ELECTRICITY INDUSTRY PARTICIPATION CODE
RECONCILIATION PARTICIPANT AUDIT REPORT

VERITEK

For

PULSE ENERGY ALLIANCE LP
NZBN: 9429043300020

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Date audit report completed: 24 January 2023

Audit report due date: 1 March 2023

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EXECUTIVE SUMMARY

This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of **Pulse Energy Alliance LP (Pulse),** 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.

Pulse operates the PUNZ and PPPP participant codes and acts as an agent for submission for Pioneer Energy's NSP ANI0331BOPDNP. Unless otherwise specified, the processes and non-compliances described in the report apply to all codes.

At the time of the audit PUNZ supplied 81,111 active ICPs. 13 had metering categories of three or higher, and the remainder had metering categories 1 or 2. PUNZ uses the PRADA data warehouse to manage readings, Gentrack for customer and ICP information management, Cobra for NHH reconciliation and NZX_TOU for HHR reconciliation.

No active ICPs were supplied by PPPP after 30 September 2021, and PPPP is currently responsible for one ICP at "ready for decommissioning" status and one ICP at "decommissioned" status. All required revisions were provided during the previous audit period; because all ICPs had AMI metering and switched out in September 2021 no further revisions are expected to be required.

Overall, I found that the Pulse team is keen to increase compliance, but they have been constrained by workloads and some system issues which are expected to improve with upcoming Gentrack upgrade, including migration of NHH submission from Cobra to Gentrack and HHR submission from Scorpion to Gentrack. Most data checked was accurate and on time. HHR submission is managed well with robust validation processes in place and a high level of accuracy. Estimation and correction processes are functioning as expected, except for HHR meter changes. The following key areas require some improvement to increase compliance:

- Due to projects which have been underway during the audit period and some staff leave on leave long term, monitoring of data accuracy including inactive consumption has decreased during the audit period and zero consumption and read attainment processes have been paused. Some exceptions identified during validation processes are not being investigated and/or resolved promptly. Pulse intends to increase validation and monitoring once staffing levels increase and workloads become more manageable, which is expected to significantly increase compliance.
- Pulse's current version of Gentrack has some limitations which are impacting on registry and switching timeliness and accuracy, including that:
    - only updates on or after the last registry event date can be processed in Gentrack,
    - some profile updates are not occurring automatically as expected when distributed generation is added or removed,
    - ICP technical details (including metering and unmetered load) are not updated in Gentrack after ICPs switch in which resulted in some incorrect AN file content, and
    - the CS generation process does not ensure that file content is always consistent with the registry functional specification and code requirements, and that closing reads are entered against the correct date.
- I found that bridged meters are not always identified promptly, and corrections are not consistently processed. Responsibilities and processes for bridged meters require clarification and improvement.
- Customer communication processes require review to ensure that the Utilities Disputes and Powerswitch requirements are met.
- Event logs are not consistently reviewed to ensure that any events that require the attention are identified and actioned.

- Outstanding interval data for HHR submitted ICPs should be escalated to the AMI MEP to attempt to obtain actual interval data to reduce the volume of HHR estimations becoming corrections where data has not been delivered.
- HHR estimations around meter changes need to be improved to ensure all consumption is accounted for.
- The use of a default estimation value, where an ICP does not have two reads available within the consumption period, to calculate daily average to use for NHH estimation can result in estimates being inaccurate causing large variances between revisions.
- Manual adjustments are sometimes required to correct inaccurate submission data produced in Cobra. These issues are expected to be resolved by the Gentrack upgrade.

The audit found 37 non-compliances (an increase from 27) and 42 recommendations are made. The audit risk rating is 100 (an increase from 74), which results in an indicative audit frequency of three months. The main reasons for the increases are:

- Monitoring of data accuracy and follow up of unread NHH ICPs has decreased during the audit period, and some exceptions are not being investigated and/or resolved promptly. This has led to some data accuracy, read attainment, and historic estimate threshold non-compliances, and failure to meet the best endeavours requirements.
- Pulse's current version of Gentrack has some limitations which are impacting on registry and switching timeliness and accuracy.
- Some minor issues affecting small numbers of ICPs caused non-compliances in sections where compliance was found in the previous audit, such as late switching files, some ICPs with an incorrect NSP recorded, some inaccurate switch event readings, and profile changes which did not occur on an actual or permanent estimate reading.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The table below provides some guidance on this matter and recommends an indicative audit frequency of three months. I have considered this in conjunction with Pulse's responses, which indicate that the issues are being investigated and are expected to be resolved and I recommend a next audit date of at least ten months to allow time for Pulse to make improvements, and demonstrate improvement.

The matters identified are shown in the tables below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Relevant information	2.1	15.2	Some registry and submission information incorrect and not updated as soon as practicable.	Moderate	Medium	4	Identified
Electrical Connection of Point of Connection	2.11	10.33A	16 reconnections were not certified within five business days of electrical connection.	Moderate	Low	2	Investigating
Meter bridging	2.17	2A of Schedule 15.2	**PUNZ** 14 ICPs with bridged meters had no correction processed. Two ICPs with bridged meters had corrections processed in Gentrack but not in Cobra.	Weak	Medium	6	Investigating
Provision of information on dispute resolution scheme	2.19	11.30A	**PUNZ** Information on Utilities Disputes is not provided on some addressed customer communications including vacant letters, overdue balance letters and planned outage letters or as part of the email footer for outbound emails.	Weak	Low	3	Identified
Provision of information on electricity plan comparison site	2.20	11.30B	**PUNZ** Clear and prominent information on Powerswitch is not provided on addressed customer communications regarding price and service changes.	Weak	Low	3	Identified
Changes to registry information	3.3	10 Schedule 11.1	**PUNZ** 42 late updates to active status. 15 late updates to inactive status. 1,107 late trader updates. 11 ANZSIC code updates more than 20 business days after initial electrical connection or switch in.	Moderate	Low	2	Identified
Provision of information to the registry manager	3.5	9 Schedule 11.1	27 late updates to active status for new connections. 27 late MEP nominations for new connections. 0110013066EL253 was initially electrically connected from 1 July 2022 but the active status event date is 19 May 2022. 1000608282PC360 was initially electrically connected from 13 September 2022 but the active status event date is 15 July 2022. 1100000044WMF02, was initially electrically connected from 7 December 2021 but the active status event date is still 29 November 2021.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	**PUNZ** Three ICPs had unknown ANZSIC codes and were corrected during the audit.	Moderate	Low	2	Cleared
Management of "active" status	3.8	17 Schedule 11.1	**PUNZ** 0000288550WT5FD was reconnected on 10 August 2022 but recorded as reconnected on 15 August 2022 on the registry. 0110013066EL253 was initially electrically connected from 1 July 2022 but the active status event date is 19 May 2022. 1000608282PC360 was initially electrically connected from 13 September 2022 but the active status event date is 15 July 2022. 1100000044WMF02, was initially electrically connected from 7 December 2021 but the active status event date is still 29 November 2021.	Moderate	Low	2	Identified
Management of "inactive" status	3.9	19 Schedule 11.1	**PUNZ** 0000452073WE2B1 was disconnected on 17 August 2022 but the inactive status event date is 16 August 2022. 0001341715ALE7A which was disconnected at the pillar on 12 October 2022 but had the 1,10 electrically disconnected at meter box fuse reason code applied. 0000018318NTE35 which was disconnected at the pole fuse on 25 July 2022 but had the 1,5 reconciled elsewhere reason code applied. It was corrected to 1,8 electrically disconnected at pole fuse during the audit. Incorrect status for two ICPs with consumption while inactive resulting in under submission of 5,755 kWh.	Moderate	Low	2	Investigating
Losing trader response to switch request and event dates - standard switch	4.2	3 and 4 Schedule 11.3	**PUNZ** 11 of the 3,745 transfer ANs checked had incorrect AN response codes.	Moderate	Low	2	Investigating
Losing trader must provide final information - standard switch	4.3	5 Schedule 11.3	**PUNZ** Gentrack is configured to calculate the average daily consumption from the last two readings, rather than the last two actual validated readings. One CS file had an incorrect average daily kWh. Two CS files had incorrect last actual read dates.	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Retailers must use same reading - standard switch	4.4	6(1) and 6A Schedule 11.3	**PUNZ** One RR breach. RRs for 0000034273EA2F7 22 April 2022, 0001270280TG72C 5 May 2022, 1000014460BP9AF 27 June 2022 and 1000017736BP1CB 14 April 2022 were recorded with estimated RR readings, which should have been actual. The agreed switch reads for 0006693539RN78B 2 May 2022, 0001270280TG72C 5 May 2022, 0000015548EACB4 14 June 2022, 1000014460BP9AF 27 June 2022, 1000017736BP1CB 14 April 2022 and 0003303660BU43B 9 August 2022 were recorded with an actual read type in Cobra but should have been recorded with an estimated read type. The agreed switch reads for 0000964071TUED0 24 June 2022 were recorded as actual in Gentrack and Cobra but should have been estimated.	Moderate	Low	2	Identified
Gaining trader informs registry of switch request - switch move	4.7	9 Schedule 11.3	**PUNZ** One switch move NT was issued more than two business days after pre-conditions were cleared.	Strong	Low	1	Identified
Losing trader provides information - switch move	4.8	10(1) Schedule 11.3	PUNZ Three of the 1,894 switch move ANs checked had incorrect AN response codes. One ET breach. One E2 breach.	Moderate	Low	2	Investigating
Losing trader must provide final information - switch move	4.10	11 Schedule 11.3	**PUNZ** Gentrack is configured to calculate the average daily consumption from the last two readings, rather than the last two actual validated readings. Five CS files had an incorrect average daily kWh. Eight CS files had incorrect last actual read dates. Three CS files had incorrect switch event read types. Five CS files had switch event reads which did not reflect the actual reading or best estimate reading on the last day of supply.	Moderate	Low	2	Investigating
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	**PUNZ** Two RR breaches. The RRs for 0151673020LC497 24 June 2022 and 0668498897LC33B 8 August 2022 were recorded with estimated readings, which should	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			have been actual because they were based on an actual reading provided by the MEP for the event date. The agreed switch readings for 0000510309NR832 10 June 2022, 0000784771NV2CB 18 April 2022, 0011237010ELDBD 6 May 2022, 0000050307NTDD3 27 August 2022, 0007205558RN93C 7 April 2022, 0151673020LC497 24 June 2022, 0316990272LC8D9 10 June 2022 and 0668498897LC33B 8 August 2022 were recorded as actual in Cobra but should have been recorded as estimated. The agreed switch readings for 0000179775UNB83 14 April 2022 and 0000385110HB3F1 6 May 2022 were incorrectly recorded as actual in Gentrack and Cobra but should have been estimated. The read type was mis-keyed on entry into Gentrack. The agreed switch readings for 0000011460HR6FC 7 July 2022 and 0000037491DE606 9 May 2022 had incorrect read types recorded in Cobra. 0000011460HR6FC had an actual read recorded as an estimate and 0000037491DE606 had an estimated read recorded as an actual. The agreed switch readings for outgoing CS files for 0000040662DEE0F (8 October 2022), 0052029380WMC03 (23 September 2022) and 0000484225CE8F5 (1 August 2022) were not correctly recorded in Gentrack and Cobra.				
Gaining trader informs registry of switch request - gaining trader switch	4.12	14 Schedule 11.3	**PUNZ** One HH NT was issued two business days late.	Moderate	Low	2	Identified
Withdrawal of switch requests	4.15	17 and 18 Schedule 11.3	**PUNZ** Three SR breaches. 15 NA breaches. 0000000389CP26D (22 August 2022), 0009923096WWB24 (22 August 2022) and 0032780114PCEE2 (4 October 2022) had the DF (date failed) NW advisory code incorrectly applied.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Metering information	4.16	21 Schedule 11.3	Five CS files contained event readings which did not reflect the actual reading or best estimate of actual consumption at the end of the last day of supply.	Moderate	Low	2	Investigating
Electricity conveyed & notification by embedded generators	6.1	10.13, Clause 10.24 and 15.13	**PUNZ** ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring. 15[1] ICPs with distributed generation have RPS profile recorded on the registry but should have RPS PV1. At least five[2] and up to 26 ICPs with distributed generation do not have settled I flow registers installed. Volumes were not quantified in accordance with the code for 40 ICPs with bridged meters.	Weak	Low	3	Identfiied
Derivation of meter readings	6.6	3(1), 3(2) and 5 Schedule 15.2	Meter condition information not reviewed, or investigations undertaken during the audit period.	Moderate	Low	2	Identified
Interrogate meters once	6.8	7(1) and (2) Schedule 15.2	Exceptional circumstances were not proven for all ICPs not read during period of supply.	None	Low	5	Investigating
NHH meters interrogated annually	6.9	8(1) and (2) Schedule 15.2	Exceptional circumstances were not proven for the ten ICPs sampled.	None	Low	5	Investigating
NHH meters 90% read rate	6.10	9(1) and (2) Schedule 15.2	Exceptional circumstances not confirmed for ICPs identified for 11 NSPs that did not meet the 90% read rate within four months.	None	Low	5	Investigating
Identification of readings	9.1	3(3) Schedule 15.2	**PUNZ** Three CS files had customer reads incorrectly classified as actual reads. Six RR files had actual reads incorrectly classified as estimated reads. 15 estimated switch event reads were incorrectly classified as actual reads in Cobra. One actual switch event read was recorded as an estimate in Cobra. Three estimated switch event reads were recorded as actual in Gentrack and Cobra.	Moderate	Low	2	Identified

[1] 1000512028PC9FC, 1000545283PC224, 0000001364CEEAB, 0000090798WW726, 0000010069EAF81, 0081096808PC673, 1000593522PC0ED, 0000442111WEC21, 0402163152LCC8C, 1000512028PC9FC, 0000442111WEC21, 1000545283PC224, 0081096808PC673 and 0000008843CP91D.

[2] 0449707032LCBF6 (PV install 27 January 2017), 0000036718DEFBE (PV install 26 May 2015), 0457047038LCF3D (PV install 25 May 2016), 0003576011EL13F (PV install 20 December 2021) and 0044251413PC427 (PV install 10 September 2020).

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	EDMI & AMS (AMCI) provides HHR interval data for some ICPs rounded to two decimal places prior to June 2022. NHH readings are truncated when imported into Gentrack.	Moderate	Low	2	Investigating
Half hour estimates	9.4	15 Schedule 15.2	HHR estimates across meter changes for two ICPs not including volume from removed meter between last midnight read and removal read.	Moderate	Low	2	Investigating
NHH metering information data validation	9.5	15 Schedule 15.2	Zero consumption is not being monitored.	Weak	Low	3	Investigating
Electronic meter readings and estimated readings	9.6	17 Schedule 15.2	AMI Event logs not reviewed.	Weak	Low	3	Investigating
Creation of submission information	12.2	15.4	**PUNZ** 14 ICPs with bridged meters had no correction processed. Two ICPs with bridged meters had corrections (8,790 kWh) processed in Gentrack, but not in Cobra. Two ICPs were missing from submissions due to status not being corrected for inactive vacant consumption resulting in 5,755 kWh. Consumption for two ICPs (0001725239BU6A3 – NHH, 0099552502CNF6D – HHR) with defective meters. ICP 0000018303EACE3 had a multiplier correction (x3 updated to x1) back to 2015 resulting in some volume information (2,122 kWh) not being included in the revision process. HHR Initial submission files for April 2022 was provided late to the Reconciliation Manager.	Weak	Medium	6	Investigating
Allocation of submission information	12.3	15.5	Some estimates of consumption using previous months consumption volumes are manually applied as Historic Estimate volumes to the aggregated AV-080 file.	Moderate	Low	2	Investigating
Accuracy of submission information	12.7	15.12	Some submission data was inaccurate and was not corrected at the next available opportunity.	Weak	Medium	6	Investigating
Permanence of meter readings for reconciliation	12.8	4 Schedule 15.2	**PUNZ** Some estimates were not replaced with permanent estimates by revision 14. Permanent estimates applied when reasonable endeavours were not used to obtain an actual reading for a sample of ten ICPs.	Moderate	Low	2	Identified
Forward estimate process	12.12	6 Schedule 15.3	Some balancing area differences between revisions were over the ±	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			15% threshold because of inaccurate forward estimates.				
Compulsory meter reading after profile change	12.13	7 Schedule 15.3	Five changes of submission type and profile code change did not have a validated actual meter or permanent estimate reading applied for the date of the change.	Strong	Low	1	Identified
Historical estimate reporting to RM	13.3	10 Schedule 15.3	The historic estimate attainment requirements were not met for some revisions.	Moderate	Low	2	Investigating
Future Risk Rating						100	

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	Recommendation	Remedial action
Gentrack time slice maintenance	2.1	Updates should be able to be made from Gentrack up to the latest event date for that event type, e.g., status event. Review Gentrack's controls over status and trader updates as part of the upgrade project. Consider how Pulse will reverse or replace records for earlier time slices for that event type without requiring events entered by other parties to be reversed or replaced. In most cases it is unnecessary for other participants to be involved in historic corrections unless it affects initial network records, or status changes which can only be processed by distributors.	Investigating
Review the AC020 audit compliance report	2.1	Check the audit compliance report on a weekly basis to cover ICP attributes not currently being validated through Pulse's existing checks.	Identified
Corrections	2.1	Recommend processing all corrections not just those 200kWh and above.	Investigating
Active ICP with no metering	2.9	Continue the investigation into the following matter: ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring.	Investigating
Certification within five business days of reconnection	2.11	Provide training to agents confirming the process to notify the service request inbox when reconnecting an ICP with expired meter certification.	Investigating
Confirm bridged meter processes and responsibilities	2.17	Confirm processes and responsibilities for bridged meters to ensure that: • bridged meters are identified and unbridged promptly, and • corrections to estimate consumption during the bridged period are processed promptly and accurately in Gentrack and Cobra.	Investigating
Bridged meter corrections	2.17	Review ICPs which are known to have been bridged to check that they have been unbridged, and corrections have been processed.	Investigating
Location of Powerswitch information on Pulse's website	2.20	Consider adding information on Powerswitch to the pricing pages of the website (https://pulseenergy.co.nz/customer-hub/your-freedom-plan/our-rates/), rather than only the feedback and complaints page.	Identified
Monitoring of status update completion	3.3	Implement a process to check that disconnections and reconnections where paperwork has been received have been processed in Gentrack and on the Registry.	Identified
Monitoring of failed registry trader updates	3.3	Review processes to pass ICPs requiring corrections to the reconciliation team to ensure that they are received and resolved on time.	Investigating

Subject	Section	Recommendation	Remedial action
MEP nomination	3.5	Consider a process change to nominate the MEP before metering is installed for new connections by using the 1,12 "inactive - new connection in progress" status. In the meantime, if an MEP nomination is required before initial electrical connection the ICP should be claimed manually on the registry using the 1,12 "inactive - new connection in progress" status.	Investigating
Status date correction for ICP 1100000044WMF02	3.5	Correct the active status date from 29 November 2021 to 7 December 2021.	Investigating
ANZSIC code validation	3.6	As recommended in section 2.1, review the registry AC020 report to identify and correct blank or unknown ANZSIC codes (AC020Trader11), and ICPs with metering category 2 or higher with residential ANZSIC codes (AC020Trader12). Refine the ANZSIC comparison report to include ICPs where the Gentrack and registry charge classes are consistent, but the ANZSIC code applied is inconsistent with one or both charge classes.	Investigating
ANZSIC code investigations	3.6	Confirm the correct ANZSIC codes for ICPs 0000509630CE27F, 0000709545BUB16, 1099570579CN226 and 0004908793ENA74.	Cleared
Update trader unmetered load details for ICP 0000678614UN599	3.7	Update the description for ICP 0000678614UN599 to clarify there are 10 lights not one light.	Investigating The recommendation relates to Pulse's trader unmetered load details which are maintained by Pulse not Vector. Vector updates will not overwrite this field.
Check unmetered wattage for shared unmetered load parent ICP 0001162160ML3A8 and the associated child ICPs	3.7	Confirm the correct wattage for the shared unmetered load parent ICP 0001162160ML3A8 and the associated child ICPs.	Investigating
Inactive consumption reporting	3.9	Pulse constructs a suitable management report to effectively monitor inactive consumption as part of the Gentrack upgrade project.	Investigating
Disconnection location	3.9	• Ensure disconnection service requests set expectation that disconnection should be attempted in the first instance at the network fuse point. • Request regular updates from the field service providers informing Pulse of the number of suitably trained and authorised personnel available to undertake disconnections at the network fuse for each network region/distributor.	Identified
Review use of status reason code 4 – electrically disconnected vacant property	3.9	Pulse to apply status reason codes that describe the method of disconnection to support monitoring that the most suitable disconnection methodology by the relevant FSP.	Identified
Decommissioning of ICPs not required by Pulse	3.10	Advise the distributors of the ICPs at "ready" status which are not required by Pulse, so that they can nominate a different proposed trader or decommission the ICPs: EASH 0000010622EA5F6 COUP 1099577056CN1C8, 1099577068CN5AB, 1099577159CN712 and 1099577160CNEBB DUNE 0000509148DE42F NPOW 0000572437NR24B	Identified

Subject	Section	Recommendation	Remedial action
Update of Gentrack's ICP technical details	4.2	Update the Gentrack ICP technical details where this information changes on the registry. This will help to ensure that AN codes are correctly applied.	Investigating
CS content accuracy	4.3	Improve the accuracy of CS content, including: • the average daily kWh, which should be the average daily consumption between the last two actual validated reads up to the last day of responsibility; if there are less than two actual readings available, the incoming CS value is expected to be applied, • correct event readings and read types, including providing actual readings where available, or the best estimate of consumption up to the end of the last day of supply regardless of whether the ICP is vacant or occupied; customer readings which have not been validated against a set of actual validated readings from another source are expected to be recorded as estimated readings, • last actual read dates, which should be the date of the last validated actual reading during the period of supply; currently if a read is rejected on import but later validated it is ignored when determining the last actual read date, and • develop processes to ensure that the correct switch event read date, read and type are accurately recorded in Gentrack and Cobra and used for reconciliation.	Investigating
Read types recorded in RR files	4.4	Gentrack's switch read dispute process defaults the read type to estimate for all RR requests. Users should be able to amend this to actual if they have an actual reading for the switch event date.	Identified
Read types for switch event reads transferred directly from Gentrack to Cobra	4.4	Gentrack's process to export switch event readings to Cobra defaults the read type to actual. The correct switch event read type should be applied.	Identified
NTs following withdrawals	4.7	Provide training and update procedures to ensure that NTs are reissued where required after a withdrawal is completed. As a rule, wrong switch type withdrawals are expected to be issued promptly with the correct switch type.	Investigating
Investigate non-compliant switch event date created by Gentrack	4.8	Ensure that Gentrack ticket GSD-1281 to investigate why a CS for 1001142689LCFA0 was issued with a non-compliant date, and without finalising the account or an AN file is resolved.	Investigating
Documentation of HH switching processes	4.12	Document the processes for incoming and outgoing HH switches including issuing and receiving HH NT, AN and CS files to prevent future non-compliance.	Identified
Use of the DF (date failed) NW response code	4.15	Conduct training to ensure that the DF (date failed) NW advisory code is only applied where the requested transfer date is more than ten business days in the future.	Identified
Management of distributed generation profiles on the registry	6.1	While Gentrack investigates and resolves tickets GSD-1580 and GSD-1581, increase the frequency of monitoring for ICPs with incorrect distributed generation profiles from monthly to weekly. Ensure that exceptions are resolved on the registry as soon as practicable. Depending on the outcome of Gentrack's investigation into the tickets, revise the process to update registry profiles for distributed generation ICPs.	Identified
Install I flow metering for ICPs with distributed generation	6.1	Develop a process to identify ICPs with distributed generation indicated by the distributor with no I flow metering. Confirm whether generation is present and arrange for either I flow metering to be installed, or notification of gifting of energy to be provided to the reconciliation manager.	Identified
Application of generation profiles for switches in	6.1	Develop a process to ensure that generation profiles are corrected as soon as possible after switch in. The weekly monitoring of profiles recommended above will help to identify any missed updates.	Identified

Subject	Section	Recommendation	Remedial action
		Consider allowing profiles to be specified in NT files rather than defaulting to RPS.	
Investigation of ICPs with distributed generation recorded by the trader or distributor	6.1	Follow though the investigations of ICPs with I flow registers, but no distributor distributed generation details, and distributor distributed generation details but no I flow registers to ensure that compliant metering is installed, and correct profiles are recorded. ICP 0000121620UN9B4 does not have an I flow register recorded in SAP and is being investigated by field services and the MEP.	Identified
Clock synchronisation events	6.5	Where a clock synchronisation over 1700 seconds occurs, and data for multiple trading periods is pushed into the period of adjustment, develop a process to spread the total consumption for the adjustment period across the periods it actually occurred within.	Investigating
Resume read attainment processes	6.8	Resume processes to identify and review all ICPs which have not had an actual read for three months or more and attempt to gain a reading and resolve any issues preventing reading.	Investigating
HHR bridged meter corrections	8.2	Pulse reviews its bridged meter volume correction process to ensure it is appropriate for the submission type allocated to the ICP during the bridged period.	Investigating
Half hour estimates	9.4	For estimation of full days consider using same day of week from the previous week to estimate instead of the previous calendar day's consumption.	Investigating
Using zero kWh as an estimation value when no consumption information is available	9.4	Review the use of zero consumption values where no AMI data is available to base and estimation from.	Investigating
Zero consumption report monitoring	9.5	Reinstate monitoring of the zero-consumption report to ensure potential meter faults are identified and resolved in a timely manner.	Investigating
Review effectiveness of volume information validations	9.5	Pulse reviews the effectiveness of these validations and also the thresholds used as part of the Gentrack upgrade project to ensure the thresholds and default values applied are consistent with the code requirements and reduces the volume of false positive exceptions identify to enable users to focus on the genuine exceptions for investigation and resolution.	Investigating
Electronic meter readings and estimated readings	9.6	Review and action any events that require investigation.	Investigating
Identification and escalation of missing AMI interval data to MEPs	9.6	Develop and implement reporting of missing/ estimated interval data used in submission, and a process to escalate these instances to the relevant AMI MEP for resolution.	Investigating
Verify meter events indicating station outages with the station operators/HH Data collectors	9.6	Pulse to actively follow up events that could have an impact on the integrity of the data with both the station operators and HHR data collector as soon as Pulse identifies these events.	Investigating

ISSUES

Subject	Section	Clause	Description
Clarification at which point can HHR volume information be rounded when creating submission information.	13.2	9 Schedule 15.3	AV-090 (HHRVOLS – aggregated submission information) and AV-140 (HHRAGGS – ICP submission information) are sourced from the same volume information. Where a trader creates the ICP level submission information to create the AV-140 (HHRAGGS) file prior to aggregation to create the AV-090 (HHRVOLS) file, clarification is required to confirm that this approach is compliant with clause 8 & 9 of schedule 15.3.

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

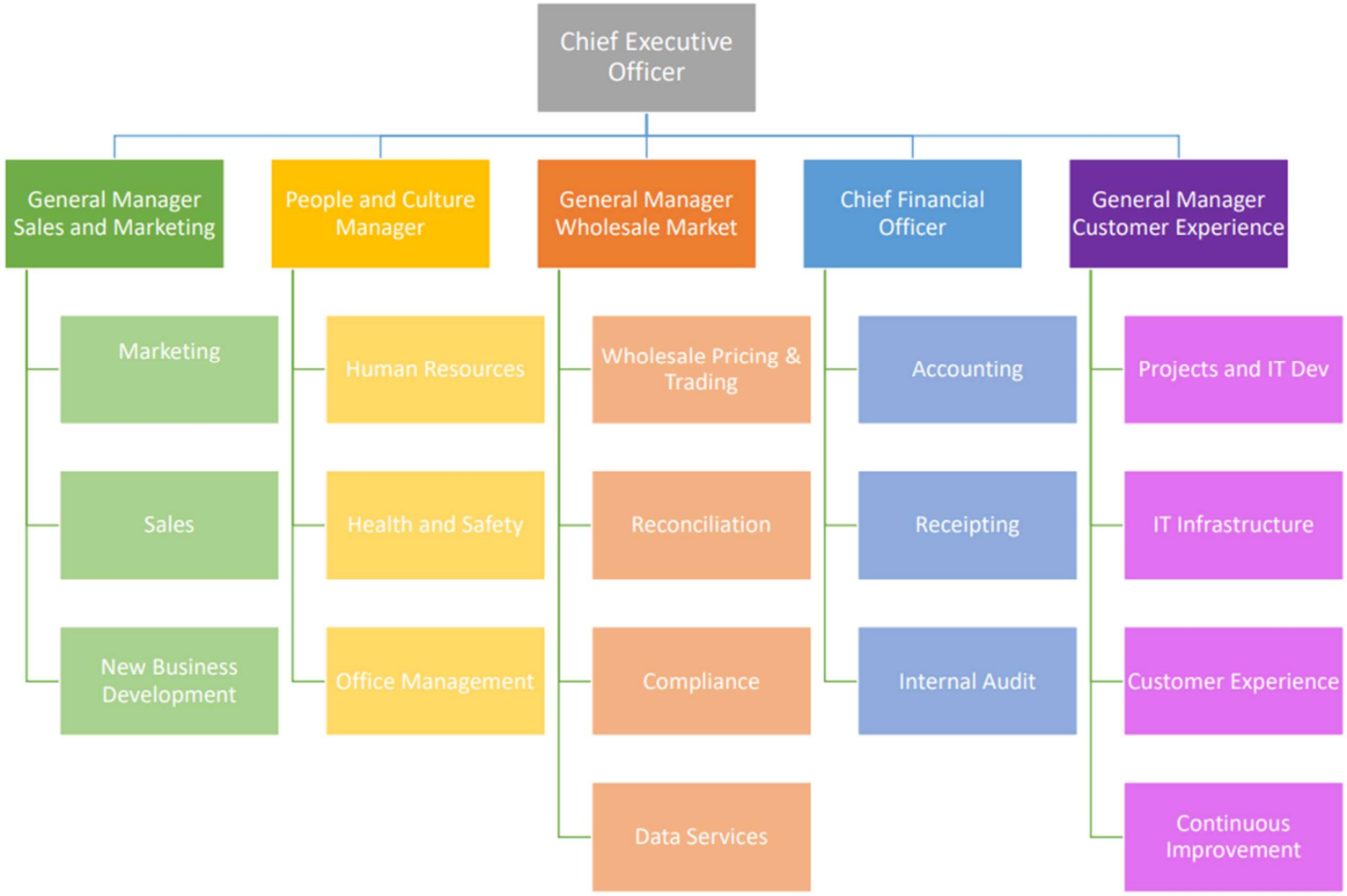
The Electricity Authority website was checked to identify any exemptions currently in place for Pulse.

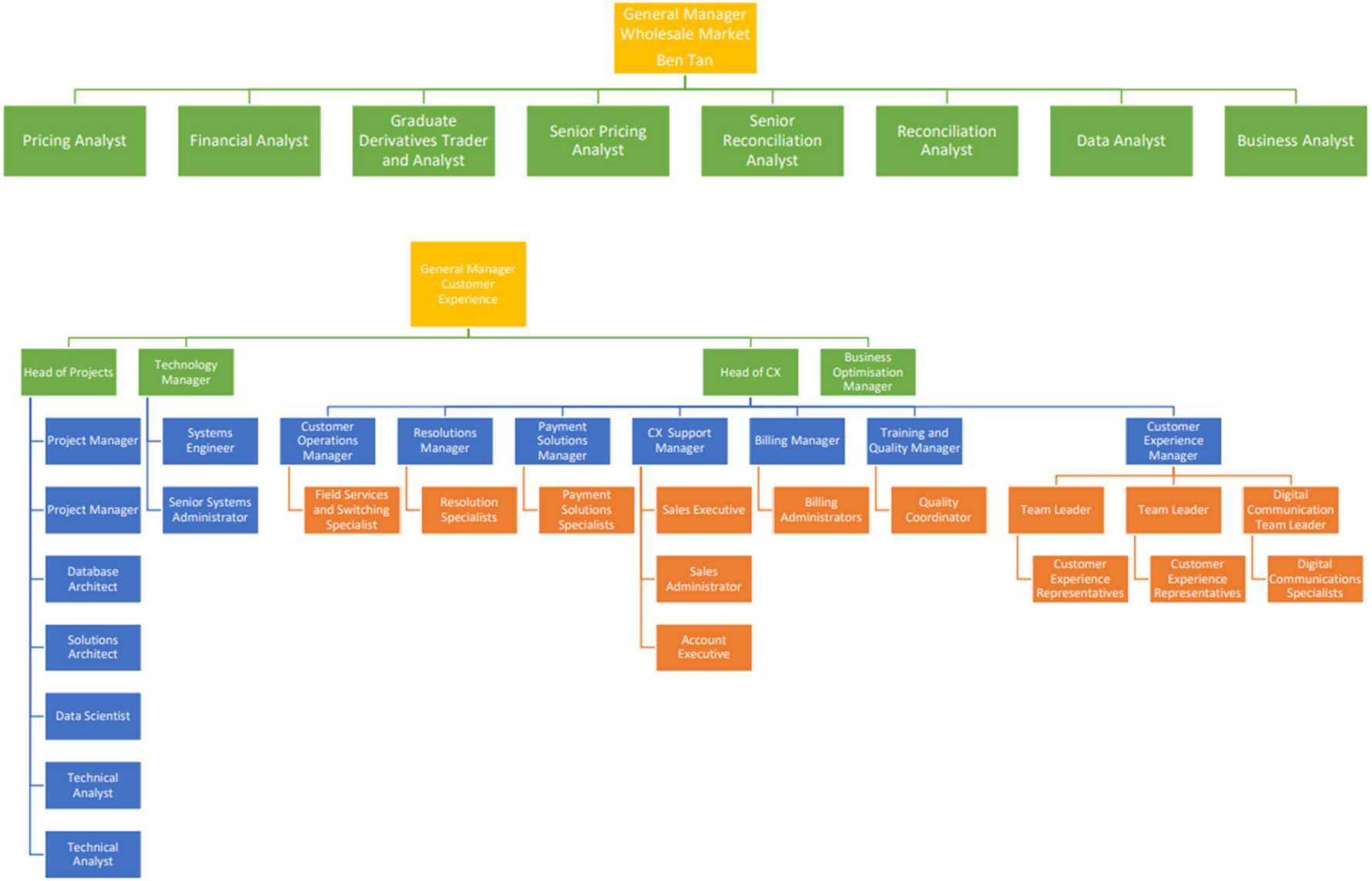
Audit commentary

Pulse has no exemptions recorded on the Electricity Authority website.

1.2. Structure of Organisation

Pulse provided a copy of their organisation structure.




General Manager Wholesale Market
Ben Tan
Pricing Analyst
Financial Analyst
Graduate Derivatives Trader and Analyst
Senior Pricing Analyst
Senior Reconciliation Analyst
Reconciliation Analyst
Data Analyst
Business Analyst
General Manager Customer Experience
Head of Projects
Technology Manager
Head of CX
Business Optimisation Manager
Project Manager
Project Manager
Database Architect
Solutions Architect
Data Scientist
Technical Analyst
Technical Analyst
Systems Engineer
Senior Systems Administrator
Customer Operations Manager
Field Services and Switching Specialist
Resolutions Manager
Resolution Specialists
Payment Solutions Manager
Payment Solutions Specialists
CX Support Manager
Sales Executive
Sales Administrator
Account Executive
Billing Manager
Billing Administrators
Training and Quality Manager
Quality Coordinator
Customer Experience Manager
Team Leader
Customer Experience Representatives
Team Leader
Customer Experience Representatives
Digital Communication Team Leader
Digital Communications Specialists


General Manager
Sales and Marketing
Marketing Manager
Outbound Sales Manager
Marketing Executive
Sales Specialists
Web Developer
Brand and Aquisition Specialist

1.3. Persons involved in this audit

Auditors:

Name	Company	Role
Tara Gannon	Veritek Limited	Lead Auditor
Bernie Cross	Veritek Limited	Supporting Auditor

Pulse Personnel assisting with this audit:

Title	Organisation
Ben Tan	GM Wholesale Market
Debjani Haldar	Customer Operation Manager
Kathy Pang	Database Architect
Aleshia Stokes	Manager Customer Support
Marek Tomecki	Senior Reconciliation Analyst
Jason Ting	Reconciliation Analyst
Malu Rokeni	Project Manager
Pamita Kundu	Billing manager

Other personnel assisting with this audit:

Name	Role	Company
Russell Mann	Director	AccuCal
Craig Simpson	Operations Manager Service Hub	Wells

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

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

Audit commentary

PUNZ

PUNZ uses the following agents:

- Wells as an agent for NHH data collection,
- AMS and EDMI as HHR agents,
- AccuCal as an HHR agent for generation data for two ICPs for the Mangaotaki generation, and
- John Candy Consulting as a NHH agent performing completeness and accuracy validation of ICP level NHH volume information which is used to create submission information.

NHH data is also received from Arc, AMS, Influx, IHUB, Metrix and Smartco as MEPs.

Pioneer (NSP ANI0331BOPDNP)

AccuCal is a HHR agent for generation data for ANI0331.

Agent's audits

All agents except Accucal and John Candy Consulting have been audited in accordance with the Guidelines for Reconciliation Participant Audits. The processes completed for Pulse by Accucal and John Candy Consulting were reviewed as part of this audit.

AMS and EDMI's audits were completed within the last seven months. The Wells audit was completed more than seven months before this audit report's due date. Additional checks were conducted to confirm whether there have been any changes to procedures, or any events which could affect meter accuracy had occurred.

The agent audit reports are expected to be submitted along with this report.

1.5. Hardware and Software

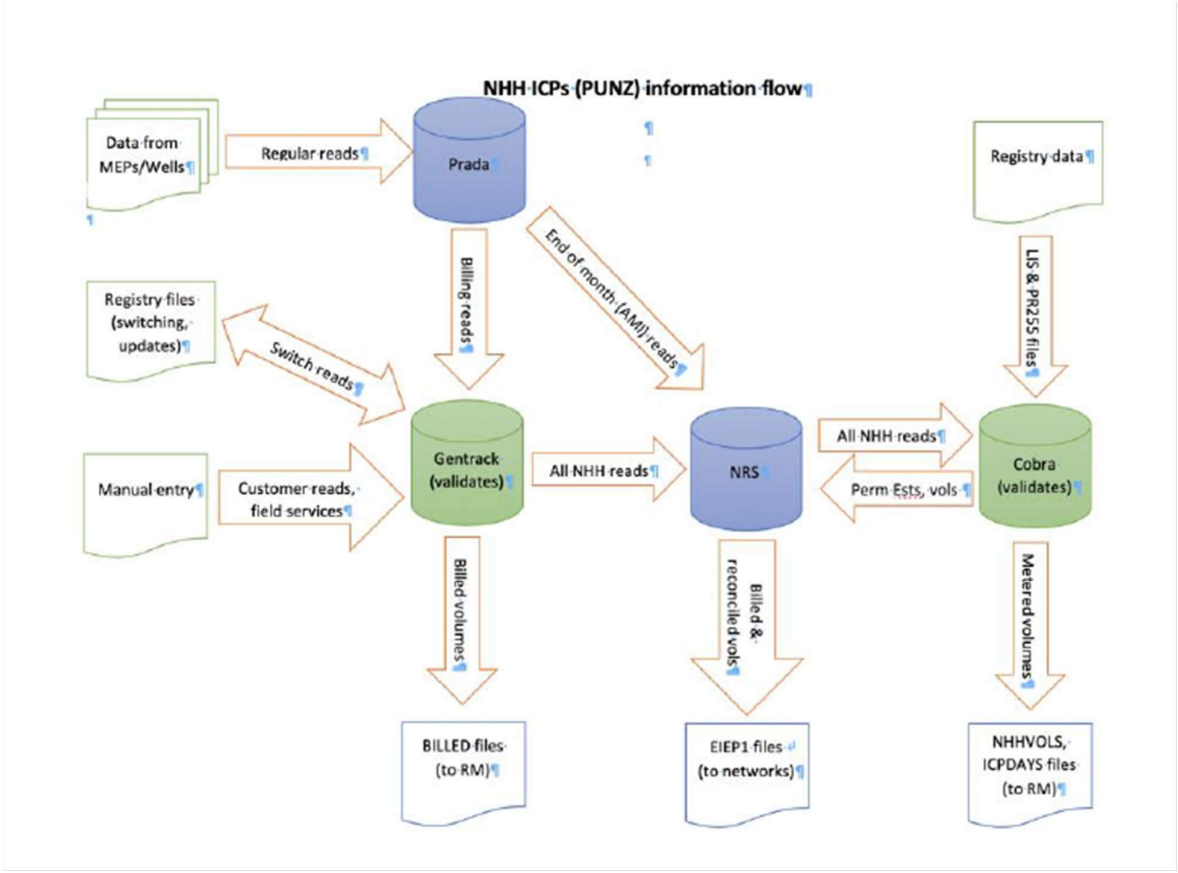
Systems are backed up, and access to systems is restricted through logins and passwords. The backup schedule/rotation consists of four daily backups (Monday to Thursday), four weekly backups (Friday), two monthly backups (last business day) and a quarterly backup, a new tape is always used. The daily backups are incremental, with all other backups being full. Validation and integrity checks are performed on all backups.

PUNZ

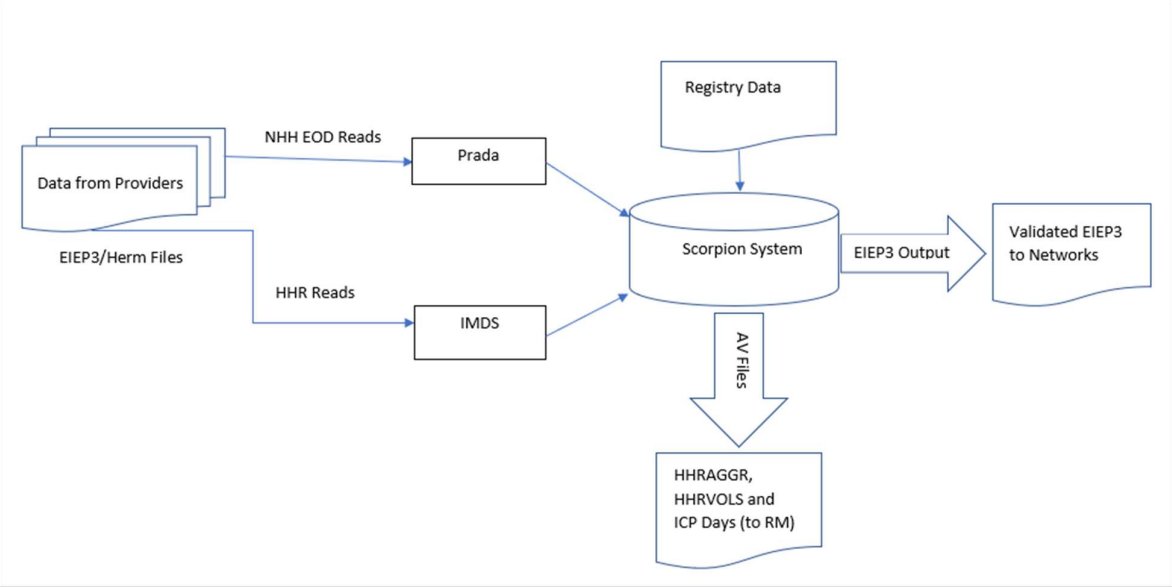
The following systems are used:

- Gentrack for switching, registry management, and billing,
- Cobra for NHH reconciliation,
- Scorpion (formerly known as NZX_TOU) for HHR reconciliation, and
- PRADA data warehouse for data storage and reporting.

<u>Cobra</u>



Scorpion



Pioneer (NSP ANI0331BOPDNP)

The following systems were used:

- Python data warehouse for metering data storage, and
- Scorpion (formerly known as NZX_TOU) for HHR reconciliation.

Agent systems

Agent systems are discussed in their agent audit reports.

1.6. Breaches or Breach Allegations

The Authority recorded one alleged breach for Pulse relevant to the scope of the audit during the audit period.

Reference	Clause	Target date	Summary	Status
2205PEAL1	Part 15 clause 15.4 (1)	29 June 2022	Pulse Energy Alliance LP (PUNZ) failed to submit information to the RM by 1600 hours on the 4th business day of the reconciliation period. The RM noted that the participant started uploading the files through file checker from 1428, indicating that the participant was aware of their obligations and that their process had started early enough to be able to meet them. PUNZ called the RM at 1555 informing about a delay due to a technical issue. The last file was received by the RM at 1618.	Closed – minor breach

1.7. ICP Data

PUNZ

The quantity of ICPs by status is shown below.

Status	Oct 2022	Mar 2022	2021	Oct 2020	Oct 2019	Jan 2019	2018
Active (2,0)	81,111	84,174	82,971	78,437	75,536	75,649	71,933
Inactive – new connection in progress (1,12)	1	1	1	6	-	3	9
Inactive – electrically disconnected vacant property (1,4)	754	710	597	602	544	223	259
Inactive – electrically disconnected remotely by AMI meter (1,7)	31	36	48	27	25	18	22
Inactive – electrically disconnected at pole fuse (1,8)	81	76	50	40	34	4	5
Inactive – electrically disconnected due to meter disconnected (1,9)	25	17	18	12	8	2	1
Inactive – electrically disconnected at meter box fuse (1,10)	9	8	7	4	2	-	1
Inactive – electrically disconnected at meter box switch (1,11)	21	19	9	9	10	4	4
Inactive – electrically disconnected ready for decommissioning (1,6)	25	24	20	17	25	32	29
Inactive – reconciled elsewhere (1,5)	2	3	2	2	1	-	-
Decommissioned (3)	1,115	1,021	910	796	714	590	534

The active ICPs on the list file were summarised by meter category in the table below. ICPs which are active but have no metering details or unmetered load recorded on the registry and are discussed in **section 2.9**.

Metering Category	Oct 2022	Mar 2022	2021	Oct 2020	Oct 2019	Jan 2019	2018
1	80,863	83,927	83,330	79,445	75,973	76,465	71,822
2	223	225	183	180	162	156	100

3	8	7	7	7	7	7	1
4	4	4	4	4	4	4	2
5	1	1	1	3	2	2	1
9	6	6	13	3	6	2	5
Blank	6	4					

PPPP

The quantity of ICPs by status is shown below. There have been no active ICPs since 2021.

Status	Oct 2022	Mar 2022	2021	Oct 2020	Oct 2019
Active (2,0)	-	-	1,571	740	3
Inactive – new connection in progress (1,12)	-	-	-	-	-
Inactive – electrically disconnected vacant property (1,4)	-	-	2	7	-
Inactive – electrically disconnected remotely by AMI meter (1,7)	-	-	32	25	-
Inactive – electrically disconnected at pole fuse (1,8)	-	-	-	-	-
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)	-	-	-	-	-
Inactive – electrically disconnected ready for decommissioning (1,6)	1	1	-	-	-
Inactive – reconciled elsewhere (1,5)	-	-	-	-	-
Decommissioned (3)	1	1	1	-	-

The active ICPs on the list file were summarised by meter category in the table below.

Metering Category	Oct 2022	Mar 2022	2021	Oct 2020	Oct 2019
1	-	-	1,599	772	3
2	-	-	-	-	-
3	-	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-
9	-	-	-	-	-
Blank	-	-	-	-	-

1.8. Authorisation Received

Pulse provided email authorisation to collect information in relation to this audit.

1.9. Scope of Audit

This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of Pulse, 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 using Microsoft Teams between 8 December 2022 and 22 December 2022 and on 20 January 2023.

For PUNZ a registry list, event detail report, and audit compliance report for 1 April 2022 to 18 October 2022 and a registry list snapshot for 13 October 2022 were reviewed.

For PPPP a registry list for 1 April 2022 to 18 October 2022 was reviewed, which confirmed that there were no changes to registry information and no active ICPs during the audit period.

The table below shows the tasks under clause 15.38 of part 15 for which Pulse requires certification. This table also lists any agents who assist with these tasks:

Tasks Requiring Certification Under Clause 15.38(1) of Part 15	Agents Involved in Performance of Tasks		MEPs providing data
	HHR	NHH	
(a) Maintaining registry information and performing switching			
(b) Gathering and storing raw meter data	AMS EDMI AccuCal	Wells	Arc IntelliHUB AMS Influx SMCO
(c)(iii) Creation and management of HHR & NHH volume information		John Candy Consulting	
(d)(i) Calculation of ICP days			
(d)(ii) - delivery of electricity supplied information under clause 15.7			
(d)(iii) - delivery of information from retailer and direct purchaser half hourly metered ICPs under clause 15.8			
(e) – Provision of submission information for reconciliation			

AMS, EDMI, and Wells have been audited in accordance with the Guidelines for Reconciliation Participant Audits. The agent audit reports are expected to be submitted along with this report. AMS and EDMI's audits were completed within the last seven months and Wells confirmed that there have been no changes to their processes which could have a negative impact on Pulse's compliance.

AccuCal is the HHR data collection agent for the generation data for ANI0331 and for two ICPs for the Mangaotaki generation. The data collection and validation processes were assessed as part of this audit and are discussed in this report.

John Candy Consulting performs NHH data validation tasks and provides exception reports to Pulse for action prior to NHH submissions each month. These validations and process were reviewed as part of this audit.

1.10. Summary of previous audit

A copy of the report from the previous audit completed in May 2022 by Steve Woods (lead auditor) was checked. The current status of the non-compliances and recommendations is recorded in the table below. The status "still existing" is noted if non-compliance with the clause has been found in this audit and does not refer to the specific ICPs where these are detailed. Further comment is made in the relevant sections of this report.

Table of Non-compliances

Subject	Section	Clause	Non-compliance	Status
Relevant information	2.1	15.2	**PUNZ** Some registry and submission information incorrect and not updated as soon as practicable.	Still existing
Electrical Connection of Point of Connection	2.11	10.33A	**PUNZ** Six new connections were not certified within five business days of initial electrical connection. 39 reconnections were not certified within five business days of electrical connection. ICP 0030386502PC8CC was not recertified when un-bridging occurred. Certification is now cancelled. **PPPP** Four reconnections were not certified within five business days of electrical connection.	Still existing
Meter bridging	2.17	2A of Schedule 15.2	**PUNZ** Consumption for three of four bridged meters has not been submitted.	Still existing
Changes to registry information	3.3	10 Schedule 11.1	**PUNZ** 47 late updates to active status. 29 late updates to inactive status. 499 late trader updates. Five ANZSIC code updates more than 20 business days after initial electrical connection or switch in. **PPPP** Five late updates to active status. Two late updates to inactive status.	Still existing

Subject	Section	Clause	Non-compliance	Status
Provision of information to the registry manager	3.5	9 Schedule 11.1	**PUNZ** 19 late updates to active status for new connections. 17 late MEP nominations for new connections. One incorrect active event date.	Still existing
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	**PUNZ** Seven ICPs with incorrect ANZSIC codes.	The previous audit exceptions are cleared. Non-compliance is still existing.
Management of "active" status	3.8	17 Schedule 11.1	**PUNZ** Three ICPs with incorrect active dates.	Two have been corrected. ICP 1100000044WMF02, should be active from 7 December 2021 not 29 November 2021.
Management of "inactive" status	3.9	19 Schedule 11.1	**PUNZ** Incorrect status for ICP 0158502167LC63E. Incorrect status reason for ICP 0000566989NR80B which switched in at 1,7. Incorrect status reason for ICP 0000222731TE242 at 1,5 but was 1,9. Incorrect status for 14 ICPs with consumption while inactive resulting in under submission of 17,466 kWh. Incorrect status for three vacant ICPs (0280470029LC488, 0273892118LC0EF and 0000727240TE4AC) with consumption recorded after the disconnection date.	ICP 0158502167LC63E has been corrected to active status for the period of supply. ICP 0000566989NR80B remains at status 1,7 for 10 September 2021 to 18 April 2021 and is now active. The status reason for 0000222731TE242 has been corrected to 1,9. Some ICPs still have incorrect inactive statuses.
Losing trader response to switch request and event dates - standard switch	4.2	3 and 4 Schedule 11.3	**PUNZ** Five of 197 AN files incorrectly had a response code of AA. Two of 2,178 AN files incorrectly had a response code of AD. **PPPP** One E2 breach. Two AN files incorrectly had a response code of AD.	Still existing
Losing trader must provide final information - standard switch	4.3	5 Schedule 11.3	**PUNZ** Average daily consumption of zero incorrect for two of five examples. Average daily consumption of more than 200 kWh incorrect for one of five examples. Date of last meter reading incorrect for two ICPs.	Still existing

Subject	Section	Clause	Non-compliance	Status
			PPPP One E2 breach. One CS breach. Two ICPs with switch event readings labelled as estimates and they should have been labelled as actual. Three ICPs with incorrect last read dates.	
Retailers must use same reading - standard switch	4.4	6(1) and 6A Schedule 11.3	**PUNZ** The RR file for ICP 2611016500CHA7C contained the losing trader's customer's read and it was not supported by two actual reads	Still existing
Losing trader provides information - switch move	4.8	10(1) Schedule 11.3	**PUNZ** One ICP incorrectly had a response code of AA. Five AN files incorrectly had a response code of AD. **PPPP** One ET breach.	Still existing
Losing trader must provide final information - switch move	4.10	11 Schedule 11.3	**PUNZ** Average daily consumption incorrect for four ICPs. Last read date incorrect for five of eight files checked. Incorrect last read date for one ICP not read during the period of supply. Three CS files had readings labelled as estimates and should have been actuals. **PPPP** Two ICPs had last actual read dates after the last day of responsibility. Three ICPs had last actual read dates recorded as the switch date but they should have been the day before the switch date.	Still existing
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	**PUNZ** Three late RR files for Switch Move.	Still existing
Withdrawal of switch requests	4.15	17 and 18 Schedule 11.3	**PUNZ** Two NW files sent in error. **PPPP** One AW breach.	Still existing

Subject	Section	Clause	Non-compliance	Status
Electricity conveyed & notification by embedded generators	6.1	10.13, Clause 10.24 and 15.13	**PUNZ** Volumes were not quantified in accordance with the code for five ICPs with bridged meters. **PPPP** Volumes were not quantified in accordance with the code for four ICPs with bridged meters.	Still existing
Derivation of meter readings	6.6	3(1), 3(2) and 5 Schedule 15.2	**PUNZ** ICP 2611016500CHA7C contained the losing trader's customer's read and it was not supported by two actual reads	Still existing
Interrogate meters once	6.8	7(1) and (2) Schedule 15.2	**PUNZ** Exceptional circumstances were not proven for all ICPs not read during period of supply.	Still existing
NHH meters interrogated annually	6.9	8(1) and (2) Schedule 15.2	**PUNZ** Exceptional circumstances were not proven for two of the ten ICPs sampled.	Still existing
NHH meters 90% read rate	6.10	9(1) and (2) Schedule 15.2	**PUNZ** Exceptional circumstances not confirmed for two ICPs on two NSPs that did not meet the 90% read rate within four months.	Still existing
Meter data used to derive volume information	9.3	3(5) Schedule 15.2	**PUNZ** NHH readings are truncated when imported into Gentrack. **PPPP** The MEP readings provided to John Candy Consulting by Pulse do not include decimal places.	Still existing
Electronic meter readings and estimated readings	9.6	17 Schedule 15.2	**PUNZ** Zero consumption is not being monitored. Event logs not reviewed.	Still existing
Daylight saving adjustment	12.1	15.36	**PUNZ** Incorrect TPM methodology used for the adjustment of daylight savings for the four ICPs where AccuCal provide the HHR data.	Still existing
Creation of submission information	12.2	15.4	**PUNZ** Some ICPs were missing from submissions due to status not being corrected for vacant consumption.	Still existing

Subject	Section	Clause	Non-compliance	Status
			14 ICPs were missing from submissions due to status not being corrected for inactive vacant consumption resulting in 17,466 kWh. Shared unmetered load not submitted for three ICPs moved to the HHR profile. Consumption for one of three ICPs with defective meters and three of four bridged meters has not been submitted.	
Accuracy of submission information	12.7	15.12	**PUNZ** Some submission data was inaccurate and was not corrected at the next available opportunity.	Still existing
Permanence of meter readings for reconciliation	12.8	4 Schedule 15.2	**PUNZ** Some estimates were not replaced with permanent estimates by revision 14.	Still existing
Historical estimate reporting to RM	13.3	10 Schedule 15.3	**PUNZ** The historic estimate attainment requirements were not met for some revisions.	Still existing

Table of Recommendations

Subject	Section	Description	Status
Registry validation	2.1	Check the audit compliance report on a weekly basis.	Was adopted then ceased from June 2022. Re-raised.
Active with no metering	3.4	Continue the investigation into the following matter: ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring.	Still ongoing. Re-raised in **section 2.9**.
MEP nomination	3.5	Consider a process change to nominate the MEP before metering is installed for new connections.	Re-raised.
Disconnection location	3.9	Strengthen the contract with Wells and Delta to require their disconnection processes to be audited. Request evidence from Wells and Delta that they are approved by all distributors to disconnect at the network fuse.	Re-raised.
Unmetered load	5.1	Update the description for ICP 0000678614UN599 to clarify there are 10 lights not one light.	Re-raised.

Subject	Section	Description	Status
Half hour estimates	9.4	For estimation of full days consider using same day of week from the previous week to estimate.	Re-raised.
Electronic meter readings and estimated readings	9.6	Liaise with ARC and Influx to get meter event logs sent.	Adopted. Event logs are received from all MEPs.
		Review and action any events that require investigation.	Re-raised.
Creation of submission information	12.2	Review management of vacant and inactive vacant consumption to ensure these volumes are reconciled.	Still ongoing. Re-raised in **section 3.9**.

2. OPERATIONAL INFRASTRUCTURE

No active ICPs have been supplied by PPPP after 30 September 2021, and PPPP is currently responsible for one ICP at "ready for decommissioning" status and one ICP at "decommissioned" status.

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 process to find and correct incorrect information was examined. The registry validation process was examined in detail in relation to the achievement of this requirement. The registry list files and AC020 reports were examined to determine compliance.

Audit commentary

PUNZ

Registry data synchronisation

Trader maintained registry information is updated in Gentrack and then transferred to the registry. Gentrack will only allow users to change records up to the event date of the most recent registry record of any type (e.g., a trader update cannot be entered if there is a later status, address, pricing, network, or metering record), which makes it difficult to process updates from dates prior to the latest update without records being reversed on the registry.

Recommendation	Description	Audited party comment	Remedial action
Gentrack time slice maintenance	Updates should be able to be made from Gentrack up to the latest event date for that event type, e.g., status event. Review Gentrack's controls over status and trader updates as part of the upgrade project. Consider how Pulse will reverse or replace records for earlier time slices for that event type without requiring events entered by other parties to be reversed or replaced. In most cases it is unnecessary for other	This is a system issue where reversals and replacements cannot be completed through the system. Users have to go into the registry directly to make any corrections or changes, and then retrospectively update GT to match the registry. Where Pulse needs to update inputs across multiple parties' inputs, we would generally request for the third parties to reverse their inputs to be able to make Pulse's updates.	Investigating

Recommendation	Description	Audited party comment	Remedial action
	participants to be involved in historic corrections unless it affects initial network records, or status changes which can only be processed by distributors.	We have raised this with our system provider who are currently reviewing.	

Registry data validation

Due to projects which have been underway during the audit period (including the Gentrack upgrade project) and some staff on long term leave, monitoring of data accuracy has decreased during the audit period, and some exceptions identified during the validation processes are not being investigated and/or resolved promptly. Pulse intends to increase validation once staffing levels increase and workloads become more manageable.

The following reports are used for data validation:

Report name	Frequency	Description
ICP data		
UML audit	Monthly	The billing team receives a notification from Gentrack if there is a discrepancy between the unmetered load details recorded in Gentrack and on the registry. Any discrepancies are investigated.
Distributed generation	Monthly	The reconciliation team compares registry and Gentrack to identify ICPs with settled I flow meter registers with RPS profile on the registry so that they can be updated. There is no process to identify ICPs with generation details recorded by the distributor but no I flow meter installed and a recommendation is raised in **section 6.1**.
ANZSIC comparison	Monthly	Identifies the ANZSIC codes for ICPs with different charge classes in Gentrack and the registry. This check will not identify ICPs where the ANZSIC code is missing or unknown, or ANZSIC code discrepancies for ICPs where the Gentrack and registry charge classes are consistent, and recommendations are raised in **section 3.6**.
Meter data		
Multiplier check	Monthly	Compares meter multiplier details in Gentrack and the registry. Differences are investigated and updated as necessary.
Meter certification expiry	Monthly	Identifies ICPs with expired meter certification. The ICPs were being followed up with the MEPs, who would either not respond or advise that they were aware of the issue and working towards certifying the affected ICPs. From July 2022, ICPs with expired meter certification have been passed to IHUB for AMI meter deployment.
DUNE IN16 and IN24 error report	Every 1-3 days	Identifies ICPs on the Aurora network where the tariff is IN16 or IN24 that have switched in. Gentrack is changed to UN24 to ensure billing can occur.

Report name	Frequency	Description
Status data		
Field Services compliance raw data	Twice weekly	Compares status details in Gentrack and the registry. Differences are investigated and updated as necessary.
Reconnection before switch	Weekly on Monday	Identifies ICPs which were reconnected before the switch event date. A withdrawal will be issued so that the switch can be re-requested from the date of reconnection.
Daily remote disco report	Daily Monday to Thursday	Identifies ICPs that have been final billed with smart meters, so that a remote disconnection can be requested.
Consumption on de-energised ICPs	Weekly	Identifies ICPs where the status is inactive, but where consumption is present. Investigations occur and the status is changed to active as required.
New connections		
New connection report	Monthly	Compares new connection ICP details in Gentrack and the registry, and also records the consumer and service order status. It is used to monitor new connection progress and follow up any actions that need to occur before the connection can be completed.
Volumes		
ADL Zero	Weekly	Identifies ICPs which have switched in with an average daily consumption of zero, and provides an estimated daily consumption based on the meter configuration and customer type. The estimated daily consumption values are manually entered into Gentrack to ensure that billing and settlement is not zero if actual readings are not obtained.
Weekly zero consumption report	Weekly prior to July 2022, now not reviewed	Identifies ICPs where there has been zero consumption for four or more months. Pulse attempts to contact the customer to determine whether the zero is genuine (in which case it is not checked again for four months) or conducts further investigation to determine whether there is a potential meter fault. A recommendation is raised to restart monitoring of zero consumption in **section 9.5**.

There are additional validation reports available in the audit compliance report, which have not been reviewed since June 2022. I recommend these reports are checked on a weekly basis.

Recommendation	Description	Audited party comment	Remedial action
Review the AC020 audit compliance report	Check the audit compliance report on a weekly basis to cover ICP attributes not currently being validated through Pulse's existing checks.	Audit report to be checked weekly and monthly compliance meetings will be started to monitor compliance tasks across the business.	Identified

The reconciliation team conducts pre submission checks to ensure that submission information is accurate and consistent with the aggregation factors recorded on the registry. These checks are discussed further in **section 12.3**.

The registry list file and AC020 report were examined to confirm that information was correct and not misleading. The analysis returned the following findings:

Item No.	Issue	Oct 2022 Qty	Mar 2022 Qty	Comments
1	Status mismatch between Gentrack and Registry	-	-	Compliant
2	ICP at status "inactive - new connection in progress" (1,12) or "ready" (000) with an initial electrical connection date populated by the distributor	7	3	Six ICPs were later made active from the initial electrical connection date. Pulse has not received customer acceptance or agreed to be the proposed trader for ICP 0000010622EA5F6 and I have recommended that they advise the distributor in **section 3.10**.
3	Active date variance with Initial Electrical connection Date	33	28	18 were timing differences and the initial electrical connection date and/or meter certification date were later updated to be consistent with PUNZ's active status update. The other 15 differences were checked, and I found two ICPs had incorrect status dates. See **sections 3.5** and **3.8**.
4	Incorrect submission flag	4	5	Four ICPs with RPS or RPS PV1 profile had the HHR submission flag set to yes, and the NHH submission flag set to no. All were corrected through PUNZ's validation process prior to the audit.
5	Incorrect profiles	15	22	15 ICPs with distributed generation have RPS profile recorded on the registry but should have RPS PV1. See **section 6.1**.
6	Distributor indicates embedded generation present with RPS profile	20	116	15 ICPs with distributed generation have RPS profile recorded on the registry but should have RPS PV1. At least five and up to 26 ICPs with distributed generation do not have settled I flow registers installed. See **section 6.1**.
7	Active ICP with cat 9 and UML="N"	3	4	One ICP had its metering details updated after the report was run, and one ICP had an accepted MEP nomination and was awaiting meter asset data. ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring. This is being investigated and a recommendation is recorded in **section 3.4** to ensure visibility.

Item No.	Issue	Oct 2022 Qty	Mar 2022 Qty	Comments
8	Active ICP with no MEP recorded and UML="N"	2	3	One ICP had its metering details updated after the report was run, and one ICP had an accepted MEP nomination and was awaiting meter asset data.
9	Active with blank ANZSIC codes	-	-	Compliant.
10	Meter cat 3 with residential ANZSIC code	-	-	Compliant.
11	Active with ANZSIC "T999" not stated	-	-	Compliant.
12	Active with ANZSIC "T994" don't know	3	1	The ANZSIC codes were corrected to residential during the audit. See **section 3.6**.
13	Incorrect ANZSIC code applied	-	-	Compliant.
14	ICPs with Distributor unmetered load populated but retail unmetered load is blank	-	-	Compliant.
15	ICPs with standard unmetered load flag Y but load is recorded as zero	-	-	Compliant.
16	ICPs with incorrect shared unmetered load	1	-	ICP 0001162169MLDF9 has had trader unmetered load details and unmetered daily kWh consistent with the distributor values for that ICP. However, these details were not consistent with the values recorded for the associated SI ICP 0001162160ML3A8 which indicates 90W on for 11.5 hours shared between four ICPs, rather than the 84W on for 11.5 hours shared between four ICPs indicated on 0001162169MLDF9. This results in a difference of 0.25 kWh per day or 91.25 kWh per annum. I recommend that the correct wattage is confirmed with the distributor in **section 3.7**.
17	ICPs have UML flag N and no shared unmetered load but Distributor field shows shared unmetered load.	-	-	Compliant.

Item No.	Issue	Oct 2022 Qty	Mar 2022 Qty	Comments
18	Arc category 2 meters submitted as HHR	-	-	Compliant, no ICPs with Arc meters have a HHR submission type.
19	Incorrect active event date	4	-	See **section 3.8.**
20	Incorrect inactive event date	1	-	See **section 3.9.**
21	Incorrect inactive status	2	1	See **section 3.9.**

I checked the accuracy of a sample of 36 trader updates and identified ten event date and/or attribute inaccuracies which are recorded as non-compliance because they were not corrected as soon as practicable. Most of the updates processed from an incorrect event date were entered with the same event date as the latest trader event, instead of the date that the event attributes changed.

- 0000042554CPEA7 had its ANZSIC code updated from Pulse's last trader event date 28 May 2021 instead of the start of Pulse's period of supply 24 March 2015.
- 0000012037EA752 changed to RPS PV1 from 1 July 2016 but should have changed 21 September 2022.
- 0000184971CTF80 changed to RPS from 2 August 2020 but should have remained on RPS PV1.
- 0106517031LCB94 changed to RPS from 22 September 2020 but should have changed 3 December 2021.
- 0014657588ELAFE changed to RPS PV1 from 22 September 2020 but should have changed 9 July 2021.
- 0000482634CE7DC changed to RPS PV1 from 12 November 2020 but should have changed 6 January 2022.
- 0000511318CEDDA changed to RPS PV1 from 18 May 2021 but should have changed 17 May 2021.
- 0000958017LNA8B changed to RPS PV1 from 22 April 2021 but should have changed 3 May 2021.
- 0000186327CTF4D changed to RPS PV1 from 16 June 2021 but should have changed 1 February 2022.
- 0422214841LC493 had its submission type changed to HHR from 5 August 2022 but should have changed from 15 March 2022.

Read and volume data accuracy

Read and volume accuracy issues are identified in the validation processes described in detail in **sections 9.5** and **9.6**. I checked a sample of NHH corrections as described in the table below:

Subject	Section	Comments	All practicable steps taken?
Defective meters	2.1, 12.2	Defective meters are typically identified from information provided by the meter reader, agent, the MEP, or the customer. As discussed in **section 9.6**, zero-consumption monitoring is not currently in place as this is part of the no read process that is paused and therefore there is a risk that defective meters will not be identified	No

Subject	Section	Comments	All practicable steps taken?
		at the earliest opportunity. There are plans to recommence this work in the near future. Upon identifying a possible defective meter, a field services job is raised to investigate and resolve the defect, and a consumption correction is processed if the volume difference is 200 kWh or more. The code requires that all information is complete and accurate, therefore all volume discrepancies should be corrected. I have repeated the recommendation from the last audit below. Pulse provided their process documentation which steps through how consumption is to be calculated. Corrections are processed using the removal reads calculator. This calculates the volume for the missing period by using two actual reads no less than seven days apart from the new meter to estimate an average daily consumption. If applicable there is a 20% seasonal adjustment made. If the missing period is over summer and the reads used to estimate the period are from the winter period, then a 20% adjustment is made in favour of the customer. If the reads are taken from the summer period but the missing period occurred during winter, then a 20% loading is applied. I reviewed two examples of stopped or faulty meters and found: • ICP 0099552502CNF6D was notified as having a check sum failure and the meter was replaced; this ICP was submitted as HHR for the affected period and no review of the half hour data was conducted to determine if any correction was required, and • ICP 0001725239BU6A3 was notified by Pulse's after-hours service on 29 September 2022 that the meter had been bridged as the remote reconnection failed; the meter was replaced on 14 October 2022 however no correction was applied for the affected period.	
Incorrect multipliers	2.1, 12.2, 12.7	Multiplier mismatches are checked as part of the weekly BAU processes. Any discrepancies identified are investigated and corrected as soon as practicable. One incorrect multiplier was identified by the customer relating to ICP 0000018303EACE3. On site investigations identified that the site had three phase supply and one meter was incorrectly applied a multiplier of 3. The error occurred in 2011 and predated Pulse's tenure as retailer (1 May 2013) and the size of the over submission was assessed to be 2,122 kWh. All affected bills were reversed, and volumes recalculated using the correct multiplier. The method of correction right back to 2013 has resulted in not all volume being accounted for in the submission revision process.	No
Bridged meters	2.1, 2.17, 6.4	Bridged meters are usually identified through returned work completion paperwork or NHH read validation processes. Due to other priorities and staffing constraints zero consumption is not currently being monitored, and there is a risk that identification of bridged meters could be delayed. Once a bridged meter is identified, a field services job is raised for the MEP to un-bridge the meter as soon as possible. Consumption during the bridged period is estimated based on the period before the meter	No

Subject	Section	Comments	All practicable steps taken?
		was bridged, or after the meter is unbridged by entering an estimated final reading into Gentrack. If the meter is not replaced as part of the un-bridging process the correction will be handled as a false meter change, with a new version of the meter reopening with the actual read recorded on un-bridging. The readings are transferred from Gentrack to Cobra. If the meter is bridged for less than two months, the customer operations team will estimate consumption during the bridged period and process a correction. If the meter is bridged for more than two months, the customer operations team will advise the revenue assurance team that a correction is required via email. I found that bridged meters are not always identified promptly, and corrections are not consistently processed. Six ICPs with bridged meters had no correction processed: • 0030386502PC8CC bridged 14 July 2021 until it switched out 30 November 2021 (139 days), • 0000437090MPD58 bridged 31 August 2021 to 23 September 2021 (23 days), • 0005001665EN7EC bridged 7 October 2021 to 19 October 2021 (12 days), • 0000027923DE9D8 bridged 13 October 2021 to 10 December 2021 (58 days), • 1000501642PC89A bridged 19 January 2022 to 4 February 2022 (16 days), and • 0495885576LCC8E bridged 22 March 2022 to 2 June 2022 (72 days). Two ICPs with bridged meters had corrections processed in Gentrack but not in Cobra: • 0001270560PC2AD bridged 10 March 2021 to 6 December 2021 (271 days), and • 0000504812NR124 bridged 21 February 2022 to 7 July 2022 (136 days). Eight bridged ICPs were flagged as being included in the HHR submission for the bridged period. At the time of the audit, the volume correction activity was still outstanding so there were no correction examples to review. In **section 8.2**, I recommend that Pulse reviews its bridged meter volume correction process to ensure it is appropriate for the submission type allocated to the ICP during the bridged period.	
Vacant consumption	2.1, 12.2 & 12.7	A sample of five ICPs with vacant consumption were checked and found that vacant consumption was submitted for the correct period in all instances.	yes
Consumption while inactive	2.1, 3.9, 12.2 & 12.7	Two ICPs with inactive consumption were checked and found that the volumes had not been submitted as the ICPs had not been returned to active resulting in under submission of 5,755 kWh. Non-compliance is recorded below and in **sections 12.2** and **12.7.** I recommend in **section 3.9** that this process is reviewed.	No

Subject	Section	Comments	All practicable steps taken?
Unmetered load corrections	2.1, 3.7	Pulse has robust checks in place to ensure that unmetered load is calculated and submitted correctly. No unmetered load corrections were identified during the audit period.	No
RR not reflected in Cobra	2.1, 12.7	For three ICPs from a sample of 15, Pulse had accepted an estimated read request from the gaining retailer and had applied this estimated switch reading in Gentrack. However, these amended switch loss estimate reads were rejected by Cobra and the original switch loss estimate reads were applied resulting in an under submission of 1,703 kWh. Pulse is investigating why this is occurring and how many ICPs are affected.	No

Recommendation	Description	Audited party comment	Remedial action
Corrections	Recommend processing all corrections not just those 200kWh and above.	Pulse's existing processes to be reviewed to investigate how to streamline for efficiency.	Investigating

I walked through the process for NHH to NHH, NHH to HHR and HHR to HHR meter changes, including reviewing five upgrade examples. In all cases, data was continuous. Where data was missing due to faulty meters or because data was not supplied for the day of the meter change, estimations occurred, which were provided to confirm their accuracy. No downgrades were identified on the event detail report.

Pioneer (NSP ANI0331BOPDNP)

As detailed in **section 12.1**, data received from AccuCal is in standard time and each interval is recorded with a trading period ending time. Accucal provides the correct number of intervals for each daylight-saving month. For the transition months Accucal provides 1442 lines of data during April and 1438 lines of data during September. Pulse applies specific scripts (one for each daylight saving transition) to the data provided by Accucal to adjust the data from the transition date and time and ensures the transition days have the correct number of intervals (46 intervals for the September transition and 50 intervals for the April transition). The approach Pulse applies is consistent with the trading period run on method to adjust interval data.

Audit outcome

Non-compliant

Non-compliance	Description

Audit Ref: 2.1 With: Clause 10.6, 11.2, 15.2 From: 01-Apr-22 To: 22-Dec-22	**PUNZ** Some registry and submission information incorrect and not updated as soon as practicable. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4

Audit risk rating	Rationale for audit risk rating
Medium	Controls are rated as moderate overall but there is room for improvement, specifically in relation to the management of inactive vacant consumption and correction of submission information for defective and bridged meters. The audit risk rating is assessed to be medium based on the kWh of under submission detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status
Internal Meetings and meetings with Gentrack to discuss the issues and put a plan in place to rectify the issues above and put in preventative measures.	21/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Audit report to be checked weekly and monthly compliance meetings will be started to monitor compliance tasks across the business	ongoing	

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.

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

I reviewed the method to receive meter reading information and traced a diverse sample of readings from the source files to Pulse's systems.

Audit commentary

NHH

NHH information is received via SFTP from Wells and the MEPs. The data is imported into the PRADA data warehouse, then exported as an REA file which is imported into Gentrack. For AMI meters, a monthly read is recorded in Gentrack on a scheduled read date.

Reads imported from PRADA into Gentrack are validated as part of the billing process and are then exported to Cobra. Cobra also receives end of month AMI reads which are imported directly from PRADA. RR readings are extracted from the accepted RR files and imported into Cobra, as part of the daily import. Both the end of month AMI reads imported from PRADA and the RR readings pass through the Cobra validation process. I found that in some cases, the agreed switch readings for outgoing CS files were not correctly recorded in Gentrack and/or Cobra, and this is recorded as non-compliance in **sections 4.11** and **12.7**.

To confirm the NHH data transmission process, I traced data for a diverse sample of 15 ICPs from the manual meter reading from Wells source files to Gentrack and Cobra and found:

- nine ICPs where the reads in Gentrack matched the read provided in the source files,
- one ICP (0000003718CE7A9) where the read was rejected as it was lower than the transfer read provided in the CS file from the losing trader; because this was a mass switch of ICPs between Pioneer and Pulse to retire the PION participant code, the RR process was not applied in the expectation that the meter reads will catch up with the transfer reading provided in the CS file,
- one ICP (0311661025LC47A) where the read was not used as it was only two days after the last billed reading,
- one ICP (0000020938CE7DA) where the read was not used as an estimate read had already been billed in Gentrack,
- two ICPs (0000914138BU5C6 & 0001853451AL2B2) where the reads were not used as they failed validation and a subsequent check reading confirmed that the reads were incorrect; the check readings were applied in these cases, and
- one ICP (0000484950CE3E9) where the read was a check reading that verified that the previous read was correct; not all check reads are loaded into Gentrack where they are used as part of the RR process and not used for billing.

AMI meter reads were also reviewed from each of the AMI MEPs to ensure the readings are processed into Gentrack/Cobra correctly. One read from each provider was checked and these reads were confirmed as being the same in COBRA. The readings supplied by two MEPs (NGCM and FCLM) were truncated as these were loaded into PRADA and non-compliance is recorded in **section 9.3**.

HHR

HHR information is received via SFTP from AMS, and in password protected emails from EDMI. The data is imported into the IMDS reading database, then exported into Scorpion for the calculation of submission.

To confirm the HHR data transmission process, I traced data for a diverse sample of three ICPs from the source files to Scorpion and the HHR aggregates submissions for September 2021 and April 2022. The volumes matched the source data.

AccuCal collects data for two ICPs for the Mangaotaki generation in addition to the Aniwhenua data collection function detailed below. To confirm the HHR data transmission process, I traced data for the one ICP from the source files to submissions for April 2021, September 2021, and September 2022. The volumes matched the source data.

Pioneer (NSP ANI0331BOPDNP)

AccuCal provides files of monthly readings for two ICPs which are downloaded from AccuCal's SFTP server.

To confirm the HHR data transmission process, I traced data for one ICP from the source files to submissions for April 2021, September 2021, and September 2022. The volumes matched the source data.

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

A complete audit trail was checked for all data gathering, validation and processing functions. I reviewed audit trails for a small sample of events.

Audit commentary

Audit trails exist for NHH and HHR data gathering, validation, and processing functions:

System	Used for	Comments
Gentrack	Switching Registry Billing	Compliant audit trails exist.
Cobra	NHH submission	Data is imported into Cobra but is not modified, apart from to invalidate it or add permanent estimate readings. As reported in the last audit, it is possible for an operator to go directly to the database and change the date of a reading without leaving an audit trail. This is done rarely and is only used when some changes are unable to be resolved through the application, so the reconciliation team make the corrections in the database. The changes can range from filling up blank dates, fixing install/removal date, or just manually imported meter reads which were sometimes missed by the automated system. If this occurs, they paste all the data to be updated in an Excel sheet, then write a simple SQL code beside the data indicating what is to be changed. As the Database that Cobra sits in has transactional logging activated from a database recovery perspective there is an event log of sorts available for these manual updates directly into the database tables. There is nothing to prevent an operator from making changes and not recording them on the spreadsheet. This is a known issue and is expected to be resolved with the move to the new Gentrack platform. I found no evidence of audit trails not being created so have recorded compliance.
Scorpion (formerly called NZX_TOU)	HHR submission	Compliant audit trails exist.
PRADA	Data warehouse	NHH and AMI data is imported into the PRADA database and then exported to Gentrack. Data cannot be changed.

Pioneer (NSP ANI0331BOPDNP)

Audit trails exist for HHR data gathering, validation, and processing functions:

System	Used for	Comments
Python	Metering data	Compliant audit trails exist.
Scorpion (formerly called NZX_TOU)	HHR submission	Compliant audit trails exist.

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 the current terms and conditions.

Audit commentary

The current terms and conditions with their customers 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 the current terms and conditions and discussed compliance with these clauses.

Audit commentary

The current terms and conditions with their customers include consent to access for authorised parties for the duration of the contract. Pulse confirmed that they have used best endeavours to arrange access

for other parties when requested, which typically involves trying to contact the customer to arrange access.

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 electrical industry achieve compliance.

Pulse was requested to provide details of any installations with loss compensation.

Audit commentary

Pulse supplies 13 ICPs with metering category 3 or higher. No error or loss compensation factors were required.

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 sub-clause (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 the current terms and conditions.

Audit commentary

The terms and conditions include 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 one or more metering installations for the point of connection.*

Audit observation

The new connection process was examined in detail to evaluate the strength of controls.

Audit commentary

The new connection process varies by network. For most networks the customer or their agent arranges the connection directly with the network, and for the Buller and Electra networks the customer arranges the connection with the retailer who requests a connection from the network.

Once to twice per week registry notification files are monitored in Gentrack to identify any new ICPs where PUNZ has been recorded as the proposed trader. Pulse waits to receive a customer application and then the ICP is created in Gentrack, and the Field Services Team issues a service order for meter installation to NGCM (the preferred MEP for new connections). Once Pulse receives confirmation that the meter is installed and the ICP is electrically connected the initial electrical connection date is recorded in Gentrack, which triggers a status update to "active" and MEP nomination to be sent to the registry. Pulse does not routinely use the "inactive - new connection in progress" status, so MEP nomination does not occur until the ICP is "active".

The AC020 report recorded three ICPs that were active with a metering category of nine or blank. Two were timing differences and had metering details updated after the report was run. ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring. The ICP is in a remote location and the MEP has estimated that visiting the site will be a ten-hour return trip for the contractor and has turned down the job. The customer advised that there have been wiring changes at the site and the load is now potentially metered through the ICP for another building at the address. Pulse are still working with the customer's electrician to confirm the changes at the site and then arrange a site visit as necessary.

Recommendation	Description	Audited party comment	Remedial action
Active ICP with no metering	Continue the investigation into the following matter: ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring.	Pulse are continuing to investigate this matter. Site investigation job has been quoted and once approved will commence. We are currently in comms with the network for resolution.	Investigating

Audit outcome

Compliant

2.10. Temporary Electrical Connection of an ICP that is not an NSP (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

The new connection process was examined in detail to evaluate the strength of controls.

Audit commentary

No temporary electrical connections were requested by Pulse, and the audit compliance report did not record any instances where the meter certification date was prior to initial electrical connection.

Audit outcome

Compliant

2.11. Electrical Connection of Point of Connection for an ICP that is not an NSP (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:*
    - *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 two business days of electrical connection,*
    - *if the ICP has metered load, one 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 electrical connection.*

Audit observation

The new connection process was examined in detail to evaluate the strength of controls. The registry list file and AC020 reports were examined to confirm process compliance.

Audit commentary

Metering information for active ICPs

The AC020 report recorded three ICPs that were active with a metering category of nine or blank. Two were timing differences and had metering details updated after the report was run. ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring. Pulse is investigating the ICP as described in **section 2.9**.

New Connections

The AC020 report recorded three ICPs which did not have full certification within five business days of initial electrical connection. I confirmed that all three were certified on time. The registry was updated late by the MEP for two ICPs, and ICP 1000608282PC360's meter certification appeared late because the active status date was incorrectly recorded as 15 July 2022 but should have been 13 September 2022. This is recorded as non-compliance in **sections 2.1**, **3.5** and **3.8**.

Reconnections

MEPs complete remote reconnections. Delta completes manual reconnections in the South Island and Wells completes manual reconnections in the North Island. If an ICP is to be reconnected and the metering is not certified, the Pulse agent processing the reconnection request is expected to notify the service requests inbox, who will ask the MEP to recertify.

The AC020 report recorded 18 ICPs which did not have full certification within five business days of reconnection. I checked a sample of five ICPs. For two of the ICPs there was no physical reconnection, the status update was a correction following the discovery of inactive consumption. For the other three ICPs no notification was sent to the service request inbox, and the MEP was not advised.

Description	Recommendation	Audited party comment	Remedial action
Certification within five business days of reconnection	Provide training to agents confirming the process to notify the service request inbox when reconnecting an ICP with expired meter certification.	We will investigate the creation of an Automated report from the system on a bi-weekly/weekly basis to resolve this issue.Multiple trainings have been carried out with agents due to previous audits however this process is user dependent which is resulting in the process not being followed.	Investigating

Meter recertification for unbridged meters

I checked a sample of nine meters which were unbridged during the audit period and found that all had been recertified by the MEP on un-bridging.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.11 With: Clause 10.33A From: 08-Jun-22 To: 04-Oct-22	16 reconnections were not certified within five business days of electrical connection. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement because notification is not always sent to the service request inbox for reconnections. The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Multiple trainings have been carried out with agents due to previous audits however this process is user dependent which is resulting in the process not being followed.	21/2/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will investigate the creation of an Automated report from the system on a bi-weekly/weekly basis to resolve this issue.	31/3/23	

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.

Audit commentary

Previous audits confirmed that arrangements are in place for existing networks. Review of the registry list with history confirmed that Pulse did not begin trading on any new networks.

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.

Audit commentary

Previous audits confirmed that arrangements are in place for existing MEPs. Review of the registry list with history confirmed that Pulse did not begin using any new MEPs.

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 in the process of switching in was examined. Traders are only able to update the ICP status for event dates where they are responsible for the ICP on the registry.

Audit commentary

Pulse does not usually reconnect ICPs until the switch is complete and would restore the disconnection if requested by the other trader following a withdrawal.

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.

Audit commentary

Pulse does not request disconnection of any ICP for which is not responsible. No examples were identified.

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 un-bridge a load control switch – if the load control switch does not control a tome 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. A sample of disconnections, reconnections, additions of export metering, and bridged meters were checked for compliance.

Audit commentary

Pulse issues field services jobs for activities which could result in seals being removed or broken to the MEP, Wells or Delta. MEPs and agents are required to ensure that only qualified personnel perform work and manage and trace seals. The MEPs and agents do not usually provide details of seals in their job completion paperwork.

Pulse receives work completion paperwork from the MEPs and agents and uses this information to confirm the correct ICP attributes including status and profile, and update Gentrack and the registry.

Where Pulse finds that seals have been removed or broken by someone other than the MEP, they raise a job for the MEP to check and reseal the meter. Pulse provided five examples where meters had been tampered with or the customer's electrician had broken the meter seals, and a job was raised for the MEP to check and reseal the meter.

Disconnections and reconnections are completed remotely where possible. Additions of distributed generation, fault work, and un-bridging of meters is completed by MEPs.

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

The process for bridging meters was discussed and eight bridged meters were reviewed.

Audit commentary

Pulse only allows meters to be bridged where an urgent reconnection is required, and it is not possible to reconnect without bridging the meter. Bridging is only completed by contractors authorised by MEPs.

Bridged meters are usually identified through returned work completion paperwork or NHH read validation processes. Due to other priorities and staffing constraints zero consumption is not currently being monitored, and there is a risk that identification of bridged meters could be delayed. A recommendation to check ICPs with zero consumption is made in **section 9.5**.

Once a bridged meter is identified a field services job is raised for the MEP to un-bridge the meter as soon as possible. Consumption during the bridged period is estimated based on the period before the meter was bridged, or after the meter is unbridged by entering an estimated final reading into Gentrack. If the meter is not replaced as part of the un-bridging process, the correction will be treated as a false meter change, with the old version removed on an estimated reading including consumption during the bridged period and the new version opening on the physical read on un-bridging. The readings are transferred from Gentrack to Cobra.

If the meter is bridged for less than two months, the customer operations team will estimate consumption during the bridged period and process a correction. If the meter is bridged for more than two months, the customer operations team will advise the revenue assurance team that a correction is required via email.

I found that bridged meters are not always identified promptly, and corrections are not consistently processed. Responsibilities and processes for bridged meters require clarification and improvement. Review of sample of eight bridged meters found:

Issue	ICPs affected
No correction	Six ICPs with bridged meters had no correction processed: • 0030386502PC8CC bridged 14 July 2021 until it switched out 30 November 2021 (139 days), • 0000437090MPD58 bridged 31 August 2021 to 23 September 2021 (23 days), • 0005001665EN7EC bridged 7 October 2021 to 19 October 2021 (12 days), • 0000027923DE9D8 bridged 13 October 2021 to 10 December 2021 (58 days), • 1000501642PC89A bridged 19 January 2022 to 4 February 2022 (16 days), and • 0495885576LCC8E bridged 22 March 2022 to 2 June 2022 (72 days). Eight bridged ICPs were flagged as being included in the HHR submission for the bridged period. At the time of the audit, the volume correction activity was still outstanding so

Issue	ICPs affected
	there were no correction examples to review. In **section 8.2**, I recommend that Pulse reviews its bridged meter volume correction process to ensure it is appropriate for the submission type allocated to the ICP during the bridged period.
Correction in Gentrack but not transferred to Cobra	Two ICPs with bridged meters had corrections processed in Gentrack but not in Cobra. 0001270560PC2AD bridged 10 March 2021 to 6 December 2021 (271 days) • Gentrack has a reasonable estimated removal read of 45578, which includes an estimate of consumption during the bridged period, but • Cobra has actual removal read matching removal paperwork 41147, resulting in under submission of 4,431 kWh during the bridged period. 0000504812NR124 bridged 21 February 2022 to 7 July 2022 (136 days) • Gentrack has a reasonable estimated removal read of 45648, which includes an estimate of consumption during the bridged period, but • Cobra has actual removal read matching removal paperwork 41289, resulting in under submission of 4,359 kWh during the bridged period.

Description	Recommendation	Audited party comment	Remedial action
Confirm bridged meter processes and responsibilities	Confirm processes and responsibilities for bridged meters to ensure that: • bridged meters are identified and unbridged promptly, and • corrections to estimate consumption during the bridged period are processed promptly and accurately in Gentrack and Cobra.	Pulse will conduct an end to end process review on the Bridged meter process.	Investigating
Bridged meter corrections	Review ICPs which are known to have been bridged to check that they have been un-bridged, and corrections have been processed.	Bridged meter correction process needs to be reviewed for Field Services	Investigating

Audit outcome

Non-compliant

Non-compliance	Description

Audit Ref: 2.17 With: Clause 2A of Schedule 15.2 From: 10-Mar-21 To: 07-Oct-22	**PUNZ** 14 ICPs with bridged meters had no correction processed. Two ICPs with bridged meters had corrections processed in Gentrack but not in Cobra. Potential impact: Medium Actual impact: Medium Audit history: None Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are recorded as weak as they do not ensure that estimated consumption during the bridged period is consistently captured and reported for reconciliation. The impact on settlement is expected to be medium based on Pulse's average of one to two bridged meters per week, and that corrections had not been processed for reconciliation for any of the eight ICPs checked.

Actions taken to resolve the issue	Completion date	Remedial action status
Internal Pulse meetings and Meeting with Gentrack to discuss the issues and put a plan in place to rectify the issues above and preventative measures.	21/2/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Bridged meter correction process needs to be reviewed for Field Services Pulse will conduct an end to end process review on the Bridged meter process.	31/3/23	

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 an invoice was reviewed.

Audit commentary

ICP identifiers are included on invoices and in all relevant correspondence.

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 checked, and websites, terms and conditions, invoices and communications were reviewed.

Audit commentary

Clear and prominent information on Utilities Disputes is provided:

- on invoices for Pulse customers,
- in Pulse's terms and conditions,
- on Pulse's website under https://www.pulseenergy.co.nz/feedback-or-complaints/, and
- as part of the interactive voice recording message for inbound calls.

Information on Utilities Disputes is not provided on some addressed customer communications including vacant letters, overdue balance letters and planned outage letters or as part of the email footer for outbound emails.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.19 With: Clause 11.30A From: 01-Apr-22 To: 22-Dec-22	**PUNZ** Information on Utilities Disputes is not provided on some addressed customer communications including vacant letters, overdue balance letters and planned outage letters or as part of the email footer for outbound emails. Potential impact: Medium Actual impact: Low Audit history: None Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**

Low	Controls are rated as weak because information on Utilities Disputes is not provided on all addressed customer communications as required. The impact is low because information is provided on Utilities Disputes monthly with the customer's invoice.

Actions taken to resolve the issue	Completion date	Remedial action status
Pulse will review its communications and add UDL information where required.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse will provide training to Marketing team to make sure information about UDL is present on all communications. We will update our standard customer communication letterhead template to include UDL.	31/03/2023	

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 Powerswitch is provided to customers was checked, and websites, terms and conditions, invoices and communications were reviewed.

Audit commentary

Clear and prominent information on Powerswitch is provided:

- on the website under https://www.pulseenergy.co.nz/feedback-or-complaints/, and
- on invoices for Pulse customers.

Inclusion of information on Powerswitch on invoices achieves compliance with the requirement for annual notification to Pulse residential consumers.

Clear and prominent information on Powerswitch is not provided on addressed customer communications regarding price and service changes.

Recommendation	Description	Audited party comment	Remedial action

Location of Powerswitch information on Pulse's website	Consider adding information on Powerswitch to the pricing pages of the website (https://pulseenergy.co.nz/customer-hub/your-freedom-plan/our-rates/), rather than only the feedback and complaints page.	Pulse have added this information into our latest Price change process for 01 April 2023.	Identified

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.20 With: Clause 11.30B From: 01-Apr-22 To: 22-Dec-22	**PUNZ** Clear and prominent information on Powerswitch is not provided on addressed customer communications regarding price and service changes. Potential impact: Medium Actual impact: Low Audit history: None Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as weak because information on Powerswitch is not provided on all addressed customer communications as required. The impact is low because information is provided monthly with the customer's invoice.

Actions taken to resolve the issue	Completion date	Remedial action status
Pulse have added this information into our latest Price change process for 01 April 2023	1/4/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse have added this information into our latest Price change process for 01 April 2023. Pulse will provide training to Marketing team to make sure information about UDL is present on all communications. We will update our standard customer communication letterhead template to include UDL.	12/02/2023	

3. MAINTAINING REGISTRY INFORMATION

No registry activity occurred for PPPP during the audit period, findings in **section 3** apply only to PUNZ.

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 connections process was examined in detail to confirm compliance with the requirement to obtain ICP identifiers for points of connection to local or embedded networks.

Audit commentary

The requirements of this clause are understood and managed by Pulse, and there were no examples identified where points of connection did not have ICPs.

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 process was examined in detail. Findings on the timeliness of updates are listed in **section 3.5**. The registry list file and AC020 report were examined to confirm process compliance.

Audit commentary

The new connection process is detailed in **sections 2.9**. The processes in place ensure that the trader required 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 process to manage status changes is discussed in detail in **sections 3.8** and **3.9** below. The process to manage trader updates, including MEP nominations was reviewed.

The registry list and AC020 reports were examined, and a sample of late updates were checked as described in the audit commentary.

Audit commentary

Status updates

Pulse updates the ICP status once they receive confirmation that the ICP has been disconnected or reconnected from the MEP or contractor. A spreadsheet of service order records is maintained and used to monitor progress of disconnection and reconnection jobs twice weekly, to ensure that they are completed, and paperwork is received.

Status updates to the registry are made via Gentrack. The status update process is multi-step and the operations team update the status sheet (used to bill customers), memo the account, and then process the status update in Gentrack which is transferred to the registry. I found that over 95% of status updates are on time, but where late updates occur it is often because one or more steps are missed and affected ICPs are identified through the registry mismatch check, NHH read validation, or when the customer is billed for the reconnection or disconnection. I recommend monitoring controls are put in place.

Description	Recommendation	Audited party comment	Remedial action
Monitoring of status update completion	Implement a process to check that disconnections and reconnections where paperwork has been received have been processed in Gentrack and on the Registry.	Human error in processing a high number of reconnections and disconnections. Checks are completed, A handful will be missed from time to time. Additional process to be added into Training – updates from	Identified

Description	Recommendation	Audited party comment	Remedial action
		internal teams to include the date of the update required to be actioned by the FS team.	

Status	Review period end	ICPs notified greater than 5 days	Percentage on time	Average Business Days between Status Event and Status Input Dates
Active	2018	489	37%	25
	Jan 2019	173	62%	15
	Oct 2019	375	78%	10
	2020	156	90%	3.3
	2021	122	90.02%	3.05
	Mar 2022	47	94.19%	2.25
	Oct 2022	**42**	**95.29%**	**2.15**

Timeliness of reconnections has improved during the audit period with 95.29% on time. 24 of the late reconnections were processed within ten business days of the event date, and 28 within 30 business days of the event date. The latest update was 106 business days after the event date. The ten latest updates were reviewed:

- three were corrections to active status for periods with inactive consumption,
- one was a correction to active status from Pulse's gain date, and
- six were either initially missed or not processed completely when the reconnection paperwork was received because one or more process steps were missed.

The late updates were accurately processed apart from 0000288550WT5FD, which was reconnected on 10 August 2022 but recorded as reconnected on 15 August 2022 on the registry. This is recorded as non-compliance in **sections 2.1** and **3.8**.

Status	Review period end	ICPs notified greater than 5 days	Percentage on time[3]	Average Business Days between Status Event and Status Input Dates
Inactive	2018	114	61%	8
	Jan 2019	60	88%	20
	Oct 2019	93	98.2%	2
	2020	635	99%	1

[3] For 2018-2020 status updates were split by reason code in the previous report so the percentage on time and average business days for updates to 1,4 electrically disconnected vacant property which made up the majority of the late updates have been listed.

Status	Review period end	ICPs notified greater than 5 days	Percentage on time[3]	Average Business Days between Status Event and Status Input Dates
	2021	25	98.87%	1.22
	Mar 2022	29	98.00%	1.05
	Oct 2022	**15**	**98.92%**	**0.69**

Timeliness of disconnections has improved during the audit period with 98.92% on time. Four late disconnections were processed within ten business days of the event date, and ten within 30 business days of the event date. The latest update was 183 business days after the event date. I checked the three latest (or all late) status updates to each disconnection status reason code:

- two were corrections following the last actual or discovering the initial update was incorrect,
- two were either initially missed or not processed completely when the disconnection paperwork was received because one or more process steps were missed, and
- six were delayed by late notification that the disconnection had been completed.

The late updates were accurately processed.

Trader updates

The timeliness of trader updates is set out in the table below.

Review period end	ICPs notified greater than 5 days	Percentage on time	Average Business Days between Status Event and Status Input Dates
Jan 2019	633	42%	198
Oct 2019	261	75.1	23
2020	212	88%	2.75
2021	352	95.89%	2.69
Mar 2022	499	97.48%	0.91
Oct 2022	1,107	85.13%	3.89

232 late updates were processed within ten business days of the event date, and 1,031 within 30 business days of the event date. The latest update was 1,569 business days after the event date. I checked a sample of late updates as described in the table below, including all 16 updates made over 200 business days after the event date.

ANZSIC updates - changes	I checked the 11 latest ANZSIC code changes, which were ANZSIC corrections following a registry update failure. The corrections are processed by the reconciliation team by creating a Gentrack queue item, but these are not always dealt with on time.
MEP nominations	I checked the ten latest MEP nominations and found nine were backdated at the MEP's request. The other update was not a genuine MEP nomination, it was removal of a space character from the profile field.
Profile updates	I checked the 11 latest profile changes. Nine were additions or removals of distributed generation profiles and were backdated corrections. Pulse has found Gentrack is not automatically updating registry profiles where distributed generation is added or removed

	as expected. The missed updates were detected and corrected through Pulse's validation processes. The profile update issues for distributed generation are discussed in more detail in **section 6.1**. The other two late updates were backdated changes from NHH to HHR, which were later reversed.
Submission type changes	I checked the ten latest submission type changes. Two were delayed by backdated meter replacements, and eight were corrections after the profile was updated without also updating the submission type. Regular review of the AC020 trader compliance report as recommended in **section 2.1** would help to promptly identify inconsistencies between the submission type and profile which require correction.

I checked the accuracy of a sample of 36 trader updates and identified ten event date and/or attribute inaccuracies which are recorded as non-compliance in **section 2.1**.

The AC020 report recorded 11 ANZSIC code updates more than 20 business days after initial electrical connection or switch in. All were delayed by backdated new connections or switch completion, or corrections for ICPs which switched in with unknown ANZSIC codes.

Recommendation	Description	Audited party comment	Remedial action
Monitoring of failed registry trader updates	Review processes to pass ICPs requiring corrections to the reconciliation team to ensure that they are received and resolved on time.	Failed registry updates are monitored in the Registry File Error queues. Might need a queued task in GT to action and retrigger a registry update.	Investigating

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.3 With: Clause 10 Schedule 11.1 From: 01-Apr-22 To: 18-Oct-22	**PUNZ** 42 late updates to active status. 15 late updates to inactive status. 1,107 late trader updates. 11 ANZSIC code updates more than 20 business days after initial electrical connection or switch in. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are recorded as moderate overall. The percentage of status updates on time is very high, and many of the late updates were backdated corrections which improve accuracy.

	The impact on settlement outcomes is low, because Cobra's processes ensure that correct profiles are applied for submission for distributed generation ICPs, and the late status updates occurred in time for revision 14.

Actions taken to resolve the issue	Completion date	Remedial action status
Profile updates have been automated. Submission Type change process has been reviewed. Meetings to discuss the issues and put a plan in place to rectify the issues above and put in preventative measures.	21/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Audit report to be checked weekly and monthly compliance meetings will be started to monitor compliance tasks across the business.	1/3/23	

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)):*
    - *arrange for a final interrogation to take place prior to or upon meter removal (clause 11.18(3)(a)); and*
    - *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. A sample of MEP nomination rejections and decommissioned ICPs were examined.

Audit commentary

Retailers Responsibility to Nominate and Record MEP in the Registry

The new connection process is discussed in detail in **sections 2.9**. Because the 1,12 "inactive new connection in progress" status is not used, MEP nominations occur when the ICP is moved to "active" status. Any backdated updates to "active" are likely to also have late MEP nominations.

MEP nominations are raised in Gentrack and rejected nominations appear in the MEP nominations work queue. Queue items are closed if the MEP nomination was issued in error and is not required, or the nomination is checked and reissued. All new connections had an MEP nominated, and two of the 983 MEP nominations made were rejected because they were raised for the wrong ICP in error.

The AC020 report recorded three ICPs that were active with a metering category of nine or blank. Two were timing differences and had metering details updated after the report was run. ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring. Pulse is investigating the ICP as described in **section 2.9**.

ICP Decommissioning

Pulse continues with their obligations under this clause. ICPs that are vacant and either "active" or "inactive" are still maintained in their systems. When an ICP is decommissioned, an attempt is made to read the meter at the time of removal and if this is not possible then the last actual meter reading is used. This last actual reading is normally the one taken at the time of disconnection. Pulse also advises the MEP responsible that the site is to be decommissioned, or has been decommissioned, dependent on the distributor's process.

A sample of ten ICPs were examined and confirmed that an attempt to read the meter was made at the time of removal, and the MEP was notified.

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 five 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

The new connection processes were examined in detail to evaluate the strength of controls, and the registry list and audit compliance reports were examined to confirm process compliance.

Audit commentary

New connection information timeliness

The new connection process is described in detail in **section 2.9**. The timeliness of status updates to "active" (for new connections) is set out in the table below.

Review period end	ICPs notified greater than 5 days	Percentage on time	Average Business Days between Status Event and Status Input Dates
2021	216	86.06%	4.83
Mar 2022	19	89.27%	3.63
Oct 2022	**27**	**82.58%**	**4.81**

13 late new connections were processed within ten business days of the event date, and 24 within 30 business days of the event date. The latest update was 51 business days after the event date. The ten latest updates were caused by late receipt of connection paperwork, late processing of the connection paperwork by Pulse, or corrections following the ICP temporarily being claimed with active status before being connected to allow an MEP nomination to be raised.

MEP nominations occur at the time the ICP and metering is loaded into Gentrack, and the status is changed to "active". All 27 late updates to "active" status also had late MEP nominations. I recommend Pulse considers a process change to ensure MEP nominations occur before metering is installed as part of their planned Gentrack upgrade. If an MEP requires a nomination before the ICP is connected, Pulse must claim the ICP manually on the registry and enter a trader update.

Recommendation	Description	Audited party comment	Remedial action
MEP nomination	Consider a process change to nominate the MEP before metering is installed for new connections by using the 1,12 "inactive - new connection in progress" status. In the meantime, if an MEP nomination is required before initial electrical connection the ICP should be claimed manually on the registry using the 1,12 "inactive - new connection in progress" status.	New connection GT process review required (outside of current Hypercare tickets).	Investigating

The AC020 report recorded that all ICPs had an MEP nomination accepted within 14 business days.

New connection information accuracy

Pulse has a new connection report which is monitored monthly. It compares new connection ICP details in Gentrack and the registry, and also records the consumer and service order status. It is used to monitor new connection progress and follow up any actions that need to occur before the connection can be completed. There were no new connections with unmetered load, or metering categories higher than 1.

The AC020 report recorded seven ICPs which had an initial electrical connection date populated and which remained at "ready" status. Six ICPs were later made "active" from the initial electrical connection date. Pulse has not received customer acceptance or agreed to be the proposed trader for ICP 0000010622EA5F6 and I have recommended that they advise the distributor in **section 3.10**.

Active dates for new connections were compared to the distributor's initial electrical connection date, and MEP's certification date using the AC020 report. The AC020 report identified 33 ICPs with date discrepancies. 18 were timing differences and the initial electrical connection date and/or meter certification date were later updated to be consistent with Pulse's active status update. The other 15 differences were checked:

Exception type	Quantity	Quantity incorrect	Commentary
Active date = MCD and active date ≠ IECD	5	1	Pulse's active date was correct for four ICPs. 0110013066EL253 was initially electrically connected from 1 July 2022 but the active status event date is 19 May 2022.
Active date ≠ MCD and active date = IECD	1	1	1000608282PC360 was initially electrically connected from 13 September 2022 but the active status event date is 15 July 2022.
Active date = MCD and no IECD	8	-	Pulse's active date was correct for the sample of five ICPs checked.
No MCD and active date = IECD	1	-	Pulse's active date was correct.
Total	**15**	**2**	

I rechecked the status date for ICP 1100000044WMF02, which the previous audit was initially electrically connected from 7 December 2021, but the active status event date is still 29 November 2021.

Recommendation	Description	Audited party comment	Remedial action
Status date correction for ICP 1100000044WMF02	Correct the active status date from 29 November 2021 to 7 December 2021.	Unable to backdate correct statuses without reversal across all parties on the registry. Network and MEP contacted to reverse their input before PUNZ can correct the date.	Investigating

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.5 With: Clause 9 of schedule 11.1 From: 29-Nov-21 To:14-Oct-22	27 late updates to active status for new connections. 27 late MEP nominations for new connections. 0110013066EL253 was initially electrically connected from 1 July 2022 but the active status event date is 19 May 2022. 1000608282PC360 was initially electrically connected from 13 September 2022 but the active status event date is 15 July 2022. 1100000044WMF02, was initially electrically connected from 7 December 2021 but the active status event date is still 29 November 2021. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because most updates were on time and correct, but improved processes would result in better compliance. The updates were made in time for revised submission information to be provided through the wash up process, and most updates are accurate.

Actions taken to resolve the issue	Completion date	Remedial action status
Meetings to discuss the issues and put a plan in place to rectify the issues above and put in preventative measures.	21/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Audit report to be checked weekly and monthly compliance meetings will be started to monitor compliance tasks across the business.	8/3/23	

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

Audit commentary

On switch in or new connection Pulse's customer care team check ANZSIC codes and update them as necessary. A monthly ANZSIC comparison report is reviewed, which shows the ANZSIC codes for ICPs with different charge classes in Gentrack and the registry. This check will not identify ICPs where the ANZSIC code is missing or unknown or ANZSIC code discrepancies for ICPs where the Gentrack and registry charge classes are consistent.

The AC020 recorded:

- three ICPs with T994 unknown ANZSIC codes, which have now been corrected to 000000 residential,
- eight ICPs with metering category two had residential ANZSIC codes; six were confirmed to be residential and ICPs 0000509630CE27F and 0000709545BUB16 are under investigation to confirm the correct industry and ANZSIC code, and
- no ICPs with metering category three or above had residential ANZSIC codes.

To confirm the validity of the ANZSIC codes selected I checked a diverse sample of 80 active ICPs across the ten most popular ANZSIC codes. 78 were confirmed to be correct and ICPs 1099570579CN226 and 0004908793ENA74 are under investigation to confirm the correct industry.

Description	Recommendation	Audited party comment	Remedial action
ANZSIC code validation	As recommended in **section 2.1**, review the registry AC020 report to identify and correct blank or unknown ANZSIC codes (AC020Trader11), and ICPs with metering category 2 or higher with residential ANZSIC codes (AC020Trader12). Refine the ANZSIC comparison report to include ICPs where the Gentrack and registry charge classes are consistent, but the ANZSIC code applied is inconsistent with one or both charge classes.	Existing Recon report doesn't cover all ANZSIC scenarios so will review and update Audit Compliance Report moving forward.	Investigating
ANZSIC code investigations	Confirm the correct ANZSIC codes for ICPs 0000509630CE27F, 0000709545BUB16, 1099570579CN226 and 0004908793ENA74.	These are all currently corrected	Cleared

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.6 With: 9 (1(k) Schedule 11.1 From: 13-Oct-22 To:19-Dec-22	**PUNZ** Three ICPs had unknown ANZSIC codes and were corrected during the audit. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because most ANZSIC codes were found to be accurate, but validation requires improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
We will include the AC020 report when doing analysis on ANZIC codes	31/3/23	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will update the ANZSIC code process	31/3/23	

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 process to manage unmetered load was examined. The registry list and AC020 reports were examined to identify:

- any ICPs where unmetered load is recorded by the distributor but not the trader, and
- any ICPs where the trader's unmetered load is not within ±1 kWh of the distributor's figure (where it is possible to calculate this if the distributor is using the recommended format).

Audit commentary

Unmetered load submissions are calculated in Cobra from the registry daily unmetered kWh x the active ICP days during the reconciliation period. The billing team receives a notification from Gentrack if there

is a discrepancy between the unmetered load details recorded in Gentrack and on the registry. Any discrepancies are investigated.

Pulse supplies 26 ICPs with unmetered load indicated. Nine have shared unmetered load and 17 have standard unmetered load. No distributed unmetered load is supplied. No unmetered builder's temporary supplies are supplied.

The AC020 report was reviewed to check the accuracy of unmetered load details:

- no ICPs had the unmetered flag set to yes but the daily kWh was blank or zero,
- no ICPs had distributor unmetered load recorded but the unmetered load flag set to no, and
- no ICP had trader kWh more than ± 0.1 kWh different to the distributor value for that ICP.

ICP 0001162169MLDF9 has had trader unmetered load details and unmetered daily kWh consistent with the distributor values for that ICP. However, these details were not consistent with the values recorded for the associated SI ICP 0001162160ML3A8 which indicates 90W on for 11.5 hours shared between four ICPs, rather than the 84W on for 11.5 hours shared between four ICPs indicated on 0001162169MLDF9. This results in a difference of 0.25 kWh per day or 91.25 kWh per annum. I recommend that the correct wattage is confirmed with the distributor.

ICPs 0000479020CE001 and 0000076141CEA6F have unmetered load recorded by Pulse but not the distributor on the registry list. Both were confirmed to have unmetered load and Cobra is submitting unmetered volumes.

ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring. Pulse is investigating the ICP as described in **section 2.9**.

I rechecked ICP 0000678614UN599, which had a discrepancy between the trader and distributor kWh during the last two audits. The daily kWh figure is correct, but the description indicates there is one light and there are actually 10 lights. I repeat the recommendation to update the description.

Recommendation	Description	Audited party comment	Remedial action
Update trader unmetered load details for ICP 0000678614UN599	Update the description for ICP 0000678614UN599 to clarify there are 10 lights not one light.	We have spoken to VECT about changing this to 10 ICPs. They told us the only way to change this is to manually change it in the registry but this would be overwritten anytime a correction entry is run from Vectors system.	Investigating The recommendation relates to Pulse's trader unmetered load details which are maintained by Pulse not Vector. Vector updates will not overwrite this field.
Check unmetered wattage for shared unmetered load parent ICP 0001162160ML3A8 and the associated child ICPs	Confirm the correct wattage for the shared unmetered load parent ICP 0001162160ML3A8 and the associated child ICPs.	We have spoken to MARL and they have confirmed that the wattage and details in the registry are correct. Marek is still investigating this.	Investigating

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 be 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

The new connection processes were examined in detail as discussed in **sections 2.9** and **3.5**.

The reconnection process was examined using the AC020 and event detail reports.

- The timeliness and accuracy of data for new connections is assessed in **section 3.5**.
- The timeliness of data for reconnections is assessed in **section 3.3**, and a sample of 20 updates were checked for accuracy.

For new connections which had been electrically connected during the audit period, the initial electrical connection date, earliest active date, and meter certification date were compared to determine the accuracy of the connection dates.

Audit commentary

The connection and reconnection processes were examined. The status of an ICP is only changed to "active" once confirmation has been received. Submission information is provided for all "active" ICPs, including "active" vacant ICPs.

Requirements for active ICPs

Before being given an "active" status the trader is required to ensure that the ICP has only one customer, embedded generator, or direct purchaser and that the electricity consumed is quantified by a metering installation or other Authority approved method of calculation. Gentrack does not allow more than one party per ICP, nor will it allow an ICP to become "active" without either a meter or a dummy meter (for unmetered load).

Reconnections

The accuracy of updates for reconnections were checked by reviewing a sample of ten updates to confirm that the correct status and dates were applied. The updates were accurately processed apart from 0000288550WT5FD, which was reconnected on 10 August 2022 but recorded as reconnected on 15 August 2022 on the registry.

New connections

The AC020 report recorded seven ICPs which had an initial electrical connection date populated and which remained at "ready" status. Six ICPs were later made "active" from the initial electrical connection date. Pulse has not received customer acceptance or agreed to be the proposed trader for ICP 0000010622EA5F6 and I have recommended that they advise the distributor in **section 3.10**.

Active dates for new connections were compared to the distributor's initial electrical connection date, and MEP's certification date using the AC020 report. The AC020 report identified 33 ICPs with date

discrepancies. 18 were timing differences and the initial electrical connection date and/or meter certification date were later updated to be consistent with Pulse's active status update. The other 15 differences were checked:

Exception type	Quantity	Quantity incorrect	Commentary
Active date = MCD and active date ≠ IECD	5	1	Pulse's active date was correct for four ICPs. 0110013066EL253 was initially electrically connected from 1 July 2022 but the active status event date is 19 May 2022.
Active date ≠ MCD and active date = IECD	1	1	1000608282PC360 was initially electrically connected from 13 September 2022 but the active status event date is 15 July 2022.
Active date = MCD and no IECD	8	-	Pulse's active date was correct for the sample of five ICPs checked.
No MCD and active date = IECD	1	-	Pulse's active date was correct.
Total	**15**	**2**	

I rechecked the status date for ICP 1100000044WMF02, which the previous audit was initially electrically connected from 7 December 2021, but the active status event date is still 29 November 2021.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.8 With: Clause 17 Schedule 11.1 From: 29-Nov-21 To: 13-Sep-22	**PUNZ** 0000288550WT5FD was reconnected on 10 August 2022 but recorded as reconnected on 15 August 2022 on the registry. 0110013066EL253 was initially electrically connected from 1 July 2022 but the active status event date is 19 May 2022. 1000608282PC360 was initially electrically connected from 13 September 2022 but the active status event date is 15 July 2022. 1100000044WMF02, was initially electrically connected from 7 December 2021 but the active status event date is still 29 November 2021. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	The controls are recorded as moderate because most updates were on time and correct, but improved processes would result in better compliance. Revised submission information will be provided through the wash up process once corrections are made. Most of the status updates checked were accurate.

Actions taken to resolve the issue	Completion date	Remedial action status
New Connections - Network application received, awaiting customer acceptance before forwarding acceptance to the network. Emailed network to reverse PUNZ as Proposed Trader. Reconnections – Training has previously been provided to agents however due to a high volume of actions being taken human error has occurred.	21/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Audit report to be checked weekly and monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

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.

The registry list file was examined to identify any ICPs that had been at the "inactive - new connection in progress" status for more than 24 months.

Audit commentary

Inactive - new connection in progress

The "inactive - new connection in progress" status is not routinely used, and no ICPs were moved to this status during the audit period. ICP 1099582023CNB66 is currently at "inactive - new connection in progress" status and has been at the status since November 2021. No initial electrical connection date is populated.

Inactive Status (excluding new connection in progress)

The status of an ICP is only changed to "inactive" once confirmation has been received from the agent or MEP. If an ICP needs to be disconnected a service order is sent to the MEP for remote disconnections or to Wells for North Island disconnections or to Delta for South Island disconnections. Once confirmation is received that the disconnection has occurred, Gentrack is updated, which then updates the registry. A comparison between Gentrack and registry statuses is completed twice weekly as discussed in **section 2.1**.

The AC020 report recorded six ICPs with a status reason indicating they were remotely disconnected by AMI metering, but the AMI flag was set to no. For all six, the status reason was correct at the time of disconnection and the MEP updated the AMI flag to N after disconnection.

A diverse sample of 22 updates to disconnected statuses were checked, and I confirmed that the updates had the correct status event date and disconnection reason code except:

- 0000452073WE2B1 which was disconnected on 17 August 2022, but the inactive status event date is 16 August 2022,
- 0001341715ALE7A which was disconnected at the pillar on 12 October 2022, but had the 1,10 electrically disconnected at meter box fuse reason code applied, and
- 0000018318NTE35 which was disconnected at the pole fuse on 25 July 2022 but had the 1,5 reconciled elsewhere reason code applied; it was corrected to 1,8 electrically disconnected at pole fuse during the audit.

Inactive ICPs with consumption

Pulse applies disconnection and reconnection reads in Gentrack where these are available. Where a suitable boundary reading is not available, and the read-to-read period is split between active and inactive periods then the SASV for inactive days are excluded from the numerator and denominator which effectively forces all of the consumption into the active portion of the read-to-read period. If an entire read-to-read period is inactive, the numerator and denominator will be zero and no volumes will be calculated.

Pulse applies a daily process described as "Validations on sites with no consumer" which monitors vacant consumption including where this may occur on an inactive ICP. This is an operation list of sites where a schedule read is retrieved for a vacant ICP and is not automatically validated in Gentrack due to no consumer being present at the ICP. An ICP will drop off the daily list where it switches away or a new customer is identified. The primary function of this process is to manually validate (release) these reads to enable these to be transferred to COBRA and initiate the vacant disconnection process.

There is a step in the process where the user is required to check to see if the ICP is disconnected and if so, has the meter advanced since the previous scheduled meter read was uploaded. The user is required to investigate whether this consumption is genuine and if so then the issuer is required to email the field services & switching team to update the registry status to active and reinitiate the vacant disconnection process.

The process document is silent on setting the "active" status event date. Commonly the date of the email to the field services & switching team is applied as the event date. If an entire read-to-read period with consumption is inactive, no volume will be reported and if part of a read-to-read period with consumption is inactive, the volume will be reported in the active part of the period.

Additionally, as the process uses a daily operational list of vacant sites where a schedule meter read has been received by Gentrack, Pulse was unable to provide an accurate list of inactive ICPs where consumption has recorded but not included in submission. A sample of two ICPs were provided and reviewed and both (ICP 0007117074RN567 – 2107kWh, ICP 1002064591LC7B0 – 3648kWh) were identified as having inactive consumption present (that has not been included in the submission process) as the update to "active" status was from the date the Gentrack exception was generated, and

the switching team is notified to update the status event. This is recorded as non-compliance below and in **sections 2.1, 12.2** and **12.7.**

Because not all ICPs with inactive status are checked to determine whether there are non-zero volumes, and the COBRA inactive consumption validation threshold (MAX_DEENERG_CONSUMP) is 500 kWh (discussed in **section 9.5**) I could not accurately assess the number of ICPs affected or total kWh during inactive periods. It is likely that unresolved inactive consumption exceptions are occurring but once the ICP either switches away or a new consumer is assigned to the property the potential exception drops off the operational list. I recommend that Pulse construct a suitable management report to effectively monitor inactive consumption as part of the Gentrack upgrade project.

Recommendation	Description	Audited party comment	Remedial action
Inactive consumption reporting	Pulse constructs a suitable management report to effectively monitor inactive consumption as part of the Gentrack upgrade project.	Pulse will review options with Gentrack through the Reconciliation project.	Investigating

One issue identified in the previous audit was the increase in manual disconnections being performed at the meter rather than at the pole fuse or pillar box fuse. Disconnection at the meter makes it much easier for the customer or other party to reconnect without Pulse knowing and results in seals being broken to complete the disconnection task. The quantities of inactive status updates by reason description during the audit period are shown in the table below:

Reason code	Count of ICP	%	Reason description
4	1,068	77%	Electrically disconnected vacant property
5	1	0%	Reconciled Elsewhere
6	15	1%	Electrically disconnected ready for Decommissioning
7	58	4%	Electrically disconnected remotely by AMI meter
8	138	10%	Electrically disconnected at pole fuse
9	43	3%	Electrically disconnected due to meter disconnected
10	23	2%	Electrically disconnected at meter box fuse
11	46	3%	Electrically disconnected at meter box switch
Grand Total	1,392	100%	

No real progress has been seen and the volume of disconnections performed at the meter is consistent with the previous audit. Pulse has engaged with both field service providers to identify the reasons for these disconnections not being completed at the network fuse point. The underlying issue is with having suitably trained and authorised personnel available in each region to conduct the disconnection at the network fuse point. It is also possible that the number of disconnections is higher than currently recorded where Pulse uses the status reason code of 4 – electrically disconnected vacant property.

Four network areas account for 64% of meter disconnections and the count of meter disconnections exceeds that of network fuse disconnections for these respective network areas. Wells and Delta conduct disconnections for Pulse and I repeat the recommendation from the previous audit that Pulse takes the following actions to assist with compliance:

- ensure disconnection service requests set expectation that disconnection should be attempted in the first instance at the network fuse point unless it has been verified on site that the ICP shares a network fuse with another ICP or no network fuse point can be identified; this will enable the field service provider to notify Pulse at the time of the request if there are no suitably trained personnel available and allow Pulse to select an alternative agent to perform the task, and

- request regular updates from the respective contracted field service providers informing Pulse of the number of suitably trained and authorised personnel available to undertake disconnections at the network fuse for each network region/distributor; this will enable Pulse to determine the suitability/selection criteria of field service providers for each function and network region.

Recommendation	Description	Audited party comment	Remedial action
Disconnection location	• Ensure disconnection service requests set expectation that disconnection should be attempted in the first instance at the network fuse point. • Request regular updates from the field service providers informing Pulse of the number of suitably trained and authorised personnel available to undertake disconnections at the network fuse for each network region/distributor.	Disconnection reports need to be updated with this wording	Identified

I recommend that Pulse reviews its use of the status reason code 4 (electrically disconnected vacant property) so that the method of disconnection is recorded as opposed to the reason for the disconnection. This will enable Pulse to effectively monitor the method of disconnection from an SLA perspective and it will also assist gaining traders to assign the correct field service providers (FSP) where a reconnection is required as part of the switching activity.

Recommendation	Description	Audited party comment	Remedial action
Review use of status reason code 4 – electrically disconnected vacant property	Pulse to apply status reason codes that describe the method of disconnection to support monitoring that the most suitable disconnection methodology by the relevant FSP.	Due to this currently being a manual process in order to avoid human error causing an increase in creating incorrect statuses we will maintain the current process.	Identified

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.9 With: Clause 19 Schedule 11.1 From: 01-Apr-22 To:12-Oct-22	**PUNZ** 0000452073WE2B1 was disconnected on 17 August 2022 but the inactive status event date is 16 August 2022. 0001341715ALE7A which was disconnected at the pillar on 12 October 2022 but had the 1,10 electrically disconnected at meter box fuse reason code applied. 0000018318NTE35 which was disconnected at the pole fuse on 25 July 2022 but had the 1,5 reconciled elsewhere reason code applied. It was corrected to 1,8 electrically disconnected at pole fuse during the audit. Incorrect status for two ICPs with consumption while inactive resulting in under submission of 5,755 kWh. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because most updates were on time and correct, but improved processes would result in better compliance. Revised submission information will be provided through the wash up process once corrections are made. There is a small impact on settlement for the ICP incorrectly recorded as inactive, and a very minor impact on ICP days submissions.

Actions taken to resolve the issue	Completion date	Remedial action status
Pulse will review options with Gentrack through the Reconciliation project. Pulse will review No Reads and Zero consumption process to ensure data flow into reconciliation.	21/2/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse will review options with Gentrack through the Reconciliation project. Pulse will review No Reads and Zero consumption process to ensure data flow into reconciliation.	31/3/23	

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.

Audit commentary

When Pulse is notified of a new connection where they have been nominated, they wait for a customer application before progressing the connection. A service order is sent to the MEP for when livening is ready. Any requests from distributors on ICPs which have been at "new" or "ready" status for more than two years are investigated and responded to when they are received.

Inactive - new connection in progress status

ICP 1099582023CNB66 is currently at "inactive - new connection in progress" status and has been at the status since November 2021. No initial electrical connection date is populated.

New status

Two ICPs are currently at "new" status, both were created in 2022.

Ready status

122 ICPs are currently at "ready" status and eight have been at the status for more than 24 months. One ICP was moved to "active" status after the report was run. The other ICPs are confirmed not to be required by Pulse, and they have not agreed to be the trader.

Recommendation	Description	Audited party comment	Remedial action
Decommissioning of ICPs not required by Pulse	Advise the distributors of the ICPs at "ready" status which are not required by Pulse, so that they can nominate a different proposed trader or decommission the ICPs: EASH 0000010622EA5F6 COUP 1099577056CN1C8, 1099577068CN5AB, 1099577159CN712 and 1099577160CNEBB DUNE 0000509148DE42F NPOW 0000572437NR24B.	Network Issue – Pulse continues to not accept responsibility as the trader for these sites as we have not provided acceptance to the network.	Identified

Audit outcome

Compliant

4. PERFORMING CUSTOMER AND EMBEDDED GENERATOR SWITCHING

No switching activity occurred for PPPP during the audit period, findings in **section 4** apply only to PUNZ.

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 Pulse 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

Pulse's processes are compliant with the requirements of Section 36M of the Fair Trading Act 1986. An NT is raised from Gentrack once an agreement is reached and credit approval is received, and the withdrawal process is used if the customer changes their mind.

Switch type is selected based on information provided by the customer on application. Transfer switch type is applied where a customer is transferring between retailers at an address, and switch move is applied where a new customer is moving into the address.

I checked the metering category for the 2,461 transfer switch ICPs where this information was available on the PR255 report and found none had metering categories of three or above.

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

Audit outcome

Compliant

4.2. 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 event detail report was reviewed to:

- identify AN files issued by Pulse 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.

Audit commentary

AN timeliness

AN files are generated by Gentrack. If the file is unable to be issued, or the registry issues an acknowledgement indicating the file was rejected the ICP will be directed to an error queue in Gentrack for resolution. The switch breach history report is monitored twice daily to ensure that AN files are issued on time. The switch breach history report for the audit period did not record any AN breaches for transfer switches.

AN content

AN response codes are determined from Gentrack's ICP status and technical details (including the prepaid metering flag, unmetered flag, and advanced metering flag). The codes are applied according to a hierarchy which ensures that the AA (acknowledge and accept) code is only applied where none of the other codes apply. Users can manually change the AN response codes and event dates in Gentrack before the AN file is issued where necessary. AN proposed event dates are set to the NT requested date unless that date will cause non-compliance, and then a NW file is issued.

I found that Gentrack's technical details are not updated after the ICP is connected or switches in, and this resulted in some incorrect AN codes being applied where the technical details had changed.

Description	Recommendation	Audited party comment	Remedial action
Update of Gentrack's ICP technical details	Update the Gentrack ICP technical details where this information changes on the registry. This will help to ensure that AN codes are correctly applied.	We have raised this issue with our system provider (Gentrack) who are currently reviewing.	Investigating

AN response codes were examined to determine whether they were accurately applied:

Response code	Quantity of ANs	Sample checked	Quantity incorrect	Findings
AA (acknowledge and accept)	242	242	8	234 had the correct code applied. Two ICPs were disconnected and should have had the PD (premises electrically disconnected) code applied. Pulse advised that the codes were manually edited in Gentrack in error. Six ICPs had the advanced metering code set to yes and should have had the AD (advanced metering) code. The wrong code was applied because Gentrack's ICP technical details were out of date.
AD (advanced metering)	3,537	3,498	1	3,497 of the 3,498 ANs where metering information was available on the registry list had the correct AN code applied. One ICP did not have advanced metering and should have had the AA (acknowledge and accept) code. The wrong code was applied because Gentrack's ICP technical details were out of date.
OC (occupied premises)	3	3	-	All were recorded correctly.
MU (unmetered supply)	1	1	1	The ICP had was not unmetered. The advanced metering code was set to yes and the AD (advanced metering) code should have been applied. The wrong code was applied because Gentrack's ICP technical details were out of date.
PD (premises electrically disconnected)	1	1	1	The ICP was active. The advanced metering code was set to yes and the AD (advanced metering) code should have been applied. Pulse advised that the code was manually edited in Gentrack in error.
Total	**3,784**	**3,745**	**11**	

The event detail was reviewed for all 3,784 transfer ANs to assess compliance with the setting of event dates requirements. 3,714 ANs (98.2%) had proposed event dates within five business days of the NT receipt date, and all had proposed event dates within ten business days of the NT receipt date.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.2 With: Clauses 3 and 4 of schedule 11.3 From: 09-Apr-22 To: 13-Oct-22	**PUNZ** 11 of the 3,745 transfer ANs checked had incorrect AN response codes. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because correct codes are applied unless the ICP technical details have changed and not been updated in Gentrack, or a user has manually entered an incorrect AN response code. The impact is low because there is no impact on settlement, and information on ICP status, unmetered load and metering is available to the other trader on the registry.

Actions taken to resolve the issue	Completion date	Remedial action status
We have raised this issue with our system provider (Gentrack) who are currently reviewing.	21/3/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse will review options with Gentrack through the Reconciliation project.	Ongoing	

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 event detail report was reviewed to identify CS files issued by Pulse 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.

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 reports for the audit period were reviewed to identify late CS files.

Audit commentary

CS timeliness

CS files are generated by Gentrack. If the CS is due but has not been released within three business days of NT receipt, the file is not acknowledged by the registry, or the registry issues an acknowledgement indicating the file was rejected, the ICP will be directed to an error queue in Gentrack for resolution. The switch breach history report is monitored twice daily to ensure that CS files are issued on time. The switch breach history report for the audit period did not record any late transfer CS files.

CS content

The registry functional specification requires average daily kWh to be based on the average daily consumption for the last validated read-to-read period. Gentrack is configured to calculate the average daily consumption from the last two readings, rather than the last two actual validated readings. Analysis of the average daily kWh on the event detail report identified:

Average daily kWh	Quantity of TR CS	Sample checked	Quantity incorrect	Comment
Negative	-	-	-	Compliant.
Zero	42	5	1	0000960457TU88B 29 September 2022 had no validated actual readings during the period of supply and the incoming CS value of 13 kWh was expected to be applied.
More than 200 kWh	7	5	-	I checked the five largest values and confirmed that they were correct.
Total	**49**	**10**	**1**	

I checked all 3,478 transfer switch CS files for inconsistencies between last actual read dates and switch event read types and found:

Inconsistency type	Quantity of TR CS	Sample checked	Quantity incorrect	Findings
Last actual read date = switch event date	1	1	1	The last actual read date is expected to be the last actual read during the period of supply. The ICP had an incorrect last actual read date.
Actual reading where the last actual read	1	1	1	If the last actual read date is more than one business day before the event date, an estimated switch

Inconsistency type	Quantity of TR CS	Sample checked	Quantity incorrect	Findings
date is before the last day of supply				event read is expected. The ICP had an incorrect last actual read date.
Total	**2**	**2**	**2**	

The accuracy of the content of a further five CS files was checked, and all fields were correct.

The CS accuracy issues are summarised below. There is no impact on submission information.

Field	Quantity of TR CS	CS content issue
Average daily kWh	1	0000960457TU88B (29 September 2022) had no validated actual readings during the period of supply and the incoming CS value of 13 kWh was expected to be applied.
Last actual read date	2	0000018340NT429 (31 August 2022) had the last actual read date recorded as 31 August 2022 but should have been 3 August 2022. 0000512095NR488 (26 September 2022) had the last actual read date recorded as 20 July 2022 but should have been 25 September 2022.

Description	Recommendation	Audited party comment	Remedial action
CS content accuracy	Improve the accuracy of CS content, including: • the average daily kWh, which should be the average daily consumption between the last two actual validated reads up to the last day of responsibility; if there are less than two actual readings available, the incoming CS value is expected to be applied, • correct event readings and read types, including providing actual readings where available, or the best estimate of consumption up to the end of the last day of supply regardless of whether the ICP is vacant or occupied; customer readings which have not been validated against a set of actual validated readings from another source are expected to be recorded as estimated readings, • last actual read dates, which should be the date of the last validated actual reading during the period of supply; currently if a read is rejected on import but later validated it is ignored when determining the last actual read date, and • develop processes to ensure that the correct switch event read date, read and type are accurately recorded in Gentrack and Cobra and used for reconciliation.	We have raised this with our system provider (Gentrack) to confirm the logic is correct for CS files.	Investigating

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.3 With: Clause 5 Schedule 11.3 From: 31-Aug-22 To:21-Sep-22	**PUNZ** Gentrack is configured to calculate the average daily consumption from the last two readings, rather than the last two actual validated readings. One CS file had an incorrect average daily kWh. Two CS files had incorrect last actual read dates. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because most switch file content is correct. Data is only incorrect in certain circumstances including when the last two readings are not actual, the last read type is not actual, there is not a reading on the last day of supply, or the ICP has had invoices reversed and rebilled. Pulse intends to upgrade Gentrack which should help to resolve the CS content issues. The impact on settlement and participants is estimated to be minor based on the number of exceptions identified, and the kWh difference between applied and expected reads where it could be calculated.

Actions taken to resolve the issue	Completion date	Remedial action status
We have raised this with our system provider (Gentrack) to confirm the logic is correct for CS files.	21/3/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse will review options with Gentrack through the Reconciliation project.	Ongoing	

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

6A Gaining trader disputes reading.

(1) If a gaining trader disputes a switch event meter reading under clause 6(1)(b), the gaining trader must, no later than four months after the event date, provide to the losing trader a revised switch event meter reading supported by two validated meter readings.

(2) On receipt of a revised switch event meter reading from the gaining trader under subclause (1), the losing trader must either—

(a) if the losing trader accepts the revised switch event meter reading, or does not respond to the gaining trader, use the revised switch event meter reading; or

(b) if the losing trader does not accept the revised switch event meter reading, advise the gaining trader (giving all relevant details) no later than five business days after receiving the revised switch event meter reading.

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 transfer switches were checked to confirm that the content was correct, and that Pulse'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 Pulse's systems.

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

Audit commentary

RR

RR requests are generally initiated via email between the two parties and once agreement has been reached, an RR file is triggered in Gentrack. The user enters the required readings into Gentrack's "switch read dispute" screen. Users are unable to enter a read type, and all RR readings are sent as estimates. In some cases, Pulse has received an actual reading for the event date from an MEP or agent and they should be able to apply the correct read type.

AC files are reviewed on receipt. If they are rejected, no action is required unless Pulse decides to reissue the RR. If accepted, the billing team is notified, and they manually enter the reading into Gentrack and rebill the customer as necessary. The reads are then transferred from Gentrack to Cobra. Switch event reads which are automatically transferred from Gentrack to Cobra default to actual read type.

Pulse issued 19 RR files for transfer switches. 16 were accepted and three were rejected. A sample of all rejected files and seven accepted files were checked to determine whether there was a valid reason for the RR, the RR content was correct, and that Gentrack and Cobra reflected the outcome of the RR process. The following exceptions were identified:

- RRs for 0000034273EA2F7 22 April 2022, 0001270280TG72C 5 May 2022, 1000014460BP9AF 27 June 2022 and 1000017736BP1CB 14 April 2022 were recorded with estimated RR readings, which should have been actual because they were based on an actual reading provided by the MEP for the event date, and
- the agreed switch reads for 0006693539RN78B 2 May 2022, 0001270280TG72C 5 May 2022, 0000015548EACB4 14 June 2022, 1000014460BP9AF 27 June 2022, 1000017736BP1CB 14 April 2022 and 0003303660BU43B 9 August 2022 were recorded with an actual read type in Cobra but should have been recorded with an estimated read type.

The switch breach history report recorded one RR breach for a transfer switch, which was delayed while Pulse waited to receive two actual readings to support the RR.

Description	Recommendation	Audited party comment	Remedial action
Read types recorded in RR files	Gentrack's switch read dispute process defaults the read type to estimate for all RR requests. Users should be able to amend this to actual if they have an actual reading for the switch event date.	Resolved in GT.	Identified
Read types for switch event reads transferred directly from Gentrack to Cobra	Gentrack's process to export switch event readings to Cobra defaults the read type to actual. The correct switch event read type should be applied.	Reads from Gentrack and Prada are imported as actual reads into Cobra. We have a separate process that imports missing CS and RR reads from the EDA file. We will work with our DBA to make sure the correct switch event type is used going forward. A jira has been raised. We will test this in Gentrack and make sure it is correct in Gentrack.	Identified

AC

All RR requests received from other traders are evaluated against meter reading information. If the request is within validation requirements these are accepted. If an RR is accepted the switching team will add the reads to Gentrack and rebill the customer if the ICP is not vacant. The reads are then transferred from Gentrack to Cobra, and default to actual read type.

Pulse issued 190 AC files for transfer switches. 150 were accepted and 40 were rejected. A sample of five rejected files and five accepted files were checked to determine whether the rejections were valid, and if Gentrack and Cobra reflected the outcome of the RR process. One exception was identified, the agreed switch reads for 0000964071TUED0 24 June 2022 were recorded as actual in Gentrack and Cobra but should have been estimated. The read type was mis-keyed on entry into Gentrack.

The switch breach history report did not record any AC breaches.

Application of incoming CS reads

Review of five transfer CS files with estimated reads where no RR was issued confirmed that the correct readings were recorded in Gentrack and Cobra.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.4 With: 6(1) and 6A Schedule 11.3	**PUNZ** One RR breach. RRs for 0000034273EA2F7 22 April 2022, 0001270280TG72C 5 May 2022, 1000014460BP9AF 27 June 2022 and 1000017736BP1CB 14 April 2022 were recorded with estimated RR readings, which should have been actual.

From: 20-Sep-22 To: 20-Sep-22	The agreed switch reads for 0006693539RN78B 2 May 2022, 0001270280TG72C 5 May 2022, 0000015548EACB4 14 June 2022, 1000014460BP9AF 27 June 2022, 1000017736BP1CB 14 April 2022 and 0003303660BU43B 9 August 2022 were recorded with an actual read type in Cobra but should have been recorded with an estimated read type. The agreed switch reads for 0000964071TUED0 24 June 2022 were recorded as actual in Gentrack and Cobra but should have been estimated. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	The controls are recorded as moderate because estimated switch event readings are not consistently recorded with the correct read type in Cobra, and Gentrack's RR files default the read type to actual. Almost all RR files were on time. The impact is low: • the correct read types are recorded in the CS file for most CS files checked, • the correct read types are recorded in Gentrack for all ICPs checked, • all switch event reads are correctly treated as permanent by the historic estimate calculation process, so there is no impact on submission volumes, and • the late file was issued in time for corrected submission information to be provided through the wash up process.

Actions taken to resolve the issue	Completion date	Remedial action status
Gentrack switch read type for RR files has now been updated. We are working internally with our DBA to ensure the correct RR read type is stored in Cobra.	21/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Gentrack switch read type for RR files has now been updated. We are working internally with our DBA to ensure the correct RR read type is stored in Cobra.	8/3/23	

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

Pulse did not issue any RR files under clause 6(2) and (3) Schedule 11.3.

79 RR files were issued by gaining traders within five business days of CS receipt, where the gaining trader had listed a HHR profile in their NT file and the transfer switch CS event read was estimated. 76 were accepted by Pulse, and three were rejected so that customer error, customer cancellation or wrong switch type withdrawals could be processed.

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 Pulse whether any disputes have needed to be resolved in accordance with this clause.

Audit commentary

No disputes were raised 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 Pulse deem all conditions to be met. A typical sample of NTs were checked for each trader code to confirm that these were notified to the registry within two business days, and that the correct switch type was selected.

Audit commentary

Pulse's processes are compliant with the requirements of Section 36M of the Fair Trading Act 1986. An NT is raised from Gentrack once an agreement is reached and credit approval is received, and the withdrawal process is used if the customer changes their mind.

Switch type is selected based on information provided by the customer on application. Transfer switch type is applied where a customer is transferring between retailers at an address, and switch move is applied where a new customer is moving into the address.

I checked the metering category for the 3,170 switch move ICPs where this information was available on the PR255 report and found none had metering categories of three or above.

The eight NT files checked had the correct switch type selected, and seven files were issued on time. ICP 0000546035TP51E's NT for 26 May 2022 was initially issued on time on 26 May 2022 but was not reissued until 7 September 2022 following a wrong switch type withdrawal completed on 27 May 2022.

Description	Recommendation	Audited party comment	Remedial action
NTs following withdrawals	Provide training and update procedures to ensure that NTs are reissued where required after a withdrawal is completed. As a rule, wrong switch type withdrawals are expected to be issued promptly with the correct switch type.	Pulse to complete a refresher training with their Care department about re-signing post a withdrawal.	Investigating

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.7 With: Clause 9 Schedule 11.3 From: 07-Sep-22 To: 07-Sep-22	**PUNZ** One switch move NT was issued more than two business days after pre-conditions were cleared. 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 strong because NT files are usually issued on time, the exception occurred because an NT was not reissued after a withdrawal was completed. The is a minor impact on the customer, and other trader. The switch was completed in time for revised submission information to be provided through the wash up process.

Actions taken to resolve the issue	Completion date	Remedial action status
Meeting to discuss process and put in preventative measures.	21/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse to complete a refresher training with their Care department about re-signing post a withdrawal.	8/3/23	

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:*
  - *confirmation of the switch event date; and*
  - *a valid switch response code; and*
  - *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—*
  - *is not earlier than the gaining trader's proposed event date, and*
  - *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 event detail report was reviewed to:

- identify AN files issued by Pulse 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.

Audit commentary

AN and CS timeliness

AN and CS files are generated by Gentrack. If an AN file is unable to be issued, or the registry issues an acknowledgement indicating the file was rejected, the ICP will be directed to an error queue in Gentrack for resolution.

If a CS is due but has not been released within three business days of NT receipt, the file is not acknowledged by the registry, or the registry issues an acknowledgement indicating the file was rejected, the ICP will be directed to an error queue in Gentrack for resolution.

The switch breach history report is monitored twice daily to ensure that AN and CS files are issued on time. The switch breach history report for the audit period recorded:

- one ET breach for ICP 0000233349MPAAF where the expected transfer date was more than ten business days after the NT arrival date; a user had manually updated the date in error and the switch was later withdrawn, and
- one E2 breach for ICP 1001142689LCFA0 where the transfer date was two days earlier than the NT proposed transfer date; when a CS is issued, Gentrack is expected to automatically issue and AN, and finalise the account; this particular CS was issued without an AN or finalising the account (ticket GSD-1281 was raised with Gentrack on 18 August 2022 to investigate and resolve this issue).

AN content

AN response codes are determined from Gentrack's ICP status and technical details (including the prepaid metering flag, unmetered flag, and advanced metering flag). The codes are applied according to a hierarchy which ensures that the AA (acknowledge and accept) code is only applied where none of the other codes apply. Users can manually change the AN response codes and event dates in Gentrack before the AN file is issued where necessary. AN proposed event dates are set to the NT requested date unless that date will cause non-compliance, and then a NW file is issued.

I found that Gentrack's technical details are not updated after the ICP is connected or switches in, and this resulted in some incorrect AN codes being applied where the technical details had changed since they were originally entered and a recommendation is made in **section 4.2** to keep these details up to date.

AN response codes were examined to determine whether they were accurately applied:

Response code	Quantity of ANs	Sample checked	Quantity incorrect	Findings
AA (Acknowledge and accept)	159	159	2	157 had the correct code applied. Two ICPs had the advanced metering code set to yes and should have had the AD (advanced metering) code. The wrong code was applied

Response code	Quantity of ANs	Sample checked	Quantity incorrect	Findings
				because Gentrack's ICP technical details were out of date.
AD (Advanced metering)	865	842	1	841 of the 842 ANs where metering information was available on the registry list had the correct AN code applied. One ICP did not have advanced metering and should have had the AA (acknowledge and accept) code. The wrong code was applied because Gentrack's ICP technical details were out of date.
OC (Unmetered supply)	4,003	5	-	All were recorded correctly.
PD (Premises electrically disconnected)	1,118	888	-	883 of the 1,092 ANs where status information was available on the registry list had inactive status and the PD response code was correctly applied. 209 ICPs had active status recorded. I checked a sample of five and found that PUNZ had applied the correct code, and their status event had been reversed by the gaining trader post switch.
Total	**6,145**	**1,894**	**3**	

The event detail was reviewed for all 6,145 switch move ANs to assess compliance with the setting of event dates requirements.

- All had proposed event dates within ten business days of the NT receipt date, except 0000233349MPAAF which had a proposed event date 13 business days after the event date. A user had manually updated the date in error and the switch was later withdrawn.
- No ANs had a proposed event date before the gaining trader's requested date.

Description	Recommendation	Audited party comment	Remedial action
Investigate non-compliant switch event date created by Gentrack	Ensure that Gentrack ticket GSD-1281 to investigate why a CS for 1001142689LCFA0 was issued with a non-compliant date, and without finalising the account or an AN file is resolved.	We have raised this issue with our system provider (Gentrack) who are currently reviewing.	Investigating

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.8 With: Clause 10(1) Schedule 11.3 From: 27-Jun-22 To: 17-Aug-22	**PUNZ** Three of the 1,894 switch move ANs checked had incorrect AN response codes. One ET breach. One E2 breach. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because: • correct codes are applied unless the ICP technical details have changed and not been updated in Gentrack, or a user has manually entered an incorrect AN response code, • the ET breach was caused by a manual data entry error, and • the E2 breach appears to have been caused by an event date generated by Gentrack, but only affected one file. The impact is low because: • the incorrect AN codes have no impact on settlement, and information on ICP status and metering is available to the other trader on the registry, • the ET breach switch was later withdrawn, and • the E2 breach was two days early.

Actions taken to resolve the issue	Completion date	Remedial action status
We have raised this issue with our system provider (Gentrack) who are currently reviewing.	21/2/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse will review options with Gentrack through the Reconciliation project.	Ongoing	

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 event date under subclause (1)(b), the losing trader must, no later than 10 business days after receiving the notice referred to in subclause (1), also

complete the switch by providing to the registry manager the information described in subclause (1)(a), but in that case the event date is the event date determined by the losing trader.

Audit observation

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

Audit commentary

PUNZ

Analysis found all switch move ANs had a valid switch response code, and switches were completed as required by this clause. For 6033 of the 6146 transfer switch AN files, Pulse applied the gaining trader's requested event date. Non-compliance is recorded in **section 4.8** for one ET and one E2 switch event date breaches.

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 event detail report was reviewed to identify CS files issued by Pulse 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

CS files are automatically generated by Gentrack. The registry functional specification requires average daily kWh to be based on the average daily consumption for the last validated read-to-read period. Gentrack is configured to calculate the average daily consumption from the last two readings, rather than the last two actual validated readings. Analysis of the average daily kWh on the event detail report identified:

Average daily kWh	Count of transfer CS files	Sample checked	Quantity incorrect	Comment
Negative	-	-	-	Compliant.
Zero	613	5	-	The sample checked were correct.
More than 200 kWh	8	5	3	I checked the five largest values and found that three were incorrect. The miscalculations are believed to be caused by reversals and rebills on the affected customer accounts.
Total	**621**	**10**	**3**	

I checked all 6,107 switch move CS files for inconsistencies between last actual read dates and switch event read types and found:

Inconsistency	Quantity of MI CS	Sample checked	Quantity incorrect	Findings
Last actual read date = switch event date	14	3	3	The three files checked all contained incorrect read and/or last actual read date information.
Last actual read date after the last day of responsibility	1	1	1	ICP 0107938413LCE9F (13 July 2022) had an incorrect last actual read date, and the switch event reading did not reflect the best estimate of consumption on the last day of supply.
Last actual read date on the last day of responsibility	1	1	1	ICP 0000043996HBAFD (23 September 2022) had an incorrect last actual read date.
Actual reading where the last actual read date is before the last day of supply	11	6	6	If the last actual read date is more than one business day before the event date, an estimated switch event read is expected. The six files checked all contained incorrect read and/or last actual read date information.
Total	**27**	**11**	**11**	

The accuracy of the content of a sample of five CS files was checked and I found that ICP 0000484225CE8F5 (1 August 2022) did not have a switch event reading which reflected the actual reading or best estimate of consumption on the last day of supply.

The CS accuracy issues are summarised below:

Field	Quantity of TR CS files	CS content issue
Average daily kWh	5	0000013534CP383 (22 September 2022) recorded as 504 kWh should be 4 kWh. 0000491048CED98 (18 June 2022) recorded as 8,130 kWh should be 28 kWh. 0000491049CE1DD (18 June 2022) recorded as 16,991 kWh should be 0 kWh.

Field	Quantity of TR CS files	CS content issue
		0006914075TUAFA (11 July 2022) recorded as 50 kWh should be 41 kWh. 0000040662DEE0F (8 October 2022) recorded as 17 kWh but should be 20 kWh.
Last actual read date	8	0006914075TUAFA (11 July 2022) recorded as 11 July 2022 but should be 11 June 2022. 0009771079LNAF4 (8 August 2022) recorded as 8 August 2022 but should be 27 June 2022. The switch event readings are not recorded in Cobra. 0000040662DEE0F (8 October 2022) recorded as 11 July 2022 but should be 11 June 2022. 0000552923NR529 (1 July 2022) recorded as 1 June 2022 but should be 30 June 2022. The read status of 30 June 2022 showed as rejected in Gentrack when it was first imported, but it was later validated. 0000416572MPA0F (26 July 2022) recorded as 24 June 2022 but should be 25 July 2022. 0000866780NVEDE (8 October 2022) recorded as 7 September 2022 but should be 7 October 2022. 0107938413LCE9F (13 July 2022) recorded as 13 July 2022 but should be 12 July 2022. There were no actual reads during the one day of supply, so the last actual read date was expected to be the switch in date. 0000043996HBAFD (23 September 2022) recorded as 22 September 2022 but should be 17 September 2022. The read for 22 September 2022 was an unvalidated customer read.
Switch event read type	3	The three files had customer readings which had not been validated against a set of readings from another source recorded as actual switch event reads: 0041214565ENB31 (4 June 2022) 0000015170EA559 (16 July 2022) 0429916108LCBF6 (6 August 2022)
Switch event read value	5	0006914075TUAFA (11 July 2022) an actual read on 11 July 2022 was applied as an estimated switch event reading for 10 July 2022. This was not the best estimate for the last day of supply. 0000040662DEE0F (8 October 2022) actual reads on 8 October 2022 of 23044/16230 were applied as estimated switch event readings for 7 October 2022. This was not the best estimate for the last day of supply and should have been 23043/16228. The last readings are recorded in Gentrack and Cobra on 8 October 2022 instead of 7 October 2022. The reads are recorded as actual instead of estimated in Cobra, and there are no final reads recorded in Gentrack. 0052029380WMC03 (23 September 2022) an actual read on 14 September 2022 was applied as the switch event reading. This was not the best estimate for the last day of supply. The last reads recorded in Gentrack and Cobra are for 14 September 2022. There is no final read recorded in Gentrack. 0107938413LCE9F (13 July 2022) the switch in reading from 12 July 2022 (456) was applied as the switch out reading. An actual read on 10 September 2022 (755)

Field	Quantity of TR CS files	CS content issue
		indicated consumption, and the applied reading was not the best estimate for the last day of supply. 0000484225CE8F5 (1 August 2022) an actual read on 29 July 2022 was applied as an estimated switch event reading for 26 July 2022. This was the final reading before the ICP became vacant and consumption was not estimated up to the last day of supply on 31 July 2022. The last reads recorded in Gentrack and Cobra are on 29 July 2022

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 11 Schedule 11.3 From: 04-Jun-22 To: 08-Oct-22	**PUNZ** Gentrack is configured to calculate the average daily consumption from the last two readings, rather than the last two actual validated readings. Five CS files had an incorrect average daily kWh. Eight CS files had incorrect last actual read dates. Three CS files had incorrect switch event read types. Five CS files had switch event reads which did not reflect the actual reading or best estimate reading on the last day of supply. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because most switch file content is correct. Data is only incorrect in certain circumstances including when the last two readings are not actual, the last read type is not actual, there is not a reading on the last day of supply, or the ICP has had invoices reversed and rebilled. Pulse intends to upgrade Gentrack which should help to resolve the CS content issues. The impact on settlement and participants is estimated to be minor based on the number of exceptions identified, and the kWh difference between applied and expected reads where it could be calculated.

Actions taken to resolve the issue	Completion date	Remedial action status
We have raised this issue with our system provider (Gentrack) to confirm the CS logic is correct.	31/3/23	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
Pulse will review options with Gentrack through the Reconciliation project.	Ongoing	

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

(1) 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.

(2) If the gaining trader elects to use the new switch event meter reading, the gaining trader must advise the losing trader of the new switch event meter reading and the event date to which it refers as follows:

(a) if the switch event 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, or

(b) 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 event meter reading.

(2A) Despite sub-clauses (1) and (2), subclause (2B) applies if—

(a) the losing trader trades electricity at the ICP through a metering installation with a submission type of non-half hour in the registry; and

(b) the gaining trader will trade electricity at the ICP through a metering installation with a submission type of half hour in the registry, as a result of the gaining trader's arrangement with the customer or embedded generator; and

(c) a switch event meter reading provided by the losing trader under subclause (1) has not been obtained from an interrogation of a certified metering installation with an AMI flag of Y in the registry.

(2B) No later than five business days after receiving final information from the registry manager under clause 22(d)—

(a) the gaining trader may provide the losing trader with a switch event meter reading obtained from an interrogation of a certified metering installation with an AMI flag of Y in the registry; and

(b) the losing trader must use that switch event meter reading

(3) If the gaining trader disputes a switch event meter reading under subclause (2)(b), the gaining trader must, no later than four months after the actual event date, provide to the losing trader a changed validated meter reading or a permanent estimate supported by two validated meter readings, and the losing trader must either—

(a) no later than five business days after receiving the switch event meter reading from the gaining trader, the losing trader, if it does not accept the switch event meter reading, must advise the gaining trader (giving all relevant details), and the losing trader and the gaining trader must use reasonable endeavours to resolve the dispute in accordance with the dispute procedure contained in clause 15.29 (with all necessary amendments); or

(b) if the losing trader advises its acceptance of the switch event meter reading received from the gaining trader, or does not provide any response, the losing trader must use the switch event meter reading supplied by the gaining trader.

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 transfer switches were checked to confirm that the content was correct, and that Pulse'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 Pulse's systems.

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

Audit commentary

RR

RR requests are generally initiated via email between the two parties and once agreement has been reached, an RR file is triggered in Gentrack. The user enters the required readings into Gentrack's "switch read dispute" screen. Users are unable to enter a read type, and all RR readings are sent as estimates. In some cases, Pulse has received an actual reading for the event date from the MEP or a contractor for the event date and they should be able to apply the correct read type.

AC files are reviewed on receipt. If they are rejected, no action is required unless Pulse decides to reissue the RR. If accepted, the billing team is notified, and they manually enter the reading into Gentrack and rebill the customer as necessary. The reads are then transferred from Gentrack to Cobra. Switch event reads which are automatically transferred from Gentrack to Cobra default to actual read type.

Pulse issued 58 RR files for switch moves. 48 were accepted and ten were rejected. A sample of five rejected files and five accepted files were checked to determine whether there was a valid reason for the RR, the RR content was correct, and that Gentrack and Cobra reflected the outcome of the RR process. The following exceptions were identified:

- The RRs for 0151673020LC497 24 June 2022 and 0668498897LC33B 8 August 2022 were recorded with estimated readings, which should have been actual because they were based on an actual reading provided by the MEP for the event date.
- The agreed switch readings for 0000510309NR832 10 June 2022, 0000784771NV2CB 18 April 2022, 0011237010ELDBD 6 May 2022, 0000050307NTDD3 27 August 2022, 0007205558RN93C 7 April 2022, 0151673020LC497 24 June 2022, 0316990272LC8D9 10 June 2022 and 0668498897LC33B 8 August 2022 were recorded as actual in Cobra but should have been recorded as estimated.

The switch breach history report recorded two RR breaches for move switches. In all cases the RR was sent as soon as it was determined it was needed. Delays are common and are due to late meter readings or late customer notification.

AC

All RR requests received from other traders are evaluated against meter reading information. If the request is within validation requirements these are accepted. If an RR is accepted the switching team will add the reads to Gentrack and rebill the customer if the ICP is not vacant.

Pulse issued 287 AC files for switch moves. 215 were accepted and 72 were rejected. A sample of five rejected files and five accepted files were checked to determine whether the rejections were valid, and if Gentrack and Cobra reflected the outcome of the RR process. The following exceptions were identified:

- the agreed switch readings for 0000179775UNB83 14 April 2022 and 0000385110HB3F1 6 May 2022 were incorrectly recorded as actual in Gentrack and Cobra but should have been estimated; the read type was mis-keyed on entry into Gentrack.

- the agreed switch readings for 0000011460HR6FC 7 July 2022 and 0000037491DE606 9 May 2022 had incorrect read types recorded in Cobra; 0000011460HR6FC had an actual read recorded as an estimate and 0000037491DE606 had an estimated read recorded as an actual.

The switch breach history report did not record any AC breaches.

Application of incoming CS reads

Review of five incoming switch move CS files with estimated reads where no RR was issued confirmed that the correct readings were recorded in Gentrack and Cobra.

Application of outgoing CS reads

I found that in some cases, the agreed switch readings for outgoing CS files were not correctly recorded in Gentrack and/or Cobra. I found the following instances where the agreed switch reading was recorded against the wrong date, or missing from Cobra:

- 0000040662DEE0F (8 October 2022) actual reads on 8 October 2022 of 23044/16230 were applied as estimated switch event readings for 7 October 2022, the last readings are recorded in Gentrack and Cobra on 8 October 2022 instead of 7 October 2022, the reads are recorded as actual instead of estimated in Cobra, and there are no final reads recorded in Gentrack,
- 0052029380WMC03 (23 September 2022) the actual read on 14 September 2022 was applied as the switch event reading, the last reads recorded in Gentrack and Cobra are for 14 September 2022 and there is no final read recorded in Gentrack, and
- 0000484225CE8F5 (1 August 2022) the actual read on 29 July 2022 was applied as an estimated switch event reading for 26 July 2022; this was the final reading before the ICP became vacant and consumption was not estimated up to the last day of supply on 31 July 2022 and the last reads recorded in Gentrack and Cobra are on 29 July 2022.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.11 With: Clause 12 Schedule 11.3	**PUNZ** Two RR breaches. The RRs for 0151673020LC497 24 June 2022 and 0668498897LC33B 8 August 2022 were recorded with estimated readings, which should have been actual because they were based on an actual reading provided by the MEP for the event date. The agreed switch readings for 0000510309NR832 10 June 2022, 0000784771NV2CB 18 April 2022, 0011237010ELDBD 6 May 2022, 0000050307NTDD3 27 August 2022, 0007205558RN93C 7 April 2022, 0151673020LC497 24 June 2022, 0316990272LC8D9 10 June 2022 and 0668498897LC33B 8 August 2022 were recorded as actual in Cobra but should have been recorded as estimated. The agreed switch readings for 0000179775UNB83 14 April 2022 and 0000385110HB3F1 6 May 2022 were incorrectly recorded as actual in Gentrack and Cobra but should have been estimated. The read type was mis-keyed on entry into Gentrack. The agreed switch readings for 0000011460HR6FC 7 July 2022 and 0000037491DE606 9 May 2022 had incorrect read types recorded in Cobra. 0000011460HR6FC had an actual read recorded as an estimate and 0000037491DE606 had an estimated read recorded as an actual.

	The agreed switch readings for outgoing CS files for 0000040662DEE0F (8 October 2022), 0052029380WMC03 (23 September 2022) and 0000484225CE8F5 (1 August 2022) were not correctly recorded in Gentrack and Cobra. Potential impact: Low Actual impact: Low Audit history: Multiple times
From: 18-Apr-22 To:18-Oct-22	Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	The controls are recorded as moderate because estimated switch event readings are not consistently recorded with the correct read type in Cobra, and Gentrack's RR files default the read type to actual. Almost all RR files were on time. The impact is low: • the correct read types are recorded in the CS file for most CS files checked, • the correct read types are recorded in Gentrack for all ICPs checked, • all switch event reads are correctly treated as permanent by the historic estimate calculation process, so there is no impact on submission volumes, and • the late file was issued in time for corrected submission information to be provided through the wash up process.

Actions taken to resolve the issue	Completion date	Remedial action status
RR read type issue fixed in the current version of GT.	20/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

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

Code reference

Clause 13 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 through or assume responsibility for:

- *a half hour metering installation (that is not a category 1 or 2 metering installation) at an ICP with a submission type of half hour in the registry and an AMI flag of "N"; or*
- *a half hour metering installation at an ICP that has a submission type of half hour in the registry and an AMI flag of "N" and is traded by the losing trader as non-half hour; or*
- *a non-half hour metering installation at an ICP at which the losing trader trades electricity through a half hour metering installation with an AMI flag of "N".*

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 reviewed to identify NT files issued by Pulse during the audit period.

Audit commentary

Pulse's processes are compliant with the requirements of Section 36M of the Fair Trading Act 1986. An NT is raised manually on the registry once an agreement is reached and credit approval is received, and the withdrawal process is used if the customer changes their mind.

Pulse issued one HH NT during the audit period. The file was issued five business days after pre-conditions were cleared, because HH switches are rare for Pulse and the switching team needed to confirm the process to issue the HH NT.

I checked the metering category for the 3,170 switch move and 2,461 transfer switch NTs where this information was available on the PR255 report and found none had metering categories of three or above.

Description	Recommendation	Audited party comment	Remedial action
Documentation of HH switching processes	Document the processes for incoming and outgoing HH switches including issuing and receiving HH NT, AN and CS files to prevent future non-compliance.	HH switch training to be carried out end to end. GT to be tested/set up for HHR switching.	Identified

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.12	**PUNZ**

With: Clause 14 Schedule 11.3 From: 02-Aug-22 To:02-Aug-22	One HH NT was issued two business days late. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	The controls are moderate, and the impact is low, because Pulse confirmed the process and issued the file within two business days of the due date.

Actions taken to resolve the issue	Completion date	Remedial action status
Internal Pulse meetings and Meeting with Gentrack to discuss the issues and put a plan in place to rectify the issues above and preventative measures.	21/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
HH switch training to be carried out end to end. GT to be tested/set up for HHR switching.	31/3/23	

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 reviewed to identify AN files issued by Pulse during the audit period, and the switch breach history report was examined.

Audit commentary

HH AN files are issued manually using the registry user interface. Pulse did not issue any HH AN files and the switch breach history report did not record any HH AN breaches.

HH switches occur rarely, and I have recommended in **section 4.12** that HH AN processes are documented so that the correct process is applied when they do occur.

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 reports were reviewed to identify CS files issued by Pulse during the audit period, and the switch breach history reports were examined for the audit period.

Audit commentary

HH AN files are issued manually using the registry user interface.

Pulse issued one HH NT during the audit period, which was on time and contained correct information. The switch breach history report did not record any late HH CS files.

HH switches occur rarely, and I have recommended in **section 4.12** that HH CS processes are documented so that the correct process is applied when they do occur.

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)):*
  - *the participant identifier of the trader making the withdrawal request (clause 18(c)(i)); and*
  - *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 reports was reviewed to:

- identify all switch withdrawal requests issued by Pulse, and check a sample of NWs for each trader code, and
- identify all switch withdrawal acknowledgements issued by Pulse and check a sample of NWs for each trader code.

The switch breach history report was checked for any late switch withdrawal requests or acknowledgements.

Audit commentary

NW

66 (7.3%) of the 904 NWs issued by Pulse were rejected. I checked a diverse sample of 21 NWs including at least three for each advisory code. The three NWs with the DF (date failed) code did not have requested transfer dates more than ten business days in the future, and the CE (customer error) code should have been applied.

Description	Recommendation	Audited party comment	Remedial action
Use of the DF (date failed) NW response code	Conduct training to ensure that the DF (date failed) NW advisory code is only applied where the requested transfer date is more than ten business days in the future.	Training completed on NWDF. Where PUNZ has identified an issue with the ICP (metering, incorrect address etc), we will continue to issue out NWs even if they are later than 2 months.	Identified

The switch breach history report recorded:

- three SR breaches where the withdrawal process was not completed within ten business days; the files were delayed while investigation was carried out, and Pulse negotiated with the customer and other trader, and
- 15 NA breaches where the NW was issued more than two calendar months after the transfer date; I checked the ten latest files, which were delayed while investigation was carried out to confirm the NW was required, or Pulse received late notice from the customer that a

withdrawal was required (six of the files were wrong premises withdrawals which typically take an extended period to identify and investigate).

AW

Incoming NW files are directed to a work queue, where a user reviews the file and manually accepts or rejects the file and closes the queue item. The account is either re-opened or closed manually according to the outcome of the withdrawal process**.** The switch breach history report is monitored twice daily to ensure that AW files are issued on time.

Pulse rejected 129 of 1,047 withdrawal requests received (12.3%). I checked a sample of 14 rejections and confirmed that they were rejected for valid reasons.

The switch breach history report did not record any AW breaches.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.15 With: Clauses 17 and 18 Schedule 11.3 From: 23-Jun-22 To: 17-Oct-22	**PUNZ** Three SR breaches. 15 NA breaches. 0000000389CP26D (22 August 2022), 0009923096WWB24 (22 August 2022) and 0032780114PCEE2 (4 October 2022) had the DF (date failed) NW advisory code incorrectly applied. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	The controls are recorded as moderate because most of the files were issued on time and their content was accurate. The impact is low because: • the files with the DF code applied did have non-compliant event dates, but those dates were not ten business days in the future as required by the registry functional specification, and • the late files were issued in time for corrected submission information to be provided through the wash up process.

Actions taken to resolve the issue	Completion date	Remedial action status
Training completed on NWDF.	21/2/23	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Training completed on NWDF.	Date21/2/23	

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

The meter readings used in the switching process are validated meter readings or permanent estimates. The reads applied in switching files were examined in **section 4.3** for standard switches, **section 4.10** for switch moves, and **sections 4.4** and **4.11** for read changes. The following CS files contained event readings which did not reflect the actual reading or best estimate of actual consumption at the end of the last day of supply:

- **0006914075TUAFA (11 July 2022)** an actual read on 11 July 2022 was applied as an estimated switch event reading for 10 July 2022 which was not the best estimate for the last day of supply,
- **0000040662DEE0F (8 October 2022)** actual reads on 8 October 2022 of 23044/16230 were applied as estimated switch event readings for 7 October 2022 which were not the best estimates for the last day of supply and should have been 23043/16228,
- **0052029380WMC03 (23 September 2022)** an actual read on 14 September 2022 was applied as the switch event reading which was not the best estimate for the last day of supply,
- **0107938413LCE9F (13 July 2022)** the switch in reading from 12 July 2022 (456) was applied as the switch out reading; an actual read on 10 September 2022 (755) indicated consumption, and the applied reading was not the best estimate for the last day of supply, and
- **0000484225CE8F5 (1 August 2022)** an actual read on 29 July 2022 was applied as an estimated switch event reading for 26 July 2022; this was the final reading before the ICP became vacant and consumption was not estimated up to the last day of supply on 31 July 2022.

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.16 With: Clause 21 Schedule 11.3 From: 11-Jul-22 To: 08-Oct-22	Five CS files contained event readings which did not reflect the actual reading or best estimate of actual consumption at the end of the last day of supply. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate overall as most switch event readings reflected the actual reading or best estimate for the last day of supply. The audit risk rating is assessed to be low as the incorrect information in the CS files will have a minor effect on the other trader. The agreed switch readings were applied for reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
We have raised this issue with our system provider (Gentrack) to confirm the CS logic is correct.	21/2/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse will review options with Gentrack through the Reconciliation project.	Ongoing	

4.17. Switch saving protection (Clause 11.15AA to 11.15AB)

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 contacted 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.

Audit commentary

Pulse does not initiate any win-back activity with lost customers during or after the switch. Contact is only made with departing customers to confirm their notice period and any termination fees that apply; and discuss outstanding accounts if required.

Review of the event detail report identified 84 NWs issued with a CX withdrawal reason code issued within 180 days of switch completion where Pulse was the losing trader. Seven were rejected and of those two were accepted on reissue with the same code, two were accepted on reissue with the WP (wrong premises) code and three were not reissued. I checked the rejected files which were not reissued and a typical sample of seven other files and confirmed no counteroffers were made and the customer initiated the withdrawal.

Audit outcome

Compliant

5. MAINTENANCE OF UNMETERED LOAD

No unmetered load was supplied by PPPP during the audit period, findings in **section 5** apply only to PUNZ.

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

I reviewed the processes to identify shared unmetered load. The registry list and AC020 reports were examined to determine compliance.

Audit commentary

Unmetered load submissions are calculated in Cobra from the registry daily unmetered kWh x the active ICP days during the reconciliation period. The billing team receives a notification from Gentrack if there is a discrepancy between the unmetered load details recorded in Gentrack and on the registry. Any discrepancies are investigated.

Pulse supplies nine ICPs with shared unmetered load. The AC020 report was reviewed to check the accuracy of unmetered load details:

- no ICPs had the unmetered flag set to yes but the daily kWh was blank or zero,
- no ICPs had distributor unmetered load recorded but the unmetered load flag set to no, and
- no ICP had trader kWh more than ± 0.1 kWh different to the distributor value for that ICP.

ICP 0001162169MLDF9 has trader unmetered load details and unmetered daily kWh consistent with the distributor values for that ICP. However, these details were not consistent with the values recorded for the associated SI ICP 0001162160ML3A8 which indicates 90W on for 11.5 hours shared between four ICPs, rather than the 84W on for 11.5 hours shared between four ICPs indicated on 0001162169MLDF9. This results in a difference of 0.25 kWh per day or 91.25 kWh per annum. I recommend that the correct wattage is confirmed with the distributor in **section 3.7**.

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 AC020 report was examined to determine compliance.

Audit commentary

ICP 0000678614UN599 has unmetered load of 3,642 kWh per annum. The load is predictable and of an approved load type. No other ICPs have annual loads over 3,000 kWh.

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:*
    - *the date the limit was calculated or estimated to have been exceeded,*
    - *the details of the corrective measures that the retailer proposes to take or is taking to reduce the unmetered load.*

Audit observation

The AC020 reports was examined to determine compliance.

Audit commentary

ICP 0000678614UN599 has unmetered load of 3,642 kWh per annum. The load is predictable and of an approved load type. No other ICPs have annual loads over 3,000 kWh.

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

Pulse does not wish to trade on DUML ICPs and will not switch any of these ICPs in. The registry list and AC020 reports were examined to determine compliance.

Audit commentary

No DUML ICPs are supplied, and Pulse does not intend to supply DUML.

Audit outcome

Compliant

6. GATHERING RAW METER DATA

No active ICPs have been supplied by PPPP after 30 September 2021, and PPPP is currently responsible for one ICP at "ready for decommissioning" status and one ICP at "decommissioned" status.

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 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 energised 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 lists and AC020 reports were examined to determine compliance.

Audit commentary

Metering installations installed

Pulse's new connection process includes a check that metering is installed before electrical connection occurs, and that any unmetered load is quantified. No ICPs are settled using subtraction, and the AC020 report recorded that all ICPs had an MEP nomination accepted within 14 business days.

The AC020 report recorded three ICPs that were active with a metering category of nine or blank. Two were timing differences and had metering details updated after the report was run. ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring. Pulse is investigating the ICP as described in **section 2.9**.

Distributed generation

Cobra automatically reports any volumes on settled I flow registers with PV1 profile, regardless of the profiles recorded against the ICP on the registry.

Monthly, the reconciliation team compares registry and Gentrack to identify ICPs with settled I flow meter registers with RPS profile on the registry so that they can be updated. There is no process to identify ICPs with generation details recorded by the distributor but no I flow meter installed. The registry may not reflect the correct profile for generating ICPs or previously generating ICPs because:

- exceptions identified through the monthly validation process are not consistently corrected each month,

- all NT files issued from Gentrack have the RPS profile recorded, and when the switch completes this automatically updates the ICP's registry profile to RPS; it is necessary for Pulse to update the registry to the correct profile following switch in, and this sometimes does not occur promptly, and
- Pulse had believed that Gentrack would automatically update the registry profile to RPS PV1 where a settled I flow register was added, and remove PV1 profile from the registry if an I flow register is removed or has its settlement indicator updated to no; this process has not been operating as expected and two tickets have been raised with Gentrack to investigate this, GSD-1581 (update to RPS PV1 where I flow metering with settlement indicator yes is installed) and GSD-1580 (update to RPS where I flow metering with settlement indicator yes is removed).

I checked the consistency and accuracy of distributed generation information:

Exception type	Findings
Distributor has recorded generation without I flow metering	PUNZ's registry list showed 2,275 active ICPs with a non-zero generation capacity listed by the distributor, and 47 of these did not have settled I flow metering installed. • 17 ICPs had settled I flow registers added after the report was run. Ten of those were updated to generation compatible profiles once the metering was installed, and seven[4] ICPs incorrectly remain on RPS profile. • 26 ICPs did not have I flow registers added on the registry by 2 January 2023. During the audit Pulse initiated investigation with the network and MEP to confirm whether generation is present and will arrange for I flow metering to be installed if generation is confirmed. Five[5] of the ICPs have solar installs recorded on Worksafe's high risk database (https://portal.worksafe.govt.nz/search-highrisk/) and it is very likely that generation is present. • Four ICPs switched out after the report was run.
Distributor has recorded generation with I flow metering and no generation profile	The AC020 report recorded 20 active ICPs with generation recorded by the distributor and I flow metering where Pulse did not record a generation compatible profile. • Two ICPs were confirmed not to be generating, and Pulse's profile was correct. • Eight ICPs had their profiles corrected to RPS PV1 during the audit. • Two ICPs (0000550178EN64D and 0000008843CP91D) have the settlement indicator for the I flow register set to no, but it appears generation is installed. Pulse has queried the settlement indicators with the MEPs. • The other eight[6] ICPs still had RPS profile assigned on 2 January 2023 and should be corrected to RPS PV1.
Distributor has not recorded generation and generation profiles are assigned	73 active ICPs have a generation profile but no generation recorded by the distributor. Two ICPs did not have settled I flow metering and were confirmed not to be generating, and their profiles were corrected to RPS after the report was run. The other 71 ICPs had I flow metering present:

[4] 1000512028PC9FC, 0402163152LCC8C, 1000512028PC9FC, 0000442111WEC21, 1000545283PC224, 0081096808PC673 and 0000008843CP91D.
[5] 0449707032LCBF6 (PV install 27 January 2017), 0000036718DEFBE (PV install 26 May 2015), 0457047038LCF3D (PV install 25 May 2016), 0003576011EL13F (PV install 20 December 2021) and 0044251413PC427 (PV install 10 September 2020).
[6] 1000512028PC9FC, 1000545283PC224, 0000001364CEEAB, 0000090798WW726, 0000010069EAF81, 0081096808PC673, 1000593522PC0ED and 0000442111WEC21.

Exception type	Findings
	• 39 ICPs were confirmed to be generating, and for 29 of those the distributor updated their registry information to reflect distributed generation after the report was run. • 32 ICPs are being investigated to confirm whether generation is present. Nine of the ICPs were confirmed to have zero consumption on their I flow registers. ICP 0000121620UN9B4 does not have an I flow register recorded in SAP and is being investigated by field services and the MEP. Compliance is recorded for these ICPs because I could not confirm that any of the ICPs did not have distributed generation.
Consistency of fuel type and generation profile	Where a generation profile was recorded, I checked that the profile was consistent with the fuel type listed by the distributor and identified 62 ICPs with fuel type "other" with PV1 profile. All were confirmed to have solar installed.

Description	Recommendation	Audited party comment	Remedial action
Management of distributed generation profiles on the registry	While Gentrack investigates and resolves tickets GSD-1580 and GSD-1581, increase the frequency of monitoring for ICPs with incorrect distributed generation profiles from monthly to weekly. Ensure that exceptions are resolved on the registry as soon as practicable. Depending on the outcome of Gentrack's investigation into the tickets, revise the process to update registry profiles for distributed generation ICPs.	GSD-1580 and GSD-1581 have been tested and implemented. This should reduce the occurrences of DG issues but we will also increase monitoring and improve reporting.	Identified
Install I flow metering for ICPs with distributed generation	Develop a process to identify ICPs with distributed generation indicated by the distributor with no I flow metering. Confirm whether generation is present and arrange for either I flow metering to be installed, or notification of gifting of energy to be provided to the reconciliation manager.	This is resolved with GSD-1580, GSD-1581 and GSD-1554 and we will continue to monitor	Identified
Application of generation profiles for switches in	Develop a process to ensure that generation profiles are corrected as soon as possible after switch in. The weekly monitoring of profiles recommended above will help to identify any missed updates.	This has been completed and implemented on GSD-1554 We will continue to monitor.	Identified

Description	Recommendation	Audited party comment	Remedial action
	Consider allowing profiles to be specified in NT files rather than defaulting to RPS.		
Investigation of ICPs with distributed generation recorded by the trader or distributor	Follow though the investigations of ICPs with I flow registers, but no distributor distributed generation details, and distributor distributed generation details but no I flow registers to ensure that compliant metering is installed, and correct profiles are recorded. ICP 0000121620UN9B4 does not have an I flow register recorded in SAP and is being investigated by field services and the MEP.	This is resolved with GSD-1580, GSD-1581 and GSD-1554 and we will continue to monitor	Identified

Bridged meters

Pulse provided a list of 40 bridged meters. The existence of bridged meters is recorded as non-compliance below. There is a process to estimate consumption during the bridged period for reconciliation, but it is not consistently followed. Recommendations are raised in relation to the process and responsibilities for bridged meters in **section 2.17**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.1 With: Clause 10.13	**PUNZ** ICP 0005504181ML99B does not have metering recorded in the registry, there is no MEP nomination for a different MEP and billing and settlement is not occurring. 16 ICPs with distributed generation have RPS profile recorded on the registry but should have RPS PV1. Eight were corrected during the audit and eight ICPs[7] still had incorrect profiles assigned on 2 January 2022. At least five[8] and up to 26 ICPs with distributed generation do not have settled I flow registers installed. Volumes were not quantified in accordance with the code for 40 ICPs with bridged meters. Potential impact: Low

[7] 1000512028PC9FC, 1000545283PC224, 0000001364CEEAB, 0000090798WW726, 0000010069EAF81, 0081096808PC673, 1000593522PC0ED and 0000442111WEC21.
[8] 0449707032LCBF6 (PV install 27 January 2017), 0000036718DEFBE (PV install 26 May 2015), 0457047038LCF3D (PV install 25 May 2016), 0003576011EL13F (PV install 20 December 2021) and 0044251413PC427 (PV install 10 September 2020).

From: 10-Mar-21 To: 07-Oct-22	Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3

Audit risk rating	Rationale for audit risk rating
Low	Controls are rated as weak overall: • the Gentrack process to update profiles for distributed generation ICPs is not consistently working as expected, and exceptions are not identified and resolved as soon as practicable, • ICP 0005504181ML99B had been active with no metering installed since 26 March 2021, and • processes for meter bridging ensure that meters are only bridged where urgent reconnection is required, and it is not possible to reconnect without bridging the meter. The audit risk rating is assessed to be low overall: • correct profiles are applied for reconciliation for the distributed generation ICPs, • ICP 0005504181ML99B is domestic and likely to have low consumption, and • there is a process to estimate consumption during bridged meters, but it is not consistently operating as expected.

Actions taken to resolve the issue	Completion date	Remedial action status
We have worked with GT to automate the process. This has been tested and released to production. We will continue to monitor and report on this and work with Gentrack if there are any gaps.	15/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Automation of these tasks by GT and Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

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 the GIPs which Pulse is responsible for, and the certification expiry date for those GIPs.

Audit commentary

Pulse are not responsible for any GIPs.

Audit outcome

Compliant

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 registry lists were reviewed to determine which profiles were used by each participant code, and the AC020 reports were reviewed to identify exceptions.

Audit commentary

PUNZ

Pulse does not apply any profiles which require AMI metering or certification of control devices. Only HHR, RPS, EG1, and PV1 profiles are used.

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 leads 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 relating to defective metering were examined.

A sample of defective meters were reviewed, to determine whether the MEP was advised, and if appropriate action was taken.

Audit commentary

Defective meters are typically identified through the meter reading validation process, or from information provided by the meter reader, the network, the MEP, or the customer. Upon identifying a possible defective meter, a field services job is raised to investigate and resolve the defect.

PUNZ

A sample of three defective meters were identified:

- one was a comms fault and there was no impact to the measurement of consumption,
- one has a sum check failure impacting a HHR reconciled ICP – no assessment of potential inaccurate consumption information was conducted, and
- one had stopped recording usage due to the meter being bridged – no consumption adjustment was performed for this ICP.

The faults are generally identified directly by AMI MEPs or through meter condition information provided by meter readers, or the network notifying Pulse that there was no volume on a UN register. The MEP was notified in all instances and the meters were replaced.

40 meters were identified as being bridged during the audit period and these were identified on receipt of reconnection paperwork, from the field contractor attending faults or the distributor. The MEP was notified in all instances.

AMS and EDMI confirmed that no defective meters have been identified since their last agent audit.

Pioneer (NSP ANI0331BOPDNP)

AccuCal provides meter event reporting each month and no defective meters were identified during the audit period.

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 is does not exceed the maximum interrogation cycle on 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

The data collection and clock synchronisation processes were examined.

Pulse's agents and MEPs are responsible for the collection of HHR and AMI data. Collection of data and clock synchronisation were reviewed as part of their agent and MEP audits. A sample of clock synchronisation events received by Pulse were reviewed.

Audit commentary

MEPs monitor clock synchronisation, and this is covered as part of their audits. Each of the MEPs advise Pulse of clock synchronisation events, and no action is usually required. Emailed events are reviewed and actioned as required.

Pulse provided the Arc Time difference report for September 2022 for review. Most clock adjustments reviewed were small, however I identified that there were 248 meters where the time correction exceeded 1,700 seconds for a given day and then this correction was reverted back during the proceeding days' time correction (the affected dates where this occurs were 1 & 2, 8 & 9, 14 & 15 September 2022). These time synchronisation corrections were not notified by Arc to enable Pulse to review the impact of these clock adjustments. Pulse do not submit any Arc AMI metered ICPs as HHR, so the impact of these frequent large time corrections is minimal.

Pulse was unable to locate time difference reports for the other AMI MEPs where the time corrections are not included in the meter event log reports.

As these reports are not reviewed by Pulse no assessment on the impacts these large time corrections to the interval data has been conducted.

Where the time corrections were applied and reverted one day apart it can result in the period of correction having zero consumption, and the period where the correction is reverted having double the consumption of surrounding intervals. Where these ICPs are submitted as HHR then there is an impact to the calculation of seasonal shapes that are then used to determine NHH submitted volumes.

Pulse does not have a process to estimate data where a clock synchronisation event affects more than one trading period and I recommend that a process is developed.

Description	Recommendation	Audited party comment	Remedial action
Clock synchronisation events	Where a clock synchronisation over 1700 seconds occurs, and data for multiple trading periods is pushed into the period of adjustment, develop a process to spread the total consumption for the adjustment period across the periods it actually occurred within.	We will discuss this with MEPs and and speak to Gentrack and see what processes they have in place for this. Pulses existing proceses will be reviewed.	Investigating

Pioneer (NSP ANI0331BOPDNP)

AccuCal monitors clock synchronisation. They advise Pulse of clock synchronisation events, and no action is usually required. Emailed events are reviewed and actioned as required.

Max Interrogation cycle

I checked whether all data was collected within the maximum interrogation cycle. No ICPs were identified as having the HHR submission type flag set to Y where HHR data was not received within the maximum interrogation cycle.

Pulse performs a monthly check identifying ICPS with the HHR submission type set to 'Y' but the AMI flag has been updated to 'N' indicating the meter is no longer communicating reliably. Prior to the expiration of the maximum interrogation cycle value for the ICP, Pulse transitions the ICP back to NHH submission and uses the latest validated actual read date as the effective date for the change in submission type and profile.

Audit outcome

Compliant

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

Code reference

Clauses 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.

Processes to provide meter condition information were reviewed as part of Wells' agent audit. Pulse's processes to manage meter condition information were reviewed.

Processes for customer and photo reads were reviewed.

Audit commentary

PUNZ

Manual readings

During manual interrogation, the meter register value is collected and entered into a hand-held device by Wells. This reading enters Pulse's systems and is labelled as a reading, which denotes that it is a meter reading collected and validated by a meter reader.

Wells perform meter condition checks as required by schedule 15.2 and provide information on meter condition along with the daily reads, and monthly summary report containing missing seal and broken seal events.

Meter condition issues can also be identified through Pulse's meter read validation process or customer enquiries.

These are usually reviewed by the field services team and a service request issued as required. However, during this audit period this process has been suspended as the Gentrack upgrade project has consumed the resources that is assigned to this project. Pulse intends to reinstate this process in the near future.

Customer and photo readings

Pulse accepts customer reads provided by phone, email, or photo. These readings will only pass validation if they can be validated against two actual reads from another source. A record of customer reads is attached to the account in Gentrack.

A sample of two customer and photo readings were reviewed and found all had been validated against two previous actual reads. A further three customer reading received from Wells were reviewed and confirmed that these readings were not validated and were not flagged as actual reads.

As discussed in **section 4.10**, three switch move CS files had had customer readings which had not been validated against a set of readings from another source recorded as actual switch event reads:

- 0041214565ENB31 (4 June 2022)
- 0000015170EA559 (16 July 2022), and
- 0429916108LCBF6 (6 August 2022).

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.6 With: Clauses 3(1), 3(2) and 5 Schedule 15.2	Meter condition information not reviewed, or investigations undertaken during the audit period. Potential impact: Low

From: 01-Apr-22 To:12-Oct-22	Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	The controls are recorded as moderate as Wells does complete the onsite checks and provides the required meter condition information to Pulse and where a safety issue is identified then Wells will report this separately and directly to Pulse for immediate action. The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Wells Broken Seal and Meter Condition report is reviewed as received.	21/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

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

The process of the application of meter readings was examined. The event detail reports were examined to identify ICPs which had undergone upgrades or downgrades, and the upgrade and downgrade process was reviewed.

Audit commentary

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 except in the case of a switch event meter reading which applies to the end of the day prior to the event date for the losing trader and the start of the event date for the gaining trader as required by this clause.

All AMI systems have a clock synchronisation function, which ensures correct time stamping. Manual readings taken by Wells are applied correctly.

Application of reads was reviewed as part of the historic estimate checks in **section 12.11** and found to be compliant. The content of CS and RR files was examined in **sections 4.3**, **4.4**, **4.10** and **4.11**. No issues were identified.

I walked through the process for NHH to NHH, NHH to HHR and HHR to HHR meter and profile changes. In the event of a profile change, Pulse uses a validated meter reading or permanent estimate read on the day that the change is effective.

A sample of twelve ICPs (six upgrades to HHR profile and six downgrades to RPS profile) were checked:

- one upgrade for ICP 0000049289HRA65 on 1 August 2022 had no actual read available permanent estimate read applied for the event date, and
- four downgrades relating to ICPs 0000049289HRA65 (RPS PV1 – 4 August 2022), 0000049289HRA65 (RPS – 2 May 2022), 0000136320UN030 (RPS PV1 – 3 July 2022), 0078080574WE4B7 (RPS – 1 September 2022) had no actual reads available permanent estimate read applied for the respective event date.

Non-compliance is recorded in **section 12.13**.

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

The process to manage missed reads was examined.

Reporting on ICPs not read during the period of supply was examined, and a sample of ICPs were checked.

Audit commentary

A validated meter reading must be obtained in respect of every meter register for every NHH metered ICP for which the participant is responsible, at least once during the period of supply to the ICP by the reconciliation participant, unless exceptional circumstances prevent this from occurring. This may be a validated meter reading at the time the ICP is switched to, or from, the reconciliation participant.

The NHH meter reading frequency guidelines published by the Electricity Authority define "Exceptional circumstances" as meaning "circumstances in which access to the relevant meter is not achieved despite the reconciliation participant's best endeavours". "Best endeavours" is defined as:

"Where a reconciliation participant failed to interrogate an ICP as a result of access issues, the reconciliation participant had made a minimum of three attempts to contact the customer, by using at least two methods of communication".

AMI meters continue to be deployed where possible. Pulse used to monitor unread ICPs but due to resource constraints this activity remains paused since November 2021. This includes the monitoring of no read codes and zero consumption. There are plans to recommence this work in the near future once resources committed to the Gentrack project are available again post project completion. The process was to review all ICPs which haven't had an actual read for more than three months and attempt to contact the customer via phone, then email or text, and then letter. If no contact was made, then a high estimate bill was sent to prompt a response. The process met the requirements of the Code to make three attempts using two forms of communication. The read attainment for ICPs read at 12 months and 90% in four months detailed in the two following sections is still high, but this will decline while the process is suspended.

Pulse provided a list of five ICPs not read during the period of supply. Exceptional circumstances could not be proven for all ICPs. This is recorded as non-compliance below.

Recommendation	Description	Audited party comment	Remedial action
Resume read attainment processes	Resume processes to identify and review all ICPs which have not had an actual read for three months or more and attempt to gain a reading and resolve any issues preventing reading.	No Reads Project currently on hold Pulse will review process.	Investigating

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.8 With: Clause 7(1) and (2) Schedule 15.2 From: 01-Apr-22 To:12-Oct-22	Exceptional circumstances were not proven for all ICPs not read during period of supply. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: None Breach risk rating: 5
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as none as the process to manage this has been paused. The audit risk rating is assessed to be low as the overall percentage read is high.

Actions taken to resolve the issue	Completion date	Remedial action status
No Reads Project currently on hold Pulse will review process.	2023	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
Audit report to be checked weekly and Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

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

The meter reading process was examined. Monthly reports were provided and reviewed to determine whether they met the requirements of clauses 8 and 9 of schedule 15.2.

A sample of ICPs not read in the previous 12 months were reviewed to determine whether reasonable endeavours were used to attain reads, and if exceptional circumstances existed.

Audit commentary

PUNZ

The monthly meter reading reports provided were reviewed.

Month	Total NSPs where ICPs were supplied > 12 months	NSPs <100% read	ICPs unread for 12 months	Overall percentage read
April 2022	199	28	43	99.95%
May 2022	199	33	47	99.94%
June 2022	200	33	64	99.92%
July 2022	199	40	60	99.93%
August 2022	197	44	67	99.92%

As discussed in **section 6.8**, the process in place monitor read attainment, and attempt to resolve issues preventing read attainment has been paused due to resource constraints.

Pulse provided a list of ICPs unread for 12 months as of 31 August 2022. I reviewed ten ICPs not read in the previous 12 months determine whether exceptional circumstances exist, and if Pulse had used their best endeavours to obtain readings. The best endeavours requirements were not met for any of the ten instances. This is recorded as non-compliance.

Pulse provides monthly reports on meter reading frequency to the Electricity Authority. I reviewed the reports for April to August 2022 and confirmed that the content of the reports met the requirements of clauses 8 and 9 of schedule 15.2 and were submitted on time.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.9 With: Clause 8(1) and (2) Schedule 15.2 From: 01-Apr-22 To:12-Oct-22	Exceptional circumstances were not proven for the ten ICPs sampled. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: None Breach risk rating: 5
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as none as the process to manage this has been paused. The audit risk rating is assessed to be low as the overall percentage read is high.

Actions taken to resolve the issue	Completion date	Remedial action status
No Reads Project currently on hold Pulse will review process.	2023	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Audit report to be checked weekly and Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

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 four months for 90% of the non-half hour meters.

A report is to be sent to the market administrator 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

The meter reading process was examined. Monthly reports were reviewed.

A sample of ICPs connected to NSPs that did not meet the threshold were checked to determine if exceptional circumstances existed.

Audit commentary

The monthly meter reading reports provided were reviewed.

Month	Total NSPs where ICPs were supplied > four months	NSPs <90% read	ICPs unread for four months	Overall percentage read
April 2022	199	3	909	98.94%
May 2022	199	2	1287	98.49%
June 2022	200	6	1238	98.53%
July 2022	199	1	805	99.04%
August 2022	197	1	807	99.04%

As discussed in **section 6.8**, the process in place monitor read attainment, and attempt to resolve issues preventing read attainment has been paused due to resource constraints.

I checked the 11 NSPs where 90% read attainment was not achieved for April to July 2022 and found that seven had two or fewer ICPs connected. The other four NSPs were all associated with a single network where the reading performance of the AMI meters has not been correctly reflected. This was confirmed by Pulse that due to all AMI meters being reconfigured from 1 (UN) or 2 (N/D) registers to 3 (Peak/Off Peak/Night) registers to align with a change in network billing methodology, the reporting produced some invalid read attainment statistics for this network. The most recent report reviewed confirmed that read attainment is now being correctly reported for this network.

As the process to monitor attainment has been paused, best endeavours were not able to be shown for any of the ICPs not read for four months, this is recorded as non-compliance below.

The content and accuracy of meter reading frequency reports to the Electricity Authority was assessed in **section 6.9** and found to be accurate. The reports were submitted on time.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.10 With: Clause 9(1) and (2) Schedule 15.2 From: 01-Apr-22 To:12-Oct-22	Exceptional circumstances not confirmed for ICPs identified for 11 NSPs that did not meet the 90% read rate within four months. Potential impact: Medium Actual impact: Low Audit history: Once previously Controls: None Breach risk rating: 5
Audit risk rating	**Rationale for audit risk rating**

Low	Controls are rated as none as the process to manage this has been paused. The audit risk rating is assessed to be low as the overall read attainment read rate is high.

Actions taken to resolve the issue	Completion date	Remedial action status
No Reads Project currently on hold Pulse will review process.	2023	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Audit report to be checked weekly and Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

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

PUNZ

NHH data is provided by Wells and MEPs. The data interrogation log requirements were reviewed as part of their agent and MEP audits.

Audit outcome

Compliant

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 data is collected by EDMI and AMS for Pulse, and AccuCal for Pioneer (NSP ANI0331BOPDNP) and a number of other HHR ICPs.

Audit commentary

Compliance with this clause has been demonstrated by AMS and EDMI as part of their agent audits.

Compliance was confirmed with AccuCal as part of this audit.

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 data is collected by EDMI and AMS for Pulse, and AccuCal for Pioneer (NSP ANI0331BOPDNP) and a number of other HHR ICPs.

Audit commentary

Compliance with this clause has been demonstrated by AMS and EDMI as part of their agent audits.

Compliance was confirmed with AccuCal as part of this audit.

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 data is collected by EDMI and AMS for Pulse, and AccuCal for Pioneer (NSP ANI0331BOPDNP) and a number of HHR ICPs.

Audit commentary

Compliance with this clause has been demonstrated by AMS and EDMI as part of their agent audits.

The interrogation log provided by AccuCal was reviewed and compliance is confirmed.

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 ±0.1% (±2 seconds).

Audit observation

Trading period duration was reviewed as part of the MEP and agent audits.

Audit commentary

Compliance with this clause has been demonstrated by the agents and MEPs and is discussed in their audit reports.

Compliance was confirmed with AccuCal as part of this audit.

The clock synchronisation process for generation meters is discussed in **section 6.5**. There were no clock errors during the audit period which led to corrections being required.

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

Processes to archive and store raw meter data were reviewed. Raw meter data from at least 48 months prior was reviewed to ensure that it is retained.

Pulse's agents retain a copy of the raw meter data, and their compliance with the archiving and storage requirements were reviewed as part of their agent audits. Pulse's own audit trails were reviewed in **section 2.4**.

Audit commentary

Compliance with this clause has been demonstrated by Pulse's agents and MEPs as part of their agent audits.

PUNZ

I reviewed raw NHH and HHR meter read data from December 2014 during the audit. Data is archived for more than 48 months as required by the code.

In **section 2.3**, reads for a sample of 15 ICPs were reviewed from the source files from WELLs to Gentrack and Cobra for NHH meters and six AMI ICPS from the AMI meter reading files Gentrack and Cobra. NHH reads for six ICPs were not loaded into Gentrack, two failed validations so were not used and four were not processed as they were not required for billing.

The readings were the same for all ICPs where the readings were processed into Gentrack, confirming the security of the process.

I traced volumes for a sample of three ICPs from the source files to IMDS and Scorpion for HHR meters. The volumes were the same for all ICPs, confirming the security of the process.

Review of audit trails in **section 2.4** confirmed that reads cannot be modified without an audit trail being created.

Pioneer (NSP ANI0331BOPDNP)

I reviewed raw HHR meter read data from Sept 2019 during the audit. Data is archived for more than 48 months as required by the code. I traced data for one ICP from the source files to Python and Scorpion. The readings were the same, confirming the security of the process.

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 and archive non-metering information were reviewed.

Audit commentary

Pulse does not deal with any non-metering information.

Audit outcome

Compliant

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

No active ICPs have been supplied by PPPP after 30 September 2021, and PPPP is currently responsible for one ICP at "ready for decommissioning" status and one ICP at "decommissioned" status.

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

Code reference

Clause 19(1) & (1A) Schedule 15.2

Code related audit information

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 with 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

Processes for correction of NHH meter readings were reviewed. Corrections to volumes where meter readings match the value recorded by the meter, such as where a multiplier is incorrect, a meter is defective or bridged, or inactive consumption is identified were reviewed in **section 2.1**.

Audit commentary

Where errors are detected during validation of non-half hour meter readings a check reading will be performed for manually read meters, or AMI readings for surrounding days will be checked. If an original meter reading cannot be confirmed from review of other actual readings, an estimated reading is used and is appropriately labelled. If readings are replaced, the original reading is labelled as a "misread" and the new reading is then entered as either an estimate or actual reading.

I reviewed examples of corrections to determine whether they had been processed correctly and flowed through to revision submissions. The findings are listed in **section 2.1**.

If transposed meters are identified through the validation process, they will be corrected by moving the readings to the correct registers or using the read renegotiation process if switch reads are affected. No examples were identified during the audit period.

Audit outcome

Compliant

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:

1) *The total of all substituted intervals matches the total consumption recorded on a meter, if available; and*
2) *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. Examples of HHR corrections were provided for review.

Audit commentary

PUNZ

Where errors or missing data are detected during validation of half-hour metering information, and check metering data is not available, data from a period with a quantity and profile expected to be similar to the estimated period is used.

The process is the same for HHR and AMI meters.

Where an AMI metered ICP with the HHR submission type flag is set to Y has been bridged the correction process that Pulse follows does not revert the ICP back to NHH submission type or correct the HHR data. The correction applied through Gentrack only resolves the unquantified consumption volumes from a billing perspective. Eight bridged ICPs were flagged as being included in the HHR submission for the bridged period. At the time of the audit, the volume correction activity was still outstanding so there were no correction examples to review. I recommend that Pulse reviews its bridged meter volume correction process to ensure it is appropriate for the submission type allocated to the ICP during the bridged period.

Recommendation	Description	Audited party comment	Remedial action
HHR bridged meter corrections	Pulse reviews its bridged meter volume correction process to ensure it is appropriate for the submission type allocated to the ICP during the bridged period.	Pulse will conduct an end to end process review on the Bridged meter process.	Investigating

No examples of HHR data corrections were identified.

Pioneer (NSP ANI0331BOPDNP)

The same process is used for any HHR corrections required for Aniwhenua as described above.

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

Error and loss compensation arrangements were discussed.

Audit commentary

There are currently no error or loss compensation arrangements in place for Pulse.

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 and archived with the raw meter data file. 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**, **8.1** and **8.2.** Audit trails are discussed in **section 2.4**.

Audit commentary

PUNZ

Compliance with this clause has been demonstrated by Pulse's MEPs and agents.

Raw meter data is held by AccuCal as an agent for the two ICPs for the Mangaotaki generation.

I reviewed journals for NHH and HHR data corrections and noted that they were compliant with the requirements of this clause.

Pioneer (NSP ANI0331BOPDNP)

Raw meter data is held by AccuCal as an agent.

The same process is used for Pulse HHR data corrections where a journal is created. No corrections have occurred during the audit period.

Audit outcome

Compliant

9. ESTIMATING AND VALIDATING VOLUME INFORMATION

No active ICPs have been supplied by PPPP after 30 September 2021, and PPPP is currently responsible for one ICP at "ready for decommissioning" status and one ICP at "decommissioned" status.

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

A sample of reads and volumes were traced from the source files to Pulse's systems in **section 2.3**.

Provision of estimated reads to other participants during switching was reviewed 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 2.1, 8.1** and **8.2**.

Audit commentary

Estimated and actual readings are clearly identified as required by this clause.

As discussed in **section 4.10**, three switch move CS files had had customer readings which had not been validated against a set of readings from another source recorded as actual switch event reads:

- 0041214565ENB31 (4 June 2022),
- 0000015170EA559 (16 July 2022), and
- 0429916108LCBF6 (6 August 2022).

As discussed in **sections 4.4** and **4.11**, Gentrack automatically classifies RR reads as estimates in the RR files it produces. The following ICPs had actual readings from the MEP for the event date, and should have had their RR readings classified as actual:

- 0151673020LC497 (24 June 2022),
- 0668498897LC33B (8 August 2022),
- 0000034273EA2F7 (22 April 2022),
- 0001270280TG72C (5 May 2022),
- 1000014460BP9AF (27 June 2022), and
- 1000017736BP1CB (14 April 2022).

Switch event reads are transferred from Gentrack to Cobra for use in the historic estimate calculations. All of these readings transferred to Cobra are recorded as A (actual) in the files produced from Gentrack. This means that permanent estimate switch reads are transferred as actuals, but the correct read type can be confirmed in Gentrack. There is no impact on submission, because the switch estimates are treated as validated by the historic estimate process. The following switch event readings were incorrectly classified as actual in Cobra when they should have been estimates:

- 0006693539RN78B (2 May 2022),
- 0001270280TG72C (5 May 2022),
- 0000015548EACB4 (14 June 2022),
- 1000014460BP9AF (27 June 2022),
- 1000017736BP1CB (14 April 2022),

- 0003303660BU43B (9 August 2022),
- 0000510309NR832 (10 June 2022),
- 0000784771NV2CB (18 April 2022),
- 0011237010ELDBD (6 May 2022),
- 0000050307NTDD3 (27 August 2022),
- 0007205558RN93C (7 April 2022),
- 0151673020LC497 (24 June 2022),
- 0316990272LC8D9 (10 June 2022),
- 0668498897LC33B (8 August 2022), and
- 0000037491DE606 (9 May 2022).

0000011460HR6FC 7 July 2022 had an actual read recorded as an estimate in Cobra.

The following switch event reads were keyed into Gentrack as actual when they should have been estimated, and were also recorded as actual in Cobra:

- 0000964071TUED0 (24 June 2022),
- 0000179775UNB83 (14 April 2022), and
- 0000385110HB3F1 (6 May 2022).

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.1 With: Clause 3(3) Schedule 15.2 From: 14-Apr-22 To: 27-Aug-22	**PUNZ** Three CS files had customer reads incorrectly classified as actual reads. Six RR files had actual reads incorrectly classified as estimated reads. 15 estimated switch event reads were incorrectly classified as actual reads in Cobra. One actual switch event read was recorded as an estimate in Cobra. Three estimated switch event reads were recorded as actual in Gentrack and Cobra. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because estimated switch event readings are not consistently recorded with the correct read type in Cobra, and Gentrack's RR files default the read type to actual. The impact is low: • the correct read types are recorded in the CS file for most CS files checked, • the correct read types are recorded in Gentrack for all ICPs checked, and • all switch event reads are correctly treated as permanent by the historic estimate calculation process, so there is no impact on submission volumes.

Actions taken to resolve the issue	Completion date	Remedial action status
Care agent training required on how to enter reads into GT. Reads from Gentrack and Prada are imported as actual reads into Cobra.	21/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will review the current process and work on this with our DBA. We will test this in Gentrack and make sure it is correct in Gentrack.	31/3/23	

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

Audit commentary 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

A sample of submission data was reviewed in **section 12**, to confirm that volume was based on readings as required.

Audit commentary

Volume information is directly derived from validated meter readings, estimated readings, or permanent 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 **section 12**, to confirm that volumes were based on readings as required.

NHH data is collected by Wells and MEPs for Pulse, and MEPs for PPPP. HHR data is collected by AMS and EDMI for Pulse and AccuCal for Pioneer (NSP ANI0331BOPDNP) and two HHR ICPs for Mangaotaki generation.

Audit commentary

PUNZ

The MEP or agent retains raw, unrounded data. Compliance with this clause has been demonstrated as part of their own audits.

The HHR meter reading information received from AMS (AMCI) and EDMI in EIEP3 format prior to June 2022 may round the trading period data to two decimal places if the meter does not have a multiplier and the volume for that hour has a non-zero value in the third decimal place. Changes to the EIEP3 file format now enable AMS and EDMI to provide this data to three decimal places from June 2022.

The HHR meter reading information received from the AMI MEPs is not rounded or truncated. The data is imported into the IMDS database, then exported to Scorpion. All decimal places are used, and rounding does not occur until the creation of submission files.

The NHH meter reading information received from the MEPs is not rounded or truncated by the AMI MEPs. Where AMI Readings are provided with decimal places these are being truncated as part of the upload into PRADA prior to being transferred to Gentrack/COBRA. As these readings have been truncated, non-compliance has been recorded below.

Pioneer (NSP ANI0331BOPDNP)

AccuCal retains raw, unrounded data. Data is provided in an unrounded format and imported into Cobra with all decimals and only rounded when submission files are created in Scorpion.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.3 With: Clause 3(5) Schedule 15.2 From: 01-Apr-22 To:12-Oct-22	EDMI & AMS (AMCI) provides HHR interval data for some ICPs rounded to two decimal places prior to June 2022. NHH readings are truncated when imported into Gentrack. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate as the NHH reads are truncated when imported into Gentrack. The audit risk rating is low, because only NHH meter readings provided with decimal places are affected.

Actions taken to resolve the issue	Completion date	Remedial action status
Internal Pulse meetings and Meeting with Gentrack to discuss the issues and put a plan in place to rectify the issues above and preventative measures.	21/2/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

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 data estimate processes were examined, and a sample of estimates were reviewed.

Audit commentary

PUNZ

Scorpion is used to process data and create reconciliation files. Information on missing data for each ICP is stored in the table called "E_Controller". The table contains detailed information on what number of intervals are missing, register reads, data source, and kWh that need to be estimated (profiled).

HHR estimations are created using:

- end of day reads for the day before and after to get start and end reads if possible, and then an estimate is generated for the missing periods,
- only periods with missing data are estimated,
- if there is no consumption profile, then then consumption pattern is created using three weeks of actual reads to get the HHR consumption of each half hour period,
- if there is no data for a full day then the last full day of data is replicated; I repeat the recommendation from the last audit below that rather than using the previous day that the same day of the previous week would be likely to produce a closer estimate,
- if no reads or interval history then Scorpion looks at a default profile table for something to use; default consumption profiles are stored for most combinations of network and register content code and where these can be matched for the affected ICP then a default consumption profile will be applied, and
- if there is no earlier data, and no default consumption profile can be identified, then zeros are populated until such time as data is available to use for estimates. The use of zero consumption

values where the ICP is occupied and active does not meet the reasonable endeavours definition where:

- an ICP daily average is available in the received CS file,
- no re-estimation is performed for a data gap once interval data provision restarts for the affected ICP, and
- missing data is not actively escalated to the AMI MEP in an attempt to have this outstanding data provided.

There are checks in place for the reconciliation team to identify any ICPs with continuous zero consumption but as the zero-consumption investigation process has been paused these will not be being investigated which is discussed further in **section 9.6**.

Description	Recommendation	Audited party comment	Remedial action
Half hour estimates	For estimation of full days consider using same day of week from the previous week to estimate instead of the previous calendar day's consumption.	Pulse will priorities using same day of the week from the previous week over the previous calendar day. System logic update will be schedued.	Investigating
Using zero kWh as an estimation value when no consumption information is available	Review the use of zero consumption values where no AMI data is available to base and estimation from.	Pule agrees with the recommendation of reviewing the use of zero values. Pulse will work on updating the system to only apply zero consumption if the ADL is zero as well.	Investigating

There is a requirement to use "reasonable endeavours" to ensure this data is accurate to within 10%. I compared the temporary estimates with the replacement actual values for the five temporary estimates and they met the reasonable endeavours requirement for all the estimates reviewed.

I reviewed the process for estimating any missing intervals that have occurred during meter changes. Gentrack and Scorpion reflect all meter installations as occurring at the beginning of a day (0000 hours) and meter removals as occurring at the end of a day using the last received midnight read as the removal read. The new meter is installed as at the beginning of the meter exchange date. As the install read is not loaded into Scorpion, the part day data for the new meter up to the meter change time cannot be scaled to account for any consumption recorded from the removed meter up to the meter change time resulting in the part day data for the old meter not being accounted for in the correction/estimation process.

I reviewed two meter changes and found:

- for ICP 0000027389WE712 there was a difference of 27.84 kWh between the interval data consumption and the meter reads for the month of the meter change, and
- for ICP 0001712944WE012 there was a difference of 55.33 kWh between the interval data consumption and the meter reads for the month of the meter change.

Pioneer (NSP ANI0331BOPDNP)

HHR estimates would be created using the same methodology as described for Pulse above. No estimations have been required during the audit period.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.4 With: Clause 15 Schedule 15.2 From: 01-Apr-22 To:12-Oct-22	HHR estimates across meter changes for two ICPs not including volume from removed meter between last midnight read and removal read. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because while estimates are created, they are not always the correct treatment for addressing interval data gaps. The impact is assessed to be low due to the small number of affected ICPs.

Actions taken to resolve the issue	Completion date	Remedial action status
PUNZ are working on a way to improve the calculation of these volumes in COBRA. We have raise this with Gentrack	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse's existing estimation processes to be reviewed and work on this with Gentrack in the Reconciliation Project	Ongoing	

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 zero values.

Audit observation

I reviewed and observed the NHH data validation process, including checking a sample of data validations.

Audit commentary

Meter reader validation

For meters read by Wells, a localised validation occurs at the hand-held device to ensure the reading is within expected high/low parameters. Readings which fail this validation are required to be re-entered, and if the two readings are the same the second reading will be accepted. If the second reading is different, (potentially indicating the first reading was incorrect) then the second reading is required to be re-entered. Wells also provide meter condition information, as discussed in **section 6.6.** Compliance is confirmed for all agents regarding data validation.

Gentrack validation

Manual NHH reads and AMI reads are imported into the PRADA data warehouse, then exported as an REA file which is imported into Gentrack. For AMI meters, a monthly read is recorded in Gentrack on a scheduled read date.

On import into Gentrack, validation occurs to ensure there is a matching ICP, meter and register number, and that dates and times are valid. Readings are checked to confirm that they are within an expected range, identify negative consumption between actual reads. Some reads are not fully processed into Gentrack where billing has been performed past the scheduled read date using an estimated read for purposes such as a final read/move out.

Additional reports are run to identify readings of vacant installations, inactive or decommissioned, negative consumption, too low or too high daily consumption or zero consumption.

The zero-consumption report identifies ICPs where there has been zero consumption for four or more months. Pulse attempts to contact the customer to determine whether the zero is genuine (in which case it is not checked again for four months) or conducts further investigation to determine whether there is a potential meter fault. This report was reviewed weekly prior to July 2022 however it is not being currently reviewed. I recommend that Pulse reinstates this process to monitor zero consuming ICPs.

Description	Recommendation	Audited party comment	Remedial action
Zero consumption report monitoring	Reinstate monitoring of zero-consumption report to ensure potential meter faults are identified and resolved in a timely manner.	Process currently on hold Pulse to review process.	Investigating

Billing validations identify unbilled ICPs, which could be caused by incorrect reads which were not identified during data upload.

Cobra validation

Validated reads in Gentrack are exported to Cobra, as well as end of month AMI reads which are received directly from PRADA.

Cobra validates data on upload, and any reads which fail validation are excluded from submission calculations. The following parameters are used:

Threshold Parameters

Code	Value	Starts On	Description	+ New Parameter
BATCH_PROCESS_SIZE	2000.0	2019-07-08	Amount of channels to process in one batch	
BREACH_PERCENT	0.15	2014-01-01	The percentage point change in units after which a balancing area will breach (where BREACH_UNITS is also exceeded)	
BREACH_UNITS	100000.0	2014-01-01	The number of units after which a balancing area will breach (where BREACH_PERCENT is also exceeded)	
CLOCKED_METER_PER	0.5	2014-01-01	The percentage increase used to detect if the meter has rolled over	
DEFAULT_DEFAULT_ESTIMATE	12.5	2015-01-01	Default value used when no default estimation is found for a content code and availability period	
ICP_ACTIVE_MAX_MONTHS	15.0	2015-01-01	The maximum number of months (integer) an ICP end date can expire before it is considered inactive	
MAT_UPD_KWH	20.0	2019-06-06	Material Units Per Day Change (kWh)	
MAT_UPD_PER	2.0	2019-07-06	Material Units per Day Change (%)	
MAX_DEENRG_CONSUMP	500.0	2014-01-01	The maximum volume allowed for a period where an ICP is de-energised	
MAX_ZERO_DAYS	100000.0	2014-01-01	The maximum number of days that an active ICP should have zero consumption	
NEG_READ_THRESHOLD	0.0	2015-01-01	Threshold in kWh before a negative reading error is tripped.	
ON_HOLD_CHECK_COUNT	100.0	2015-01-01	Number of channels to process before checking if the batch is on hold	

A review of the threshold parameters identified the following:

- the BREACH_UNITS threshold related to an old compliance tolerance which has not applied since 2014 and when used in conjunction with BREACH_PERCENT tolerance will only provide a subset of balancing areas where the volume potentially exceeds the revision accuracy requirements,
- the DEFAULT_DEFAULT_ESTIMATE value of 12.5 kWh per day is lower than the code described default value of 25 kWh per ICP per day,
- the MAT_UPD_KWH value of 20 kWh per day change is a static threshold that does not consider metering installation category code, register content code, or flow direction which is likely to result in an elevated volume of false positive exceptions being flagged for investigation,
- the MAT_UPD_PER value of 2% change in material units per day is a static threshold that does not consider metering installation category code, register content code, or flow direction which is likely to result in an elevated volume of false positive exceptions being flagged for investigation, and
- the MAX_DEENERG_CONSUMP value of 500 kWh is inconsistent with the code requirement for monitoring inactive consumption where the expected threshold is 1 kWh requiring a retailer to investigate potential inactive consumption and resolve where this consumption is confirmed as being genuine.

Cobra imports month end AMI midnight reads directly from PRADA for use in the submission process and these reads have not undergone the Gentrack meter reading validation. The above COBRA validations are the only meter reading/volume information validations performed for these reads.

I recommend that Pulse reviews the effectiveness of these validations and also the thresholds used as part of the Gentrack upgrade project to ensure the thresholds and default values applied are consistent

with the code requirements and reduces the volume of false positive exceptions to enable users to focus on the genuine exceptions for investigation and resolution.

Description	Recommendation	Audited party comment	Remedial action
Review effectiveness of volume information validations	Pulse reviews the effectiveness of these validations and also the thresholds used as part of the Gentrack upgrade project to ensure the thresholds and default values applied are consistent with the code requirements and reduces the volume of false positive exceptions identify to enable users to focus on the genuine exceptions for investigation and resolution.	The thresholds will be reviewed and discussed with Gentrack. The thresholds will also be reviewed annually.	Investigating

Processes to review reconciliation submission information are discussed in **section 12.3.**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.5 With: Clause 16 Schedule 15.2 From: 01-Apr-22 To:12-Oct-22	Zero consumption is not being monitored. Potential impact: Medium Actual impact: Unknown Audit history: Multiple times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak as the available zero-consumption monitoring report has not been monitored since July 2022. The audit risk rating is assessed to be low, as the number of ICPs likely to be affected is small.

Actions taken to resolve the issue	Completion date	Remedial action status
Meeting to discuss thresholds and meeting with Gentrack to discuss their policies	21/2/23	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
Pulse's existing processes to be reviewed and thresholds will be reviewed.	8/3/23	

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 the 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

Review of electronic read validation processes and meter event logs, including checking examples of validations.

Audit commentary

PUNZ

HHR and AMI data is validated:

- Pulse receives actual data from all AMI MEPs and also estimated data from Intellihub which is also validated and loaded into Scorpion and flagged as estimate,
- Pulse checks for missing trading period data and if the data cannot be obtained, estimates are created according to the procedure in **section 9.4**, and

- Gentrack validates data against historic consumption patterns and identifies invalid dates and times.

AMI data also goes through the NHH validation process described in **section 9.5**.

Zero consumption was being examined as part of the no read process that has been paused, so is not be being worked. This is recorded as non-compliance in **section 9.5.**

Event logs are being received from all AMI MEPs. The reports are not being reviewed as it was thought that the MEP will email requests for field service work to be issued. While this is correct for some AMI MEPs, it does not apply for all MEPs. It is unclear between Pulse and the AMI MEPS which meter events will be escalated to Pulse by the AMI MEP. I recommend that these reports are reviewed as part of BAU to ensure that all relevant events are investigated and actioned.

Description	Recommendation	Audited party comment	Remedial action
Electronic meter readings and estimated readings	Review and action any events that require investigation.	Further investigation required to be completed. Potential new process to be implemented.	Investigating

A sample of two meter events, one each for two MEPs were reviewed to confirm if the AMI MEPs had notified Pulse of the potential event that may have impacted the accuracy of the consumption information:

- ICP 0238179044LCB4C (Reverse Power) – Pulse had received an email from the MEP and the new process is to check to see if a distributed generation application has been received and a subsequent metering request has been generated. If not, then the ICP is referred to the call back team to contact the customer and verify if generation has recently been installed in site. This process was followed to investigate this exception.
- ICP 0000010359EAB7A (Tamper plus power failure). No email was received by Pulse from the MEP and a review of the midnight read history since the event date confirms the meter is advancing and the exception was not genuine. It is expected that once the no consumption monitoring process is reinstated that there will be a mechanism to capture genuine tampers.

Scorpion performs a number of HHR data checks:

- incoming interval data file format checks to ensure the data is able to be uploaded,
- check for duplicate data in case the intervals values (part or full day) have been supplied multiple times by the AMI MEP; duplicate values are removed,
- interval data that has been flagged as failing the AMI ME check sum validation is rejected and replaced with estimates; no investigation is undertaken to check if the issue is related to the interval data or midnight reads,
- a monthly check is performed against the PR255 and Event Detail Analysis (EDA) reports to ensure all ICPs and meters are captured in Scorpion,
- any gaps in interval data are recorded in a list to perform estimations,
- Scorpion uses the available midnight reads to scale a historical consumption profile for the respective ICP/meter/register,
- missing trading period and/or midnight readings are identified, and estimation is conducted as described in **section 9.4**, and
- Scorpion provides exception lists for zero consuming sites and for ICP where no interval data has been received for an extended period of time; these reports are provided to the respective teams to follow up and action.

An assessment of the count of AMI HHR intervals estimated for use in the AV-090 HHRVOLS submission for the January 2022 submission was performed. Pulse performed estimations for 234,144 intervals out of a total number of intervals submitted of 29 million intervals (0.81% of all intervals estimated)

While the percentage of intervals estimated by Scorpion is relatively low as a proportion of total intervals used for HHR submission, the number of individual ICPs impacted is a higher percentage. While Pulse's estimation routine ensures the overall consumption volume has been included in its estimations by using the available midnight reads for reference - HHR volumes are used by the Reconciliation Manager to calculate seasonal shape values to enable retailers to calculate NHH volumes and any estimated HHR volumes has an impact on the accuracy of these seasonal shapes.

I recommend that Pulse implements regular reporting of missing interval data by each AMI MEP and provide these to the MEPs on a timely basis to ensure all missing data has been investigated and confirmed unrecoverable by each MEP, rather than just undelivered. This additional step will also assist Pulse to ensure the best endeavours have been met in HHR data collection for reconciliation purposes.

Description	Recommendation	Audited party comment	Remedial action
Identification and escalation of missing AMI interval data to MEPs	Develop and implement reporting of missing/ estimated interval data used in submission, and a process to escalate these instances to the relevant AMI MEP for resolution.	Pulse will speak to MEPs to ensure we receive logs from all MEPs. We will work with Gentrack to understand how their system processes event logs and how they send notifications to the MEPs if there are anomalies in the data.	Investigating

Pioneer (NSP ANI0331BOPDNP)

HHR data is validated using the same processes described above for Pulse.

AccuCal provide an event log each month to Pulse who review these.

A sample of event logs relating to September 2022 were reviewed which identified a phase loss on 23 September 2022. Pulse retrospectively verified this with AccuCal confirming that this event related to a station outage and there was no loss of data. I recommend that Pulse actively follows up events that could have an impact on the integrity of the data with both the station operators and HHR data collector as soon as Pulse identifies these events.

Description	Recommendation	Audited party comment	Remedial action
Verify meter events indicating station outages with the station operators/HH Data collectors	Pulse to actively follow up events that could have an impact on the integrity of the data with both the station operators and HHR data collector as soon as Pulse identifies these events.	Pulse will speak to MEPs to ensure we receive logs from all MEPs. We will work with Gentrack to understand how their system processes event logs and how they send notifications to the MEPs if there are anomalies in the data.	Investigating

No other events requiring further action were identified during the audit period.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.6 With: Clause 17 Schedule 15.2 From: 01-Apr-22 To:12-Oct-22	AMI Event logs not reviewed. Potential impact: Medium Actual impact: Unknown Audit history: Multiple times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak as AMI event logs are not reviewed. The audit risk rating is assessed to be low, as the number of ICPs likely to be affected is small.

Actions taken to resolve the issue	Completion date	Remedial action status
Internal Pulse meetings and Meeting with Gentrack to discuss the issues and put a plan in place to rectify the issues above and preventative measures.	21/2/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse will speak to MEPs to ensure we receive logs from all MEPs. We will work with Gentrack to understand how their system processes event logs and how they send notifications to the MEPs if there are anomalies in the data.	8/3/23	

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

Pulse is not required to provide information to the grid owner.

Audit Commentary

This clause is not applicable. Compliance was not assessed.

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

Pulse is not required to provide information to the grid owner.

Audit Commentary

This clause is not applicable. Compliance was not assessed.

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

Pulse is not required to provide information to the grid owner.

Audit Commentary

This clause is not applicable. Compliance was not assessed.

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

Pulse is not required to provide information to the grid owner.

Audit Commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

11. PROVISION OF SUBMISSION INFORMATION FOR RECONCILIATION

No active ICPs have been supplied by PPPP after 30 September 2021, and PPPP is currently responsible for one ICP at "ready for decommissioning" status and one ICP at "decommissioned" status.

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 notify 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

The registry lists were reviewed to confirm the profiles used.

Audit commentary

PUNZ

Review of the registry list confirmed that Pulse has only applied the HHR, RPS, EG1 and PV1 profiles during the audit period. Trading notifications are not required for these profiles.

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 a sample of NSPs with a small number of ICPs to confirm the AV110 ICP days calculation was correct.

I reviewed the GR100 ICP days comparison reports for the audit period and investigated a sample of variances.

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

Audit commentary

No alleged breaches were recorded for late provision of ICP days information.

Pulse calculates ICP days using Scorpion and Cobra as part of the submission process. HHR and NHH ICP days are included on a single report. Before each reconciliation run Pulse imports the LIS file to Cobra and compares the two sets of data. Any discrepancies are analysed and addressed.

Where the JCC comparison and mismatch reports identify missing ICPs that have then been manually added to the aggregate AV-080 submission file then manual adjustments are made to the NHH ICP Days aggregate values for the respective NSP.

The process for the calculation of ICP days for August 2022 was examined by checking NHH ICP days for 50 NSPs with a small number of ICPs each, and HHR ICP days for 50 NSPs with a small number of ICPs each. The ICP days calculation was confirmed to be correct for the NSPs checked.

The following table shows the ICP days difference between Pulse files and the RM return file (GR100) for all available revisions for 21 months and found the differences were very small.

Month	Ri	R1	R3	R7	R14
Jan 2021	-	-	-	-	0.00%
Feb 2021	-	-	-	-	0.00%
Mar 2021	-	-	-	-	0.00%
Apr 2021	-	-	-	-	0.00%
May 2021	-	-	-	-	0.00%
Jun 2021	-	-	-	-	0.00%
Jul 2021	-	-	-	-	0.00%
Aug 2021	-	-	-	0.00%	-
Sep 2021	-	-	-	0.00%	-
Oct 2021	-	-	-	0.00%	-

Month	Ri	R1	R3	R7	R14
Nov 2021	-	-	-	0.00%	-
Dec 2021	-	-	0.00%	0.00%	-
Jan 2022	-	-	0.00%	0.00%	-
Feb 2022	0.00%	0.00%	-	0.00%	-
Mar 2022	0.02%	0.00%	0.00%	-	-
Apr 2022	0.02%	0.00%	0.00%	-	-
May 2022	-0.01%	0.00%	0.00%	-	-
Jun 2022	-0.06%	0.00%	0.00%	-	-
Jul 2022	0.00%	0.01%	-	-	-
Aug 2022	0.00%	0.00%	-	-	-
Sep 2022	0.00%	-	-	-	-

I reviewed 15 NSPs where differences are remaining after revision three and found these were due to:

- late registry updates reflecting the change in submission type from HHR to NHH; both the HHR and NHH ICP day counts reflected the mismatch in registry data compared to submitted ICP days, and
- a backdated switch gain for ICP 0000139764UN6FE.

I walked through the process for NHH to NHH, NHH to HHR and HHR to HHR meter changes, including reviewing five upgrade examples. In all cases, ICP days were continuous. No downgrades were identified on the event detail report.

Audit outcome

Compliant

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 by checking a sample of NSPs with a small number of ICPs to confirm the AV120 calculation was correct.

GR130 reports were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

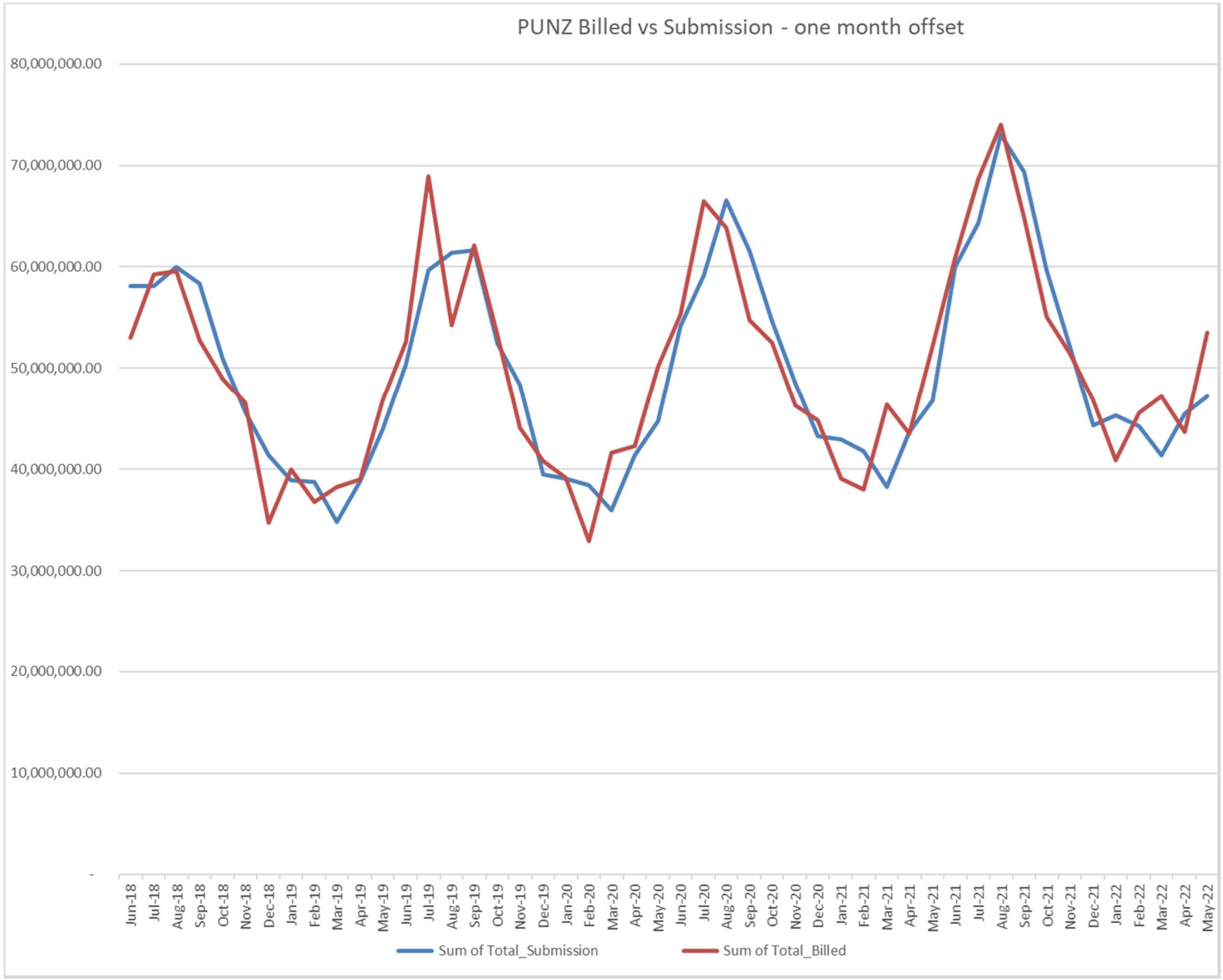
Alleged breaches during the audit period were reviewed to determine whether any reconciliation submissions were late.

Audit commentary

PUNZ

The process for the calculation of as billed volumes was examined by checking five NSPs with a small number of ICPs against invoice information for September 2022. The AV120 billed consumption calculation was confirmed to be correct for the NSPs checked.

I checked the difference between submission and electricity supplied information and the results are shown chart below. The total difference is 0.6% (billed higher than submitted) for the two years ended May 2022 (billed one month offset) and 1.0% (billed higher than submitted) for the year ended May 2022 (billed one month offset). The differences between billed and submitted data appear reasonable.


PUNZ Billed vs Submission - one month offset
80,000,000.00
70,000,000.00
60,000,000.00
50,000,000.00
40,000,000.00
30,000,000.00
20,000,000.00
10,000,000.00
-
Jun-18
Jul-18
Aug-18
Sep-18
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
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May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Jan-22
Feb-22
Mar-22
Apr-22
May-22
Sum of Total_Submission
Sum of Total_Billed

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

Using relevant volume information, each retailer or direct purchaser (excluding direct consumers) must deliver to the reconciliation manager its total monthly quantity of electricity consumed 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 a sample of submissions.

The GR090 ICP Missing files were examined. An extreme case sample of ICPs missing were checked.

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

Audit commentary

One alleged breach (2205PEAL1) was alleged for late provision of submission information and is recorded as non-compliance in **section 12.2** which covers the clause the breach was alleged against.

HHR aggregates and volumes files are created by Pulse in Scorpion. I checked the process for aggregation of HHR data is correct, by:

- matching HHR aggregates information to the volumes for eight submissions; seven submissions matched within two decimal places, and one contained small rounding differences less than ± 1 kWh at NSP level, and
- tracing a sample of raw HHR data through to the aggregates submission for six ICPs.

The GR090 ICP Missing files were examined for all revisions for February 2021 to March 2022. 82 exceptions were identified for March 2022 relating to a single NSP and five exceptions were recorded across the other months. A sample of ten missing ICPs were checked and found to be caused by:

- nine related to a backdated change in NSP being applied on 6 April 2022 (business day 4) with an event date of 31 March 2022; Pulse was unable to reflect these changes within their reconciliation data due to the timing of the distributor's update, however the change was reflected in the Registry ICP days report provided to the reconciliation manager, and subsequent revision of March 2022 did reflect this change in NSP,
- one ICP 0000477064TED34 related to a switch where the gaining trader provided a RR request, and there was a delay in completing the final updates to Gentrack/Scorpion which resulted in the ICP being included in Pulse's HHR submission; this issue was resolved in time for the R1 revision.

Audit outcome

Compliant

12. SUBMISSION COMPUTATION

No active ICPs have been supplied by PPPP after 30 September 2021, and PPPP is currently responsible for one ICP at "ready for decommissioning" status and one ICP at "decommissioned" status.

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

HHR data is collected by EDMI and AMS for Pulse, and AccuCal for four ICPs including Aniwhenua (Pioneer) and Mangaotaki generation. AMI data is provided by MEPs.

Audit commentary

Compliance with this clause has been demonstrated by AMS and EDMI as part of their agent audits. AMI data provided is daylight savings adjusted.

Data received from AccuCal is in standard time and each interval is recorded with a trading period ending time. Accucal provides the correct number of intervals for each daylight saving month. For the transition months Accucal provides 1442 lines of data during April and 1438 lines of data during September. Pulse applies specific scripts (one for each daylight saving transition) to the data provided by Accucal to adjust the data from the transition date and time and ensures the transition days have the correct number of intervals (46 intervals for the September transition and 50 intervals for the April transition).

For the full months of daylight saving Accucal provides a complete month of data but starts at the last hour of the last day of the prior month and ends an hour prior to the end of the current month. Pulse maps this data into the full month of daylight saving trading periods.

Period (October 2022)	Accucal File Datetime NZST	Daylight Savings Datetime NZDT
01/10/2022 00:00	30/09/2022 23:00 NZST	01/10/2022 00:00 NZDT
31/10/2022 24:00	31/10/2022 23:00 NZST	31/10/2022 24:00 NZDT

The approach Pulse applies is consistent with the trading period run on method to adjust interval data.

Pioneer (NSP ANI0331BOPDNP)

Pulse completes the daylight savings adjustments for ANI0331 using the same process as detailed above.

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 HHR, NHH and generation submissions are accurate were reviewed. A list of breaches was obtained from the Electricity Authority.

Audit commentary

PUNZ

As recorded in **section 1.6** - one alleged breach was recorded for late provision of HHR submission information.

Reference	Clause	Target date	Summary	Status
2205PEAL1	Part 15 clause 15.4 (1)	29 June 2022	Pulse Energy Alliance LP (PUNZ) failed to submit information to the RM by 1600 hours on the 4th business day of the reconciliation period. The RM noted that the participant started uploading the files through file checker from 1428, indicating that the participant was aware of their obligations and that their process had started early enough to be able to meet them. PUNZ called the RM at 1555 informing about a delay due to a technical issue. The last file was received by the RM at 1618.	Closed – minor breach

<u>NHH</u>

Cobra is used to create NHH submissions. A sample of NHH ICPs were checked to make sure they are handled correctly, including:

- five ICPs with injection/export registers which found that generation consumption was correctly submitted,
- a sample of five ICPs with vacant consumption were checked; this found that vacant consumption was submitted for the correct period, and
- ten ICPs with unmetered volumes and NHH submission type were reviewed, including six ICPs with standard and four ICPs with shared unmetered and found:
    - nine where the correct consumption was submitted, and
    - one ICP (0001162160ML3A8) where the retailer UNM details records an 84W lamp, but the SI ICP records a 90W lamp resulting in a small submission discrepancy.

A sample of corrections were reviewed to ensure that they flowed through to revision submissions in **sections 2.1** and **8.1**. This found submission volumes have not been submitted for:

- ICP 0001725239BU6A3 was a bridged meter that required a meter change to resolve the issue, this has not been passed to the Revenue Assurance Team to process a correction,
- ICP 0000018303EACE3 had an incorrect multiplier of 3 applied since Pulse began trading the ICP in 2015; the correction has been applied from 2015 resulting in some of the volume correction (2,122 kWh) not being able to be processed through the revision process, and
- two ICPs with inactive consumption were checked and found that the volumes had not been submitted as the ICPs had not been returned to "active" resulting in under submission of 5,755 kWh which is recorded as non-compliance below and in **sections 2.1, 3.9** and **12.7.**

NHH volumes are reviewed prior to submission, these checks are discussed in **section 12.3**.

I found that bridged meters are not always identified promptly, and corrections are not consistently processed. Responsibilities and processes for bridged meters require clarification and improvement. Review of a sample of eight bridged meters found:

Issue	ICPs affected
No correction	Six ICPs with bridged meters had no correction processed: • 0030386502PC8CC bridged 14 July 2021 until it switched out 30 November 2021 (139 days), • 0000437090MPD58 bridged 31 August 2021 to 23 September 2021 (23 days), • 0005001665EN7EC bridged 7 October 2021 to 19 October 2021 (12 days), • 0000027923DE9D8 bridged 13 October 2021 to 10 December 2021 (58 days), • 1000501642PC89A bridged 19 January 2022 to 4 February 2022 (16 days), and • 0495885576LCC8E bridged 22 March 2022 to 2 June 2022 (72 days). Eight bridged ICPs were flagged as being included in the HHR submission for the bridged period. At the time of the audit, the volume correction activity has still outstanding so there were no correction examples to review. In **section 8.2**, I recommend that Pulse reviews its bridged meter volume correction process to ensure it is appropriate for the submission type allocated to the ICP during the bridged period.
Correction in Gentrack but not transferred to Cobra	Two ICPs with bridged meters had corrections processed in Gentrack, but not in Cobra. 0001270560PC2AD bridged 10 March 2021 to 6 December 2021 (271 days): • Gentrack has a reasonable estimated removal read of 45578, which includes an estimate of consumption during the bridged period, and • Cobra has actual removal read matching removal paperwork 41147, resulting in under submission of 4,431 kWh during the bridged period. 0000504812NR124 bridged 21 February 2022 to 7 July 2022 (136 days): • Gentrack has a reasonable estimated removal read of 45648, which includes an estimate of consumption during the bridged period, and. • Cobra has actual removal read matching removal paperwork 41289, resulting in under submission of 4,359 kWh during the bridged period.

HHR

Scorpion is used to create HHR submissions. HHR submissions were checked in **section 11.4** and found to be compliant. One defective meter requiring correction was identified **in section 2.1**. ICP 0099552502CNF6D was notified as having a check sum failure and the meter was replaced. This ICP was submitted as HHR for the affected period and no review of the half hour data was conducted to determine if any correction was required.

HHR volumes are reviewed prior to submission, these checks are discussed in **section 12.3**.

I checked:

- Pulse did not supply any ICPs with unmetered load which also had HHR submission type during the audit period. Unmetered volumes are not able to be submitted whilst they were HHR reconciled within Pulse's systems.
- The two ICPs with "inactive - reconciled elsewhere" status are associated with Aniwhenua and are confirmed to be correct.

Pioneer (NSP ANI0331BOPDNP)

No alleged breaches were recorded for late provision of submission information for ANI0331BOPDNP.

Submissions were checked in **section 12.5** and found to be compliant. There have been no corrections made during the audit period.

NSP volumes are reviewed prior to submission, these checks are discussed in **section 12.3**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.2 With: Clause 15.4 From: 10-Mar-21 To: 07-Oct-22	**PUNZ** 14 ICPs with bridged meters had no correction processed. Two ICPs with bridged meters had corrections (8,790 kWh) processed in Gentrack, but not in Cobra. Two ICPs were missing from submissions due to status not being corrected for inactive vacant consumption resulting in 5,755 kWh. Corrected volumes were not submitted for two ICPs (0001725239BU6A3 – NHH, 0099552502CNF6D – HHR) with defective meters. ICP 0000018303EACE3 had a multiplier correction (x3 updated to x1) back to 2015 resulting in some volume information (2,122 kWh) not being included in the revision process. HHR Initial submission files for April 2022 was provided late to the Reconciliation Manager. Potential impact: Medium Actual impact: Medium Audit history: Once Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak as the process in place does not ensure that consumption during bridged periods is calculated and is submitted. The audit risk rating is assessed to be medium based on the kWh detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status

Internal Pulse meetings and Meeting with Gentrack to discuss the issues and put a plan in place to rectify the issues above and preventative measures. 0001725239BU6A3 - has been corrected	21/3/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse will review current process Bridged meter correction process needs to be reviewed for Field Services Pulse will conduct an end to end process review on the Bridged meter process.	8/3/23	

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 by 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**.

Processes to ensure that HHR, NHH, and generation submissions are accurate were reviewed. A sample of GR170 and AV080 files were compared, to confirm zeroing occurs.

Audit commentary

PUNZ

NHH submissions

The process for aggregating the AV080 was examined by conducting a walkthrough and checking validations.

ICP information from the registry is refreshed in Cobra prior to each reconciliation submission to ensure that aggregation factors and statuses are consistent with the registry. Discrepancies between Gentrack and the registry are identified through the registry validation process.

NHH volumes and ICP days submissions are validated using queries. The queries compare the volumes and ICP days to previous months (for initial submissions) and previous revision (for revision submissions). Differences are generally reviewed at total and balancing area level, including a check for

differences to the previous revision, or previous initial submission of more than ±100,000 kWh and ±15%. If anomalies are found, NSP level and ICP level data are reviewed.

Cobra automatically inserts last revision's volume where consumption has been reported in a previous revision but is not present in the current revision.

Cobra's design is easy to follow for all meter readings and to see what volumes were submitted for each month. It also allows operators to mark a reading as a permanent estimate when entering estimated readings.

As detailed in previous audits there are a small number of data anomalies within Cobra where some meters or channels (registers) can get left out of later revisions. Before NHHVOLS are submitted on day four and day 13 (including revisions), the Reconciliation Team sends Cobra's output data to John Candy Consulting. This is independently verified using his system and he provides the files shown below.

- Comparison_yyyymm – shows which ICPs are missing, missing channels etc.
  - Pulse manually adds last month's consumption value as HE for each affected ICP to the aggregate AV-080 file for the respective ICP attributes for the initial, R1, R3 and R7 revisions. For the R14 revision Pulse runs the Gentrack Recon tool and applies this value to the AV-080 file as HE volume and an audit trail is maintained within the working version of the exception report.
  - 182 ICPs are currently on this report and main issue Cobra experiences with regards to missing volume in R0 is usually due to a recent reversal event in Registry. Currently the reason for this behaviour is unknown but Pulse does have a SQL script which is run before every reconciliation process which can help to remedy this issue to an extent. Any ICPs that are still missing will then have a temporary HE volume based on their last month consumption applied. The application of this temporary estimated volume being labelled as HE is recorded as a non compliance below.
- Mismatch_ yyyymm. Meter channel mismatch to identify phantom channels.
  - Cobra continues to record channels (registers) that are no longer available due to meter reprogramming or reconfigured.
  - Pulse manually strips the volume from the Aggregate AV-080 for the respective ICP attributes for all ICPs recorded in this list.
  - For the November 2022 initial submission 856 ICPs were identified in this report affecting 82 GXPs - 294,000 kWh was stripped out of aggregate submission file.
- ICP_POC_mismatch_yyyymm - mismatch between POC in the registry and Cobra. In some cases, Cobra still "remembers" POCs which were decommissioned.
  - Report not well understood by Pulse and not actively monitored.
  - 241 ICPs with temporary NSP changes were identified for November 2022. All NSP changes related to the same balancing area and the submission information for the affected ICPs was recorded against the correct NSP for the affected period.
- Nearmatch year_yyyymm – usually this shows that the meter serial number is incorrect by one character. This report feeds into comparison check but is not actively monitored.
  - Nine ICPs/meters were on this report for November 2022 – Meter reads are not loading into Cobra and FE volumes are calculated as a consequence.

The first two files are used extensively by the Reconciliation Team to correct errors. PUNZ reviews the return files from the Reconciliation Manager and any anomalies are investigated, and corrections are processed as required. The missing channels issue is expected to be resolved with the move to the new Gentrack platform where reconciliation volumes will be derived within Gentrack.

GR170 and AV080 files were compared for nine months and revisions, and found to contain the same NSPs, confirming that zeroing is occurring as required.

<u>HHR Submissions</u>

HHR processes are automated to ensure that volumes are submitted for every NSP with active ICPs, regardless of whether any consumption has been recorded. Scorpion creates files for ICPs reconciled as HHR.

HHR volumes and ICP days submissions are validated using queries. The queries compare the volumes and ICP days to previous months (for initial submissions) and previous revision (for revision submissions). Differences are generally reviewed at total and balancing area level, including a check for differences to the previous revision, or previous initial submission of more than ±100,000 kWh and ±15%. If anomalies are found, NSP level and ICP level data are reviewed.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.3 With: Clause 15.5 From: 01-Apr-22 To:12-Oct-22	Some estimates of consumption using previous months consumption volumes are manually applied as Historic Estimate volumes to the aggregated AV-080 file. Potential impact: Low Actual impact: Low Audit history: none Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are moderate as some final corrections are not applied at the earliest opportunity. The impact is low based on the volume differences identified.

Actions taken to resolve the issue	Completion date	Remedial action status
Internal Pulse meetings and Meeting with Gentrack to discuss the issues and put a plan in place to rectify the issues above and preventative measures.	23/2/2023	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pulse's existing processes to be reviewed and we will review options with Gentrack through the Reconciliation project. We will monitor this in monthly compliance meetings.	8/3/2023	

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 Pulse is not a grid owner.

Audit commentary

Pulse is not a grid owner.

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

The registry list and NSP table were reviewed.

Pulse is not an embedded network owner, but it provides NSPVOLS files on behalf of Pioneer Energy for NSP ANI0331BOPDNP as their agent.

Audit commentary

PUNZ

Pulse does not own any local or embedded networks and is not required to provide NSP submission information.

Pioneer (NSP ANI0331BOPDNP)

Metering data is provided by AccuCal. Once the data is downloaded from the SFTP server, it is imported into a folder from which a special script is written in Python which creates submission files. No late file submissions were recorded for ANI0331BOPDNP.

Audit outcome

Compliant

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

Review of the NSP table confirmed that Pulse is not a grid connected generator.

Audit commentary

Pulse is not a grid connected generator.

Audit outcome

Compliant

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

Alleged breaches during the audit period were reviewed to determine whether any reconciliation submissions were late. Corrections were reviewed in **sections 2.1**, **8.1** and **8.2**.

Audit commentary

PUNZ

One breach was recorded for late provision of HHR submission information.

No ARCS meters are settled as HHR.

As detailed in **section 2.1**:

- corrections are only processed if the volume difference is 200 kWh or greater, the last audits recommendation is repeated in **section 2.1**, that all corrections are processed,
- two of the three ICPs with defective meters had no consumption submitted for the defective meter period which is recorded as non-compliance below and in **sections 2.1** and **12.2**,
- six ICPs with bridged meters had no consumption submitted for the bridged period, eight bridged ICPs were flagged as being included in the HHR submission for the bridged period; at the time of the audit, the volume correction activity was still outstanding so there were no correction examples to review and in **section 8.2**, I recommend that Pulse reviews its bridged meter volume correction process to ensure it is appropriate for the submission type allocated to the ICP during the bridged period - this is recorded as non-compliance below and in **sections 2.1, 2.17** and **12.2**,

- two ICPs with bridged meters had corrections processed in Gentrack but not in Cobra which is recorded as non-compliance below and in **sections 2.1, 2.17** and **12.2**,
- two ICPs with inactive consumption were checked and found that the volumes had not been submitted as the ICPs had been returned to "active" status using an incorrect event date resulting in under submission of 5,755 kWh; I recommend in **section 3.9** that this process is reviewed and reporting of inactive consumption is enhanced to check all periods covered by the inactive status - this is recorded as non-compliance below and in **sections 2.1, 3.9** and **12.2**,
- three ICPs from a sample of 15 where Pulse had accepted an estimated read request from the gaining retailer and had applied this estimated switch reading in Gentrack, however, these amended switch loss estimate reads were rejected by Cobra and the original switch loss estimate reads were applied resulting in an under submission of 1,703 kWh; Pulse is investigating why this is occurring and identifying how many ICPs are affected - this is recorded as non-compliance below and in **sections 2.1** and **12.2**, and
- one incorrect multiplier was identified by the customer relating to ICP 0000018303EACE3, on site investigations identified that the site had three phase supply and one meter was incorrectly applied a multiplier of 3 (the error occurred in 2011 and predated Pulse's tenure as retailer from 1 May 2013) and the size of the over submission was assessed to be 2,122 kWh; all affected bills were reversed, and volumes recalculated using the correct multiplier, however the method of correction right back to 2013 has resulted in not all volume being accounted for in the submission revision process which is recorded as non-compliance below and in **sections 2.1** and **12.2.**

I found that in some cases, the agreed switch readings for outgoing CS files were not correctly recorded in Gentrack and/or Cobra. I found the following instances where the agreed switch reading was recorded against the wrong date, or missing from Cobra:

- for 0000040662DEE0F (8 October 2022) actual reads on 8 October 2022 of 23044/16230 were applied as estimated switch event readings for 7 October 2022; the last readings are recorded in Gentrack and Cobra on 8 October 2022 instead of 7 October 2022, the reads are recorded as actual instead of estimated in Cobra, and there are no final reads recorded in Gentrack,
- for 0052029380WMC03 (23 September 2022) an actual read on 14 September 2022 was applied as the switch event reading, the last reads recorded in Gentrack and Cobra are for 14 September 2022 and there is no final read recorded in Gentrack, and
- for 0000484225CE8F5 (1 August 2022) an actual read on 29 July 2022 was applied as an estimated switch event reading for 26 July 2022; this was the final reading before the ICP became vacant and consumption was not estimated up to the last day of supply on 31 July 2022 as the last reads recorded in Gentrack and Cobra are on 29 July 2022.

Pioneer (NSP ANI0331BOPDNP)

No breaches were recorded for late provision of submission information for ANI0331BOPDNP, and no inaccurate submission information was identified.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.7 With: Clause 15.12	Some submission data was inaccurate and was not corrected at the next available opportunity. Potential impact: Medium

From: 01-Apr-22 To:12-Oct-22	Actual impact: Medium Audit history: Multiple times Controls: Weak Breach risk rating: 6

Audit risk rating	Rationale for audit risk rating
Medium	Controls are rated as weak as not all corrections are being processed. The impact is assessed to be medium based on the identified kWh identified.

Actions taken to resolve the issue	Completion date	Remedial action status
Internal Pulse meetings and Meeting with Gentrack to discuss the issues and put a plan in place to rectify the issues above and preventative measures.	31/3/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
PUNZ will review the process where "corrections are only processed if the volume difference is 200 kWh or greater". Bridged meter correction process needs to be reviewed for Field Services Pulse will conduct an end to end process review on the Bridged meter process. Inactive Consumption process to be reviewed. Audit report to be checked weekly and Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

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

NHH volumes 14-month revisions were reviewed to identify any forward estimate still existing.

Audit commentary

PUNZ

Some forward estimate remains at revision 14:

Month	Forward estimate
April 2021	1,095.83
May 2021	6,394.06
June 2021	4,105.47
Total	11,595.36

Pulse has been moving as many ICPs as possible to be HHR reconciled using AMI meters. This has improved the number of actual reads gained and reduced the volume of FE.

Pulse runs a process to make as many estimates permanent as possible as part of the reconciliation BAU processes each month. This process identifies FE recorded in the 14-month revision and the estimated reading relating to this revision period within Cobra is updated. Clause 4 Schedule 15.2 requires Pulse to replace estimates with actual validated readings or permanent estimates by revision 14 at the latest, but also requires Pulse to only add permanent estimates where they have been unable to obtain a validated actual reading despite reasonable endeavours.

In **section 6.9**, it is recorded that the reasonable endeavours threshold has not been met to obtain meter readings at the 12-month point for a sample of ten ICPs making it likely that actual readings were unable to be obtained to validate the permanent estimates by revision 14.

The level of forward estimate volumes remaining at R7 is in the region of 350,000 to 400,000 kWh. The majority of this volume has been calculated by Cobra using the default value of 12.5 kwh per day. While these default estimates have been applied in Cobra and are now treated as permanent estimates for the R14 revision, it is unknown how accurate these are in relation to the expected consumption patterns for these ICPs or what impact these permanent estimates in Cobra will have once an actual read is finally obtained which is less than the monthly permanent estimate reads.

The FE remaining at 14 months was examined and found that the main cause was due to:

- one instance where the readings provided by Gentrack were rejected by Cobra resulting in default estimation being applied; this validation exception was not identified prior to the audit,
- four instances where a permanent estimate read was not applied within Cobra where the CS estimate read had not been loaded, and
- seven instances where no actual reads were received for the affected ICPs so forward estimates were produced.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.8 With: Clause 4 Schedule 15.2 From: April to May 2021 r14	**PUNZ** Some estimates were not replaced with permanent estimates by revision 14. Permanent estimates applied when reasonable endeavours were not used to obtain an actual reading for a sample of ten ICPs. Potential impact: High Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	Controls are recorded as moderate as they will mitigate risk to an acceptable level. The audit risk rating is low as while the forward estimate remaining at r14 is low, the volume of forward estimate volume being converted to historic estimate volumes using permanent estimate reads, but where reasonable endeavours was not shown, is high. While default estimates have been applied in Cobra and are now treated as permanent estimates it is unknown how accurate these are in relation to the expected consumption patterns for these ICPs.

Actions taken to resolve the issue	Completion date	Remedial action status
Due to this process being a manual human input we believe there may have been instances of human error. PUNZ will review the permanent estimate process to have this completed on R7 to have more time to improve the overall accuracy. We will review Gentracks process moving forward.	31/3/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Audit report to be checked weekly and Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

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, and the registry list and AC020 reports were reviewed.

Audit commentary

Compliance with this clause was assessed:

- HHR volume is reported for all ICPs with a meter category 3 or higher,
- unmetered load submissions were checked in **section 12.2**,
- no profiles requiring a certified control device are used,
- no loss or compensation arrangements are required, and
- aggregation of the AV080, AV090 and AV140 reports is compliant.

15 ICPs with RPS PV1 profile had submission type HHR recorded on the registry. Submission occurred as HHR, and the registry is now correct for all of these.

Four ICPs with HHR profile had submission type NHH recorded on the registry. Submission occurred as HHR, and the registry is now correct for all of these.

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 techniques described in clauses 4 to 7 to create historical estimates and forward estimates.

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

AV080 submissions were reviewed, to confirm that historic estimates are included and identified.

Permanence of meter readings is reviewed in **section 12.8**. The methodology to create forward estimates is reviewed in **section 12.12**.

Audit commentary

PUNZ

I reviewed nine AV080 submissions for a diverse sample of months and revisions and confirmed that forward and historic estimates are included and identified as such.

Audit outcome

Compliant

12.11. Historical estimate process (Clauses 4 and 5 Schedule 15.3)

Code reference

Clauses 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 historical estimates of volume information for each ICP when the relevant seasonal adjustment shape is available, and the reconciliation participant is not using an approved profile in accordance with clause 4A.

If the Authority has approved a profile for the purpose of apportioning volume information (in kWh) to part or full consumption periods, a reconciliation participant may use the profile despite the relevant seasonal adjustment shape being available; and if it uses the profile, must otherwise prepare the historical estimate in accordance with the methodology in clause 4.

*If a seasonal adjustment shape is not available, and the **reconciliation participant** is not using an approved **profile** under clause 4A, 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

To assist with determining compliance of the Historical Estimate (HE) processes, Pulse was supplied with a list of scenarios, and for some individual ICPs a manual HE calculation was conducted and compared to the result from Pulse's systems.

Audit commentary

PUNZ

The process for managing SASV is automated in Cobra and ensures that the most recent SASV values are applied.

The table below shows that all scenarios are calculating as expected and correct SASV (seasonal adjusted shape values) are applied.

Where an ICP is inactive for part of a read-to-read period, SASV for inactive days are excluded from the numerator and denominator which effectively forces all of the consumption into the active portion of the read-to-read period.

Test	Scenario	Test expectation	Result
a	ICP becomes Active part way through a month	Consumption is only calculated for the Active portion of the month.	Compliant
b	ICP becomes Inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Compliant
c	ICP become Inactive then Active again within a month.	Consumption is only calculated for the Active portion of the month.	Compliant
d	ICP switches in part way through a month on an estimated switch reading	Consumption is calculated to include the 1st day of responsibility.	Compliant
e	ICP switches out part way through a month on an estimated switch reading	Consumption is calculated to include the last day of responsibility.	Compliant
f	ICP switches out then back in within a month	Consumption is calculated for each day of responsibility.	Compliant
g	Continuous ICP with a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant
h	Continuous ICP without a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant
i	Rollover Reads	Consumption is calculated correctly in the instance of meter rollovers.	Compliant
j	Unmetered load for a full month	Consumption is calculating based on daily unmetered kWh for full month.	Compliant
k	Unmetered load for a part month	Consumption is calculating based on daily unmetered kWh for active days of the month.	Compliant
l	Network/GXP/Connection (POC) alters partway through a month.	Consumption is separated and calculated for the separate portions of where it is to be reconciled to.	Compliant
m	ICP with a customer read during the month	Customer reads are not used to calculate historic estimate, unless they have been validated against a set of validated readings from another source	Compliant
n	ICP with a photo read during the month	Photo reads are not used to calculate historic estimate, unless they have been validated against a set of validated readings from another source	Compliant
o	ICP has a meter with a multiplier greater than 1	The multiplier is applied correctly	Compliant

Audit outcome

Compliant

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

The process to create forward estimates was reviewed.

Forward estimates were checked for accuracy by analysing the GR170 file for variances between revisions over the audit period.

Audit commentary

The average daily consumption provided by a losing retailer is not used by PUNZ. Estimates are calculated using historic information or type of customer and pricing applied by networks. If two validated readings are available during the read period, Cobra applies the daily average for the period between two register reads otherwise a default estimation value of 12.5 kWh per day is applied.

Count of balancing areas differences over 15%.

Month	Over ±15%				Over ±15% and ±100,000 kWh				Total Balancing Areas
	Revision 1	Revision 3	Revision 7	Revision 14	Revision 1	Revision 3	Revision 7	Revision 14	
Jul-20	1	2	4	4	-	-	-	-	80
Aug-20	4	5	8	8	-	-	-	-	80
Sep-20	1	2	2	3	-	-	-	-	80
Oct-20	-	2	4	5	-	-	-	-	80
Nov-20	3	11	11	10	-	-	-	-	81
Dec-20	8	18	19	21	-	1	1	1	82
Jan-21	3	11	15	17	-	-	1	1	81
Feb-21	2	7	8	10	-	-	-	-	82
Mar-21	1	7	8	9	-	-	1	-	81
Apr-21	1	4	8	6	-	-	-	-	82
May-21	1	5	7	8	-	-	-		83
Jun-21	2	7	6	5	-	-	-		83

Month	Over ±15%				Over ±15% and ±100,000 kWh				Total Balancing Areas
	Revision 1	Revision 3	Revision 7	Revision 14	Revision 1	Revision 3	Revision 7	Revision 14	
Jul-21	2	2	7		-	-	-		84
Aug-21	-	4	4		-	-	-		84
Sep-21	1	6	7		-	-	-		84
Oct-21	5	5	7		-	-	1		84
Nov-21	2	9	11		-	-	1		84
Dec-21	2	5	7		-	-			93
Jan-22	2	7	12		-	1	3		93
Feb-22	1	7			-	-			94
Mar-22	3	8			-	-			95
Apr-22	3	7			-	1			96
May-22	2	8			-	-			96
Jun-22	5				-				97
Jul-22	2				-				97

The total variation between revisions at an aggregate level is shown below.

Month	Over ±15%				Volume impact Over ±15%			
	Revision 1	Revision 3	Revision 7	Revision 14	Revision 1	Revision 3	Revision 7	Revision 14
Jul-20	-0.69%	-1.35%	-1.49%	-1.76%	-	-	-	-
Aug-20	-1.37%	-1.49%	-1.66%	-1.84%	-	-	-	-
Sep-20	-0.21%	0.11%	-0.29%	-0.23%	-	-	-	-
Oct-20	-0.21%	0.95%	0.72%	-0.06%	-	-		-
Nov-20	0.49%	1.22%	0.81%	1.10%	-	-	-	-
Dec-20	0.04%	1.54%	1.34%	1.87%	-	-	-	-
Jan-21	1.87%	2.71%	2.66%	3.19%	-	-	-	-
Feb-21	-0.66%	0.72%	0.06%	0.71%	-	-	-	-
Mar-21	0.58%	2.03%	1.41%	1.26%	-	-	-	-
Apr-21	0.70%	0.77%	-0.11%	0.08%	-	-	-	-
May-21	-1.12%	-2.42%	-4.01%	-2.89%	-	-	-	

Month	Over ±15%				Volume impact Over ±15%			
	Revision 1	Revision 3	Revision 7	Revision 14	Revision 1	Revision 3	Revision 7	Revision 14
Jun-21	-2.12%	-3.72%	-5.15%	-4.23%	-	-	-	
Jul-21	-0.92%	-2.21%	-3.93%		-	-	-	
Aug-21	-0.68%	-2.00%	-1.99%		-	-	-	
Sep-21	-0.08%	-2.31%	-1.30%		-	-	-	
Oct-21	-0.31%	1.24%	1.56%		-	-	-	
Nov-21	0.97%	2.64%	2.72%		-	-	-	
Dec-21	0.37%	1.41%	1.43%		-	-		
Jan-22	-0.33%	-0.12%	-0.16%		-	-		
Feb-22	-0.19%	-0.19%			-	-		
Mar-22	0.45%	0.53%			-	-		
Apr-22	-0.33%	0.06%						
May-22	-1.72%	-2.41%						
Jun-22	-1.42%							

Month	Over ±15%				Volume impact Over ±15%			
	Revision 1	Revision 3	Revision 7	Revision 14	Revision 1	Revision 3	Revision 7	Revision 14
Jul-22	-0.98%							

I checked a sample of 49 differences over ± 15% for submission months between January 2021 to July 2022 and found:

- ten related to one network area where the meter configuration was updated by the MEP for all AMI meters; Cobra was rejecting the reads relating to the new registers so default estimation values were applied and once the reads were manually applied into Cobra the updated volume information was much higher than the default estimate values applied,
- one instance where Cobra initially incorrectly calculated the volume between meter reads,
- one instance where the reads provided to Cobra were rejected due to a failed validation exception due to the high consumption reported; once the reads were manually released in Cobra the updated volume information was much higher than the default estimate values applied, and
- 37 instances were caused by forward estimate being different to actual data especially for NSPs with a small population of ICPs connected and where the "forward default" estimate of 12.5 kWh per day was not reflective of the load connected especially for business customers.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.12 With: Clause 6 Schedule 15.3 From: 01-Jan-21 To: 30-Jun-22	Some balancing area differences between revisions were over the ± 15% threshold because of inaccurate forward estimates. Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate, as Pulse has forward estimate processes in place, however the default estimate value applied when reads are not available within the consumption month is lower than the average daily consumption across all of Pulse's ICPs. The audit risk rating is low because revised submission data will be washed up.

Actions taken to resolve the issue	Completion date	Remedial action status
Internal Pulse meetings and Meeting with Gentrack to discuss the issues and put a plan in place to rectify the issues above and preventative measures.	21/2/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will create a process that compares the R0 reads to the average read volume for each meter. We will review and improve this with the new Gentrack system.	31/3/23	

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

The event detail report was examined to identify all ICPs which had a profile change during the report period.

A sample of ICPs with profile changes were reviewed to confirm that there was an actual or permanent estimate reading on the day of the profile change.

Audit commentary

Every month Pulse shifts more ICPs to HHR submission and into the Scorpion system. For the majority of profile changes a new meter was installed with the capability to record import/export therefore the final reading of the removed meter was recorded and used for volume calculation.

In the event of a profile change, Pulse uses a validated meter reading on the day that the change is effective. A sample of twelve ICPs (six upgrades to HHR profile and six downgrades to RPS profile) were checked:

- one upgrade for ICP 0000049289HRA65 on 1 August 2022 had no actual read available for the event date, and
- four downgrades relating to ICPs 0000049289HRA65 (RPS PV1 – 4 August 2022), 0000049289HRA65 (RPS – 2 May 2022), 0000136320UN030 (RPS PV1 – 3 July 2022), 0078080574WE4B7 (RPS – 1 September 2022) had no actual reads available for the respective event date.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.13 With: Clause 7 Schedule 15.3 From: 01-Apr-22 To:12-Oct-22	Five changes of submission type and profile code change did not have a validated actual meter or permanent estimate reading applied for the date of the change. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating
Low	Controls are rated as strong as most profile changes occurred where a validated read is present. The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Training was updated, this has now been updated and provided to relevant staff.	20/2/23	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Training was updated, this has now been updated and provided to relevant staff. Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

13. SUBMISSION FORMAT AND TIMING

No active ICPs have been supplied by PPPP after 30 September 2021, and PPPP is currently responsible for one ICP at "ready for decommissioning" status and one ICP at "decommissioned" status.

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 NHH volumes is discussed in **section 12.3**, aggregation of HHR volumes is discussed in **section 11.4** and NSP volumes are discussed in **section 12.6**.

Audit commentary

PUNZ

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
- trading period for half hour metered ICPs and consumption period or day for all other ICPs.

The submitted data was also compared to billed data in **section 11.3** and appeared reasonable.

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 the rounding of data on the AV090, AV140 and AV080 reports as part of the aggregation checks. AV130 submissions were reviewed in **section 12.6**.

Audit commentary

Review of AV-080, AV-090, AV-130 and AV-140 reports identified that submission information is rounded to no more than two decimal places.

When the AV-090 (HHRVOLS- Aggregated submission volumes) and AV-140 (HHRAGGS – ICP level submission volumes) were compared for the respective month and revision, seven submissions matched within two decimal places, and one contained small rounding differences less than ± 1 kWh at NSP level.

Pulse's submission information processes within Scorpion appears to aggregate and round the HHR volume information at ICP level to produce the submission information for the AV-140 (HHRAGGS) file prior to aggregation to produce the AV-090 submission information and the AV-090 HHRVOLS submission data file.

Pulse is one of a number of traders that creates the AV-140 submission information and file prior to the aggregation of this information to create AV-090 submission information and file.

The point at which volume information can be rounded in the AV-090/AV140 process requires some additional clarity. This is recorded as an issue for the authority to provide clarification regarding at what step in the creation of HHR submission information process can the rounding of volume information occur.

Issue	Section	Clause	Description
Clarification at which point can HHR volume information be rounded when creating submission information.	13.2	9 Schedule 15.3	AV-090 (HHRVOLS – aggregated submission information) and AV-140 (HHRAGGS – ICP submission information) are sourced from the same volume information. Where a trader creates the ICP level submission information to create the AV-140 (HHRAGGS) file prior to aggregation to create the AV-090 (HHRVOLS) file, clarification is required to confirm that this approach is compliant with clause 8 & 9 of schedule 15.3.

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

The timeliness of submissions of historic estimate was reviewed in **section 12.2**.

I reviewed a sample of AV080 reports to determine whether historic estimate requirements were met.

Audit commentary

The quantity of historical estimates is contained in the submission file and is not a separate report.

The table below shows that the HE threshold was not met for all NSPs for all submissions.

Pulse runs a process to make as many estimates permanent as possible as part of the reconciliation BAU processes each month. This process identifies FE recorded in the 14-month revision and the estimated reading relating to this revision period within Cobra is updated. Clause 4 Schedule 15.2 requires Pulse to replace estimates with actual validated readings or permanent estimates by revision 14 at the latest, but also requires Pulse to only add permanent estimates where they have been unable to obtain a validated actual reading despite using reasonable endeavours. In some cases, permanent estimates are entered for revision 14 where Pulse has not used reasonable endeavours to obtain an actual validated reading, and this is recorded as non-compliance in **section 12.8**.

Clause 10 of Schedule 15.2 allows Pulse not to meet prescribed historic estimate thresholds if exceptional circumstances exist. In **section 6.9** and **6.10**, it is recorded that exceptional circumstances did not exist for some NSPs where ICPs had not received actual readings within the previous 12 and four months respectively, making it likely that some NSPs where the historic estimate thresholds were not met for revision 3, 7 or 14 will also not have exceptional circumstances.

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Apr 2021	-	-	160	165
May 2021	-	-	162	166
Jun 2021	-	-	163	166
Nov 2021	-	165	-	167
Dec 2021	-	174	-	176
Jan 2022	-	175	-	177
Mar 2022	174	-	-	179
Apr 2022	178	-	-	179
May 2022	178	-	-	179

The table below shows that the percentage HE at a summary level for all NSPs is well above the required targets for revision three and seven, and below the target for revision 14.

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Apr 2021	-	-	100.00%
May 2021	-	-	99.99%
Jun 2021	-	-	99.99%
Nov 2021	-	98.99%	-
Dec 2021	-	98.99%	-
Jan 2022	-	98.80%	-
Mar 2022	95.25%	-	-

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Apr 2022	97.31%	-	-
May 2022	97.44%	-	-

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 13.3 With: Clause 10 of Schedule 15.3 From: 01-Apr-22 To:12-Oct-22	The historic estimate attainment requirements were not met for some revisions. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are recorded as moderate as Pulse has not used reasonable endeavors to attempt to obtain reads prior to applying a permanent read. The audit risk rating is low as the volume of ICPs affected by this is small.

Actions taken to resolve the issue	Completion date	Remedial action status
Internal Pulse meetings to discuss the issues and put a plan in place to rectify the issues above and preventative measures.	21/2/23	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Will be review/improved on new Gentrack system. Monthly compliance meetings will be started to monitor compliance tasks across the business.	Ongoing	

CONCLUSION

Overall, I found that the Pulse team is keen to increase compliance, but they have been constrained by workloads and some system issues which are expected to improve with upcoming Gentrack upgrade, including migration of NHH submission from Cobra to Gentrack and HHR submission from Scorpion to Gentrack. Most data checked was accurate and on time. HHR submission is managed well with robust validation processes in place and a high level of accuracy. Estimation and correction processes are functioning as expected, except for HHR meter changes. The following key areas require some improvement to increase compliance:

- Due to projects which have been underway during the audit period and some staff on leave long term, monitoring of data accuracy including inactive consumption has decreased during the audit period and zero consumption and read attainment processes have been paused. Some exceptions identified during validation processes are not being investigated and/or resolved promptly. Pulse intends to increase validation and monitoring once staffing levels increase and workloads become more manageable, which is expected to significantly increase compliance.
- Pulse's current version of Gentrack has some limitations which are impacting on registry and switching timeliness and accuracy, including that:
    - only updates on or after the last registry event date can be processed in Gentrack,
    - some profile updates are not occurring automatically as expected when distributed generation is added or removed,
    - ICP technical details (including metering and unmetered load) are not updated in Gentrack after ICPs switch in which resulted in some incorrect AN file content, and
    - the CS generation process does not ensure that file content is always consistent with the registry functional specification and code requirements, and that closing reads are entered against the correct date.
- I found that bridged meters are not always identified promptly, and corrections are not consistently processed. Responsibilities and processes for bridged meters require clarification and improvement.
- Customer communication processes require review to ensure that the Utilities Disputes and Powerswitch requirements are met.
- Event logs are not consistently reviewed to ensure that any events that require the attention are identified and actioned.
- Outstanding interval data for HHR submitted ICPs should be escalated to the AMI MEP to attempt to obtain actual interval data to reduce the volume of HHR estimations becoming corrections where data has not been delivered.
- HHR estimations around meter changes need to be improved to ensure all consumption is accounted for.
- The use of a default estimation value, where an ICP does not have two reads available within the consumption period, to calculate daily average to use for NHH estimation can result in estimates being inaccurate causing large variances between revisions.
- Manual adjustments are sometimes required to correct inaccurate submission data produced in Cobra. These issues are expected to be resolved by the Gentrack upgrade.

The audit found 37 non-compliances (an increase from 27) and 42 recommendations are made. The audit risk rating is 100 (an increase from 74), which results in an indicative audit frequency of three months. The main reasons for the increases are:

- Monitoring of data accuracy and follow up of unread NHH ICPs has decreased during the audit period, and some exceptions are not being investigated and/or resolved promptly. This has led to some data accuracy, read attainment, and historic estimate threshold non-compliances, and failure to meet the best endeavours requirements.

- Pulse's current version of Gentrack has some limitations which are impacting on registry and switching timeliness and accuracy.
- Some minor issues affecting small numbers of ICPs caused non-compliances in sections where compliance was found in the previous audit, such as late switching files, some ICPs with an incorrect NSP recorded, some inaccurate switch event readings, and profile changes which did not occur on an actual or permanent estimate reading.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The table below provides some guidance on this matter and recommends an indicative audit frequency of three months. I have considered this in conjunction with Pulse's responses, which indicate that the issues are being investigated and are expected to be resolved and I recommend a next audit date of at least ten months to allow time for Pulse to make improvements, and demonstrate improvement.

PARTICIPANT RESPONSE

Pulse has reviewed this report and their comments are contained within its body.