimated readings provided by other traders where no RR was issued, to determine whether the correct readings were recorded in Paua's systems.

The switch breach history report for the audit period was reviewed.

Audit commentary

All ICPs switched in will have HHR AMI meters, and are expected to switch in and out on validated readings. HIKO compares the losing trader's closing read with the actual midnight read as soon as it is received by calculating the difference between the midnight reading on Paua's first day of supply and the sum of the intervals for the first day of supply. Where the CS read differs from the calculated opening reading HIKO will automatically send an RR file, because the CS read appears to be incorrect. These read change requests normally meet the requirements of 6(2) and (3) Schedule 11.3, and are required to be accepted by the losing retailer. HIKO creates an alert where there is no HHR data available to determine whether an RR is required.

Any ACs accepting Paua's proposed change are automatically processed by HIKO, and ACs rejecting the proposed change are directed to an operator who will either reissue the RR or manually change the opening read.

RRs issued by other traders are directed to an operator, who will review the request and accept or reject it. HIKO will generate the AC file which contains the operator response the evening after it is added.

The switch breach history report is also reviewed manually every two to three days, to check that all files have been issued as required.

HIKO has been used to generate RR and AC files since the material change audit in November 2020. Prior to that RR and AC files were created manually using the registry user interface.

Application of CS readings

Review of the event detail report identified two switch move CS files issued to Paua where an estimated reading had been provided and no RR file had been issued. In all cases the correct reading was applied in HIKO.

RR

One RR was issued for a switch move. The RR was supported by two validated readings, and the reads and volumes recorded in HIKO reflected the outcome of the RR process. The switch breach history report did not record any late RR files.

AC

One AC was issued for a switch move. The other trader's RR was validly accepted, and the reads and volumes recorded in HIKO reflected the outcome of the RR process. The switch breach history report did not record any late AC files.

Audit outcome

Compliant

4.12. Gaining trader informs registry of switch request - gaining trader switch (Clause 14 Schedule 11.3)

Code reference

Clause 14 Schedule 11.3

Code related audit information

The gaining trader switch process applies when a trader has an arrangement with a customer or embedded generator to trade electricity at an ICP at which the losing trader trades electricity with the customer or embedded generator, and one of the following applies at the ICP:

- *the gaining trader will trade electricity through a half hour metering installation that is a category 3 or higher metering installation; or*
- *the gaining trader will trade electricity through a non-AMI half hour metering installation and the losing trader trades electricity through a non-AMI non half hour metering installation; or*
- *the gaining trader will trade electricity through a non-AMI non half hour metering installation and the losing trader trades electricity through a non-AMI half hour metering installation.*

If the uninvited direct sale agreement applies to an arrangement described above, the gaining trader must identify the period within which the customer or embedded generator may cancel the arrangement in accordance with section 36M of the Fair Trading Act 1986. The arrangement is deemed to come into effect on the day after the expiry of that period.

A gaining trader must advise the registry manager of the switch and expected event date no later than three business days after the arrangement comes into effect.

14(2) The gaining trader must include in its advice to the registry manager:

- a) a proposed event date; and*
- b) that the switch type is HH.*

14(3) The proposed event date must be a date that is after the date on which the gaining trader advises the registry manager, unless clause 14(4) applies.

14(4) The proposed event date is a date before the date on which the gaining trader advised the registry manager, if:

14(4)(a) – the proposed event date is in the same month as the date on which the gaining trader advised the registry manager; or

14(4)(b) – the proposed event date is no more than 90 days before the date on which the gaining trader advises the registry manager and this date is agreed between the losing and gaining traders.

Audit observation

The event detail report was examined to identify any HH switches, and switches for ICPs with metering category 3 or higher.

Audit commentary

All ICPs supplied by Paua have metering category 1, and no HH switches were identified.

Audit outcome

Compliant

4.13. Losing trader provision of information - gaining trader switch (Clause 15 Schedule 11.3)

Code reference

Clause 15 Schedule 11.3

Code related audit information

Within three business days after the losing trader is informed about the switch by the registry manager, the losing trader must:

15(a) - provide to the registry manager a valid switch response code as approved by the Authority; or

15(b) - provide a request for withdrawal of the switch in accordance with clause 17.

Audit observation

The event detail report was examined to identify any HH switches, and switches for ICPs with metering category 3 or higher.

Audit commentary

All ICPs supplied by Paua have metering category 1, and no HH switches were identified.

Audit outcome

Compliant

4.14. Gaining trader to advise the registry manager - gaining trader switch (Clause 16 Schedule 11.3)

Code reference

Clause 16 Schedule 11.3

Code related audit information

The gaining trader must complete the switch no later than three business days, after receiving the valid switch response code, by advising the registry manager of the event date.

If the ICP is being electrically disconnected, or if metering equipment is being removed, the gaining trader must either-

16(a)- give the losing trader or MEP for the ICP an opportunity to interrogate the metering installation immediately before the ICP is electrically disconnected or the metering equipment is removed; or

16(b)- carry out an interrogation and, no later than five business days after the metering installation is electrically disconnected or removed, advise the losing trader of the results and metering component numbers for each data channel in the metering installation.

Audit observation

The event detail report was examined to identify any HH switches, and switches for ICPs with metering category 3 or higher.

Audit commentary

All ICPs supplied by Paua have metering category 1, and no HH switches were identified.

Audit outcome

Compliant

4.15. Withdrawal of switch requests (Clauses 17 and 18 Schedule 11.3)

Code reference

Clauses 17 and 18 Schedule 11.3

Code related audit information

A losing trader or gaining trader may request that a switch request be withdrawn at any time until the expiry of two calendar months after the event date of the switch.

If a trader requests the withdrawal of a switch, the following provisions apply:

- *for each ICP, the trader withdrawing the switch request must provide the registry manager with (clause 18(c)):*
 - o *the participant identifier of the trader making the withdrawal request (clause 18(c)(i));*
 - and*
 - o *the withdrawal advisory code published by the Authority (clause 18(c)(ii))*
- *within five business days after receiving notice from the registry manager of a switch, the trader receiving the withdrawal must advise the registry manager that the switch withdrawal request is accepted or rejected. A switch withdrawal request must not become effective until accepted by the trader who received the withdrawal (clause 18(d)).*
- *on receipt of a rejection notice from the registry manager, in accordance with clause 18(d), a trader may re-submit the switch withdrawal request for an ICP in accordance with clause 18(c). All switch withdrawal requests must be resolved within 10 business days after the date of the initial switch withdrawal request (clause 18(e)).*
- *if the trader requests that a switch request be withdrawn, and the resolution of that switch withdrawal request results in the switch proceeding, within two business days after receiving notice from the registry manager in accordance with clause 22(b), the losing trader must comply with clauses 3,5,10 and 11 (whichever is appropriate) and the gaining trader must comply with clause 16 (clause 18(f)).*

Audit observation

The event detail report was reviewed to identify all NW and AW files issued by Paua, and review them for accuracy. The switch breach history report was checked for any late switch withdrawal requests or acknowledgements.

Audit commentary

HICO automatically generates NWs for date failure where:

- a transfer switch proposed transfer date is more than nine business days after NT receipt, or
- a switch move proposed transfer date is more than four business days after NT receipt.

Otherwise, HICO creates a NW file once the operator has selected an NW code from the drop down list, which includes the required codes. Paua's documentation confirmed that NWs are required to be created within two months of the switch being completed and their NW code application policy should ensure that the correct codes are applied. When the NW is raised, HICO creates an AW ticket which remains open until the AW is received for monitoring purposes.

NWs issued by other traders will be directed to an operator, who will review the request and accept or reject it. HICO will generate the AW file which contains the operator response the evening after it is added. The switch breach history report is also reviewed manually every two to three days, to check that all files have been issued as required.

Before the material change audit in November 2020, NW and AW files were created manually using the registry user interface.

NW

No NW files were issued by Paua, and the switch breach history report did not record any late NW files.

AC

Six AW files were issued by Paua, and the switch breach history report did not record any late AW files. All of the AW files accepted the other trader's NW.

Audit outcome

Compliant

4.16. Metering information (Clause 21 Schedule 11.3)

Code reference

Clause 21 Schedule 11.3

Code related audit information

For an interrogation or validated meter reading or permanent estimate carried out in accordance with Schedule 11.3:

21(a)- the trader who carries out the interrogation, switch event meter reading must ensure that the interrogation is as accurate as possible, or that the switch event meter reading is fair and reasonable.

21(b) and (c) - the cost of every interrogation or switch event meter reading carried out in accordance with clauses 5(b) or 11(b) or (c) must be met by the losing trader. The costs in every other case must be met by the gaining trader.

Audit observation

The meter reading process in relation to meter reads for switching purposes was examined.

Audit commentary

All meter readings used in the switching process are validated meter readings or permanent estimates. All CS files generated during the audit period had actual readings.

Paua's policy regarding the management of meter reading expenses is compliant.

Audit outcome

Compliant

4.17. Switch protection (Clause 1(a)&(b) of Part 1 and 11.15AA to 11.15AC of Part 11)

Code reference

Clause 11.15AA to 11.15AC

Code related audit information

A losing retailer (including any party acting on behalf of the retailer) must not initiate contact to save or win back any customer who is switching away or has switched away for 180 days from the date of the switch.

The losing retailer may contact the customer for certain administrative reasons and may make a counteroffer only if the customer initiated contact with the losing retailer and invited the losing retailer to make a counteroffer.

The losing retailer must not use the customer contact details to enable any other retailer (other than the gaining retailer) to contact the customer.

Audit observation

Win-back processes were discussed. The event detail report was analysed to identify all withdrawn switches with a CX code applied within 180 days of switch completion post 31 March 2020.

Audit commentary

Paua emails the customers for ICPs requested by another retailer only to confirm that the switch request is valid, and if they have any comments on why they decided to switch. No win-back activity is initiated with lost customers.

No NWs were issued during the audit period.

Audit outcome

Compliant

5. MAINTENANCE OF UNMETERED LOAD

5.1. Maintaining shared unmetered load (Clause 11.14)

Code reference

Clause 11.14

Code related audit information

The trader must adhere to the process for maintaining shared unmetered load as outlined in clause 11.14:

11.14(2) - The distributor must give written notice to the traders responsible for the ICPs across which the unmetered load is shared, of the ICP identifiers of the ICPs.

11.14(3) - A trader who receives such a notification from a distributor must give written notice to the distributor if it wishes to add or omit any ICP from the ICPs across which unmetered load is to be shared.

11.14(4) - A distributor who receives such a notification of changes from the trader under (3) must give written notice to the registry manager and each trader responsible for any of the ICPs across which the unmetered load is shared.

11.14(5) - If a distributor becomes aware of any change to the capacity of a shared unmetered load ICP or if a shared unmetered load ICP is decommissioned, it must give written notice to all traders affected by that change as soon as practicable after that change or decommissioning.

11.14(6) - Each trader who receives such a notification must, as soon as practicable after receiving the notification, adjust the unmetered load information for each ICP in the list for which it is responsible to ensure that the entire shared unmetered load is shared equally across each ICP.

11.14(7) - A trader must take responsibility for shared unmetered load assigned to an ICP for which the trader becomes responsible as a result of a switch in accordance with Part 11.

11.14(8) - A trader must not relinquish responsibility for shared unmetered load assigned to an ICP if there would then be no ICPs left across which that load could be shared.

11.14(9) - A trader can change the status of an ICP across which the unmetered load is shared to inactive status, as referred to in clause 19 of Schedule 11.1. In that case, the trader is not required to give written notice to the distributor of the change. The amount of electricity attributable to that ICP becomes UFE.

Audit observation

The processes to identify and monitor shared unmetered load were discussed. The registry list and AC020 report were reviewed to identify any ICPs with shared unmetered load and assess compliance.

Audit commentary

Paua only accepts applications from customers who do not have unmetered load connected.

Review of the registry list and audit compliance reports confirmed that no unmetered load is recorded by the distributor or trader for any Paua ICP. All active ICPs are metered with an MEP recorded and at least one meter channel.

Additions or changes to unmetered load details will be identified as part of the registry validation process. A daily ICP list with history (including all data from January 2015 onwards) is downloaded from the registry and imported into HIKO. Changes to attributes are reported to the operator for investigation in the action hub, including changes to distributor unmetered load details. If unmetered

load is found, Paua would relinquish responsibility for shared unmetered load if allowed under clause 11.14, or would arrange for the ICP to switch out.

Audit outcome

Compliant

5.2. Unmetered threshold (Clause 10.14 (2)(b))

Code reference

Clause 10.14 (2)(b)

Code related audit information

The reconciliation participant must ensure that unmetered load does not exceed 3,000 kWh per annum, or 6,000 kWh per annum if the load is predictable and of a type approved and published by the Authority.

Audit observation

The registry list and AC020 report were reviewed to identify any ICPs with unmetered load over 3,000 kWh per annum.

Audit commentary

Paua has not supplied any ICPs with unmetered load.

Audit outcome

Compliant

5.3. Unmetered threshold exceeded (Clause 10.14 (5))

Code reference

Clause 10.14 (5)

Code related audit information

If the unmetered load limit is exceeded the retailer must:

- *within 20 business days, commence corrective measure to ensure it complies with Part 10,*
- *within 20 business days of commencing the corrective measure, complete the corrective measures,*
- *no later than 10 business days after it becomes aware of the limit having been exceeded, advise each participant who is or would be expected to be affected of:*
 - o *the date the limit was calculated or estimated to have been exceeded,*
 - o *the details of the corrective measures that the trader proposes to take or is taking to reduce the unmetered load.*

Audit observation

The registry list and AC020 report were reviewed to identify any ICPs with unmetered load over 6,000 kWh per annum.

Audit commentary

Paua has not supplied any ICPs with unmetered load.

Audit outcome

Compliant

5.4. Distributed unmetered load (Clause 11 Schedule 15.3, Clause 15.37B)

Code reference

Clause 11 Schedule 15.3, Clause 15.37B

Code related audit information

An up-to-date database must be maintained for each type of distributed unmetered load for which the retailer is responsible. The information in the database must be maintained in a manner that the resulting submission information meets the accuracy requirements of clause 15.2.

A separate audit is required for distributed unmetered load data bases.

The database must satisfy the requirements of Schedule 15.5 with regard to the methodology for deriving submission information.

Audit observation

The registry list was reviewed to identify any ICPs with distributed unmetered load.

Audit commentary

Paua has not supplied any ICPs with unmetered load.

Audit outcome

Compliant

6. GATHERING RAW METER DATA

6.1. Electricity conveyed & notification by embedded generators (Clause 10.13, Clause 10.24 and 15.13)

Code reference

Clause 10.13, Clause 10.24 and Clause 15.13

Code related audit information

A participant must use the quantity of electricity measured by a metering installation as the raw meter data for the quantity of electricity conveyed through the point of connection.

This does not apply if data is estimated or gifted in the case of embedded generation under clause 15.13.

A trader must, for each electrically connected ICP that is not also an NSP, and for which it is recorded in the registry as being responsible, ensure that:

- *there is one or more metering installations,*
- *all electricity conveyed is quantified in accordance with the Code,*
- *it does not use subtraction to determine submission information for the purposes of Part 15.*

An embedded generator must give notification to the reconciliation manager for an embedded generating station, if the intention is that the embedded generator will not be receiving payment from the clearing manager or any other person through the point of connection to which the notification relates.

Audit observation

Processes for metering, submission, and distributed generation were reviewed. The registry list and AC020 report were examined to determine compliance.

Audit commentary

Metering installations installed

All active ICPs have an MEP, and at least one meter channel. No submission information is determined using subtraction, and no new connections were completed during the audit period.

Distributed Generation

Paua declines applications to supply customers with distributed generation unless they are for an existing Paua customer.

ICP 0000170598TR21D had distributed generation added by the distributor and EG metering added by the MEP on 12 February 2021. I checked submission information for February 2021 and confirmed that X and I flow submission was correctly recorded.

ICP days for 0000170598TR21D were double counted in error from 12 February 2021 because HIKO counted one set of ICP days for each flow direction. The issue was detected and resolved prior to the audit and revised submission information will be provided through the revision process. The incorrect ICP days submission is recorded as non-compliance in **section 11.2**.

Bridged meters

Paua does not normally allow meters to be bridged, and no bridged meters were identified during the audit period.

Audit outcome

Compliant

6.2. Responsibility for metering at GIP (Clause 10.26 (6), (7) and (8))

Code reference

Clause 10.26 (6), (7) and (8)

Code related audit information

For each proposed metering installation or change to a metering installation that is a connection to the grid, the participant, must:

- *provide to the grid owner a copy of the metering installation design (before ordering the equipment)*
- *provide at least three months for the grid owner to review and comment on the design,*
- *respond within three business days of receipt to any request from the grid owner for additional details or changes to the design,*
- *ensure any reasonable changes from the grid owner are carried out.*

The participant responsible for the metering installation must:

- *advise the reconciliation manager of the certification expiry date not later than 10 business days after certification of the metering installation,*
- *become the MEP or contract with a person to be the MEP,*
- *advise the reconciliation manager of the MEP identifier no later than 20 days after entering into a contract or assuming responsibility to be the MEP.*

Audit observation

The NSP table was reviewed to confirm whether Paua is responsible for any GIPs.

Audit commentary

Review of the NSP table confirmed that Paua is not responsible for any GIPs.

Audit outcome

Not applicable

6.3. Certification of control devices (Clause 33 Schedule 10.7 and clause 2(2) Schedule 15.3)

Code reference

Clause 33 Schedule 10.7 and clause 2(2) Schedule 15.3

Code related audit information

The reconciliation participant must advise the metering equipment provider if a control device is used to control load or switch meter registers.

The reconciliation participant must ensure the control device is certified prior to using it for reconciliation purposes.

Audit observation

The AC020 report and registry list were reviewed to confirm the profiles used.

Audit commentary

Examination of the reports found that Paua has only used the HHR profile, and control devices are not used for reconciliation purposes.

Audit outcome

Compliant

6.4. Reporting of defective metering installations (Clause 10.43(2) and (3))

Code reference

Clause 10.43(2) and (3)

Code related audit information

If a participant becomes aware of an event or circumstance that lead it to believe a metering installation could be inaccurate, defective, or not fit for purpose they must:

- *advise the MEP,*
- *include in the advice all relevant details.*

Audit observation

Processes for defective metering were examined. All meter defects identified were checked.

Audit commentary

Defective meters are typically identified through the meter reading validation process, or from information provided by the MEP or customer. Reporting is in place to identify meters which have not communicated for more than 28 days, so that the operator can raise a communications fault. During the audit Paua adjusted the query to report ICPs which have not been read for 21 days, and added the report to the data management hub.

Upon identifying a possible defective meter, Paua raises a field services job to investigate.

Paua provided one example of a potential defective meter during the audit period, which had a fault relating to the hot water relay. The fault did not affect meter accuracy, and I confirmed that submission volumes were reasonable throughout the period.

I reviewed eight HHR aggregates submissions and checked all ICPs with zero consumption to determine whether it was genuine or related to a meter fault or accuracy issue. In all cases the zero consumption was genuine.

Audit outcome

Compliant

6.5. Collection of information by certified reconciliation participant (Clause 2 Schedule 15.2)

Code reference

Clause 2 Schedule 15.2

Code related audit information

Only a certified reconciliation participant may collect raw meter data, unless only the MEP can interrogate the meter, or the MEP has an arrangement which prevents the reconciliation participant from electronically interrogating the meter:

2(2) - The reconciliation participant must collect raw meter data used to determine volume information from the services interface or the metering installation or from the MEP.

2(3) - The reconciliation participant must ensure the interrogation cycle is such that it does not exceed the maximum interrogation cycle in the registry.

2(4) - The reconciliation participant must interrogate the meter at least once every maximum interrogation cycle.

2(5) - When electronically interrogating the meter the participant must:

- a) ensure the system is to within +/- 5 seconds of NZST or NZDST,
- b) compare the meter time to the system time,
- c) determine the time error of the metering installation,
- d) if the error is less than the maximum permitted error, correct the meter's clock,
- e) if the time error is greater than the maximum permitted error then:
 - i) correct the metering installation's clock,
 - ii) compare the metering installation's time with the system time,
 - iii) correct any affected raw meter data.
- f) download the event log.

2(6) – The interrogation systems must record:

- the time
- the date
- the extent of any change made to the meter clock.

Audit observation

HHR AMI data is provided by AMS, Intellihub and Metrix as MEPs. Interrogation requirements and clock synchronisation were reviewed as part of their MEP audits.

Audit commentary

Fulfilment of the interrogation systems requirements was examined as part of the MEP's audits, and found to be compliant.

Meter event reports and clock synchronisation events provided by the MEP are imported into HIKO. Paua works through the events in the data management hub every two to three days, checking data before and after the event occurred using a graph to determine whether action is required.

Paua had not received notification of any clock synchronisation events outside the maximum permissible errors during the audit period. I reviewed two examples of clock synchronisation events within maximum permissible errors and there was no impact on the HHR data.

Paua does not currently have a process to estimate data where a clock synchronisation adjustment affects more than one trading period. If one or more trading periods were missing due to a clock synchronisation event, Paua would apply its normal estimation process. In these cases, the consumption for the missing periods would be included in the period the clock was adjusted within, and the current estimation method would result in double counting of this consumption. Any over estimation should be detected through the process to match the difference between midnight readings and the sum of the intervals, which will result in the data for the missing periods being re-estimated as zero. If clock synchronisation events affecting more than one trading period occur, I recommend that Paua makes a correction to spread the consumption between the period of clock adjustment and any previous missing trading periods.

Description	Recommendation	Audited party comment	Remedial action
Clock synchronisation corrections	Consider whether a correction to spread the consumption between the period of clock adjustment and any previous missing trading periods is required when reviewing clock synchronisation events affecting more than one trading period.	We have added a process to check whether the clock event occurs for more than one period and where it does an Operator will manually adjust the HHR data using the HIKO estimation rules.	Identified

Audit outcome

Compliant

6.6. Derivation of meter readings (Clause 3(1), 3(2) and 5 Schedule 15.2)

Code reference

Clause 3(1), 3(2) and 5 Schedule 15.2

Code related audit information

All meter readings must in accordance with the participants certified processes and procedures and using its certified facilities be sourced directly from raw meter data and, if appropriate, be derived and calculated from financial records.

All validated meter readings must be derived from meter readings.

A meter reading provided by a consumer may be used as a validated meter reading only if another set of validated meter readings not provided by the consumer are used during the validation process.

During the manual interrogation of each NHH metering installation the reconciliation participant must:

- a) obtain the meter register,*
- b) ensure seals are present and intact,*
- c) check for phase failure (if supported by the meter),*
- d) check for signs of tampering and damage,*
- e) check for electrically unsafe situations,*

if the relevant parts of the metering installation are visible and it is safe to do so.

Audit observation

The data collection process was examined. No manual, customer, or photo reads are received.

Audit commentary

HHR AMI data is provided by AMS, Metrix and Intellihub as MEPs. Validated readings are derived from actual meter readings.

Metrix and Intellihub provide estimates where data is missing. Paua does not use these estimates, and creates their own as described in **section 9.4**.

Audit outcome

Compliant

6.7. NHH meter reading application (Clause 6 Schedule 15.2)

Code reference

Clause 6 Schedule 15.2

Code related audit information

For NHH switch event meter reads, for the gaining trader the reading applies from 0000 hours on the day of the relevant event date and for the losing trader at 2400 hours at the end of the day before the relevant event date.

In all other cases, All NHH readings apply from 0000hrs on the day after the last meter interrogation up to and including 2400hrs on the day of the meter interrogation.

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR. Review of switch reads in **sections 4.3** and **4.10** confirmed that they are applied from the correct time.

Audit outcome

Compliant

6.8. Interrogate meters once (Clause 7(1) and (2) Schedule 15.2)

Code reference

Clause 7(1) and (2) Schedule 15.2

Code related audit information

Each reconciliation participant must ensure that a validated meter reading is obtained in respect of every meter register for every non half hour metered ICP for which the participant is responsible, at least once during the period of supply to the ICP by the reconciliation participant, and used to create volume information.

This may be a validated meter reading at the time the ICP is switched to, or from, the reconciliation participant.

If exceptional circumstances prevent a reconciliation participant from obtaining the validated meter reading, the reconciliation participant is not required to comply with clause 7(1).

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR, and this clause does not apply.

Audit outcome

Not applicable

6.9. NHH meters interrogated annually (Clause 8(1) and (2) Schedule 15.2)

Code reference

Clause 8(1) and (2) Schedule 15.2

Code related audit information

At least once every 12 months, each reconciliation participant must obtain a validated meter reading for every meter register for non half hour metered ICPs, at which the reconciliation participant trades continuously for each 12 month period.

If exceptional circumstances prevent a reconciliation participant from obtaining the validated meter reading, the reconciliation participant is not required to comply with clause 8(1).

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR, and this clause does not apply.

Audit outcome

Not applicable

6.10. NHH meters 90% read rate (Clause 9(1) and (2) Schedule 15.2)

Code reference

Clause 9(1) and (2) Schedule 15.2

Code related audit information

In relation to each NSP, each reconciliation participant must ensure that for each NHH ICP at which the reconciliation participant trades continuously for each four months, for which consumption information is required to be reported into the reconciliation process. A validated meter reading is obtained at least once every 4 months for 90% of the non half hour metered ICPs.

A report is to be sent to the Authority providing the percentage, in relation to each NSP, for which consumption information has been collected no later than 20 business days after the end of each month.

If exceptional circumstances prevent a reconciliation participant from obtaining the validated meter reading, the reconciliation participant is not required to comply with clause 9(1).

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR, and this clause does not apply.

Audit outcome

Not applicable

6.11. NHH meter interrogation log (Clause 10 Schedule 15.2)

Code reference

Clause 10 Schedule 15.2

Code related audit information

The following information must be logged as the result of each interrogation of the NHH metering:

- 10(a) - the means to establish the identity of the individual meter reader,*
- 10(b) - the ICP identifier of the ICP, and the meter and register identification,*
- 10(c) - the method being used for the interrogation and the device ID of equipment being used for interrogation of the meter,*
- 10(d) - the date and time of the meter interrogation.*

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR, and this clause does not apply.

Audit outcome

Not applicable

6.12. HHR data collection (Clause 11(1) Schedule 15.2)

Code reference

Clause 11(1) Schedule 15.2

Code related audit information

Raw meter data from all electronically interrogated metering installations must be obtained via the services access interface.

This may be carried out by a portable device or remotely.

Audit observation

HHR AMI data is provided by AMS, Intellihub, and Metrix as MEPs, and compliance was assessed as part of their MEP audits.

Audit commentary

AMS, Intellihub, and Metrix are responsible for HHR data collection, and compliance is recorded in their audit reports.

Audit outcome

Compliant

6.13. HHR interrogation data requirement (Clause 11(2) Schedule 15.2)

Code reference

Clause 11(2) Schedule 15.2

Code related audit information

The following information is collected during each interrogation:

11(2)(a) - the unique identifier of the data storage device

11(2)(b) - the time from the data storage device at the commencement of the download unless the time is within specification and the interrogation log automatically records the time of interrogation,

11(2)(c) - the metering information, which represents the quantity of electricity conveyed at the point of connection, including the date and time stamp or index marker for each half hour period. This may be limited to the metering information accumulated since the last interrogation,

11(2)(d) - the event log, which may be limited to the events information accumulated since the last interrogation,

11(2)(e) - an interrogation log generated by the interrogation software to record details of all interrogations.

The interrogation log must be examined by the reconciliation participant responsible for collecting the data and appropriate action must be taken if problems are apparent or an automated software function flags exceptions.

Audit observation

HHR AMI data is provided by AMS, Intellihub, and Metrix as MEPs.

Audit commentary

MEPs are responsible for meeting the meter interrogation data requirements, and this is reviewed as part of their audits.

Audit outcome

Compliant

6.14. HHR interrogation log requirements (Clause 11(3) Schedule 15.2)

Code reference

Clause 11(3) Schedule 15.2

Code related audit information

The interrogation log forms part of the interrogation audit trail and, as a minimum, must contain the following information:

11(3)(a)- the date of interrogation

11(3)(b)- the time of commencement of interrogation

11(3)(c)- the operator identification (if available)

11(3)(d)- the unique identifier of the meter or data storage device

11(3)(e)- the clock errors outside the range specified in Table 1 of clause 2

11(3)(f)- the method of interrogation

11(3)(g)- the identifier of the reading device used for interrogation (if applicable).

Audit observation

HHR AMI data is provided by AMS, Intellihub, and Metrix as MEPs.

Audit commentary

MEPs are responsible for meeting the meter interrogation data requirements, and this is reviewed as part of their audits.

Audit outcome

Compliant

7. STORING RAW METER DATA

7.1. Trading period duration (Clause 13 Schedule 15.2)

Code reference

Clause 13 Schedule 15.2

Code related audit information

The trading period duration, normally 30 minutes, must be within $\pm 0.1\%$ (± 2 seconds).

Audit observation

Trading period duration was reviewed as part of AMS, Intellihub and Metrix MEP audits.

Audit commentary

MEPs are responsible for trading period duration, and compliance is recorded in their audit reports. Clock synchronisation is discussed further in **section 6.5**.

Audit outcome

Compliant

7.2. Archiving and storage of raw meter data (Clause 18 Schedule 15.2)

Code reference

Clause 18 Schedule 15.2

Code related audit information

A reconciliation participant who is responsible for interrogating a metering installation must archive all raw meter data and any changes to the raw meter data for at least 48 months, in accordance with clause 8(6) of Schedule 10.6.

Procedures must be in place to ensure that raw meter data cannot be accessed by unauthorised personnel.

Meter readings cannot be modified without an audit trail being created.

Audit observation

Raw meter data is retained by AMS, Intellihub and Metrix as MEPs, and compliance is assessed as part of their MEP audits.

Processes to archive and store raw meter data were reviewed.

Audit commentary

Compliance with this clause is recorded in the MEP's audit reports.

Paua retains meter reading data for over 48 months. I viewed the earliest meter readings recorded in Paua's system, which matched the switch in date for their earliest customer on 23 January 2015.

I traced seven monthly ICP volumes for HHR ICPs from the source data to HIKO and the HHR aggregates submissions. The volumes recorded in HIKO and the submissions matched the raw data provided. This confirmed that the reads had not been modified.

Access to modify readings is restricted through log on privileges, and audit trails are discussed in **section 2.4**.

Audit outcome

Compliant

7.3. Non metering information collected / archived (Clause 21(5) Schedule 15.2)

Code reference

Clause 21(5) Schedule 15.2

Code related audit information

All relevant non-metering information, such as external control equipment operation logs, used in the determination of profile data must be collected, and archived in accordance with clause 18.

Audit observation

Processes to record non-metering information were discussed.

Audit commentary

No non-metering information is collected by Paua.

Audit outcome

Compliant

8. CREATING AND MANAGING (INCLUDING VALIDATING, ESTIMATING, STORING, CORRECTING AND ARCHIVING) VOLUME INFORMATION

8.1. Correction of NHH meter readings (Clause 19(1) Schedule 15.2)

Code reference

Clause 19(1) Schedule 15.2

Code related audit information

If a reconciliation participant detects errors while validating non-half hour meter readings, the reconciliation participant must:

19(1)(a) - confirm the original meter reading by carrying out another meter reading

19(1)(b) – replace the original meter reading the second meter reading (even if the second meter reading is at a different date)

19(1A) if a reconciliation participant detects errors while validating non half hour meter readings, but the reconciliation participant cannot confirm the original meter reading or replace it with a meter reading from another interrogation, the reconciliation participant must:

- *substitute the original meter reading with an estimated reading that is marked as an estimate; and*
- *subsequently replace the estimated reading in accordance with clause 4(2).*

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR, and this clause does not apply.

Audit outcome

Not applicable

8.2. Correction of HHR metering information (Clause 19(2) Schedule 15.2)

Code reference

Clause 19(2) Schedule 15.2

Code related audit information

If a reconciliation participant detects errors while validating half hour meter readings, the reconciliation participant must correct the meter readings as follows:

19(2)(a) - if the relevant metering installation has a check meter or data storage device, substitute the original meter reading with data from the check meter or data storage device; or

19(2)(b) - if the relevant metering installation does not have a check meter or data storage device, substitute the original meter reading with data from another period provided:

- i. The total of all substituted intervals matches the total consumption recorded on a meter, if available; and*
- ii. The reconciliation participant considers the pattern of consumption to be materially similar to the period in error.*

Audit observation

Processes for correction of HHR meter readings were reviewed.

Audit commentary

HHR estimates and corrections are processed in HIKO. Following the previous audit, Paua began calculating estimates and corrections manually using the HIKO method to improve compliance until the HIKO process was implemented. The previous Foxworks estimation process used a flat interval pattern and did not ensure that the sum of trading periods was consistent with the difference in midnight readings. All corrections in the previous 14 months were recalculated in HIKO in January 2021, and this latest correction data has been included in reconciliation submissions.

If an agreed switch reading differs from the actual data received from the MEP, the midnight reading is entered with the lowest read quality value (10) to ensure that it is retained and not overwritten with actual data, and the trading period values will be estimated to ensure that they are consistent with the difference between the agreed switch reading and next actual reading.

If errors are found when validating HHR readings, such as a stopped or faulty meter, consumption can be estimated. The estimated data would be entered with the lowest read quality value (10) to ensure that it is retained and not overwritten with actual data.

The process for estimation of missing data in HIKO is set out below.

1. HIKO imports the meter reading and interval data and assigns a read quality flag. The flag indicates whether midnight readings and some or all interval data is present, and if a reading has been modified to match an agreed switch reading.
2. HIKO compares the HHR data imported to the daily registry list to identify ICPs where HHR data is expected, and identify missing trading period data.
3. Where midnight readings and/or interval data is missing, HIKO's daily estimation process creates estimated midnight readings and/or interval data.
4. HIKO's deduplication process identifies meters with multiple readings/volumes for the ICP meter trading period combination and removes the values with the highest data quality flag (i.e. the poorest quality data).
5. HIKO checks that the midnight reading = the next day's midnight reading – the next day's trading period volumes. If there is a difference, HIKO will alert an operator for manual estimation using HIKO's data estimation rules.

The estimation methodology ensures that estimates are based on midnight reads if they are available and consumption is profiled between trading periods based on a similar period with actual data. If no history is available, Paua will request consumption history from the previous trader and use it to calculate an estimate.

If actual data is received following estimation it will be imported, and retained through the deduplication process.

Three examples of corrections were identified during the audit period, and were accurately processed according to the methodology above. Two examples were meter replacements (0000004573TRE26 and 0000170598TR21D), and in both cases the MEP had not provided either work completion paperwork, or had missed some downloads immediately following the meter change. Paua has estimated volumes based on the information available, and I recommend that the meter replacement process is re-checked next audit to confirm that it is operating correctly.

Audit outcome

Compliant

8.3. Error and loss compensation arrangements (Clause 19(3) Schedule 15.2)

Code reference

Clause 19(3) Schedule 15.2

Code related audit information

A reconciliation participant may use error compensation and loss compensation as part of the process of determining accurate data. Whichever methodology is used, the reconciliation participant must document the compensation process and comply with audit trail requirements set out in the Code.

Audit observation

Review of a registry list with history confirmed that Paua do not supply any ICPs with metering category 2 or above.

Audit commentary

Paua has only supplied ICPs with metering category 1, and has not completed any new connections. No ICPs have required loss compensation.

Audit outcome

Compliant

8.4. Correction of HHR and NHH raw meter data (Clause 19(4) and (5) Schedule 15.2)

Code reference

Clause 19(4) and (5) Schedule 15.2

Code related audit information

In correcting a meter reading in accordance with clause 19, the raw meter data must not be overwritten. If the raw meter data and the meter readings are the same, an automatic secure backup of the affected data must be made and archived by the processing or data correction application.

If data is corrected or altered, a journal must be generated. The journal must contain the following:

19(5)(a)- the date of the correction or alteration

19(5)(b)- the time of the correction or alteration

19(5)(c)- the operator identifier for the person within the reconciliation participant who made the correction or alteration,

19(5)(d)- the half-hour metering data or the non half hour metering data corrected or altered, and the total difference in volume of such corrected or altered data,

19(5)(e)- the technique used to arrive at the corrected data,

19(5)(f)- the reason for the correction or alteration.

Audit observation

Corrections are discussed in **sections 2.1** and **8.2**, which confirmed that raw meter data is not overwritten as part of the correction process. Audit trails are discussed in **section 2.4**. Raw meter data retention for MEPs and agents was reviewed as part of their own audits.

Audit commentary

Raw meter data is collected by the MEP, and data retention was reviewed as part of their MEP audits.

Corrections are discussed in **section 8.2**, which confirmed that raw meter data is not overwritten as part of the correction process. HIKO creates a compliant correction journal when data is corrected. The raw meter data is retained as part of the correction journal.

Audit outcome

Compliant

9. ESTIMATING AND VALIDATING VOLUME INFORMATION

9.1. Identification of readings (Clause 3(3) Schedule 15.2)

Code reference

Clause 3(3) Schedule 15.2

Code related audit information

All estimated readings and permanent estimates must be clearly identified as an estimate at source and in any exchange of metering data or volume information between participants.

Audit observation

The event detail report was reviewed to identify all CS and RR files provided to other participants during the audit period. The accuracy of readings provided in a sample of CS and RR files was checked in **sections 4.3, 4.4, 4.10 and 4.11.**

Correct identification of estimated reads, and review of the estimation process was completed in **sections 8.2 and 9.4.**

Audit commentary

Readings are appropriately labelled with a data quality flag which indicates whether they are actual, estimated, or agreed switch readings where actual readings have been replaced with agreed switch readings. Estimates are identifiable at trading period level.

Review of CS and RR content confirmed that switch reads were correctly labelled. Readings are clearly identified in Paua's systems.

Audit outcome

Compliant

9.2. Derivation of volume information (Clause 3(4) Schedule 15.2)

Code reference

Clause 3(4) Schedule 15.2

Code related audit information

Volume information must be directly derived, in accordance with Schedule 15.2, from:

3(4)(a) - validated meter readings

3(4)(b) - estimated readings

3(4)(c) - permanent estimates.

Audit observation

Processes for derivation of volumes were discussed and observed.

Audit commentary

All readings are based on actual meter data, field services paperwork, or are provided by another trader via the switching process or estimated. In the future, if readings are not able to be obtained Paua may use customer supplied readings to estimate interval data. Paua intends to record these readings as estimates.

Audit outcome

Compliant

9.3. Meter data used to derive volume information (Clause 3(5) Schedule 15.2)

Code reference

Clause 3(5) Schedule 15.2

Code related audit information

All meter data that is used to derive volume information must not be rounded or truncated from the stored data from the metering installation.

Audit observation

A sample of submission data was reviewed in **sections 11** and **12**, to confirm that volume was based on readings as required. HHR AMI data is provided by AMS, Intellihub, and Metrix as MEPs. Compliance was assessed as part of their MEP audits.

Audit commentary

AMS, Intellihub, and Metrix are responsible for HHR data collection, and this was reviewed as part of their audits. The MEP retains raw, unrounded data.

Meter reading data is recorded in Paea's system to three decimal places. There were small rounding differences between the HHR volumes and aggregates submissions because the HHR aggregates are truncated to two decimal places at trading period level and then summed by ICP. The truncation before submission for the HHR aggregates is recorded as non-compliance. Paea has updated the calculation for the HHR aggregates so that rounding occurs at the point of submission generation.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.3 With: Clause 3(5) Schedule 15.2 From: Apr-20 To: Nov-20	The HHR aggregates information is truncated to two decimal places at trading period level before being summed by ICP to produce the submission information. 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 now strong because the non-compliance has been cleared. The impact is low, because the aggregates are not used to calculate reconciliation results and the differences between the volumes and aggregates are less than 450 kWh per submission or (0.15%). The data is truncated to two decimal places, resulting in a potential difference of up to 0.009 kWh per ICP and trading period.

Actions taken to resolve the issue	Completion date	Remedial action status
We have changed the code generating our reports to now be compliant. All future submissions and revisions are compliant.	April 2021	Cleared
Preventative actions taken to ensure no further issues will occur	Completion date	
HIKO correctly calculates, creates and loads AV140 Reports.	April 2021	

9.4. Half hour estimates (Clause 15 Schedule 15.2)

Code reference

Clause 15 Schedule 15.2

Code related audit information

If a reconciliation participant is unable to interrogate an electronically interrogated metering installation before the deadline for providing submission information, the submission to the reconciliation manager must be the reconciliation participant's best estimate of the quantity of electricity that was purchased or sold in each trading period during any applicable consumption period for that metering installation.

The reconciliation participant must use reasonable endeavours to ensure that estimated submission information is within the percentage specified by the Authority.

Audit observation

The HHR estimate process was examined, and a sample of three estimates were reviewed.

Metrix and Intellihub provide estimates where data is missing. Paua does not use these estimates, and creates their own as described below.

Audit commentary

HHR estimates and corrections are processed in HIKO. Following the previous audit, Paua began calculating estimates and corrections manually using the HIKO method to improve compliance until the HIKO process was implemented. The previous Foxworks estimation process used a flat interval pattern and did not ensure that the sum of trading periods was consistent with the difference in midnight readings.

The process for estimation of missing data in HIKO is set out below.

1. HIKO imports the meter reading and interval data and assigns a read quality flag. The flag indicates whether midnight readings and some or all interval data is present, and if a reading has been modified to match an agreed switch reading.
2. HIKO compares the HHR data imported to the daily registry list to identify ICPs where HHR data is expected, and identify missing trading period data.
3. Where midnight readings and/or interval data is missing, HIKO's daily estimation process creates estimated midnight readings and/or interval data.
4. HIKO's deduplication process identifies meters with multiple readings/volumes for the ICP meter trading period combination and removes the values with the highest data quality flag (i.e. the poorest quality data).
5. HIKO checks that the midnight reading = the next day's midnight reading – the next day's trading period volumes. If there is a difference, HIKO will alert an operator for manual estimation using HIKO's data estimation rules.

The estimation methodology ensures that estimates are based on midnight reads if they are available and consumption is profiled between trading periods based on a similar period with actual data. If no history is available, Paua will request consumption history from the previous trader and use it to calculate an estimate.

If actual data is received following estimation it will be imported, and retained through the deduplication process. One ICP has Intellihub as the MEP, and actual data has been provided.

Three examples of estimates were identified during the audit period, and were accurately processed according to the methodology above. The reasonable endeavours requirements were met.

Audit outcome

Compliant

9.5. NHH metering information data validation (Clause 16 Schedule 15.2)

Code reference

Clause 16 Schedule 15.2

Code related audit information

Each validity check of non half hour meter readings and estimated readings must include the following:

16(2)(a) - confirmation that the meter reading or estimated reading relates to the correct ICP, meter, and register,

16(2)(b) - checks for invalid dates and times,

16(2)(c) - confirmation that the meter reading or estimated reading lies within an acceptable range compared with the expected pattern, previous pattern, or trend,

16(2)(d) - confirmation that there is no obvious corruption of the data, including unexpected 0 values.

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR, and this clause does not apply.

Audit outcome

Not applicable

9.6. Electronic meter readings and estimated readings (Clause 17 Schedule 15.2)

Code reference

Clause 17 Schedule 15.2

Code related audit information

Each validity check of electronically interrogated meter readings and estimate readings must be at a frequency that will allow a further interrogation of the data storage device before the data is overwritten within the data storage device and before this data can be used for any purpose under the Code.

Each validity check of a meter reading obtained by electronic interrogation or an estimated reading must include:

17(4)(a) - checks for missing data,

17(4)(b) - checks for invalid dates and times,

17(4)(c) - checks of unexpected zero values,

17(4)(d) - comparison with expected or previous flow patterns,

17(4)(e) - comparisons of meter readings with data on any data storage device registers that are available,

17(4)(f) - a review of meter and data storage device event log for any event that could have affected the integrity of metering data must be investigated,

17(4)(g) – a review of the relevant metering data where there is an event that could have affected the integrity of the metering data.

If there is an event that could affect the integrity of the metering data (including events reported by MEPs but excluding where the MEP is responsible for investigating and remediating the event) the reconciliation must investigate and remediate any events.

If the event may affect the integrity or operation of the metering installation the reconciliation participant must notify the metering equipment provider.

Audit observation

I reviewed the HHR data validation process, including meter event logs, and volume validation processes.

Validation of electronic readings was also reviewed as part of the MEP audits.

Audit commentary

Electronic meter reading information is provided by the MEP, and data validation was reviewed as part of their MEP audits. Meters are interrogated regularly, and there is little risk that data can be overwritten. Data is held for a longer period at the meter and can be re-interrogated later if required.

HHR data validation is conducted using HIKO's data management hub usually every two to three days, including:

- **Meter event reporting**
Meter event reports and clock synchronisation events provided by the MEP are imported into HIKO. Pawa works through the events, checking data before and after the event occurred using a graph to determine whether action is required. I reviewed four examples of HHR meter events and two examples of clock synchronisation events which did not impact on meter accuracy.
- **ICPs with zero kWh for the weekly billing cycle**
Any ICPs with overall zero consumption for the weekly billing cycle are checked to determine whether the zero consumption is genuine.
- **Missing data**
Any ICPs with data missing for an active trading period are checked. No exceptions usually occur because HIKO estimates data for any missing trading periods on import.
- **Re-estimates required**
Any ICPs with a difference between the midnight reading and the next day's midnight reading – the next day's trading period volumes are identified and re-estimated. HIKO recalculates the estimated midnight reading and any estimated intervals and spread the difference pro-rata based on the previous estimated values.

A query is run to identify any ICPs which have not been read for more than 28 days, so that a communications fault can be sent to the MEP. During the audit Paua adjusted the query to report ICPs which have not been read for 21 days, and added the report to the data management hub.

Paua checks that consumption is in line with expected patterns at an ICP level, as part of their weekly billing validations. An ICP list of weekly billed data is reviewed by sorting and checking values for reasonableness. During the audit, Paua expanded and automated the billing validation process to identify ICPs outside expected tolerances based on their consumption history, with graphs presenting the consumption information.

Audit outcome

Compliant

10. PROVISION OF METERING INFORMATION TO THE GRID OWNER IN ACCORDANCE WITH SUBPART 4 OF PART 13 (CLAUSE 15.38(1)(F))

10.1. Generators to provide HHR metering information (Clause 13.136)

Code reference

Clause 13.136

Code related audit information

The generator (and/or embedded generator) must provide to the grid owner connected to the local network in which the embedded generator is located, half hour metering information in accordance with clause 13.138 in relation to generating plant that is subject to a dispatch instruction:

- *that injects electricity directly into a local network; or*
- *if the meter configuration is such that the electricity flows into a local network without first passing through a grid injection point or grid exit point metering installation.*

Audit observation

The NSP table on the registry was reviewed.

Audit commentary

Paua is not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

Audit outcome

Not applicable

10.2. Unoffered & intermittent generation provision of metering information (Clause 13.137)

Code reference

Clause 13.137

Code related audit information

Each generator must provide the relevant grid owner half-hour metering information for:

- *any unoffered generation from a generating station with a point of connection to the grid 13.137(1)(a)*
- *any electricity supplied from an intermittent generating station with a point of connection to the grid. 13.137(1)(b)*

The generator must provide the relevant grid owner with the half-hour metering information required under this clause in accordance with the requirements of Part 15 for the collection of that generator's volume information. (clause 13.137(2))

If such half-hour metering information is not available, the generator must provide the pricing manager and the relevant grid owner a reasonable estimate of such data. (clause 13.137(3))

Audit observation

The NSP table on the registry was reviewed.

Audit commentary

Paua is not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

Audit outcome

Not applicable

10.3. Loss adjustment of HHR metering information (Clause 13.138)

Code reference

Clause 13.138

Code related audit information

The generator must provide the information required by clauses 13.136 and 13.137, 13.138(1)(a)- adjusted for losses (if any) relative to the grid injection point or, for embedded generators the grid exit point, at which it offered the electricity, 13.138(1)(b)- in the manner and form that the pricing manager stipulates, 13.138(1)(c)- by 0500 hours on a trading day for each trading period of the previous trading day. The generator must provide the half-hour metering information required under this clause in accordance with the requirements of Part 15 for the collection of the generator's volume information.

Audit observation

The NSP table on the registry was reviewed.

Audit commentary

Paua is not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

Audit outcome

Not applicable

10.4. Notification of the provision of HHR metering information (Clause 13.140)

Code reference

Clause 13.140

Code related audit information

If the generator provides half-hourly metering information to a grid owner under clauses 13.136 to 13.138, or 13.138A, it must also, by 0500 hours of that day, advise the relevant grid owner.

Audit observation

The NSP table on the registry was reviewed.

Audit commentary

Paua is not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

Audit outcome

Not applicable

11. PROVISION OF SUBMISSION INFORMATION FOR RECONCILIATION

11.1. Buying and selling notifications (Clause 15.3)

Code reference

Clause 15.3

Code related audit information

Unless an embedded generator has given a notification in respect of the point of connection under clause 15.3, a trader must give notice to the reconciliation manager if it is to commence or cease trading electricity at a point of connection using a profile with a profile code other than HHR, RPS, UML, EG1, or PV1 at least five business days before commencing or ceasing trader.

The notification must comply with any procedures or requirements specified by the reconciliation manager.

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

Paua only uses the HHR profile; buying and selling notifications are not required.

Audit outcome

Compliant

11.2. Calculation of ICP days (Clause 15.6)

Code reference

Clause 15.6

Code related audit information

Each retailer and direct purchaser (excluding direct consumers) must deliver a report to the reconciliation manager detailing the number of ICP days for each NSP for each submission file of submission information in respect of:

15.6(1)(a) - submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period

15.6(1)(b) - revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period.

The ICP days information must be calculated using the data contained in the retailer or direct purchaser's reconciliation system when it aggregates volume information for ICPs into submission information.

Audit observation

The process for the calculation of ICP days was examined by checking the ICP days submitted for September 2020, November 2020, and February 2021 against the active ICP days recorded on the registry list for all NSPs.

I reviewed variances for 17 months of GR100 reports.

Audit commentary

AV110 files are generated from HIKO based on aggregation factors and active ICP days from a current date ranged registry list. This is consistent with the logic for generating the AV090 and AV140 volumes

and aggregates submissions which also use a date ranged registry list to determine the correct aggregation factors, and include all trading periods where the ICP has active status.

The review of the AV110 report for September 2020, November 2020, and February 2021 found that the ICP days are calculated based on the registry list aggregation factors and active ICP days at the time that the report is generated. In February 2021, ICP days for distributed generation ICP 0000170598TR21D were double counted in error from 12 February 2021 because HIKO counted one set of ICP days for each flow direction. The issue was detected and resolved prior to the audit and revised submission information will be provided through the revision process. I confirmed that the current ICP days values in HIKO for February 2021 are correct.

The GR090 ICP Missing files and GR100 ICP days comparison files are imported into HIKO on publication of reconciliation results, and any exceptions are checked.

The following table shows the ICP days difference between Paua's database and the RM return file (GR100) for all available revisions for 17 months. Negative percentage figures indicate that the Paua's ICP days are higher than those contained on the registry, and positive percentage figures indicate that the Paua's ICP days are lower than those contained on the Registry. The differences appear small and reasonable, and were between -130 and +108 days.

Month	Ri	R1	R3	R7	R14
Oct 2019	-0.32%	-0.32%	-0.36%	-0.55%	-0.55%
Nov 2019	-0.16%	-0.32%	-0.16%	-0.32%	-0.32%
Dec 2019	-0.38%	-0.29%	-0.29%	-0.22%	-0.22%
Jan 2020	-0.11%	-0.28%	-0.17%	0.00%	0.00%
Feb 2020	-0.29%	-0.29%	-0.17%	0.03%	-
Mar 2020	-0.18%	-0.18%	-0.31%	-0.31%	-
Apr 2020	-0.45%	-0.43%	-0.43%	-0.43%	-
May 2020	-0.53%	-0.50%	0.00%	0.00%	-
Jun 2020	-0.04%	-0.04%	0.00%	0.00%	-
Jul 2020	0.00%	-0.13%	-0.13%	-0.13%	-
Aug 2020	0.00%	0.00%	0.00%	0.00%	-
Sep 2020	0.01%	0.01%	0.01%	-	-
Oct 2020	0.23%	0.23%	0.23%	-	-

Month	Ri	R1	R3	R7	R14
Nov 2020	-	0.15%	0.03%	-	-
Dec 2020	-0.03%	-0.03%	0.00%	-	-
Jan 2021	0.87%	0.87%	-	-	-
Feb 2021	0.05%	-0.13%	-	-	-

I checked five NSP level differences between the retailer and registry days and found that they related to switch timing.

The previous audit issue relating to incorrect NSP assignment has been cleared.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 11.2</p> <p>With: Clause 15.6</p> <p>From: 01-Feb-21</p> <p>To: 28-Feb-21</p>	<p>ICP days for 0000170598TR21D were double counted in error from 12/02/21 because HIKO counted one set of ICP days for each flow direction. The issue was detected and resolved prior to the audit, and I confirmed that the current ICP days values in HIKO are correct.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Once</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>Controls are currently rated as strong, because the GR100 ICP days and GR090 ICP missing reports are reviewed. The temporary issue relating to one ICP with distributed generation having ICP days double counted has been resolved.</p> <p>There is no impact, because revised ICP days have been provided through the revision process.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
This issue was picked up after a single submission and addressed in resubmissions.		March 2021	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
HIKO code was changed to be compliant.		March 2021	

11.3. Electricity supplied information provision to the reconciliation manager (Clause 15.7)

Code reference

Clause 15.7

Code related audit information

A retailer must deliver to the reconciliation manager its total monthly quantity of electricity supplied for each NSP, aggregated by invoice month, for which it has provided submission information to the reconciliation manager, including revised submission information for that period as non- loss adjusted values in respect of:

15.7(a) - submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period

15.7(b) - revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period.

Audit observation

The process for the calculation of as billed volumes was examined. GR130 reports for December 2018 to November 2020 were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

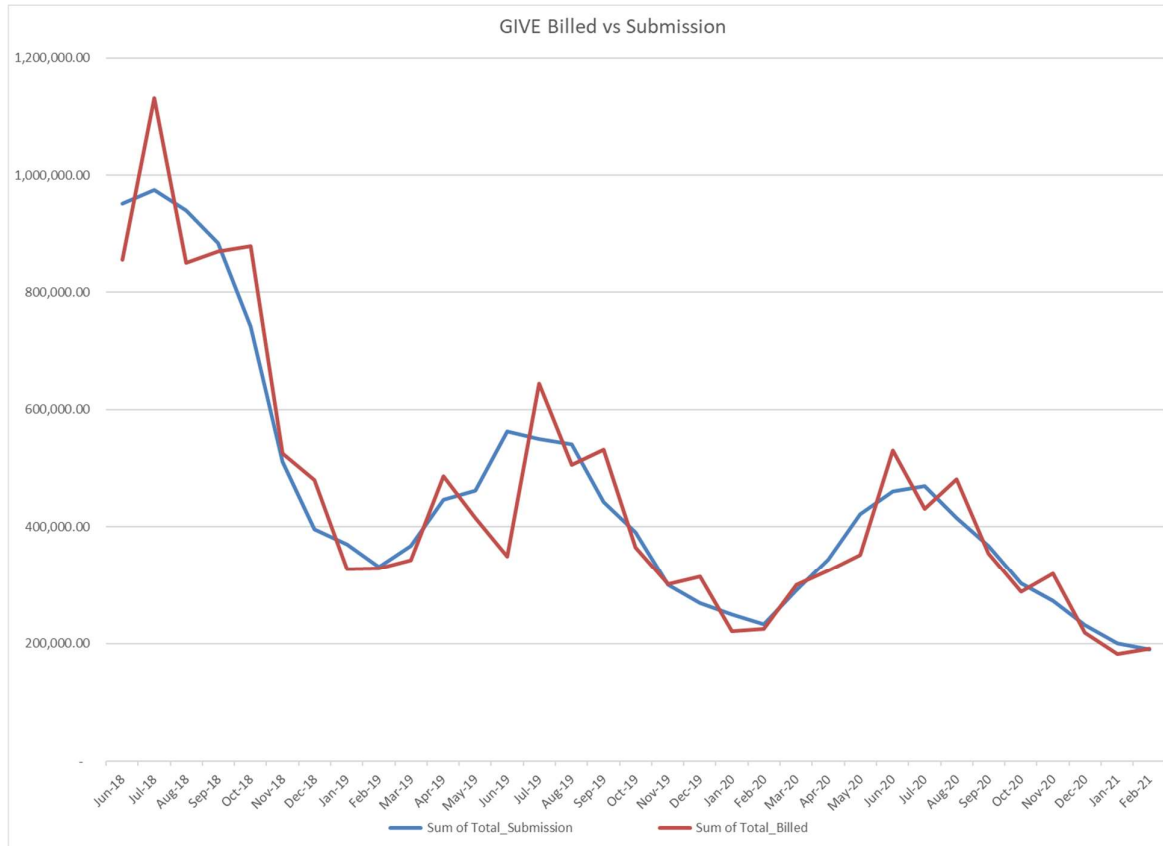
Audit commentary

AV120 files are generated from HIKO based on invoiced volumes and invoices are selected for inclusion in the AV120 report based on their invoice date.

I compared billed submission information against the HHR aggregates submissions from January 2017 to March 2021 for reasonableness, and also compared NSP level billing information to AV120 billing information for February 2021. The data appeared reasonable and consistent.

I could not efficiently check individual invoices through to the AV120 submission. Pua's billing run table is overwritten with each billing run. The billing run information is used to populate an invoice template, and the invoice details are stored against each ICP and customer so that invoices can be reproduced if needed, and the information remains available. To check the AV120 total for a single NSP against invoicing information would require significant effort, as each ICP and its four to five invoices for the month would need to be checked individually. Pua is intending to develop a report to show ICP level AV120 information, which will allow more efficient testing during future audits.

The difference between the billed and submitted data has decreased during the audit period and was 0.1% for the year ended February 2021 (billed higher than submitted) and 1.2% for the two years ended February 2021 (billed lower than submitted). The differences are primarily caused by timing, because Pua customers are billed weekly and the number of billing cycles per month varies.



Audit outcome

Compliant

11.4. HHR aggregates information provision to the reconciliation manager (Clause 15.8)

Code reference

Clause 15.8

Code related audit information

A retailer or direct purchaser (excluding direct consumers) must deliver to the reconciliation manager its total monthly quantity of electricity supplied for each half hourly metered ICP for which it has provided submission information to the reconciliation manager, including:

15.8(a) - submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period

15.8(b) - revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period.

Audit observation

I confirmed that the process for the calculation and aggregation of HHR data is correct, by matching HHR aggregates information with the HHR volumes data for eight submissions. I traced seven monthly ICP volumes for HHR ICPs from the source data to HIKO and the HHR aggregates submissions. The sample included all MEPS.

The GR090 ICP missing files were examined for February 2019 to February 2021. An extreme case sample of the ten ICPs with the most frequent ICP missing differences were reviewed.

Audit commentary

AV090 and AV140 files are generated from HIKO based on actual and estimated data for each trading period. Aggregation factors are determined from a current date ranged registry list. Volumes are included in the submissions for all trading periods where the ICP has active status on the registry.

Paua's HHR aggregates report contains submission information, not electricity supplied information as specified under clause 15.8. Although the reports Paua produces are consistent with the Reconciliation Manager Functional Specification, this is recorded as non-compliance below.

I checked that the process for the calculation and aggregation of HHR data is correct, by:

- Matching HHR aggregates information with the HHR volumes data for eight submissions. I found small rounding differences were present because the HHR volumes are summed at three decimal places and rounded to two decimal places for submission, and the HHR aggregates are truncated to two decimal places at trading period level and then summed by ICP. The truncation before submission for the HHR aggregates is recorded as non-compliance in **section 9.3**. Paua has updated the calculation for the HHR aggregates so that rounding occurs at the point of submission generation, and revised data will be provided through the revision process.
- Tracing seven monthly ICP volumes for HHR ICPs from the source data to HIKO and the HHR aggregates submissions. The volumes recorded in HIKO and the submissions matched the raw data provided.

The GR090 ICP missing files are imported into HIKO on publication of reconciliation results, and any exceptions are checked. I examined GR090 files all revisions for February 2019 to February 2021. An extreme case sample of the ten ICPs missing from the most revisions were examined:

- five ICPs were temporarily missing because of backdated switches,
- two ICPs were missing from October and November 2019 revisions one to three, because there was a delay in processing the switch withdrawal or CS file under Paua's old Foxworks process; both ICPs are present in later revisions,
- two ICPs were missing from some submission periods prior to this audit because of an incorrect status, or incorrect NSP; both errors were corrected after the previous audit, and the ICPs have been correctly included in revisions since the corrections, and
- one ICP was temporarily missing from the aggregates files because there was a delay in receiving data for the first ICP with Intellihub as the MEP and the data was not estimated in the old Foxworks system; actual data has now been received and provided through the revision process.

I followed up GR090 exceptions identified in the previous audit and found that they had all been cleared prior to the audit, or revision 14 had passed and they were unable to be cleared.

The May 2020 audit found that revision submissions were not consistently provided. HIKO contains a reconciliation schedule which includes the due dates for each revision, and I walked through the revision submission generation process. There have been no alleged breaches for late provision of submission information during the audit period.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 11.4 With: Clause 15.8 From: 01-Oct-18 To: 21-Apr-21	The HHR aggregates file does not contain electricity supplied information. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The issue relating to content of the aggregates file is an error in the code. Paua is providing submission information as expected.		
Actions taken to resolve the issue		Completion date	Remedial action status
No action taken.			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
None.			

12. SUBMISSION COMPUTATION

12.1. Daylight saving adjustment (Clause 15.36)

Code reference

Clause 15.36

Code related audit information

The reconciliation participant must provide submission information to the reconciliation manager that is adjusted for NZDT using one of the techniques set out in clause 15.36(3) specified by the Authority.

Audit observation

Data processes for AMS, Metrix and Intellihub were reviewed as part of their MEP audits. Submissions for periods with daylight savings changes were reviewed.

Audit commentary

Daylight savings processes for the MEPs were reviewed as part of their audit, and found to be compliant.

The “trading period run on” technique is used for daylight saving adjustment. This was confirmed by checking submission data for the beginning and end of daylight savings. The correct number of trading periods were recorded.

Audit outcome

Compliant

12.2. Creation of submission information (Clause 15.4)

Code reference

Clause 15.4

Code related audit information

By 1600 hours on the 4th business day of each reconciliation period, the reconciliation participant must deliver submission information to the reconciliation manager for all NSPs for which the reconciliation participant is recorded in the registry as having traded electricity during the consumption period immediately before that reconciliation period (in accordance with Schedule 15.3).

By 1600 hours on the 13th business day of each reconciliation period, the reconciliation participant must deliver submission information to the reconciliation manager for all points of connection for which the reconciliation participant is recorded in the registry as having traded electricity during any consumption period being reconciled in accordance with clauses 15.27 and 15.28, and in respect of which it has obtained revised submission information (in accordance with Schedule 15.3).

Audit observation

Processes to ensure that submissions are accurate were reviewed.

HHR submissions were checked in **section 11.4**, and correction processes were checked in **section 8.2**.

Alleged breaches during the audit period were reviewed to determine whether any reconciliation submissions were late.

Audit commentary

AV090 and AV140 files are generated from HIKO based on actual and estimated data for each trading period. Aggregation factors are determined from a current date ranged registry list. Volumes are included in the submissions for all trading periods where the ICP has active status on the registry. Volumes are reviewed prior to submission as discussed in **section 9.6**.

The accuracy of the HHR aggregates and HHR volumes files is discussed in **section 11.4**. Vacant and disconnected ICPs will continue to receive readings, if provided by the MEP but ICPs will only be included in submission data if their status is active for the period with consumption. Prior to the audit there was no process in place to identify consumption during inactive periods. I checked all ICPs with inactive status during the audit period and found ICP 0000145867TRED0 had 10 kWh of volume during an inactive period which was excluded from submission. During the audit Paua added an alert to identify any ICP with a status of 001 (inactive) in the registry with HHR volumes so that the status can be corrected. I checked a sample of four vacant ICPs and confirmed that consumption during vacant periods was reported, because the ICPs had active status.

The estimation and correction processes are compliant, and are discussed in **sections 9.4** and **8.2**.

The May 2020 audit found that revision submissions were not consistently provided. HIKO contains a reconciliation schedule which includes the due dates for each revision, and I walked through the revision submission generation process. There have been no alleged breaches for late provision of submission information during the audit period.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 12.2 With: Clause 15.4 From: 17-Dec-20 To: 17-Dec-20	Under submission of 10 kWh for ICP 0000145867TRED0 for consumption during an inactive period. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls have been improved to strong because monitoring controls were added during the audit to identify ICPs with inactive consumption. The audit risk rating is low. All inactive ICPs were checked, and one ICP had 10 kWh of unreported inactive consumption. Revised data will be provided through the revision process.		
Actions taken to resolve the issue		Completion date	Remedial action status
Status has been changed on the Registry and revised data will be provided through the revision process.		May 2021	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
We now have an alert to pick up any ICP with 001 Status on the Registry where we have consumption greater than 0 for a period.	April 2021	

12.3. Allocation of submission information (Clause 15.5)

Code reference

Clause 15.5

Code related audit information

In preparing and submitting submission information, the reconciliation participant must allocate volume information for each ICP to the NSP indicated by the data held in the registry for the relevant consumption period at the time the reconciliation participant assembles the submission information. Volume information must be derived in accordance with Schedule 15.2.

However, if, in relation to a point of connection at which the reconciliation participant trades electricity, a notification given by an embedded generator under clause 15.13 for an embedded generating station is in force, the reconciliation participant is not required to comply with the above in relation to electricity generated by the embedded generating station.

Audit observation

Processes to ensure that information used to aggregate the reconciliation reports is consistent with the registry were reviewed in **section 2.1**. The processes to ensure that submissions are accurate were discussed and observed.

Audit commentary

Submissions (including revisions) are currently generated using HIKO. Submission data is validated:

1. ICP level volumes are validated as described in **section 9.6**,
2. HIKO's metering data is compared to a registry list imported from the registry to ensure that all active ICP days are included, and actual or estimated data is available for each active trading period, and
3. current submission totals are compared to previous submissions for the same month and previous month for reasonableness, and exceptions are investigated.

Submission and billing information are not compared prior to submission. Because billing is weekly and the number of billing runs varies from month to month, Pua found that this check was not worthwhile.

Aggregation factors are taken directly from date ranged registry list information, to ensure that they are correctly applied. The previous audit issue relating to consumption being submitted against an incorrect NSP has been resolved.

Prior to the implementation of the HIKO process, Foxworks generated submission information. Pua downloaded an ICP List monthly and Foxworks created a report of any exceptions. This compared ICP status, network, POC, loss factor, MEP, multiplier, distributed generation, and indicators of unmetered load to the data recorded in Foxworks. Any discrepancies were investigated and corrected. Pua also completed a weekly status check. Checks for unmetered load changes were not completed prior to the implementation of HIKO, but review of the registry list confirmed that no unmetered load has ever been supplied. Submission information was validated prior to being submitted.

Audit outcome

Compliant

12.4. Grid owner volumes information (Clause 15.9)

Code reference

Clause 15.9

Code related audit information

The participant (if a grid owner) must deliver to the reconciliation manager for each point of connection for all of its GXPs, the following:

- *submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period (clause 15.9(a))*
- *revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period (clause 15.9(b)).*

Audit observation

Review of the NSP table confirmed that Paua is not a grid owner.

Audit commentary

Review of the NSP table confirmed that Paua is not a grid owner, and is not required to submit grid owner volume information.

Audit outcome

Not applicable

12.5. Provision of NSP submission information (Clause 15.10)

Code reference

Clause 15.10

Code related audit information

The participant (if a local or embedded network owner) must provide to the reconciliation manager for each NSP for which the participant has given a notification under clause 25(1) Schedule 11.1 (which relates to the creation, decommissioning, and transfer of NSPs) the following:

- *submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period (clause 15.10(a))*
- *revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period (clause 15.10(b)).*

Audit observation

A registry list was reviewed to confirm Paua does not own any local or embedded networks.

Audit commentary

Paua is not required to provide NSP submission information.

Audit outcome

Not applicable

12.6. Grid connected generation (Clause 15.11)

Code reference

Clause 15.11

Code related audit information

The participant (if a grid connected generator) must deliver to the reconciliation manager for each of its points of connection, the following:

- *submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period (clause 15.11(a))*
- *revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period. (clause 15.11(b))*

Audit observation

The registry list and NSP table were reviewed.

Audit commentary

Paua is not a grid connected generator, therefore compliance was not assessed.

Audit outcome

Not applicable

12.7. Accuracy of submission information (Clause 15.12)

Code reference

Clause 15.12

Code related audit information

If the reconciliation participant has submitted information and then subsequently obtained more accurate information, the participant must provide the most accurate information available to the reconciliation manager or participant, as the case may be, at the next available opportunity for submission (in accordance with clauses 15.20A, 15.27, and 15.28).

Audit observation

Processes to ensure the accuracy of submission information were reviewed, and the submission data itself was reviewed in **sections 11.2, 11.3 and 11.4**.

Alleged breaches during the audit period were reviewed to determine whether any reconciliation submissions were late.

Audit commentary

AV090 and AV140 files are generated from HIKO based on actual and estimated data for each trading period. Aggregation factors are determined from a current date ranged registry list. Volumes are included in the submissions for all trading periods where the ICP has active status on the registry. Volumes are reviewed prior to submission as discussed in **section 9.6**.

The accuracy of the HHR aggregates and HHR volumes files is discussed in **section 11.4**. Vacant and disconnected ICPs will continue to receive readings, if provided by the MEP but ICPs will only be included in submission data if their status is active for the period with consumption. Prior to the audit there was no process in place to identify consumption during inactive periods. I checked all ICPs with inactive status during the audit period and found ICP 0000145867TRED0 had 10 kWh of volume during an inactive period which was excluded from submission. During the audit Paua added an alert to identify any ICP with a

status of 001 (inactive) in the registry with HHR volumes so that the status can be corrected. I checked a sample of four vacant ICPs and confirmed that consumption during vacant periods was reported, because the ICPs had active status.

The estimation and correction processes are compliant, and are discussed in **sections 9.4** and **8.2**.

The May 2020 audit found that revision submissions were not consistently provided. HIKO contains a reconciliation schedule which includes the due dates for each revision, and I walked through the revision submission generation process. There have been no alleged breaches for late provision of submission information during the audit period.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 12.7 With: Clause 15.12 From: 17-Dec-20 To: 17-Dec-20	Under submission of 10 kWh for ICP 0000145867TRED0 for consumption during an inactive period. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls have been improved to strong because monitoring controls were added during the audit to identify ICPs with inactive consumption. The audit risk rating is low. All inactive ICPs were checked, and one ICP had 10 kWh of unreported inactive consumption. Revised data will be provided through the revision process.		
Actions taken to resolve the issue		Completion date	Remedial action status
We have changed the Status for the ICP on the Registry for the period we experienced consumption. Revised data will be provided through the revision process.		May 2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We now have an alert to pick up any ICP with 001 Status on the Registry where we have consumption greater than 0 for a period. Where this occurs we will change the status on the registry and contact the MEP.		April 2021	

12.8. Permanence of meter readings for reconciliation (Clause 4 Schedule 15.2)

Code reference

Clause 4 Schedule 15.2

Code related audit information

Only volume information created using validated meter readings, or if such values are unavailable, permanent estimates, has permanence within the reconciliation processes (unless subsequently found to be in error).

The relevant reconciliation participant must, at the earliest opportunity, and no later than the month 14 revision cycle, replace volume information created using estimated readings with volume information created using validated meter readings.

If, despite having used reasonable endeavours for at least 12 months, a reconciliation participant has been unable to obtain a validated meter reading, the reconciliation participant must replace volume information created using an estimated reading with volume information created using a permanent estimate in place of a validated meter reading.

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

Estimates are only applied where actual readings are not available, or estimate readings have been applied for switching purposes.

Due to the nature of the AMI read process it is highly unlikely reads that have not been able to be retrieved for the previous 14 months, would be retrieved after more than 14 months. Paua could not recall any ICPs where readings became available after revision 14; therefore all estimates were effectively permanent by revision 14.

Audit outcome

Compliant

12.9. Reconciliation participants to prepare information (Clause 2 Schedule 15.3)

Code reference

Clause 2 Schedule 15.3

Code related audit information

If a reconciliation participant prepares submission information for each NSP for the relevant consumption periods in accordance with the Code, such submission information for each ICP must comprise the following:

- *half hour volume information for the total metered quantity of electricity for each ICP notified in accordance with clause 11.7(2) for which there is a category 3 or higher metering installation (clause 2(1)(a)) for each ICP about which information is provided under clause 11.7(2) for which there is a category 1 or category 2 metering installation (clause 2(1)(b)):*
 - a) *any half hour volume information for the ICP; or*
 - b) *any non half hour volumes information calculated under clauses 4 to 6 (as applicable).*
 - c) *unmetered load quantities for each ICP that has unmetered load associated with it derived from the quantity recorded in the registry against the relevant ICP and the number of days in the period, the distributed unmetered load database, or other sources of relevant information. (clause 2(1)(c))*
- *to create non half hour submission information a reconciliation participant must only use information that is dependent on a control device if (clause 2(2)):*
 - a) *the certification of the control device is recorded in the registry; or*

- b) the metering installation in which the control device is location has interim certification.*
- *to create submission information for a point of connection the reconciliation participant must apply to the raw meter data (clause 2(3):*
 - a) for each ICP, the compensation factor that is recorded in the registry (clause 2(3)(a))*
 - b) for each NSP the compensation factor that is recorded in the metering installations most recent certification report. (clause 2(3)(b)).*

Audit observation

Aggregation and content of reconciliation submissions was reviewed.

Audit commentary

Compliance with this clause was assessed:

- all Paua's ICPs have metering category 1, and are submitted as HHR,
- no ICPs with unmetered load are supplied,
- no profiles requiring a certified control device are used,
- no loss or compensation arrangements are required, and
- aggregation of the AV090 and AV140 reports is compliant.

Audit outcome

Compliant

12.10. Historical estimates and forward estimates (Clause 3 Schedule 15.3)

Code reference

Clause 3 Schedule 15.3

Code related audit information

For each ICP that has a non-half hour metering installation, volume information derived from validated meter readings, estimated readings, or permanent estimates must be allocated to consumption periods using the following techniques to create historical estimates and forward estimates (clause 3(1)).

Each estimate that is a forward estimate or a historical estimate must clearly be identified as such (clause 3(2)).

If validated meter readings are not available for the purpose of clauses 4 and 5, permanent estimates may be used in place of validated meter readings (clause 3(3)).

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR, and this clause does not apply.

Audit outcome

Not applicable

12.11. Historical estimate process (Clause 4 and 5 Schedule 15.3)

Code reference

Clause 4 and 5 Schedule 15.3

Code related audit information

The methodology outlined in clause 4 of Schedule 15.3 must be used when preparing historic estimates of volume information for each ICP when the relevant seasonal adjustment shape is available.

If a seasonal adjustment shape is not available, the methodology for preparing an historical estimate of volume information for each ICP must be the same as in clause 4, except that the relevant quantities kWh_{Px} must be prorated as determined by the reconciliation participant using its own methodology or on a flat shape basis using the relevant number of days that are within the consumption period and within the period covered by kWh_{Px} .

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR, and this clause does not apply.

Audit outcome

Not applicable

12.12. Forward estimate process (Clause 6 Schedule 15.3)

Code reference

Clause 6 Schedule 15.3

Code related audit information

Forward estimates may be used only in respect of any period for which an historical estimate cannot be calculated.

The methodology used for calculating a forward estimate may be determined by the reconciliation participant, only if it ensures that the accuracy is within the percentage of error specified by the Authority.

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR, and this clause does not apply.

Audit outcome

Not applicable

12.13. Compulsory meter reading after profile change (Clause 7 Schedule 15.3)

Code reference

Clause 7 Schedule 15.3

Code related audit information

If the reconciliation participant changes the profile associated with a meter, it must, when determining the volume information for that meter and its respective ICP, use a validated meter reading or permanent estimate on the day on which the profile change is to take effect.

The reconciliation participant must use the volume information from that validated meter reading or permanent estimate in calculating the relevant historical estimates of each profile for that meter.

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR profile.

Audit commentary

Paua only uses the HHR profile, and no profile changes have occurred or are expected to occur.

Audit outcome

Compliant

13. SUBMISSION FORMAT AND TIMING

13.1. Provision of submission information to the RM (Clause 8 Schedule 15.3)

Code reference

Clause 8 Schedule 15.3

Code related audit information

For each category 3 of higher metering installation, a reconciliation participant must provide half hour submission information to the reconciliation manager.

For each category 1 or category 2 metering installation, a reconciliation participant must provide to the reconciliation manager:

- *Half hour submission information; or*
- *Non half hour submission information; or*
- *A combination of half hour submission information and non half hour submission information*

However, a reconciliation participant may instead use a profile if:

- *The reconciliation participant is using a profile approved in accordance with clause Schedule 15.5; and*
- *The approved profile allows the reconciliation participant to provide half hour submission information from a non half hour metering installation; and*
- *The reconciliation participant provides submission information that complies with the requirements set out in the approved profile.*

Half hour submission information provided to the reconciliation manager must be aggregated to the following levels:

- *NSP code*
- *reconciliation type*
- *profile*
- *loss category code*
- *flow direction*
- *dedicated NSP*
- *trading period*

The non half hour submission information that a reconciliation participant submits must be aggregated to the following levels:

- *NSP code*
- *reconciliation type*
- *profile*
- *loss category code*
- *flow direction*
- *dedicated NSP*
- *consumption period or day*

Audit observation

Processes to ensure that information used to aggregate the reconciliation reports is consistent with the registry were reviewed in **section 2.1**.

Aggregation of HHR volumes is discussed in **section 11.4**.

Audit commentary

AV090 and AV140 files are generated from HIKO based on actual and estimated data for each trading period. Aggregation factors are determined from a current date ranged registry list. Volumes are included in the submissions for all trading periods where the ICP has active status on the registry.

Submission information is provided to the reconciliation manager in the appropriate format and is aggregated to the following level:

- NSP code,
- reconciliation type,
- profile,
- loss category code,
- flow direction,
- dedicated NSP, and
- consumption period.

The previous audit issue relating to incorrect NSP assignment has been cleared.

Audit outcome

Compliant

13.2. Reporting resolution (Clause 9 Schedule 15.3)

Code reference

Clause 9 Schedule 15.3

Code related audit information

When reporting submission information, the number of decimal places must be rounded to not more than two decimal places.

If the unrounded digit to the right of the second decimal place is greater than or equal to five, the second digit is rounded up, and if the digit to the right of the second decimal place is less than five, the second digit is unchanged.

Audit observation

I reviewed eight AV090 half hour volumes reports and eight AV140 half hour aggregates reports to confirm how rounding occurs.

Audit commentary

Review of eight AV090 and eight AV140 reports confirmed that submission information is appropriately rounded to two decimal places.

Audit outcome

Compliant

13.3. Historical estimate reporting to RM (Clause 10 Schedule 15.3)

Code reference

Clause 10 Schedule 15.3

Code related audit information

By 1600 hours on the 13th business day of each reconciliation period the reconciliation participant must report to the reconciliation manager the proportion of historical estimates per NSP contained within its non half hour submission information.

The proportion of submission information per NSP that is comprised of historical estimates must (unless exceptional circumstances exist) be:

- *at least 80% for revised data provided at the month 3 revision (clause 10(3)(a))*
- *at least 90% for revised data provided at the month 7 revision (clause 10(3)(b))*
- *100% for revised data provided at the month 14 revision (clause 10(3)(c)).*

Audit observation

Review of the registry list with history confirmed that all ICPs supplied by Paua have HHR metering and submission type.

Audit commentary

All ICPs have submission type HHR, and this clause does not apply.

Audit outcome

Not applicable

CONCLUSION

Paua supplies HHR AMI ICPs with metering category 1, and HHR submission type. No ICPs with unmetered load are supplied, and one ICP with distributed generation is supplied.

HIKO began to be used for HHR meter data processes from 30 November 2020, following the material change audit. HIKO was fully implemented for importing and exporting registry data, estimation, correction, and submission from 23 March 2021.

Prior to the implementation of HIKO, Foxworks was used. Where the previous audits has indicated deficiencies in the Foxworks processes (such as estimation), Paua put work arounds in place until the HIKO processes were fully implemented to improve compliance.

Paua's registry management processes are robust and the overall data accuracy was found to be high. The previously found issues relating to incorrect NSP assignment have been cleared, and reconciliation report aggregation factors are based on information from a current date ranged registry list.

Switching files are generated using HIKO, and processes are compliant. A small number of non-compliances for late switch files and inaccurate last actual read dates in CS files occurred prior to the processes being automated in HIKO. Withdrawal and read renegotiation was compliant in this audit, and Paua has created new alerts to monitor read renegotiation and withdrawal files to ensure future compliance.

Paua continues to supply HHR AMI customers only, and relies on AMI reads provided by MEPS. Compliant processes are in place for estimation and correction, and revised submission data is now consistently provided.

This audit identified 11 non-compliances and makes two recommendations. The audit risk rating is 11 indicating that the next audit should be due in 18 months. This is a significant improvement from 20 non compliances and an audit risk rating of 34 in the previous audit. Where non-compliance has occurred further controls and/or corrections have been put in place to prevent recurrence. The only exception to this is the technical non-compliance relating to the HHR aggregates file contained submission rather than billed volumes, which is caused by an issue in the Code's wording.

Given the improvement from last audit, the number of ICPs supplied (which are not expected to increase) I agree with Paua's request to complete the next audit in 24 months.

PARTICIPANT RESPONSE

All areas where we had non-compliance now have strong controls in place since the implementation of our new billing system (HIKO) in March 2021.

Except for the minor error in rounding AV140 data (fixed in the Audit) we have had no non-compliance since implementing HIKO.

Paua to the People have an exceptionally low impact on the market as we have less than 400 residential ICP and we expect this to reduce further given the continued difficulty of passing through wholesale electricity prices directly to customers.

Given the above we believe that a period of 24 months is appropriate.