

ELECTRICITY INDUSTRY PARTICIPATION CODE  
RECONCILIATION PARTICIPANT AUDIT REPORT



For

PULSE ENERGY ALLIANCE LP

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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 version 7.1

Pulse uses two participant codes; Pulse (PUNZ) and Property Power (CPPL). This audit has examined compliance for both codes. Pulse also acts as an agent for submission of generation volumes.

### Pulse

Pulse has undergone some system changes during the audit:

- An upgrade from Gentrack 3.8 to Gentrack 4 was completed on 1 October 2017. Gentrack is used for registry management, switching, billing, and AV120 as billed reporting. Some Gentrack 4 reconciliation data was used in April 2018, due an error in read dates which affected Cobra's (the NHH reconciliation system's) submission calculations.
- HHR reconciliation submissions processes moved from IMS to the PRADA data warehouse from April 2018.

Further changes are planned. Once Property Power's customers are switched to Pulse's systems, it is intended that the Viper HHR reconciliation database created by John Candy Consulting (JCC) will be used for Pulse HHR reconciliation submissions. Some procedural and system changes will be required to enable this, as the current process is dependent on Property Power's Orion billing system.

The Gentrack upgrade led to some changes to treatment of data, system processes, and manual processes.

- Some of the reports used to check data and monitor exceptions with Gentrack 3.8 ceased to be used following the Gentrack 4 implementation. This included reports used to monitor registry discrepancies, read attainment, and zero consumption. Reliance was placed on Gentrack's validation manager and workflow processes, but some of these processes did not initially identify all validation issues as expected. Improvements have been made to the workflow processes, and some of the old monitoring reports have been reinstated or are in the process of being reinstated.
- There were some changes to the fields in Gentrack required for registry updates and Cobra NHH reconciliation. This has led to some issues with rejected registry updates (and subsequent late updates to correct them), and submission inaccuracies.

The table below provides a brief assessment of the most significant findings in each area:

<b>Registry</b>	<ol style="list-style-type: none"><li>1. Process workflow issues following the Gentrack 4 implementation resulted in incomplete status updates, trader updates, and MEP nominations being sent to the registry, which were rejected. The rejected updates were not detected promptly because the acknowledgement files were not being directed to an appropriate work queue, and there was no consistency check between the trader fields recorded in Gentrack and on the registry. These workflow issues have now been corrected, and a reconciliation between Gentrack and registry status is being reinstated.</li><li>2. Some late registry updates.</li><li>3. Some inaccurate processing of registry updates.</li></ol>
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<b>Reading</b>	<ol style="list-style-type: none"> <li>1. Meter condition information provided by Wells is not routinely reviewed.</li> <li>2. Meter event information is not provided by all MEPs or routinely reviewed.</li> <li>3. Some corrections were not processed, or were not processed accurately.</li> <li>4. Read attainment processes were put on hold following the Gentrack 4 implementation on 1 October 2017 and were reinstated in May 2018.</li> <li>5. Zero consumption reporting stopped following Gentrack 4 implementation, and a new and improved report has recently been developed.</li> </ol>
<b>Switching</b>	<ol style="list-style-type: none"> <li>1. Issues relating to treatment of RR, switch in readings and estimated switch readings prevent Pulse from using the same reading as the other trader for settlement in some cases.</li> <li>2. Inaccurate estimated daily consumption is being populated in some switching files.</li> <li>3. CS files for vacant ICPs are populated with the last actual read billed to a customer, not the last actual or estimate read for the last day Pulse supplied the ICP.</li> </ol>
<b>Reconciliation</b>	<p>A table setting out the reconciliation submission accuracy issues is in <b>section 12.7</b>. At a high level, the key issues are:</p> <ol style="list-style-type: none"> <li>1. Null and incorrect register content codes. Null codes lead to no reconciliation consumption being calculated, and inaccurate codes can cause inaccurate forward estimate.</li> <li>2. Incorrect meter numbering for 11 meters, which can lead to reads being recorded against incorrect meters or registers.</li> <li>3. Incorrect trader profiles can result in incorrect reporting. Pulse has a process in place to correct profiles for submission.</li> <li>4. Deleted meter channels were not removed from Cobra. Default forward estimate was applied to these registers resulting in over submission. A process is in place to end date these meters and remove the estimated consumption.</li> <li>5. Meter channels with the submission flag set to no are being transferred from Gentrack to Cobra, resulting in over submission. A manual workaround is in place to identify and remove consumption on registers with submission flag no.</li> <li>6. Estimated closing reads, switch in reads, and accepted RR reads are not always correctly applied in Cobra for reconciliation. Some manual workarounds are in place.</li> <li>7. As discussed in the registry section, there are some status inconsistencies between Gentrack and the Registry. Cobra relies on registry data and some ICPs may be incorrectly included in or excluded from submissions.</li> <li>8. The Bunnythorpe GXP was duplicated in Cobra which affected the accuracy of the June 2018 initial submission for the GXP. Corrected consumption was submitted for revision 1.</li> <li>9. Corrections are not always processed, or processed accurately.</li> <li>10. The system process to enter permanent estimate reads where reads are not attained within 14 months has not been enabled yet.</li> </ol>

### **Property Power**

Pulse intends to migrate the Property Power customers to the Pulse reconciliation and billing systems by 1 October 2018. There have been no major changes to Property Power's systems or processes during the audit period.

The table below provides a brief assessment of the most significant findings in each area:

<b>Registry</b>	No significant issues were identified.
<b>Reading</b>	<ol style="list-style-type: none"> <li>1. No routine review of meter condition information provided by Wells.</li> <li>2. No routine review of meter event information. Meter event information is not provided by all MEPs.</li> </ol>
<b>Switching</b>	<ol style="list-style-type: none"> <li>1. Late processing of files. Reliance is placed on periodically run switch breach reports to identify when files are due.</li> <li>2. Incorrect average daily consumption for some CS files. For HH ICPs the estimated daily consumption is not updated in Orion and must be manually populated.</li> </ol>
<b>Reconciliation</b>	<ol style="list-style-type: none"> <li>1. One NHH submission accuracy issue was identified and is discussed in <b>section 12.7</b>. The issue is unlikely to recur because of a change of process.</li> </ol>

#### **Next audit date**

The next audit frequency table indicates that the next audit be due in three months, based on Pulse's final score of 96 (an increase from 56 in the 2017 audit). The score is inflated by issues that have caused non-compliance with multiple clauses of the code, particularly issues causing registry discrepancies and issues with the treatment of metering information and readings transferred from Gentrack to Cobra. Property Power non-compliances in sections where Pulse is compliant contribute 6 points; these non-compliances are expected not to recur once the ICPs switch to Pulse.

Pulse has resolved some issues and is working through clearing backlogs and improving monitoring processes. Workarounds have been put in place to manage most of the reconciliation submission issues, which reduces their impact.

I have reviewed Pulse's responses to the compliance plan, and based on these I recommend a next audit period of at least eight months, to allow time for the Property Power ICPs to transition to Pulse and for improved processes to be bedded in and demonstrated.

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	10.6, 11.2, 15.2	<b><u>Pulse</u></b> Discrepancies between Gentrack and the Registry.	Weak	Medium	6	Identified
Provision of information	2.2	15.35	<b><u>Pulse</u></b> Two breaches were recorded for late provision of submission information.	Strong	Low	1	Identified
Audit trails	2.4	21 Schedule 15.2	<b><u>Pulse</u></b> HHR and NSP volume audit trails do not contain all the required information and are not stored with the meter data.	Moderate	Low	2	Identified
Electrical Connection of Point of Connection	2.11	10.33A	<b><u>Pulse</u></b> 22 reconnections had expired certification recorded on the registry when they were reconnected.  <b><u>Property Power</u></b> One ICP was not certified within five business days of electrical connection on the registry.	Weak	Low	3	Identified



Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Changes to registry information	3.3	10 Schedule 11.1	<p><b><u>Pulse</u></b></p> <p>489 late updates to active status and 115 late updates to inactive status.</p> <p>1647 late MEP nominations.</p> <p><b><u>Property Power</u></b></p> <p>22 late updates to active status and three late updates to inactive status.</p>	Weak	Low	3	Identified
Provision of information to the registry manager	3.5	9 Schedule 11.1	<p><b><u>Pulse</u></b></p> <p>44 late updates to active.</p> <p><b><u>Property Power</u></b></p> <p>One late update to active.</p>	Weak	Low	3	Identified
ANZSIC codes	3.6	9 (1(k)) of Schedule 11.1	<p><b><u>Pulse</u></b></p> <p>Two ICPs had unknown ANZSIC codes.</p> <p>Two ICPs had incorrect ANZSIC codes recorded.</p>	Moderate	Low	2	Investigating
Management of “active” status	3.8	17 Schedule 11.1	<p><b><u>Pulse</u></b></p> <p>Two ICPs had incorrect active dates.</p>	Moderate	Low	2	Cleared
Management of “inactive” status	3.9	19 Schedule 11.1	<p><b><u>Pulse</u></b></p> <p>15 ICPs have incorrect statuses or status reason codes recorded on the registry.</p> <p>Five ICPs with consumption while disconnected did not have their status updated to active.</p>	Moderate	Low	2	Identified
Inform registry of switch request for ICPs - standard switch	4.1	2 Schedule 11.3	<p><b><u>Property Power</u></b></p> <p>An NT was issued more than two days after pre-conditions were cleared for one Property Power ICP.</p>	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Losing trader response to switch request and event dates - standard switch	4.2	3 and 4 Schedule 11.3	<b><u>Pulse</u></b> Two incorrect AN response codes were applied by Pulse.	Moderate	Low	2	Identified
Losing trader must provide final information - standard switch	4.3	5 Schedule 11.3	<b><u>Pulse</u></b> 18 transfer CS files had incorrect estimated daily consumption recorded.  <b><u>Property Power</u></b> Three transfer CS files had incorrect estimated daily consumption recorded.	Weak	Low	3	Investigating
Retailers must use same reading - standard switch	4.4	6(1) and 6A Schedule 11.3	<b><u>Pulse</u></b> 18 late RR files for transfer switches. Four RRs were not supported by two validated actual reads.  Issues relating to treatment of RR, switch in readings and estimated switch readings prevent Pulse from using the same reading as the other trader for settlement in some cases.  <b><u>Property Power</u></b> One late AC file for a transfer switch.	Weak	Medium	6	Investigating
Gaining trader informs registry of switch request - switch move	4.7	9 Schedule 11.3	<b><u>Property Power</u></b> An NT was issued more than two days after pre-conditions were cleared for one ICP.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Losing trader provides information - switch move	4.8	10(1) Schedule 11.3	<p><b><u>Pulse</u></b></p> <p>One incorrect AN response code was applied.</p> <p>Pulse proposed an event date before the gaining trader's requested date for one switch move. The switch was later completed with a compliant event date.</p> <p><b><u>Property Power</u></b></p> <p>One incorrect AN response code was applied.</p> <p>One AN file was late.</p>	Moderate	Low	2	Identified
Losing trader determines a different date - switch move	4.9	10(2) Schedule 11.3	<p><b><u>Pulse</u></b></p> <p>Pulse proposed an event date before the gaining trader's requested date for one switch move. The switch was later completed with a compliant event date.</p>	Strong	Low	1	Identified
Losing trader must provide final information - switch move	4.10	11 Schedule 11.3	<p><b><u>Pulse</u></b></p> <p>27 switch move CS files had incorrect estimated daily consumption recorded.</p> <p>Two ICPs had readings which did not relate to the last day the ICP was supplied by Pulse. Pulse switches ICPs on the last read billed to a customer.</p> <p><b><u>Property Power</u></b></p> <p>Five switch move CS files had incorrect estimated daily consumption recorded.</p> <p>Two Property Power CS files were late.</p>	Weak	Low	3	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	<p><b><u>Pulse</u></b></p> <p>12 late RR files for switch moves.</p> <p>One RR contained an incorrect reading, and was rejected and re-requested with the correct reading.</p> <p>Issues relating to treatment of RR, switch in readings and estimated switch readings prevent Pulse from using the same reading as the other trader for settlement in some cases.</p> <p><b><u>Property Power</u></b></p> <p>One late AC file for a switch move.</p>	Weak	Medium	6	Investigating
Gaining trader informs registry of switch request - gaining trader switch	4.12	Clause 14 Schedule 11.3	<p><b><u>Pulse</u></b></p> <p>One switch move had a HH NT issued in error. The switch was withdrawn and re-requested as a switch move.</p>	Strong	Low	1	Cleared
Gaining trader to advise the registry manager - gaining trader switch	4.14	16 Schedule 11.3	<p><b><u>Pulse</u></b></p> <p>One late HH CS file.</p>	Strong	Low	1	Identified
Withdrawal of switch requests	4.15	17 and 18 Schedule 11.3	<p><b><u>Pulse</u></b></p> <p>48 late NW files; at least nine of which were issued in error.</p> <p><b><u>Property Power</u></b></p> <p>One late NW and one late AW.</p>	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Maintaining shared unmetered load	5.1	11.14	<p><b><u>Pulse</u></b></p> <p>Two ICPs with shared unmetered load had missing trader unmetered load details in Gentrack and on the registry.</p>	Moderate	Low	2	Cleared
Electricity conveyed & notification by embedded generators	6.1	10.13 and Clause 15.2	<p><b><u>Pulse</u></b></p> <p>Energy is not metered and quantified according to the code where meters are bridged.</p>	Strong	Low	1	Identified
Derivation of meter readings	6.6	3(1), 3(2) and 5 Schedule 15.2	<p><b><u>Pulse</u></b></p> <p>Meter condition information provided by Wells is not routinely reviewed.</p> <p>Seven customer and photo reads were treated as validated, when they had not been validated against at least two actual reads from other sources.</p> <p><b><u>Property Power</u></b></p> <p>Meter condition information provided by Wells is not routinely reviewed.</p>	Weak	Low	3	Identified
Interrogate meters once	6.8	7(1) and (2) Schedule 15.2	<p><b><u>Property Power</u></b></p> <p>Three ICPs were unread during the period of supply. Exceptional circumstances did not apply, and the best endeavours requirement was not met.</p>	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
NHH meters interrogated annually	6.9	8(1) and (2) Schedule 15.2	<p><b><u>Pulse</u></b></p> <p>For nine ICPs without an actual read for 12 months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.</p> <p><b><u>Property Power</u></b></p> <p>Some meter reading frequency reports were submitted late.</p>	Weak	Low	3	Identified
NHH meters 90% read rate	6.10	9(1) and (2) Schedule 15.2	<p><b><u>Pulse</u></b></p> <p>For five ICPs without an actual read for 12 months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.</p>	Weak	Low	3	Identified
Correction of NHH meter readings	8.1	19(1) Schedule 15.2	<p><b><u>Pulse</u></b></p> <p>Two corrections for defective meters were not processed using the reads provided by revenue assurance.</p> <p>One correction for a multiplier was not backdated to the correct date in Cobra.</p> <p>Five corrections for inactive ICPs with consumption had not been processed.</p> <p>Three bridged meters did not have corrections processed.</p> <p>One unmetered load correction was not processed accurately.</p>	Weak	Low	3	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Identification of readings	9.1	3(3) Schedule 15.2	<b><u>Pulse</u></b> Seven customer and photo reads were treated as validated, when they had not been validated against at least two actual reads from other sources.	Moderate	Low	2	Investigating
Electronic meter readings and estimated readings	9.6	17 Schedule 15.2	<b><u>Pulse</u></b> Meter event information is not obtained and reviewed for all MEPs.  <b><u>Property Power</u></b> Meter event information is not obtained and reviewed for all MEPs.	Weak	Low	3	Identified
HHR aggregates information provision to the reconciliation manager	11.4	15.8	<b><u>Pulse</u></b> HHR aggregates files do not contain electricity supplied information.  <b><u>Property Power</u></b> HHR aggregates files do not contain electricity supplied information.	Strong	Low	1	Identified
Creation of submission information	12.2	15.4	<b><u>Pulse</u></b> Two breaches were recorded for late provision of submission information.	Strong	Low	1	Identified
Grid connected generation	12.6	15.11	<b><u>Pulse</u></b> A breach was recorded for late provision of submission information.	Strong	Low	1	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Accuracy of submission information	12.7	15.12	<p><b>Pulse</b></p> <p>Some submission information was inaccurate.</p> <p><b>Property Power</b></p> <p>Submission information for one ICP was inaccurate in the initial submission.</p>	Weak	Medium	6	Identified
Permanence of meter readings for reconciliation	12.8	4 Schedule 15.2	<p><b>Pulse</b></p> <p>Some estimates are not replaced by revision 14.</p>	Weak	Medium	6	Investigating
Forward estimate process	12.12	6 Schedule 15.3	<p><b>Pulse</b></p> <p>The accuracy threshold was not met for all months and revisions.</p> <p><b>Property Power</b></p> <p>The accuracy threshold was not met for all months and revisions.</p>	Moderate	Low	2	Identified
Historical estimate reporting to RM	13.3	10 of Schedule 15.3	<p><b>Pulse</b></p> <p>Historic estimate thresholds were not met for some revisions.</p>	Moderate	Low	2	Identified
Future Risk Rating						96	

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

## RECOMMENDATIONS

Subject	Section	Description	Recommendation
Relevant information	2.1	Validation against the registry	<p><b>Pulse</b></p> <p>As a minimum, I recommend reconciling all Gentrack fields that impact on reconciliation submission to the registry and investigating and resolving discrepancies before business day 4 and 13 each month.</p>



Subject	Section	Description	Recommendation
			<p><b><u>Property Power</u></b></p> <p>I recommend checking the Unmetered Load Details – Distributor and shared ICP list fields to identify new unmetered load, and the Installation Type and Generation Capacity fields to identify new distributed generation.</p> <p>Checks should be completed to ensure that backdated updates to the registry are identified and corrected on an ongoing basis.</p> <p>A full reconciliation to the registry should be completed prior to transferring the Property Power ICPs to Pulse.</p>
Electrical Connection of Point of Connection	2.11	Uncertified reconnections	<p><b><u>Pulse</u></b></p> <p>Check certification is full and current before reconnection.</p> <p>Follow up reconnections with expired and/or interim certification on the registry with the MEP.</p>
ICPs at new or ready status for 24 months	3.10	Monitoring of new and ready ICPs	<p><b><u>Pulse</u></b></p> <p>Monitor ICPs at new or ready for extended periods using Gentrack if possible.</p> <p>Alternatively, a Registry List (type P) with proposed trader = PUNZ and status = 000 and 999 should be run at least quarterly to identify ICPs which have been at new or ready status for more than 18 months and require follow up.</p>
Electricity conveyed & notification by embedded generators	6.1	Identification of new distributed generation	<p><b><u>Pulse</u></b></p> <p>All ICPs with potential distributed generation without import/export metering or a notification under clause 15.13 of Part 15 in place should be reviewed. Import/export metering should be installed as necessary.</p>
Half hour estimates	9.4	HHR estimates	<p><b><u>Pulse</u></b></p> <p>When creating estimates, consider readings and average daily consumption in the current month as well as the previous month's average consumption.</p>
Accuracy of submission information	12.7	Identification of accepted RRs	<p><b><u>Pulse</u></b></p> <p>To make sure agreed switch reads are applied, use the registry event detail report to identify all AC files accepting the RR. The report should be run by update date to ensure that backdated RR acceptances are identified.</p> <p>Accepted RRs will need to have their reads checked and/or updated in Cobra.</p>
		Submission flag N adjustment	<p><b><u>Pulse</u></b></p> <p>Investigate whether meters channels outside the Lines Company Network have submission flags set to N and adjust the process as necessary.</p>

Subject	Section	Description	Recommendation
		Pre submission review by JCC	<u><b>Pulse</b></u> Investigate expanding the review to include a check of unmetered load.

## ISSUES

Subject	Section	Description	Issue
		Nil	

## 1. ADMINISTRATIVE

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

#### Code reference

Section 11 of Electricity Industry Act 2010.

#### Code related audit information

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

#### Audit observation

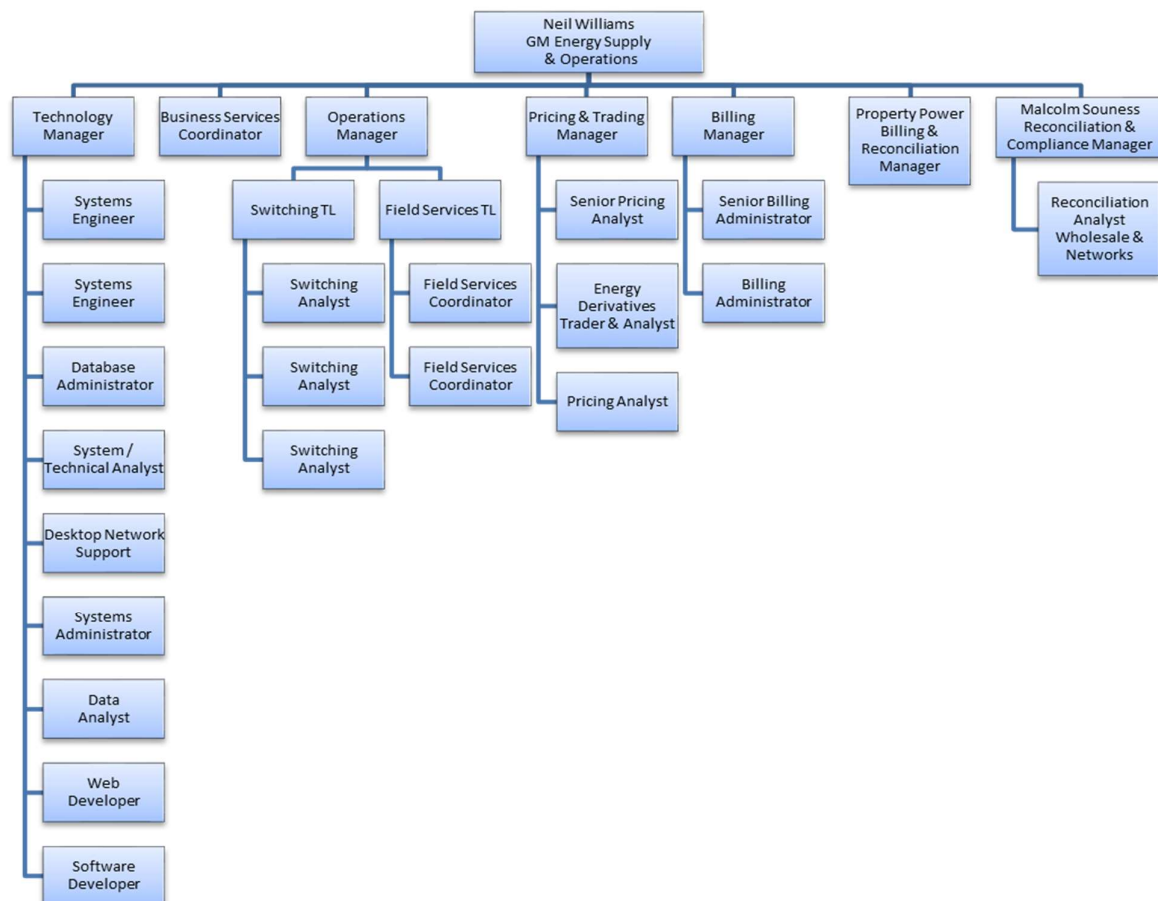
Current code exemptions were reviewed on the Electricity Authority website.

#### Audit commentary

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

### 1.2. Structure of Organisation

Pulse provided their current organisational structure:



### 1.3. Persons involved in this audit

Auditor:

Tara Gannon

**Veritek Limited**

**Electricity Authority Approved Auditor**

Pulse and Property Power personnel assisting in this audit were:

Name	Title
Malcolm Souness	Reconciliation & Compliance Manager
	Field Services Team Leader
	Switching Analyst x 2
	Reconciliation Analyst
	Billing Manager
	Software Developer
Mike Kew	Billing & Reconciliation Manager, Property Power

### 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

Use of agents was discussed with Pulse.

#### Audit commentary

##### Pulse

Pulse uses the following agents:

- Wells as an agent for NHH data collection
- AMS and EDM I as HHR agents.

NHH data is also received from Arc, AMS, FCLM and Metrix as MEPs.

### **Property Power**

Property Power uses the following agents:

- AMS and EDM I as HHR data agents
- Wells as a NHH data agent
- JCC to complete NHH reconciliation submissions.

NHH data is also received from AMS, FCLM and Metrix as MEPs.

## **1.5. Hardware and Software**

### **Pulse**

- Pulse migrated from Gentrack version 3.8 to 4 on 1 October 2017. Gentrack is used for switching, registry management, billing, and as billed reporting.
- The PRADA data warehouse is used for data storage and reporting.
- Pulse migrated from IMS to PRADA for HHR reconciliation from April 2018.
- Cobra is still used for NHH reconciliation.

### **Property Power**

- Agility's Orion system is used for switching, registry management, billing, and as billed reporting.
- JCC's half hour reconciliation database (named Viper by Property Power) is used for half hour reconciliation and ICP days reporting.
- JCC prepares NHH consumption and ICP days reporting on behalf of Property Power.

### **Backup arrangements for Pulse and Property Power**

Back up processes are the same for Pulse and Property Power.

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 (always on a new tape and never re-used). The daily backups are incremental, with all other backups being full. Validation and integrity checks are performed on all backups.

## **1.6. Breaches or Breach Allegations**

### **Pulse**

There were two alleged breaches for Pulse during the audit period:

Ref	Clauses breached	Description	Outcome
1801PEAL1 (24/01/18)	Part 15 clause 15.4 (2), Part 15 clause 15.2 (1) (a) and Part 15 Schedule 15.3 clause 4	Pulse failed to submit submission information by the submission deadline in January 2018.  When comparing the initial and 3-month submissions for October 2017, Pulse noticed that the 3-month revision looked too low and did not submit any data while the issue was investigated. Issues relating to deleted channels and null register content codes were found to have caused under submission. Wash ups for the missed revisions were submitted later, but the window for revision 14 was missed. The data accuracy issues that caused the delay are discussed further in <b>section 12.7</b> .	The EA declined to pursue without a warning being issued.

Ref	Clauses breached	Description	Outcome
1804PEAL1 (12/04/18)	Part 15 clause 15.4 (1)	<p>Incorrect processing of the transition between NZDT and NZST in PRADA resulted in meter readings being attributed to an incorrect day and reimported into Pulse's systems. The error was not caused by an automated process; the adjustment was initiated manually.</p> <p>The issue was identified and corrected, and revised data was submitted based on Gentrack 4's reconciliation results.</p> <p>A breach was recorded for providing incorrect information and providing late information.</p>	The EA declined to pursue without a warning being issued.

### **Property Power**

There were no alleged breaches recorded for Property Power during the audit period.

## **1.7. ICP Data**

### **Pulse**

The active ICPs from the list file are summarised by meter category in the table below. The active sites with no MEP recorded are unmetered.

Metering Category	(2018)	(2017)	(2016)
1	71,822	62,947	55,316
2	100	119	106
3	1	1	1
4	2	2	2
5	1	1	1
9	5	2	1
Blank	2	7	3

Status	Number of ICPs (2018)	Number of ICPs (2017)	Number of ICPs (2016)
Active (2,0)	71,933	63,079	55,430
Inactive – new connection in progress (1,12)	9	0	1
Inactive – electrically disconnected vacant property (1,4)	259	379	437

Inactive – electrically disconnected remotely by AMI meter (1,7)	22	70	4
Inactive – electrically disconnected at pole fuse (1,8)	5	16	0
Inactive – electrically disconnected due to meter disconnected (1,9)	1	0	0
Inactive – electrically disconnected at meter box fuse (1,10)	1	1	0
Inactive – electrically disconnected at meter box switch (1,11)	4	4	0
Inactive – electrically disconnected ready for decommissioning (1,6)	29	25	27
Inactive – reconciled elsewhere (1,5)	-	-	-
Decommissioned (3)	534	431	349

#### **Property Power**

The active ICPs from the list file are summarised by meter category in the table below:

<b>Metering Category</b>	<b>(2018)</b>
1	934
2	43
3	2
4	1
9	3
(blank)	2

<b>Status</b>	<b>Number of ICPs (2018)</b>
Active (2,0)	985
Inactive – electrically disconnected vacant property (1,4)	2
Inactive – electrically disconnected due to meter disconnected (1,9)	1
Decommissioned (3)	2

#### **1.8. Authorisation Received**

Pulse and Property Power provided all information required directly.

## 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 V7.1.

Pulse uses two participant codes, Pulse (PUNZ) and Property Power (CPPL). This audit has examined compliance for both codes. Pulse also acts as an agent for submission of generation volumes.

The audit was carried out at Pulse and Property Power's premises in Auckland on 16-18 July 2018.

The table below shows the tasks under clause 15.38 of part 15 for which Pulse requires certification. This table also lists those agents who assist with these tasks. Agents and MEPs listed in the table below provide services to both Pulse and Property Power unless otherwise specified.

Tasks Requiring Certification Under Clause 15.38(1) of Part 15	Agents Involved in Performance of Tasks	MEPs Providing AMI data
(a) - Maintaining registry information and performing customer and embedded generator switching		
(b) – Gathering and storing raw meter data	EDMI – HHR AMS - HHR Wells – NHH	ARC – NHH AMI (Pulse only) AMS – NHH AMI Metrix – NHH AMI FCLM – NHH AMI
(c)(iii) - Creation and management of volume information	EDMI – HHR AMS - HHR	
(d) – Calculation of ICP days	JCC – NHH (Property Power only)	
(da) - delivery of electricity supplied information under clause 15.7		
(db) - delivery of information from retailer and direct purchaser half hourly metered ICPs under clause 15.8		
(e) – Provision of submission information for reconciliation	JCC – NHH (Property Power only)	



## 1.10. Summary of previous audit

### Pulse

Pulse provided a copy of their previous audit report conducted in September 2017 by Tara Gannon of Veritek Limited. The summary tables below show that some of the issues have been resolved, but most issue types are still existing. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Relevant information	2.1	10.6, 11.2 and 15.2	Discrepancies between Gentrack and the Registry.	Still existing. Refer to <b>section 2.1.</b>
Audit trails	2.4	18, 21, 22(1) and 22(2) Schedule 15.2	HHR audit trails do not contain all the required information and are not stored with the meter data.	Still existing. Refer to <b>section 2.4.</b>
Registry updates to active	3.2	11.7(2)	365 late registry updates to active.	Still existing. Refer to <b>section 3.3.</b>
Registry updates to inactive	3.3	10 Schedule 11.1	121 late registry updates to inactive.	Still existing. Refer to <b>section 3.3.</b>
MEP nomination	3.4	11.18	The MEP was nominated later than five business days after becoming active for 44 ICPs.	Still existing. Refer to <b>section 3.3.</b>
Registry updates to active	3.5	9 Schedule 11.1	44 late updates to active.	Still existing. Refer to <b>section 3.5.</b>
Changes to unmetered load	3.7	9(1)(f) of Schedule 11.1	One ICP has incorrect unmetered load information recorded on the registry.	Cleared for standard unmetered, still existing for shared unmetered.  Refer to <b>sections 3.7 and 5.1.</b>

Subject	Section	Clause	Non-compliance	Status
Management of active status	3.8	17 Schedule 11.1	One new connection was recorded with an opening read date one day after the new connection date.  Three new connections identified in the 2016 audit still have an incorrect active date recorded on the registry.	Still existing.  Refer to <b>section 3.8.</b>
Management of inactive status	19 Schedule 11.1	3.9	Five ICPs with consumption while disconnected did not have their status updated to active.	Still existing.  Refer to <b>section 3.9.</b>
Losing trader response – transfer switch	3 and 4 Schedule 11.3	4.2	Three incorrect AN response codes were applied.	Still existing.  Refer to <b>section 4.2.</b>
Losing trader provides final information – transfer switch	5 Schedule 11.3	4.3	One late CS file.  Two CS files contained readings for incorrect dates.	Still existing.  Refer to <b>section 4.3.</b>
Read change for transfer switch	6(1) and 6A Schedule 11.3	4.4	Ten late RR files for transfer switches.	Still existing.  Refer to <b>section 4.4.</b>
Gaining trader read change	6(2) and (3) Schedule 11.3	4.5	One RR request was rejected, when it should have been accepted.	Cleared.  Refer to <b>section 4.5.</b>
Losing trader provides final information – switch move	10(1) Schedule 11.3	4.8	Two incorrect AN response codes were applied.	Still existing.  Refer to <b>section 4.8.</b>
Losing trader provides date – switch move	10(2) Schedule 11.3 (2)	4.9	Incorrect dates were recorded in two AN files.	Still existing.  Refer to <b>section 4.9.</b>
Losing trader provides final information – switch move	12 Schedule 11.3	4.10	10 late CS files for switch moves.	Still existing.  Refer to <b>section 4.10.</b>

Subject	Section	Clause	Non-compliance	Status
Read change for switch move	12 Schedule 11.3	4.11	13 late RR files for switch moves.	Still existing.  Refer to <b>section 4.11.</b>
Switch withdrawals	17 and 18 Schedule 11.3	4.15	11 backdated NW requests.  One incorrect NW code.	Still existing.  Refer to <b>section 4.15.</b>
Electricity conveyed	10.13 and clause 15.2	6.1	Energy is not metered and quantified according to the code where meters are bridged.	Still existing.  Refer to <b>section 6.1.</b>
Readings during period of supply	7(1) and (2) Schedule 15.2	6.8	Some ICPs were not read during the period of supply.	Still existing.  Refer to <b>section 6.8.</b>
Readings within 12 months	8(1) and (2) Schedule 15.2	6.9	For three ICPs without an actual read for 12 months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.	Still existing.  Refer to <b>section 6.9.</b>
NHH corrections	19(1) Schedule 15.2, 15.12	8.1	A correction was processed incorrectly for one defective meter.  Corrections were not processed for nine bridged meters, five ICPs with consumption while disconnected, and one ICP with incorrect unmetered load recorded.	Still existing.  Refer to <b>section 8.1.</b>
AMI events	17 Schedule 15.2	9.6	AMI event information not adequately obtained and monitored.  No AMI event information is received from Arc or FCLM.	Still existing.  Refer to <b>section 9.6.</b>
ICP days	15.6	11.2	Inactive HHR ICP days, and HHR ICPs with installation type "G" (generation) are incorrectly included in the AV110 ICP days report.	Cleared.  Refer to <b>section 11.2.</b>

Subject	Section	Clause	Non-compliance	Status
HHR aggregates	15.8	11.4	HHR aggregates file does not contain electricity supplied information.	Still existing. Refer to <b>section 11.4.</b>
Creation of submissions	15.2, 15.4 and 15.12 of part 15	12.2	Some incorrect submission information had not been corrected.	Still existing. Refer to <b>section 12.2.</b>
Allocation of submission information	15.5	12.3	Zero lines were manually deleted from the AV080 February 2016 14-month revision.	Cleared. Refer to <b>section 12.3.</b>
Permanence of meter readings	4 of Schedule 15.2	12.8	Some estimates not replaced at R14.	Still existing. Refer to <b>section 12.8.</b>
Forward estimate	6 of Schedule 15.3	12.12	The accuracy threshold was not met for all months and revisions.	Still existing. Refer to <b>section 12.12.</b>
Meter read frequency reporting	8 & 9 of Schedule 15.2	13.1	One meter reading frequency report was submitted late.	Cleared. Refer to <b>section 6.9.</b>
Historic estimate proportions	10 of Schedule 15.3	13.4	Historic estimate thresholds were not met for some revisions.	Still existing. Refer to <b>section 13.3.</b>

Subject	Section	Clause	Recommendation	Status
Electricity conveyed	6.1	Clause 10.24	Review the 14 ICPs with generation recorded by the distributor which do not have injection/export registers, to determine whether injection/export registers are required.	There are still some ICPs that require confirmation of whether generation is present.  Refer to <b>section 6.1.</b>

Subject	Section	Clause	Issue	Status
Historic estimate	12.11	4 and 5 Schedule 15.3	The code method to calculate historic estimate does not adequately account for situations where the trader does not enter disconnection or reconnection reads, resulting in an ICP with inactive status for part of a read period.  In these cases, if the code method to calculate historic estimate was applied, some of the read period consumption would be apportioned to the inactive days, and not reported.	No response was received from the EA on this issue.

### **Property Power**

A copy of the material change audit report completed in December 2017 by Steve Woods of Veritek Limited was provided. 15 non-compliances were identified. The summary tables below show that some of the issues have been resolved and some are still existing. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Metering arrangements	2.12	10.36	There are no arrangements in place with Nova, AccuCal and Contact Energy. Each of these MEPs supplies metering to one CPPL ICP.	Cleared. Refer to <b>section 2.13.</b>
Registry updates to active	3.3	11.7(2)	8 late registry updates to active.	Still existing. Refer to <b>section 3.3.</b>
Registry updates to active	3.5	9 Schedule 11.1	Registry not populated within 5 business days for two newly electrically connected ICPs	Still existing.

Subject	Section	Clause	Non-compliance	Status
				Refer to <b>section 3.5.</b>
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	One incorrect ANZSIC code.	Cleared. Refer to <b>section 3.6.</b>
Changes to unmetered load	3.7	9(1)(f) of Schedule 11.1	Inaccurate unmetered load figure for one ICP.	Cleared. Refer to <b>section 3.7.</b>
Management of active status	3.8	17 Schedule 11.1	Incorrect status for two new connections and eight reconnections.	Cleared. Refer to <b>section 3.8.</b>
Management of inactive status	3.9	19 Schedule 11.1	Incorrect status for two new connections.	Cleared. Refer to <b>section 3.9.</b>
Inform registry of switch request	4.1	2 Schedule 11.3	Late NT file for one ICP.	Still existing. Refer to <b>section 4.1.</b>
Losing trader provides final information – transfer switch	4.3	5 Schedule 11.3	Incorrect daily consumption figure for ICP 0001436762UN57B.	Still existing. Refer to <b>section 4.3.</b>
Losing trader provides final information – switch move	4.10	12 Schedule 11.3	CS file content inaccurate for 3 ICPs. 1 late CS file for move in switch.	Still existing. Refer to <b>section 4.10.</b>
Read change for switch move	4.11	12 Schedule 11.3	1 late AC file for switch move.	Still existing. Refer to <b>section 4.11.</b>
Customer readings	6.6	3(2) of schedule 15.2	Customer readings not validated against another “set” of actual readings.	Cleared, all customer reads checked were appropriately validated.

Subject	Section	Clause	Non-compliance	Status
				Refer to <b>section 6.6.</b>
Readings during period of supply	6.8	7(1) and (2) Schedule 15.2	One ICP not read during the period of supply.	Still existing. Refer to <b>section 6.8.</b>
HHR aggregates	11.4	Clause 15.8	HHR aggregates file does not contain electricity supplied information.	Still existing. Refer to <b>section 11.4.</b>
Creation of submissions	12.2	15.2, 15.4 and 15.12 of part 15	One incorrect AV080 file for March 2017.	Cleared. Refer to <b>section 12.2.</b>

## 2. OPERATIONAL INFRASTRUCTURE

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

#### Code reference

*Clause 10.6, 11.2, 15.2*

#### Code related audit information

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

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

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

#### Audit observation

The 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 Pulse list file as at 11 June 2018 and Property Power list file as at 21 June 2018 were examined to identify any registry discrepancies and confirm that all information was correct and not misleading.

#### Audit commentary

##### **Pulse**

Prior to the implementation of Gentrack 4 on 1 October 2017, Gentrack was reconciled to the registry weekly. Subject to resourcing constraints, as many exceptions as possible were reviewed and corrected each week, and any remaining discrepancies would be identified again the following week.

Following the implementation of Gentrack 4, Pulse has used Gentrack's Validation Manager to identify discrepancies between Gentrack and Registry metering field values. There are large numbers of discrepancies reported by the Validation Manager because some metering fields are not mandatory in Gentrack and have not been populated, such as meter certification details. This makes it difficult to identify the issues that require correction.

Pulse has not been validating non-metering fields against the registry since soon after the Gentrack 4 implementation but will implement a new report to compare status between Gentrack and the Registry. A process will be put in place to monitor and correct status discrepancies from late July 2018.

Gentrack receives registry notification files, and a work queue is created so that these can be reviewed and acted upon. At this stage Pulse is still developing processes to allow efficient management and review of the work queues and is working through a backlog of notifications.

Following the Gentrack 4 implementation, some fields required for trader registry updates (including MEP nominations) were not correctly set up as mandatory. This resulted in some failed registry updates, which were not detected promptly because non-metering data was not reconciled to the registry, and the failed registry acknowledgement files were not being directed to an appropriate work queue. These issues led to discrepancies between Gentrack and the Registry, and late updates as the data was corrected. This is discussed further in **section 3.3**.

Pulse loads a registry list file with history into PRADA each day, which is imported into Cobra. NSP mapping table, shape file, and read information are all uploaded into Cobra overnight. There is no



separate reconciliation between Cobra and Gentrack. HHR reconciliation reports are generated from PRADA and also based on status information recorded on the registry.

From February 2018, each NHH submission is compared at meter register level against an extract from the Registry by JCC. This process is described further in **section 12.3** and identifies meters and ICPs that are missing or incorrectly included in submissions, and mismatched Network, GXP, and profile details.

The list file was analysed, and I found the following:

Issue	2018 Qty	2017 Qty	2016 Qty	2015 Qty	2014 Qty	Comments
Active with blank ANZSIC codes	-	-	-	48	28	Compliant
Active with ANZSIC "T999" not stated	-	-	1	137	5	Compliant
Active with ANZSIC "T994" don't know	2	-	-	159	1,407	Refer to <b>section 3.6</b>
Active with ANZSIC "T998" "response outside of scope"	-	-	-	10	-	Compliant
Active with incorrect UML load	1	2	1	2	17	Refer to <b>section 5.1</b>
Active with No MEP recorded or nominated and UML= "N"	2	7	3	1	-	In both cases, an MEP nomination had been made and accepted.
Active with shared unmetered load incorrect	1	-	1	1	-	Refer to <b>section 5.1</b>
Active ICPs with Distributor unmetered load populated but retail unmetered load is blank and UML flag = N	2	2	-	-	-	Refer to <b>section 5.1</b>

Issue	2018 Qty	2017 Qty	2016 Qty	2015 Qty	2014 Qty	Comments
Incorrect profile	317	28	-	-	-	Refer to <b>section 6.1</b> .  302 ICPs with import/export metering have RPS profile recorded on the registry but are submitted with RPS PV1.  10 ICPs have PV1 profile recorded on the registry but are submitted with RPS PV1.  Five ICPs have an incorrect profile change effective date on the registry.
Active date variance with Initial Electrical Connection Date	2	3	3	1	2	Refer to <b>section 3.8</b>
Active Category 9 and UML "N"	-	2	1	1	-	Compliant
Incorrect status or status dates	22	-	-	-	-	Refer to <b>sections 3.8 and 3.9</b> .  The total quantity of ICPs with incorrect statuses is unknown.

Description	Recommendation	Audited party comment	Remedial action
Validation against the registry	<b>Pulse</b> As a minimum, I recommend reconciling all Gentrack fields that impact on reconciliation submission to the registry and investigating and resolving discrepancies before business day 4 and 13 each month.	Meter register level checks are performed on batch output prior to submission before business days 4 and 13 each month. Missing meter registers are investigated and updated in Gentrack.	Identified

### **Property Power**

A validation against the registry is completed prior to the business day 4 and 13 submissions each month using the Microsoft Access Settlement Tool. A date ranged registry list is reviewed and any events with a start date during the previous month are checked, and Orion and/or the registry are updated as necessary. This check will not identify updates which have been backdated to a date before the beginning of the month, and I recommend implementing further checks to capture backdated updates.

Because reconciliation submissions are based on registry information, any changes to network or pricing fields such as network, NSP, dedicated NSP, reconciliation type, or loss factor will be correctly handled for reconciliation.

For unmetered load, Property Power checks the unmetered flag, which is a trader maintained field. It would be better to check the Unmetered Load Details – Distributor and shared ICP list fields instead to identify instances where the distributor has added unmetered load to the ICP.

Distributed generation details are not checked. The Installation Type field should be checked for B and G values and the Generation Capacity should be checked for non-zero values to identify instances where the distributor has added generation to the ICP.

The list file was analysed, and I found the following:

Issue	2018 Qty	Comments
Active with blank ANZSIC codes	-	Compliant
Active with ANZSIC "T999" not stated	-	Compliant
Active with ANZSIC "T994" don't know	-	Compliant
Active with ANZSIC "T998 "response outside of scope"	-	Compliant
Active with UML load = zero	-	Compliant
Active with incorrect UML load	-	Compliant
Active with No MEP recorded or nominated and UML= "N"	-	Compliant
Active with shared unmetered load incorrect	-	No shared unmetered load is supplied.
Active ICPs with Distributor unmetered load populated but retail unmetered load is blank and UML flag = N	-	Compliant
Incorrect profile	-	No incorrect profiles were identified.
Active date variance with Initial Electrical Connection Date	-	One difference was identified, but Property Power's active date was confirmed to be correct. Refer to <b>section 3.8</b> .

Issue	2018 Qty	Comments
Active Category 9 and UML "N"	1	ICP 0263498522LC782 is active with meter category 9 and is not unmetered. This is a timing issue; the meters were removed without authorisation and the registry has not been updated by the MEP to reflect this.

Given that a full reconciliation between Orion and the Registry has not been occurring regularly, I recommend a full reconciliation against the registry should be carried out prior to switching the Property Power ICPs to Pulse, to ensure that the registry and Orion are consistent. This will help to ensure clean data is transferred to Pulse and that revision submissions for Property Power are correct.

Description	Recommendation	Audited party comment	Remedial action
Validation against the registry	<p><b><u>Property Power</u></b></p> <p>I recommend checking the Unmetered Load Details – Distributor and shared ICP list fields to identify new unmetered load, and the Installation Type and Generation Capacity fields to identify new distributed generation.</p> <p>Checks should be completed to ensure that backdated updates to the registry are identified and corrected on an ongoing basis.</p> <p>A full reconciliation to the registry should be completed prior to transferring the Property Power ICPs to Pulse.</p>	<p>The existing list of sites with unmetered load has been verified. The list will be rechecked before final switch out.</p> <p>CPPL is not reconnecting or disconnecting any sites, so there is limited scope for status updates. There are some ICPs that are believed to be in the process of decommissioning, and we shall aim to resolve these before 31/08/2018.</p> <p>We can reconcile Orion's information to the Registry before switching. However, since Gentrack draws its information from the Registry, there is limited value in updating Orion at this point. (Required updates to the Registry will be made if any are identified.)</p>	Identified

#### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 2.1</p> <p>With: Clause 10.6, 11.2, 15.2</p> <p>From: 1-Sep-2017</p> <p>To: 18-Jul-2018</p>	<p><b>Pulse</b></p> <p>Discrepancies between Gentrack and the Registry.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Weak</p> <p>Breach risk rating: 6</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	<p>Controls are rated as weak for Pulse as they are not sufficient to mitigate the risk of discrepancies between Gentrack and the registry most of the time. It is expected that the level of control will improve once the new processes to monitor exceptions are implemented.</p> <p>The impact is assessed to be medium. The data inconsistencies for status, and reconciliation report aggregation factors do have an impact on market settlement. Some checks in place for reconciliation lessen the impact of the issues, such as identifying ICPs with inactive consumption prior to submission so that their status can be updated.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse has a process and reporting to monitor status discrepancies. This will be implemented as a daily report for corrective action. MEP nomination will be included in the report.		3/09/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
As above.		3/09/2018	

## 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.

Alleged breaches during the audit period were reviewed.

### Audit commentary

Two alleged breaches for late provision of submission information required under part 15 are discussed in **section 1.6** and recorded as non-compliance below.

### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.2 With: Clause 15.35  From: January 2018 and April 2018	<b>Pulse</b>  Two breaches were recorded for late provision of submission information.  Potential impact: High Actual impact: Unknown Audit history: Multiple times Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are assessed to be moderate and the impact low, based on the EA's decision to decline to pursue the breaches without warning.		
Actions taken to resolve the issue		Completion date	Remedial action status
Breach 1 was due to a combination of computer network speed and missing volume (due to null register content codes). Reconciliation system relocated on network, database re-indexed resulting in batch runtime reduced by 28 hours.  Breach 2 was due to failure of forward estimate due to daylight savings effect on meter read timestamps in data warehouse and time taken to recalculate forward estimate volumes. New meter readings are set with time more than one hour away from midnight.		Prior to Audit	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Continuous efforts undertaken to improve process speed of existing system, and improve data quality within Gentrack estimation system for future implementation.		Ongoing	

### 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. MEP and agent data transmission processes were reviewed as part of their MEP and agent audits.

#### Pulse

- NHH information is provided via FTP by Wells and MEPs.
- EDM I HHR data is provided via FTP, AMS HHR data is emailed in password protected zip files.
- Generation data for ANI0331 is provided as a CSV file attached to an email by Nova. The file is received directly by the reconciliation analyst who processes the data, minimising the risk of unauthorised or accidental modification of the data.

#### Property Power

- NHH information is provided via FTP by Wells and MEPs.
- HHR information is transferred to Property Power via email for EDM I, and FTP for AMS.
- Switch readings and validated NHH readings are extracted from Orion using a query and sent to JCC by Dropbox for use in reconciliation submissions.

#### Audit commentary

The data transfer method was confirmed to be compliant as part of each MEP and agent audit.

#### Pulse

NHH and AMI reading files are transmitted via FTP. The reads are loaded into PRADA, and then exported to Gentrack. For AMI meters, one read per month is transferred corresponding to the scheduled read date. Validated reads and switch reads are exported nightly from Gentrack to Cobra.

To confirm the data transmission process:

- I traced a diverse sample of readings for 20 ICPs from the source files to Gentrack. The sample included reads for all MEPs and agents.
- I traced a sample of 14 readings from Gentrack to Cobra.
- I traced volumes for one month for a sample of nine HHR ICPs and submissions from the source files to PRADA and the HHR aggregates submissions.
- I traced volumes for three months from the source files to the AV130 submissions for ANI0331.

All reads and volumes checked were consistent with the source file information.

Some submission accuracy issues were identified relating to the different ways reads are handled in Gentrack and Cobra. These issues are discussed further and recorded as non-compliance in **section 12.7**. Compliance is recorded in this section because the issues do not relate to the transmission process.

### **Property Power**

All NHH meter reading files and AMI files are transmitted via SFTP. Files from Metrix and AMS are reformatted in Excel prior to being imported into Orion. Wells files do not need to be reformatted. The reads are imported into Gentrack, and then extracted and transferred to JCC.

To confirm the data transmission process:

- I traced a diverse sample of NHH meter readings for 15 ICPs from the source files to Orion. The sample included reads for all MEPs and agents.
- The process for transmission of HHR data was walked through. One month of HHR data for one ICP for each MEP and agent was traced from the raw source files to the HHR aggregates submission.
- The process for transmission of NHH readings to JCC was walked through. I viewed the query to extract NHH readings. The query includes all reads entered or updated between the date the report was last run and the current date. This ensures that any reads that have been modified will be sent.

All reads and volumes checked were consistent with the source file information.

### **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 (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

A complete audit trail was viewed for all data gathering, validation and processing functions.

#### Pulse

Compliant audit trails exist for NHH data gathering, validation and processing functions.

No system audit trails exist in PRADA for HHR data. Data is able to be replaced without an audit trail being created. A manual audit trail is kept for HHR data changes such as corrections, but it is not stored with the raw meter data.

There are no audit trails for the ANI0331 NSP volume data. The files provided by Nova are manually reformatted and submitted.

#### Property Power

Compliant audit trails exist for NHH and HHR data gathering, validation and processing functions.

### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.4 With: Clause 21 Schedule 15.2 From: 01-Sep-17 To: 18-Jul-18	<u><b>Pulse</b></u>  HHR and NSP volume audit trails do not contain all the required information and are not stored with the meter data.  Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as moderate because they will mitigate the risk most of the time, but there is room for errors to occur.  Original data is retained and archived. Audit trail data meeting the requirements is retained or can be derived but is not available in the prescribed format or location. Pulse currently submits data for 12 HHR ICPs and one NSP, and missing data and corrections are relatively rare.		
Actions taken to resolve the issue		Completion date	Remedial action status
The HHR reconciliation process used by Property Power is being migrated across to Pulse. Once the migration is complete, all HHR submissions will be made using the John Candy Consulting software, with the exception of Aniwhenua NSP, which is manually compiled from SCADA data.		1/09/2018	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
<p>On transfer from CPPL to PUNZ, the great majority of CPPL's half-hourly reconciled ICPs will be switched to NHH reconciliation. This is expected to minimise the future requirement for estimation/modification of HHR data.</p> <p>Future HHR submissions from PUNZ will use the 'Viper' tool provided by John Candy Consulting, with its audit trail.</p>	01/09/2018	

## 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 Pulse's and Property Power's terms and conditions.

### Audit commentary

Pulse's and Property Power's terms and conditions include consent to access for authorised parties for the duration of the contract.

### Audit outcome

Compliant

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

### Code reference

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

### Code related audit information

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

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

*The trader must use its best endeavours to provide access:*

- *in accordance with any agreements in place*

- *in a manner and timeframe which is appropriate in the circumstances.*

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

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

#### **Audit observation**

I reviewed Pulse's and Property Power's terms and conditions.

#### **Audit commentary**

Pulse's and Property Power's terms and conditions include consent to access for authorised parties for the duration of the contract.

Pulse and Property Power confirmed that they have been able to arrange access for other parties when requested.

#### **Audit outcome**

Compliant

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

#### **Code reference**

*Clause 10.35(1)&(2)*

#### **Code related audit information**

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

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

- if practical in the circumstances, ensure that the metering installation is located at a point of connection; or*
- 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**

Pulse and Property Power were requested to provide details of any installations with loss compensation.

#### **Audit commentary**

##### **Pulse**

Pulse has calculated losses for metering at generation ICPs and the factor is programmed into the meter. Losses for metering at generation ICPs are calculated by the distributor and programmed into the meter by the certifying ATH.

No ICPs have error or loss compensation applied outside the metering installation.

##### **Property Power**

Property Power does not deal with any data where error or loss compensation occurs.

## Audit outcome

Compliant

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

#### Code reference

Clause 11.15B

#### Code related audit information

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

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

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

#### Audit observation

I reviewed Pulse's and Property Power's terms and conditions.

#### Audit commentary

Pulse's and Property Power's terms and conditions include assignment by the Electricity Authority in the event of retailer default.

## Audit outcome

Compliant

### 2.9. Connection of an ICP (Clause 10.32)

#### Code reference

Clause 10.32

#### Code related audit information

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

- *accept responsibility for their obligations in Parts 10, 11 and 15 for the point of connection; and*

- *have an arrangement with an MEP to provide 1 or more metering installations for the point of connection.*

#### Audit observation

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

The Pulse list file and event detail reports for 1 September 2017 to 11 June 2018, and the Property Power list file and event detail reports for 1 September 2017 to 18 June 2018 were analysed to confirm process compliance and that controls are functioning as expected.

#### Audit commentary

##### Pulse

New connections on the Vector and Powerco networks are advised by the network, and Pulse provides approval. For the other networks, the application is received from the customer's agent and Pulse contacts the network to request creation of an ICP.

Pulse accepts responsibility for the ICP and works with the MEP and electrician to progress the connection. The MEP is nominated on the registry once Pulse claims the ICP and moves it to new connection in progress or active status.

Following the Gentrack 4 implementation in October 2017, there were some issues with the new connections workflow. Some mandatory fields for trader updates were made optional and contained null values, which resulted in incomplete trader updates being rejected by the registry. Due to a Gentrack workflow issue, notification that the files had failed was not directed to an appropriate work queue and was not actioned. The workflow issues have now been corrected, and each new connection is checked on the registry to ensure that details are complete and manual updates are made using the registry interface where necessary.

Compliance is recorded in this section because Pulse had accepted responsibility and had an arrangement with the MEP when the ICPs were connected. Non-compliance is recorded in **sections 3.3** and **3.5** for late updates to the registry relating to the workflow issues, and **section 12.7** for the impact that the incorrect statuses had on reconciliation submission completeness and accuracy.

No NHH ICPs had backdated creation dates, and no HHR new connections were completed during the audit period.

##### Property Power

Property Power rarely completes new connections.

Review of the event detail and list files found one new connection was completed during the audit period. The new connection in progress status was used, and the MEP was nominated when the ICP moved to this status. The correct active date was applied.

No NHH ICPs had backdated creation dates, and no HHR new connections were completed during the audit period.

#### Audit outcome

Compliant

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

#### Code reference

*Clause 10.33(1)*

#### Code related audit information

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

- *they are recorded in the registry as being responsible for the ICP; and*
- *one or more certified metering installations are in place at the ICP in accordance with Part 10; and*
- *for an ICP that has not previously been electrically connected, the network owner has given written approval.*

#### **Audit observation**

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

The Pulse list file and event detail reports for 1 September 2017 to 11 June 2018, and the Property Power list file and event detail reports for 1 September 2017 to 18 June 2018 were analysed to confirm process compliance and that controls are functioning as expected.

#### **Audit commentary**

No temporary electrical connections were identified for Pulse or Property Power.

#### **Audit outcome**

Compliant

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

#### **Code reference**

*Clause 10.33A(1)*

#### **Code related audit information**

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

- *they are recorded in the registry as being responsible for the ICP; and*
- *1 or more certified metering installations are in place at the ICP in accordance with Part 10; and*
- *for an ICP that has not previously been electrically connected, the network owner has given written approval.*

#### **Audit observation**

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

The Pulse list file and event detail reports for 1 September 2017 to 11 June 2018, and the Property Power list file and event detail reports for 1 September 2017 to 18 June 2018 were analysed to confirm process compliance and that controls are functioning as expected.

#### **Audit commentary**

##### **Pulse**

Analysis of the list file and event detail report found two NHH ICPs that appeared not to be certified within five business days of electrical connection on the registry. Connection paperwork was checked, and I confirmed that in both cases the active date had been incorrectly entered by Pulse, and the metering had been certified within five business days of connection. The incorrect active dates are recorded as non-compliance in **section 3.8**.

14 reconnections had expired full certification when they were reconnected. It appears likely the MEP has provided incorrect certification expiry dates to the registry for these ICPs, and I recommend Pulse follows these up with the MEP.

ICP	Reconnection date	Certification type	Certification expiry date
0000580150WP9DA	1/05/2018	F	1/01/2018
0000015789NTBB6	9/03/2018	F	1/04/2000
0002456020EL19A	21/02/2018	F	1/04/2015
0002205964EN3DE	4/05/2018	F	1/04/2015
0015735521ELF7D	2/03/2018	F	1/04/2015
0000730190TE66C	3/04/2018	F	1/04/2015
0000621930TE353	3/04/2018	F	1/04/2015
0002513365ENDBB	30/01/2018	F	1/04/2015
0011204080EL196	27/12/2017	F	1/04/2015
0011204080EL196	28/12/2017	F	1/04/2015
0000007205NT346	15/09/2017	F	1/04/2015
0005009560WM8F5	14/12/2017	F	4/04/2017
0000211970MP381	26/01/2018	F	16/03/2017
0006293204ALFCA	7/03/2018	F	27/09/2017

Eight reconnections had expired interim certification when they were reconnected. I recommend Pulse follows these up with the MEPs.

ICP	Reconnection date	Certification type	Certification expiry date
0001803000CA5F7	23/02/2018	I	1/04/2015
0033862144PC014	18/05/2018	I	1/04/2015
0030164289PCAB5	6/04/2018	I	1/04/2015
0000403925WE0EB	21/10/2017	I	1/04/2015
0000038818UNA7E	15/01/2018	I	1/04/2015
0030128090PC45B	10/08/2017	I	1/04/2015
0033860005PC4B0	1/09/2017	I	1/04/2015
0168888505LC510	1/06/2018	I	18/02/2011

Pulse provided a list of three ICPs which were bridged at some time during the audit period. All were appropriately re-certified by the MEP when they were unbridged.

Description	Recommendation	Audited party comment	Remedial action
Uncertified reconnections	<p><b><u>Pulse</u></b></p> <p>Check certification is full and current before reconnection.</p> <p>Follow up reconnections with expired and/or interim certification on the registry with the MEP.</p>	<p>Pulse will contact MEPs to address expired recorded certifications, and request corrective action and possible site visit for recertification.</p> <p>Pulse will implement reporting to identify expired certifications.</p>	Identified

## Property Power

Analysis of the list file and event detail report found one NHH ICP that was not certified within five business days of electrical connection on the registry.

ICP	Initial Electrical Connection date	Active date	Certification date	Business days between active date and certification date
1002039514LC6E1	Nil	1/11/2017	6/03/2018	85

24 reconnections were processed during the audit period; all had valid final certification at the time of reconnection.

## Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 2.11</p> <p>With: Clause 10.33A</p>	<p><b><u>Pulse</u></b></p> <p>22 reconnections had expired certification recorded on the registry when they were reconnected.</p> <p><b><u>Property Power</u></b></p> <p>One ICP was not certified within five business days of electrical connection on the registry.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p>
<p>From: 15-Sep-17</p> <p>To: 01-Jun-18</p>	



Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Certification is an MEP responsibility, and for some of the non-compliant ICPs it appears the information the MEP has recorded on the registry is incorrect.</p> <p>Controls are rated as weak because Pulse does not have processes in place to ensure meters are certified before the ICP becomes active. The impact is low because a small number of ICPs are affected, and it is likely that in some cases the certification details on the registry are incorrect.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse will follow up with the MEPs with the expired recorded certifications and request for corrective action and possible site visit for recertification.		28/09/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Pulse will review Gentrack 4 capabilities to populate metering certification and expiry date to assist with future reporting and monitoring or implement additional reporting.		31/01/2019	

## 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

A Use of Systems Agreement is in place for all networks Pulse and Property Power trade on.

The network must be created in Gentrack for Pulse, and Orion for Property Power, before any ICPs can be assigned to it.

### 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

Pulse and Property Power have arrangements or agreements in place with all MEPs that manage metering for their ICPs. The new connection process also contains a step that requires the nomination of an MEP.

The MEP must be created in Gentrack for Pulse, and Orion for Property Power, before any ICPs can be assigned to it.

#### Audit outcome

Compliant

### 3. MAINTAINING REGISTRY INFORMATION

#### 3.1. Obtaining ICP identifiers (Clause 11.3)

##### Code reference

Clause 11.3

##### Code related audit information

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

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

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

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

##### Audit observation

The new 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

This requirement is well understood and managed by Pulse and Property Power. The process is detailed in **section 2.9**.

##### 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, MEP nomination, and switching processes were examined in detail.

The Pulse list file and event detail reports for 1 September 2017 to 11 June 2018, and the Property Power list file and event detail reports for 1 September 2017 to 18 June 2018 were analysed in relation to updating of the registry.

This clause links directly to **sections 3.3** and **3.5** below, where findings on the timeliness of updates are recorded.

### Audit commentary

#### Pulse

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

As discussed in **section 2.9**, following the Gentrack 4 implementation in October 2017, there were some null values in fields required for trader updates and workflow issues that resulted in rejected trader notifications and led to late updates. The late updates are recorded as non-compliance in **sections 3.3** and **3.5**.

#### Property Power

Property Power's processes are designed to ensure that trader information is populated as required by this clause. Late updates are recorded as non-compliance in **sections 3.3** and **3.5**.

### 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.

In this section I have examined the Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018.

For Pulse, I used the extreme case methodology to examine the ten latest updates (or the whole population if there were less than ten) for each of the event type updates except a change of MEP. The 20 latest updates over 30 days were reviewed for MEP changes.

All late updates were checked for Property Power.

### Audit commentary

#### Pulse

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

Event		Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Change to de-energised-vacant (1,4)	2014	17	2	15	12.7	12%
	2015	903	599	304	12.8	66%
	2016	804	650	154	6.7	81%
	2017	265	200	65	5	75%
	<b>2018</b>	<b>224</b>	<b>137</b>	<b>87</b>	<b>8</b>	<b>61%</b>
Change to de-energised ready for decommissioning (1,6)	2014	0	0	0	-	-
	2015	38	13	25	91.3	34%
	2016	49	28	21	34	57%
	2017	16	4	12	67	25%
	<b>2018</b>	<b>30</b>	<b>8</b>	<b>22</b>	<b>69</b>	<b>27%</b>
Change to de-energised remotely by AMI meter (1,7)	2017	225	210	15	2	98%
	<b>2018</b>	<b>37</b>	<b>37</b>	-	<b>1</b>	<b>100%</b>
Change to de-energised at pole fuse (1,8)	2017	31	5	26	30	16%
	<b>2018</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>25</b>	<b>38%</b>
Change to de-energised due to meter disconnected (1,9)	2017	3	0	3	28	0%
	<b>2018</b>	<b>5</b>	<b>5</b>	-	<b>2</b>	<b>100%</b>
Change to de-energised due at meter box switch (1,11)	2017	2	2	0	2	100%
	<b>2018</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>4</b>	<b>80%</b>
Change to active reconnection (2,0)	<b>2018</b>	<b>782</b>	<b>293</b>	<b>489</b>	<b>25</b>	<b>37%</b>
MEP nominations	<b>2018</b>	<b>4041</b>	<b>2394</b>	<b>1647</b>	<b>10</b>	<b>59%</b>

#### Late status updates

The ten latest updates to active (2,0) for reconnections were reviewed and found:

- Five were backdated corrections to statuses or status dates.
- Three were caused by status updates issued by Gentrack being rejected by the registry.  
Because failed registry updates were not being monitored, and there was no reconciliation of

status between Gentrack and the registry, there was a delay in identifying the issue and correcting the registry.

- One status update had an incorrect date applied, this is recorded as non-compliance in **section 3.8**.
- ICP 0005448492RN8E6 was temporarily given an active status so that the account could be finalised. After billing, a user attempted to return the statuses to the original values but made several errors. Non-compliance for incorrect statuses for this ICP is recorded in **section 3.9**. A change has now been made in Gentrack so ICPs can be billed without an active status, which should help to prevent this issue from recurring.

The ten latest updates to de-energised-vacant (1,4) were reviewed and found:

- One backdated update occurred because the ICP was restored back to inactive after being temporarily changed to active status for billing.
- Six late updates were for credit disconnections. Credit disconnections remain active on the registry for ten business days and are then followed up by the credit team. If no payment is received and/or the customer is no longer at the address, the customer is finalised in Gentrack and a backdated status update to inactive vacant (1,4) is completed.
- Two late updates were caused by a delay in confirming the site was disconnected, or a delay in processing the paperwork.
- One late update was a correction from status reason 1,6 (inactive ready for decommissioning) to 1,4 (inactive vacant).

The ten latest updates to de-energised ready for decommissioning (1,6) were reviewed and found:

- Two ICPs where Pulse processed the status update as soon as they became aware that the site was decommissioned.
- Eight ICPs where part of the delay was caused by Pulse not being aware the site was ready to be decommissioned, and there was a further delay before Pulse processed the status change. Most of these late updates occurred between November and February when the field services team was short staffed.

The ten latest updates to de-energised at pole fuse (1,8) were reviewed. The late updates were primarily caused by resourcing issues.

#### Late MEP nominations

As part of the Gentrack 4 implementation, some mandatory fields for trader updates were not correctly set up as mandatory including MEP (mandatory where status is active and ICP is metered), profile, and ANZSIC. This resulted in incomplete trader updates being rejected by the registry. Due to a Gentrack workflow issue, notifications that the files had failed were not directed to an appropriate work queue and were not actioned.

The workflow issues have now been corrected, and each new connection is checked on the registry to ensure that details are complete. Manual updates are made using the registry interface where necessary.

The 20 latest MEP nominations were reviewed:

- Nine late updates were manually processed MEP nominations, created where an automated Gentrack trader notification had failed due to incomplete data.
- Four late updates related to AMI meters accidentally missed from a bulk update using Pulse's manual process, which was conducted outside Gentrack.
- Two late updates were caused by incorrect effective dates being entered.
- Four late updates were caused by delays in Pulse receiving paperwork or information from the MEP.

- One backdated MEP nomination was issued because the MEP was recorded incorrectly in Gentrack.

### **Property Power**

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

Event		Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Change to active reconnection (2,0)	2018	24	2	22	24	83.3%
Change to de-energised ready for decommissioning (1,6)	2018	1	0	1	154	0%
Change to de-energised due to meter disconnected (1,9)	2018	2	0	2	40	0%
MEP nominations	2018	1	1	0	1	100%

The three late status updates to “Inactive” were checked. For two ICPs the meter was removed without authorisation and Property Power discovered the disconnection after the event, the other ICP was moved to “Ready for decommissioning” promptly after a request was received from the network.

The ten late status to “Active” were checked. They were backdated corrections to active status for ICPs which had consumption while disconnected.

The late status updates are recorded as non-compliance below.

### **Audit outcome**

#### **Non-compliant**

Non-compliance	Description
<p>Audit Ref: 3.3</p> <p>With: Clause 10 Schedule 11.1</p> <p>From: 01-Sep-17</p> <p>To: 18-Jul-18</p>	<p><b><u>Pulse</u></b></p> <p>489 late updates to active status and 115 late updates to inactive status.</p> <p>1647 late MEP nominations.</p> <p><b><u>Property Power</u></b></p> <p>22 late updates to active status and three late updates to inactive status.</p> <p>Potential impact: Low</p> <p>Actual impact: Unknown</p> <p>Audit history: Multiple times</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p>

Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are rated as weak because system related issues for Pulse led to large numbers of backdated updates.</p> <p>The audit risk rating is assessed to be low overall:</p> <ul style="list-style-type: none"> <li>• there is a minor impact on invoicing for some ICPs and on other traders if ICPs switch out with the incorrect status</li> <li>• there is a minor impact on MEPs because they cannot update the registry until they are nominated</li> <li>• there is an impact on reconciliation submissions because ICPs are excluded if inactive and included if active, however status differences are expected to be corrected, and volumes will be washed up through the revision process.</li> </ul>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Pulse has resolved a few Gentrack issues where status update and MEP nomination were not generating files to update the Registry.</p> <p>MEP nomination have been corrected.</p>		31/07/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Pulse has a process and reporting to monitor status discrepancies. This will be implemented weekly as a report for corrective action. MEP nomination will be included to the report.</p> <p>Pulse will continue monitoring MEP Nominations for potential system issues.</p>		3/09/2018	

### 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**

#### Retailers Responsibility to Nominate and Record MEP in the Registry

The new connection process was discussed.

The Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were examined to identify:

- any active ICPs that do not have an MEP recorded, which were then checked to confirm whether an MEP had been nominated and accepted
- any MEP nomination rejections.

#### ICP Decommissioning

The process for the decommissioning of ICPs was examined. A selection of ten decommissioned ICPs for Pulse and all decommissioned ICPs for Property Power were checked using the typical case method of sampling to prove the process and confirm controls are in place.

Work queues within Gentrack were checked for Pulse.

### **Audit commentary**

#### **Pulse**

#### Retailers Responsibility to Nominate and Record MEP in the Registry

Review of the registry list found two Pulse ICPs with no MEP recorded and the unmetered flag set to no. In both cases, an MEP nomination had been made and accepted.

A sample of ten of the 39 MEP nomination rejections were checked using the diverse characteristics sampling methodology to identify root causes.

MEP nomination rejections were not being actively monitored prior to the Gentrack 4 implementation. Since April 2018 they have been monitored and followed up through Gentrack workflows.

Pulse nominates the MEP in the registry when the ICP is claimed and moved to inactive new connection in progress status, or active status. There have been some late MEP nominations due to system and process issues, and these are discussed in **section 3.3**.

#### ICP Decommissioning

Pulse continue with their obligations under this clause. ICPs that are vacant and active, or inactive are still maintained in Gentrack.

A sample of ten Pulse ICPs decommissioned during the period were examined and confirmed an attempt to read the meter was made before decommissioning, and the MEP was notified.

## **Property Power**

### **Retailers Responsibility to Nominate and Record MEP in the Registry**

Review of the registry list found no Property Power ICPs without an MEP, or with any MEP nomination rejections. The new connection process is discussed in detail in **section 2.9** and includes MEP nomination.

### **ICP Decommissioning**

Property Power continue with their obligations under this clause. ICPs that are vacant and active, or inactive are still maintained in Orion.

One ICP was decommissioned during the audit period; the meter was removed without authorisation, so no final reading was obtained. The MEP was made aware the ICP was to be decommissioned.

### **Audit outcome**

Compliant

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

### **Code reference**

*Clause 9 Schedule 11.1*

### **Code related audit information**

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

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

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

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

### **Audit observation**

The new connection process was examined in detail.

The Pulse list file and event detail reports for 1 September 2017 to 11 June 2018, and the Property Power list file and event detail reports for 1 September 2017 to 18 June 2018 were analysed to determine the overall performance for that period.

I used the extreme case methodology to examine the ten latest updates over 30 business days for status changes to active, and all updates over 30 business days for new connections in progress for Pulse. One late update to active for a new connection was identified for Property Power and was checked.

#### Audit commentary

##### Pulse

The new connection process is described in detail in **section 2.9**. The table below shows a decreased level of compliance from the last audit.

Event	Year	Total ICPs	ICPs Notified Within 5 Days	ICPs Notified Greater Than 5 Days	Average Notification Days	Percentage Compliant
Change to active - New connections	2014	27	18	9	9.4	67%
	2015	16	4	12	10.7	25%
	2016	97	69	28	10.3	71%
	2017	90	46	44	9.0	51%
	<b>2018</b>	<b>88</b>	<b>16</b>	<b>72</b>	<b>35</b>	<b>18%</b>
New connection in progress (1,12)	2016	36	28	8	5.5	86%
	2017	1	1	0	2	100%
	<b>2018</b>	<b>29</b>	<b>21</b>	<b>8</b>	<b>9</b>	<b>72%</b>

The 10 latest updates over 30 days to active, and all updates over 30 days to inactive new connection in progress were checked. I found the delays were mainly due to:

- Gentrack 4 sending incomplete files to the registry which were rejected. The notifications that the files were rejected were not received and actioned due to a workflow issue, and the problem was not detected quickly because there was no reconciliation between the Gentrack and registry status data.
- Most of the late updates occurred in March and April 2018 as the field services team worked through the backlog of updates manually, outside Gentrack.

##### Property Power

The new connection process is described in detail in **section 2.9**. Both events on the table below relate to one new connection.

Event	Year	Total ICPs	ICPs Notified Within 5 Days	ICPs Notified Greater Than 5 Days	Average Notification Days	Percentage Compliant
Change to active - New connections	<b>2018</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>103</b>	<b>0%</b>
New connection in progress (1,12)	<b>2018</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>100%</b>

Property Power rarely completes new connections. The delays were caused by a combination of a delay in the MEP updating the registry, and Property Power needing to confirm the correct new connection process.

#### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.5</p> <p>With: Clause 9 Schedule 11.1</p> <p>From: 01-Nov-2017 To: 03-Apr-2018</p>	<p><b><u>Pulse</u></b></p> <p>44 late updates to active.</p> <p><b><u>Property Power</u></b></p> <p>One late update to active.</p> <p>Potential impact: Low Actual impact: Unknown Audit history: Multiple times Controls: Weak Breach risk rating: 3</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are rated as weak because system related issues for Pulse led to large numbers of backdated updates, and Property Power did not have a clear process for new connections.</p> <p>The audit risk rating is assessed to be low overall:</p> <ul style="list-style-type: none"> <li>• there is a minor impact on invoicing for some ICPs and on other traders if ICPs switch out with the incorrect status</li> <li>• there is an impact on reconciliation submissions because ICPs are excluded if inactive and included if active, however status differences are expected to be corrected, and volumes will be washed up through the revision process.</li> </ul>		
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse has resolved the Gentrack issues where the system was not sending complete data to the registry to claim the ICP, update the status to 1,12 or 2,0 and nominate a MEP.		31/07/2018	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
<p>Pulse places a priority on accuracy of Registry data ahead of timeliness of status updates. On occasion, this trade-off is required. Our objective is to reduce the number of events requiring backdated updates.</p> <p>Pulse has a process and reporting tools to monitor Registry ICP status discrepancies. This will be implemented as a daily report for corrective action.</p>	10/08/2018	

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

#### Code reference

*Clause 9 (1(k) of Schedule 11.1*

#### Code related audit information

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

#### Audit observation

The process to capture and manage ANZSIC codes was examined. The registry list for Pulse as at 11 June 2018 and Property Power as at 21 June 2018 were reviewed to check ANZSIC codes.

- I checked all ICPs with “T99” series ANZSIC codes to confirm whether they were validly unknown.
- I selected a diverse sample of 40 ICPs for Pulse and 20 active ICPs for Property Power to confirm the validity of the ANZSIC codes applied.

#### Audit commentary

##### Pulse

As part of the application process, Pulse usually confirms the type of property and enters an ANZSIC code. ANZSIC codes are not checked again after switch in.

Gentrack 3.8 was configured to prevent unknown ANZSIC codes, but this functionality has been removed in Gentrack 4, and the field is not mandatory. The list file showed two ICPs with unknown ANZSIC codes. The ANZSIC codes were both corrected after being identified during the audit.

The accuracy of the ANZSIC codes for 40 ICPs with a diverse sample of ANZSIC codes were checked. 22 were confirmed to be accurate, and findings for 13 were inconclusive, but there was insufficient evidence to confirm of the code was incorrect. Two ICPs had incorrect codes recorded:

ICP	Recorded code	Industry	Comment
0094422001CN9F9	G426000 (Department stores)	Implement shed on a rural property	Incorrect since 17/08/2013. ANZSIC code was originally populated by Pulse.
0102147752LCF86	G426000 (Department stores)	Glass and glass product manufacturing	Corrected by gaining retailer after switching out.

### **Property Power**

Analysis of the registry list found no ICPs had unknown ANZSIC codes.

The accuracy of the ANZSIC codes for 20 ICPs with a diverse sample of ANZSIC codes were checked. 13 were confirmed to be accurate, and findings for the remaining seven were inconclusive but there was insufficient evidence to confirm if the code was incorrect.

### **Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 3.6 With: Clause 9 (1(k)) of Schedule 11.1  From: 01-Sep-17 To: 18-Jun-18	<b><u>Pulse</u></b>  Two ICPs had unknown ANZSIC codes.  Two ICPs had incorrect ANZSIC codes recorded.  Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as moderate, because there is room for improvement.  The audit risk rating is low, because the unknown ANZSIC codes have been corrected and a small proportion of the sample were found to be incorrect.		
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse will review the customer sign-up process and system capability to remove ANZSIC T99 as an option.		28/09/2018	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Pulse has a process and reporting to monitor Registry ICP ANZSIC code discrepancies. This will be implemented as a weekly reporting for corrective action.		3/09/2018	

### **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 Pulse list file as at 11 June 2018 and Property Power list file as at 21 June 2018 were examined to identify any ICPs where:

- Unmetered load is identified by the Distributor, but none is recorded by Pulse.
- The trader unmetered kWh differs from the distributor's unmetered kWh by 1.0 kWh per day or more, where it was possible to calculate the distributor's unmetered kWh from the distributor's unmetered load details. 1.0 kWh per day was chosen as a sample only; this does not indicate compliance is achieved if an error is found that is less than 1.0 kWh per day.

#### Audit commentary

##### Pulse

All unmetered load new connections require an application, which follow the new connections process. Pulse has not received any requests for changes to unmetered load to date, and there have been no new connections for unmetered ICPs during the audit period.

Examination of the list file found 32 active ICPs with the UNM flag checked; all had daily unmetered kWh populated. The trader unmetered kWh was compared to the distributor's unmetered kWh for 22 ICPs where it was possible to calculate the distributor's unmetered kWh from the distributor's unmetered load details. All matched within  $\pm 0.01$  kWh.

Two ICPs with shared unmetered load had unmetered load indicated by the distributor, but the unmetered flag was set to no and the daily unmetered kWh were not populated. This is recorded as non-compliance in **section 5.1**.

The unmetered load non-compliances identified in the 2017 audit have been cleared:

- unmetered load for ICP 0968442897LC7E6 has been corrected
- unmetered load for 1001284384LC83A has been updated on the registry following confirmation of the unmetered load connected.

Pulse relies on the registry notifications which are processed by the Gentrack Task Manager to identify any changes to unmetered load details. There is no periodic check to ensure that unmetered load information recorded by Pulse matches the registry. A recommendation to consider adding unmetered load to the pre-submission checks by JCC is recorded in **section 12.7**.

##### Property Power

Property Power supplies four ICPs with standard unmetered load. The trader unmetered kWh was compared to the distributor's unmetered kWh for the three ICPs where it was possible to calculate the distributor's unmetered kWh from the distributor's unmetered load details. All matched within  $\pm 0.01$  kWh.

Property Power checks unmetered load on the registry list, but does not check the distributor maintained fields. A recommendation to check these fields is raised in **section 2.1**.

#### 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 1 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 process was examined in detail as discussed in **sections 2.9** and **3.5** above. The list file as at 11 June 2018 was examined to identify any ICPs still at the status inactive - new connection in progress status with an initial electrical connection date populated.

The process for the management of ICP reconnection was examined. The event detail reports for Pulse and Property Power were analysed, and the findings on the timeliness of registry updates are recorded in **section 3.3**.

I checked all ICPs with a variance between the active date and the initial electrical connection date and/or meter certification date.

#### Audit commentary

##### Pulse

Gentrack, and Pulse’s policies, only allow one customer per ICP. An ICP cannot be billed without a meter or unmetered load recorded.

Pulse changes the status of an ICP to active once confirmation has been received from a contractor, or meter readings confirm that an inactive ICP is consuming energy.

The accuracy of registry updates to active was checked by comparing the active date to the initial electrical connection date and meter certification date for all 93 new connections identified. The following exceptions were identified:

ICP	Initial Electrical Connection	Certification	Active	Comments
0000505065DE4A5	14/10/2017	18/10/2017	18/10/2017	Pulse’s active date is correct, the initial electrical connection date is incorrect.
0001112669WM421	11/09/2017	11/09/2017	1/09/2017	Pulse’s active date is incorrect.
0000524506TPA3B	26/01/2018	26/01/2018	6/12/2017	Pulse’s active date is incorrect, the sign-up date was applied in error.



One reconnection also had an incorrect active date applied:

ICP	Applied date	Correct date	Comments
0000002612EN9C9	17/06/2013	08/11/2017	<p>The ICP had been supplied by Pulse from 17/06/2013 to 28/10/2013, then switched out. The ICP switched back in on 08/11/2017, and was reconnected on this date.</p> <p>The user made the ICP active from the first day Pulse had supplied the ICP in 2013 instead of the 08/11/2017 reconnection date. There was no impact; before Pulse's update the ICP had been continuously active since 17/06/13.</p>

The 2017 audit found that for ICP 0004733000AL28E, the opening read date was incorrectly entered as 25/02/2017, but should have been 24/02/2017. This was re-checked during the audit, and the read date had been corrected.

Six ICPs on the registry list had inactive - new connection in progress status, with an initial electrical connection date populated. These ICPs failed to be updated due to incomplete files being rejected by the registry, and workflow not alerting Pulse to the rejection. Backdated status updates to active status have now been completed on the registry. Late updates are discussed in **section 3.5**.

#### **Property Power**

Orion only allows one customer per ICP and requires at least one meter to be created for each ICP, even if it is unmetered.

Property Power changes the status of an ICP to active once confirmation has been received from a contractor, or meter readings confirm that an inactive ICP is consuming energy.

The accuracy of registry updates was checked by comparing the active date to the initial electrical connection date and meter certification date for the only new connection identified. Property Power's active date was correct.

ICP	Initial Electrical Connection	Certification	Active	Comments
1002039514LC6E1	11/09/2017	11/09/2017	1/11/2017	Paperwork could not be located, but AMI data has been received and shown consumption since 01/11/2017.

There were no ICPs at inactive new connection in progress status with an initial electrical connection date populated.

#### **Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 3.8 With: Clause 17 Schedule 11.1  From: 01-Sep-17 To: 18-Jul-18	<b><u>Pulse</u></b> Two ICPs had incorrect active dates.  Potential impact: Low Actual impact: Low Audit history: Three times previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as moderate, because these appear to be manual data entry errors and most updates were correct.  The impact is rated as low because a small number of ICPs were affected and the incorrect dates will have a small impact on settlement.		
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse has corrected these incorrect active dates.		27/07/2018	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
Pulse has a process and reporting to monitor Registry ICP status discrepancies. This will be implemented as a daily report for corrective action.		3/09/2018	

### 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 list file was examined and confirmed no ICPs were at inactive - new connection in progress for more than 24 months.

The process to manage ICPs at the other inactive statuses was examined. A sample of ten ICPs at each inactive status (or all ICPs if less than ten were available) were checked using the typical characteristics methodology. The findings in relation to the timeliness of updates to registry is recorded in **section 3.3**.

## Audit commentary

### Pulse

Inactive status is only applied once confirmation that the ICP has been disconnected is received.

I reviewed the reason codes for a sample of disconnections, and found 13 ICPs which were expected to be recorded as inactive vacant (1,4) but had a different inactive status recorded, including:

- five ICPs with meter disconnected status (1,9)
- five ICPs with meter disconnected at meter box switch status (1,11)
- three ICPs with disconnected at pole fuse status (1,8).

A list of inactive ICPs with consumption recorded was provided, and compared to lists provided in previous years:

Year	Inactive sites with consumption
2018	408
2017	127
2016	82
2015	275

An extreme case sample of ten inactive sites with inactive consumption over 60 kWh were reviewed. I found that consumption for all ICPs was genuine, indicating that their inactive status was incorrect. When consumption on an inactive ICP is identified, Pulse normally changes the status to active on the registry so that the consumption and ICP days will be included in the reconciliation reports and disconnects the ICP again if appropriate. Five of the ICPs have had their status corrected, and the other five are still recorded as inactive. This is recorded as non-compliance below and discussed further in **section 8.1**.

Status and status date errors were identified for a further two ICPs:

- ICP 0001723010PCEB2 has had 1,7 inactive status since it switched in on 12/12/2017, and should have been active since the switch in date.
- ICP 0005448492RN8E6 was temporarily given an active status so that the account could be finalised; the user attempted to correct the status following billing, but the statuses are still incorrect on the registry:

Correct statuses		Current registry statuses	
01/01/2000	2,0	01/01/2000	2,0
05/10/2016	1,4	05/10/2016	1,6
		06/10/2016	2,0
26/07/2017	1,6	26/07/2017	1,4
04/08/2017	3,2	04/08/2017	3,2

### **Property Power**

Inactive status is only applied once confirmation that the ICP has been disconnected is received. I reviewed the reason codes for all disconnections identified and confirmed that they had been applied appropriately.

Identification and correction of inactive ICPs with consumption is discussed in **section 8.1**.

### **Audit outcome**

Non-compliant

Non-compliance		Description	
Audit Ref: 3.9 With: Clause 19 Schedule 11.1  From: 01-Sep-17 To: 11-Jun-18		<b><u>Pulse</u></b>  15 ICPs have incorrect statuses or status reason codes recorded on the registry.  Five ICPs with consumption while disconnected did not have their status updated to active.  Potential impact: Low Actual impact: Low Audit history: Three times previously Controls: Moderate Breach risk rating: 2	
Audit risk rating		Rationale for audit risk rating	
<b>Low</b>		Controls are rated as moderate, because these appear to be manual data entry errors and most updates were correct.  The impact is rated as low: <ul style="list-style-type: none"><li>• other participants may be affected if an ICP switches with an incorrect disconnected status.</li><li>• there is an impact on reconciliation where incorrect status dates are applied or an ICP has an inactive status recorded but should be active. In most cases identified the reason rather than status code is affected, and the ICP will be treated correctly for reconciliation.</li></ul>	
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse has corrected these incorrect active dates.		27/07/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Pulse has a process and reporting to monitor Registry ICP status discrepancies. This will be implemented as a daily report for corrective action.		03/09/2018	

### 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.

#### Audit commentary

##### Pulse

Pulse occasionally receives requests for further information on ICPs which have been at new or ready for more than 24 months from distributors. I saw an example of one of these requests and noted that Pulse had followed up with the customer and responded to the distributor.

Gentrack receives a notification file when a new ICP is created with Pulse as proposed trader. Pulse should use this information to monitor ICPs at new or ready status or run a registry list for status 000 and 999 with their participant code as the proposed trader, to identify any ICPs at new or ready status. Any ICPs with new or ready status for over 18 months should be followed up to determine whether the connection is still required.

Description	Recommendation	Audited party comment	Remedial action
Monitoring of new and ready ICPs	<p><u>Pulse</u></p> <p>Monitor ICPs at new or ready for extended periods using Gentrack if possible.</p> <p>Alternatively, a Registry List (type P) with proposed trader = PUNZ and status = 000 and 999 should be run at least quarterly to identify ICPs which have been at new or ready status for more than 18 months and require follow up.</p>	Gentrack has a file notification manager to pick up new and ready ICPs. Pulse is working towards breaking down each notification item into queue task for assignment to the responsible team for monitoring and processing.	Investigating

##### Property Power

Property Power only completed one new connection during the audit period.

No requests for information on new or ready ICPs have been received from distributors. If received these would be actioned on a case by case basis.

There is no regular monitoring of ICPs at new or ready status. Property Power's customers are expected to migrate to Pulse's systems by October 2018.

**Audit outcome**

Compliant

## 4. PERFORMING CUSTOMER AND EMBEDDED GENERATOR SWITCHING

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

#### Code reference

Clause 2 Schedule 11.3

#### Code related audit information

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

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

*A gaining trader must advise the registry manager of a switch no later than 2 business days after the arrangement comes into effect and include in its advice to the registry manager that the switch type is TR and 1 or more profile codes associated with that ICP.*

#### Audit observation

The switch gain process was examined to determine when Pulse and Property Power deem all conditions to be met.

A typical sample of five transfer switch ICPs each for Pulse and Property Power were checked to confirm whether they were notified to the registry within two business days.

#### Audit commentary

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

#### Pulse

All NTs checked were sent within two business days of all conditions being met.

#### Property Power

Four of the ICPs checked were requested within two business days of pre-conditions being cleared. One ICP was requested 17 business days after pre-conditions were cleared due to an oversight. This is recorded as non-compliance below.

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.1 With: Clause 2 Schedule 11.3  From: 10-Aug-17 To: 01-Sep-17	<b><u>Property Power</u></b> An NT was issued more than two days after pre-conditions were cleared for one Property Power ICP.  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 because a late switch move NT was also identified. The impact was assessed to be low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Property Power has not issued any new NTs since June 2018, and will not issue any more – all new customers are directed to PUNZ.		01/07/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
All new customers are directed to PUNZ, and will fall under PUNZ's stronger controls.		01/07/2018	

#### 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 3 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 5 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 must disregard every event date established by the losing trader for a customer who has been with the losing trader for less than 2 calendar months (clause 4(2) of Schedule 11.3).*

#### **Audit observation**

The Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were reviewed to:

- identify AN files issued by Pulse and Property Power during the audit period; a sample of two ANs per response code were reviewed to determine whether the codes had been correctly applied.
- assess compliance with the setting of event dates requirements.

The switch breach history reports for Pulse and Property Power were examined for the audit period.

#### **Audit commentary**

##### **Pulse**

The switching process was examined in relation to Pulse as the “losing trader” for a sample of transfer switch ICPs. For two ICPs, the AA (accept and acknowledge) code was applied, when an advanced meter was present and AD (advanced metering) should have been applied. This is recorded as non-compliance below.

The event detail report was reviewed for 5,301 Pulse transfer switches:

- 5,250 (99.0%) had an event date within five business days of receipt of the NT
- 100% had an event date within ten business days of receipt of the NT.

The switch breach history report contained two late AN files for transfer switches for Pulse, they were checked and found not to be genuine.

##### **Property Power**

The switching process was examined in relation to Property Power as the “losing trader” for a sample of transfer switch ICPs. In all cases the correct response codes were used.

The event detail report was reviewed for 88 Property Power transfer switches:

- 86 (97.7%) had an event date within five business days of receipt of the NT
- 100% had an event date within ten business days of receipt of the NT.

No late AN files for transfer switches were recorded for Property Power.

#### **Audit outcome**

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 4.2</p> <p>With: Clauses 3 and 4 Schedule 11.3</p> <p>From: 11-May-18</p> <p>To: 29-May-18</p>	<p><b>Pulse</b></p> <p>Two incorrect AN response codes were applied by Pulse.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Once previously</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are rated as moderate as they are sufficient to mitigate risk most of the time, but there is room for improvement.</p> <p>Two AN response codes were applied incorrectly. Both should have had the AD (advanced metering) code applied, and information confirming the ICPs had advanced metering was available on the registry.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Training document has been compiled and given to team to refer to as a guideline.		25/07/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Further refresher training will be provided to the Switching Team.		31/08/2018	

#### 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 5 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 Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were reviewed to identify CS files issued by Pulse and Property Power during the audit period. The accuracy of the content of CS files was confirmed by checking a sample of five records. The content checked included:

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

For Pulse, I checked a further 10 ICPs where the average daily consumption was zero, ten ICPs where the average daily consumption was over 300 kWh, and all ICPs where the daily average consumption was negative.

For Property Power, I checked all ICPs where the average daily consumption was zero. No switches had average daily consumption over 160 kWh or that was negative.

The process to manage the sending of the CS file within five business days of the event date was examined. The switch breach history reports for Pulse and Property Power were reviewed to identify late CS files.

### Audit commentary

#### Pulse

CS files are automatically generated by Gentrack, and the estimated daily consumption is expected to be based on the last read to read period daily average.

I checked the accuracy of CS content by reviewing a sample of files. The following issues were identified:

- Two CS files had incorrect daily average consumption, which did not match the last read to read period. The largest difference was 5 kWh.
- Six of the ten CS files with daily average consumption of zero were incorrect. The largest difference was 28.5 kWh. In some cases the incorrect value appeared to be caused by the customer account being finalised on the day of the last invoice, causing a one day period with zero consumption. Pulse has now adjusted their process to reverse and rebill, which will help to reduce recurrence of this issue.
- Three of the ten CS files with high daily average consumption were incorrect. The estimated daily consumption represented the total consumption recorded in the last read to read period, not the daily average.
- The seven ICPs with negative average consumption were incorrect. The value appeared to be the full consumption for the last read to read period, shown as a negative.

The issues with incorrect estimated daily consumption in CS files have been referred to Gentrack for investigation.

The switch breach report contained five late CS files for transfer switches for Pulse. All late files were checked and found not to be genuine.

#### Property Power

CS files are automatically generated by Orion and manually checked prior to being sent to the registry. Estimated daily consumption is calculated by Orion based on the read history. For HHR ICPs, the estimated daily consumption in Orion is not updated and must be manually populated before the CS is sent to the registry.

I checked the accuracy of CS content by reviewing a sample of files and checking all transfer CS files with estimated daily consumption of zero. I found the meter readings, read types and last actual read dates were all recorded accurately. Estimated daily consumption values for three of the nine transfer switches checked did not reflect the expected consumption based on the last read period. The largest difference was 8 kWh per day. This is recorded as non-compliance below.

The switch breach report did not record any late CS files for Property Power.

#### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 4.3</p> <p>With: Clause 5 Schedule 11.3</p> <p>From: 09-Nov-17</p> <p>To: 20-Apr-18</p>	<p><b><u>Pulse</u></b></p> <p>18 transfer CS files had incorrect estimated daily consumption recorded.</p> <p><b><u>Property Power</u></b></p> <p>Three transfer CS files had incorrect estimated daily consumption recorded.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Three times previously</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are rated as weak, because a system issue resulted in incorrect estimated daily consumption for some Pulse CS files. The controls on estimated daily consumption for Property Power half hour ICPs are also weak.</p> <p>The potential impact will vary depending on the kWh difference, and whether the gaining retailer creates forward estimates for reconciliation or billing based on the estimated daily consumption provided in the CS file.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Issue has been raised with Gentrack to look into the incorrect estimated daily consumption that is being produced on some CS files.		TBC after meeting on 27/07/2018	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
Improvement has been made for the 0 estimated daily consumption ICPs to capture the true daily consumption value by credit noting the last invoice where the final bill is for 0 or 1 day. This will calculate the daily average from the last bill date to the final bill date.	17/07/2018	
This improvement in process is in place now. CPPL's remaining ICPs will be switched out within the next month, either to PUNZ or other retailers. The AN and CS files will be manually checked against an "expected" level calculated beforehand.	31/08/2018	

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

##### Code reference

Clause 6(1) and 6A Schedule 11.3

##### Code related audit information

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

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

*If the gaining trader disputes a switch meter reading because the switch event meter reading provided by the losing trader differs by 200 kWh or more, the gaining trader must, within four calendar months of the actual event date, provide to the losing trader a changed switch event meter reading supported by two validated meter readings.*

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

##### Audit observation

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

The Pulse event detail report for 1 September 2017 to 11 June 2018, and Property Power event detail report for 1 September 2017 to 18 June 2018, were reviewed to identify all read change requests and acknowledgements during the audit period.

Pulse rejected 40 RR files for transfer switches, 27 of these were accepted once reissued by the gaining trader. I checked a diverse sample of five rejected RR files, along with five RR files rejected by other traders. The content of a diverse sample of seven more RR files was examined.

Property Power did not issue any read change requests for transfer switches. One transfer switch read change request was issued to Property Power and accepted.

The switch breach history reports for the audit period were reviewed to identify late RR and AC files.

### Audit commentary

#### Pulse

Pulse rejected 40 RR files for transfer switches. A sample of five were checked and found to be validly rejected. Pulse accepted RRs which were reissued with corrected readings.

Five examples of Pulse's RR files being rejected were examined. In all cases there was a genuine reason for Pulse's RR, the file content was accurate, and the reads recorded in Pulse's system reflected the outcome of the RR process.

The content of a further seven transfer RRs were checked. Four were not supported by two validated actual reads; one or two unvalidated customer reads had been used instead. This is recorded as non-compliance below. The code requires customer reads to be validated against at least two actual readings from another source before being considered validated readings.

Some issues prevent Pulse applying the same read as the other trader for reconciliation purposes, and are discussed further in **section 12.7**:

- RR reads are typically entered into the invoicing records rather than reading records in Gentrack. As only validated readings are transferred to Cobra, this means that RR readings may not be included in reconciliation submissions.
- CS reads are recorded the day before the switch in date in Gentrack. Cobra does not consider any reads recorded before the first day the ICP is active with Pulse in its historic estimate calculations.
- Estimated switch reads are marked as deleted on import into Cobra and ignored by the historic estimate calculations.

The switch breach report recorded 18 late RR files for transfer switches, and no late AC files. The ten latest files were checked:

- Seven related to meters which had transposed readings when they switched in. Due to a training issue, the billing team corrected transposed readings for switch ins by swapping the readings between the registers and the switching team were not immediately notified. This temporarily caused delays in identifying ICPs which required RRs. The issue was discovered in May 2018 and resolved through training in June 2018.
- The other three late files were delayed while Pulse waited to receive two actual readings to support the RR.

#### Property Power

The switch breach report recorded one late AC file for Property Power. The file was 61 days late due to a delay in processing the request. This is recorded as non-compliance below.

### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 4.4</p> <p>With: Clause 6(1) and 6A Schedule 11.3</p> <p>From: 10-Jan-18</p> <p>To: 16-Jan-18</p>	<p><b><u>Pulse</u></b></p> <p>18 late RR files for transfer switches.</p> <p>Four RRs were not supported by two validated actual reads.</p> <p>Issues relating to treatment of RR, switch in readings and estimated switch readings prevent Pulse from using the same reading as the other trader for settlement in some cases.</p> <p><b><u>Property Power</u></b></p> <p>One late AC file for a transfer switch.</p> <p>Potential impact: Medium</p> <p>Actual impact: Unknown</p> <p>Audit history: Three times previously</p> <p>Controls: Weak</p> <p>Breach risk rating: 6</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	<p>The controls are rated as weak overall, due to the system issues affecting application of switch readings.</p> <p>The impact on reconciliation is assessed to medium based on the volume of switches in and out completed during the audit period.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Issue has been raised for Gentrack to provide us the correct steps to update an install read on Gentrack after an ICP has been through a start read change process.</p> <p>Billing are in the process of compiling a training document to capture the above processes and hand this over to Switching.</p> <p>Switching is taking this process over to ensure a tighter control is placed around this process.</p>		TBC after meeting on 27/07/2018	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>All commissioned CPPL ICPs will be switched out by the end of August, so its processes will no longer pose a breach risk.</p> <p>Switching to take over process after training documents are completed and the process is handed over by Billing</p> <p>All commissioned CPPL ICPs will be switched out by the end of August, so its processes will no longer pose a breach risk.</p>		31/08/2018	

#### 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 Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were analysed to identify read change requests issued and received under Clause 6(2) and (3) Schedule 11.3 and determine compliance.

##### Audit commentary

###### Pulse

237 RR files were issued to Pulse by HHR only traders, 98 of those were issued within five business days. 13 of the read changes were rejected.

I checked each of the 13 rejected read changes and found:

- 11 were validly rejected because the CS files contained actual reads from the AMI meter
- two were validly rejected because they were duplicates of a previously accepted change.

###### Property Power

One RR was issued within five business days of the switch being completed. The RR was appropriately accepted.

##### 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 and Property Power whether any disputes have needed to be resolved in accordance with this clause.



### Audit commentary

Pulse and Property Power confirmed that no disputes have needed to be resolved in accordance with this clause.

### Audit outcome

Compliant

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

### Code reference

Clause 9 Schedule 11.3

### Code related audit information

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

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

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

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

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

### Audit observation

The switch gain process was examined to determine when Pulse and Property Power deem all conditions to be met.

A typical sample of five switch move ICPs each for Pulse and Property Power were checked to confirm whether they were notified to the registry within two business days.

### Audit commentary

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

#### Pulse

All NTs checked were sent within two business days of all conditions being met.

#### Property Power

Four of the ICPs checked were requested within two business days of pre-conditions being cleared. One ICP was requested 48 business days after pre-conditions were cleared. This is recorded as non-compliance below. The reason for the late NT file could not be determined.

## Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.7 With: Clause 9 Schedule 11.3  From: 10-Aug-17 To: 01-Sep-17	<b><u>Property Power</u></b> An NT was issued more than two days after pre-conditions were cleared for one ICP.  Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The controls are rated as moderate because a late transfer NT was also identified. The impact was assessed to be low.		
Actions taken to resolve the issue		Completion date	Remedial action status
CPPL - Same as reported in Section 4.1		31/08/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
CPPL - Same as reported in Section 4.1		31/08/2018	

### 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 5 business days after receiving notice of a switch move request from the registry manager—

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

### Audit observation

The Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were reviewed to:

- identify AN files issued by Pulse and Property Power during the audit period; a sample of two ANs per response code were reviewed to determine whether the codes had been correctly applied
- assess compliance with the setting of event dates requirements.

The switch breach history reports were examined for the audit period.

### Audit commentary

#### Pulse

The switching process was examined in relation to Pulse as the “losing trader” for a sample of switch move ICPs. For one ICP, the AA (accept and acknowledge) code was applied, when an advanced meter was present and AD (advanced metering) should have been applied. This is recorded as non-compliance below.

141 switch move requests were identified on the event detail report for Pulse. These were analysed and found:

- 100% had an event date within ten business days of receipt of the NT
- Pulse’s proposed event date for ICP 0085021200PC6EF (14/11/17) was set before the gaining trader’s requested date (17/11/17) due to human error; the switch was completed with an event date after the requested date (18/11/17).

The switch breach report contained four late AN files for switch moves for Pulse, they were checked and found not to be genuine.

#### Property Power

The switching process was examined in relation to Property Power as the “losing trader” for a sample of switch move ICPs. I found that the AD (advanced metering) response code was incorrectly applied for one ICP which did not have an advanced meter. This is recorded as non-compliance below.

377 switch move requests were identified on the event detail report for Property Power. These were analysed and found:

- 100% had an event date within ten business days of receipt of the NT
- in all cases, Property Power’s proposed event date matched the gaining trader’s requested date.

One AN file was 15 days overdue on the switch breach report. The reason for the delay was unclear. Property Power relies on the switch breach report to determine when switching files are due, and this may have contributed to the late file.

### Audit outcome

Non-compliant



Preventative actions taken to ensure no further issues will occur	Completion date	
<p>Further refresher training will be provided to the Switching Team.</p> <p>CPPL is preparing to switch out all its ICPs before the end of August. These switches are planned and prepared in advance, and every reasonable step will be taken to ensure compliance. Thereafter, CPPL's processes will no longer pose any future breach risk.</p>	31/08/2018	

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

##### Code reference

*Clause 10(2) Schedule 11.3*

##### Code related audit information

*If the losing trader determines a different date, the losing trader must also complete the switch by providing to the registry manager as described in subclause (1)(a):*

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

##### Audit observation

The Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were reviewed to assess compliance with the setting of event dates requirements.

##### Audit commentary

###### Pulse

Analysis found eight ICPs where the event date was set earlier than the gaining trader requested date. In all cases, the AN event date recorded by Pulse matched the gaining trader's requested date.

For one switch with an event date after the gaining trader's proposed date (ICP 0085021200PC6EF), Pulse's proposed event date (14/11/17) was before the gaining trader's proposed date (17/11/17). The switch was completed with an event date of 18/11/17. Non-compliance is recorded for the incorrect event date recorded in the AN file.

###### Property Power

Analysis found 129 ICPs where the event date was set earlier than the gaining trader requested date. In all cases, the AN event date recorded by Pulse matched the gaining trader's requested date.

##### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 4.9</p> <p>With: Clause 10(2) Schedule 11.3</p> <p>From: 14-Nov-17</p> <p>To: 17-Nov-17</p>	<p><b>Pulse</b></p> <p>Pulse proposed an event date before the gaining trader's requested date for one switch move. The switch was later completed with a compliant event date.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Once previously</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are rated as strong, because this appears to be an isolated error.</p> <p>The impact is assessed to be low. The early proposed event date occurred due to human error and the switch was completed with a compliant date.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Strong controls already exist around this process, however, refresher training has been scheduled with the Switching Team to go over AN requirements for the 31/07/2018.		31/07/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Further refresher training will be provided to the Switching Team.		31/08/2018	

#### 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 Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were reviewed to identify CS files issued by Pulse and Property Power during the audit period. The accuracy of the content of CS files was confirmed by checking a sample of five records. The content checked included:

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

For Pulse, I checked a further 10 ICPs where the average daily consumption was zero, ten ICPs where the average daily consumption was over 300 kWh, and ten ICPs where the daily average consumption was negative.

For Property Power, I checked 10 ICPs where the average daily consumption was zero. No switches had average daily consumption over 160 kWh or that was negative.

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

### Audit commentary

#### Pulse

CS files are automatically generated by Gentrack, and the estimated daily consumption is expected to be based on the last read to read period daily average.

I checked the accuracy of CS content by reviewing a sample of files. I identified the following issues with CS content:

- Two CS files related to ICPs where Pulse did not have a current customer at the time of the switch. Pulse applied the last read billed to an active customer for the ICP, not an actual or estimated reading relating to the last day Pulse was responsible for the ICP. Passing vacant consumption to the gaining trader is non-compliant.

ICP	Read date for read provided	Switch event date
0000000807DE12E	29/01/2018	04/02/2018
0000000869CE35E	08/09/2017	23/09/2017

- Three CS files had incorrect daily average consumption, which did not match the last read to read period. The largest difference was 6 kWh.
- Six of the ten CS files with daily average consumption of zero were incorrect. The largest difference was 31 kWh. In some cases the incorrect value appeared to be caused by the customer account being finalised on the day of the last invoice, causing a one day period with zero consumption. Pulse has now adjusted their process to reverse and rebill, preventing recurrence of this issue.
- Eight of the ten CS files with high daily average consumption were incorrect. The estimated daily consumption appeared to be the total consumption recorded in the last read to read period, not the daily average.
- The ten ICPs with negative average consumption were incorrect. The value appeared to be the full consumption for the last read to read period, shown as a negative.

The issues with incorrect estimated daily consumption in CS files have been referred to Gentrack for investigation.

## Property Power

I checked the accuracy of CS content by reviewing a sample of files, and checking all switch move CS files with estimated daily consumption of zero. I found the meter readings, read types and last actual read dates were all recorded accurately. Estimated daily consumption values for five of the 15 switch moves checked did not reflect the expected consumption based on the last read period, including one HHR ICP. The largest difference was 18 kWh per day. This is recorded as non-compliance below.

- six were not genuine
- four switch breaches related to genuine late files, and three of those related to one switch; it appears likely the files were late due to reliance on the switch breach report, which is run to determine when switching files are due.

Non-compliant

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Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are rated as weak, because a system issue resulted in incorrect estimated daily consumption for some Pulse CS files, and Pulse's process for switching vacant sites is non-compliant. The controls over estimated daily consumption for Property Power half hour ICPs are also weak.</p> <p>The impact is assessed to be low:</p> <ul style="list-style-type: none"> <li>For incorrect estimated daily consumption, the potential impact will vary depending on the kWh difference, and whether the gaining retailer creates forward estimates for reconciliation or billing based on the estimated daily consumption provided in the CS file.</li> <li>For the incorrect switch reads, there will be an impact on the customer and the gaining retailer. Both will be billed for any vacant consumption that occurred while the ICP was supplied by Pulse. Vacant ICPs are usually expected to have low consumption, but the impact may be higher where a customer has moved in during the period of vacancy and not signed up with Pulse.</li> <li>The late CS files provided by Property Power will have a minor impact on the customer and gaining trader.</li> </ul>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Incorrectly calculated daily estimated consumption has been raised and is being looked into by Gentrack to provide a solution</p> <p>CS file read has also been raised with Gentrack to make a change to software</p>		TBC after meeting with GT on 26/07/2018	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Fix Gentrack software to capture the correct read in the CS file.		TBC after meeting with GT on 26/07/2018	

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

##### Code reference

Clause 12 Schedule 11.3

##### Code related audit information

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

- *if the switch meter reading established by the gaining trader differs by less than 200 kWh from that provided by the losing trader, both traders must use the switch event meter reading provided by the gaining trader (clause 12(2)(a)); or*
- *if the switch event meter reading provided by the losing trader differs by 200 kWh or more from a value established by the gaining trader, the gaining trader may dispute the switch meter reading. In this case, the gaining trader, within 4 calendar months of the actual event date, must 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 (clause 12(2)(b) and clause 12(3)):*
- *advise the gaining trader if it does not accept the switch event meter reading and the losing trader and the gaining trader must resolve the dispute in accordance with the disputes procedure in clause 15.29 (with all necessary amendments) (clause 12(3)(a)); or*
- *if the losing trader notifies its acceptance or does not provide any response, the losing trader must use the switch event meter reading supplied by the gaining trader (clause 12(3)(b)).*

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

- *the gaining trader will trade electricity from a meter with a half hour submission type in the registry (clause 12(2A)(b));*
- *the gaining trader no later than five business days after receiving final information from the registry manager, may provide the losing trader with a switch event meter reading from that meter. The losing trader must use that switch event meter reading (clause 12(2B)).*

#### **Audit observation**

The process for the management of read requests was examined.

The Pulse event detail report for 1 September 2017 to 11 June 2018, and Property Power event detail report for 1 September 2017 to 18 June 2018, were reviewed to identify all read change requests and acknowledgements during the audit period.

Pulse rejected 110 RR files for switch moves. I checked a diverse sample of four rejected RR files, along with four RR files rejected by other traders. The content of a further seven RR files was examined.

Property Power issued two read change requests for switch moves, both were accepted. Four read change requests for switch moves were issued by other traders, all were accepted.

The switch breach history reports for the audit period were reviewed to identify late RR and AC files.

#### **Audit commentary**

##### **Pulse**

Pulse rejected 110 RR files for switch moves. A sample of five were checked and found to be validly rejected. Pulse accepted RRs which were reissued with corrected readings.

Four examples of Pulse's RR files being rejected were examined.

- One contained incorrect content. The estimated RR read for ICP 0326829814LCDF4 was incorrect, it was based on the wrong move in date for the customer. Pulse asked the other trader to reject the RR and re-requested with the correct reading.
- In all cases the reads recorded in Pulse's system reflected the outcome of the RR process.

The content of a further seven transfer RRs were checked and found to be correct.

Some issues prevent Pulse applying the same read as the other trader for reconciliation purposes, and are discussed further in **section 12.7**:

- RR reads are typically entered into the invoicing records rather than reading records in Gentrack. As only validated readings are transferred to Cobra, this means that RR readings may not be included in reconciliation submissions.
- CS reads are recorded the day before the switch in date in Gentrack. Cobra does not consider any reads recorded before the first day the ICP is active with Pulse in its historic estimate calculations.
- Estimated switch reads are marked as deleted on import into Cobra and ignored by the historic estimate calculations.

The switch breach history report recorded 12 late RR files for switch moves, and no late AC files for Pulse. The ten latest files were checked:

- nine files were delayed while Pulse waited to receive two actual readings to support the RR
- one late RR was complicated by a meter change around the time of the switch, the RR was delayed while Pulse confirmed the readings.

#### **Property Power**

Review of all read change requests issued by Property Power found the file content was accurate, and the requests were supported by at least two actual reads. The correct reads were recorded in Orion following completion of the RR process.

The switch breach report recorded two late AC files for Property Power. One was issued three days late after reads were checked. The other was issued 67 days late due to a delay in processing the request. The late files are recorded as non-compliance below.

#### **Audit outcome**

Non-compliant

<b>Non-compliance</b>	<b>Description</b>
<p>Audit Ref: 4.11</p> <p>With: Clause 12 Schedule 11.3</p> <p>From: 10-Jan-18 To: 16-Jan-18</p>	<p><b><u>Pulse</u></b></p> <p>12 late RR files for switch moves.</p> <p>One RR contained an incorrect reading and was rejected and re-requested with the correct reading.</p> <p>Issues relating to treatment of RR, switch in readings and estimated switch readings prevent Pulse from using the same reading as the other trader for settlement in some cases.</p> <p><b><u>Property Power</u></b></p> <p>One late AC file for a switch move.</p> <p>Potential impact: Medium</p> <p>Actual impact: Unknown</p> <p>Audit history: Three times previously</p> <p>Controls: Weak</p> <p>Breach risk rating: 6</p>
<b>Audit risk rating</b>	<b>Rationale for audit risk rating</b>

Non-compliance	Description		
<b>Medium</b>	<p>The controls are rated as weak overall, due to the system issues affecting application of switch readings.</p> <p>The impact on reconciliation is assessed to medium based on the volume of switches in and out completed during the audit period. The late files have a minor impact on the customer and other participants.</p> <p>The RR with an incorrect reading had a low impact because it was rejected and reissued with correct readings.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Refer Section 4.4		Refer Section 4.4	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Refer Section 4.4		Refer Section 4.4	

#### 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 3 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 Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were reviewed to identify all HH switches during the audit period.

#### Audit commentary

##### Pulse

Two Pulse HH switch requests were issued during the audit period.

The NT files for the Pulse HH switches contained the information required by this clause. The NT files were sent within three days of pre-conditions being met.

The NT for ICP 1000517738PCB73 was issued as HH in error and was corrected through the withdrawal process. Gentrack incorrectly issued the switch as HH because the ICP had previously been supplied as HH by Pulse. Several other NTs were incorrectly created as HH, but the files were intercepted and corrected before being sent to the registry. A system fix has been completed to prevent recurrence of this issue.

##### Property Power

Property Power did not complete any HH switches during the audit period.

#### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.12 With: Clause 14 Schedule 11.3  From: 30-Nov-17 To: 30-Nov-17	<u>Pulse</u>  One switch move had a HH NT issued in error. The switch was withdrawn and re-requested as a switch move.  Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	Rationale for audit risk rating

Non-compliance	Description		
<b>Low</b>	<p>Controls are rated as strong; a system fix has been implemented to prevent recurrence of this issue.</p> <p>The impact is low because only one switch was affected, and it was corrected through the withdrawal process.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Withdrawal had been completed to correct and resolve this issue.		12/03/2018	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
Gentrack has queues that picks up sign ups that have had the NT sent as HH. This queue is now checked daily and the issue is resolved before the NT request hits the registry.		12/03/2018	

#### 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 3 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 Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were reviewed to identify all HH switches during the audit period.

The switch breach history reports for the audit period were reviewed to identify late AN files.

##### Audit commentary

###### Pulse

The switch breach report was examined and there were no late AN files recorded for HH switches.

###### Property Power

Property Power did not complete any HH switches during the audit period.

##### 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 HH switching process was examined.

The switch breach history report for the audit period was reviewed to identify late CS files.

##### Audit commentary

###### Pulse

One late CS file for Pulse was identified on the switch breach report. The switch was delayed while Pulse confirmed the process for HH switching, because no HH switches had been completed since prior to January 2017.

###### Property Power

Property Power did not complete any HH switches during the audit period.

##### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.14 With: Clause 16 Schedule 11.3  From: 06-Apr-18 To: 17-Apr-18	<u>Pulse</u> One late HH CS file.  Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	<p>At the time of the non-compliance controls were rated as weak; the CS was delayed because procedures were not in place for HH switching. Controls are strong now that the HH switching process has been confirmed.</p> <p>The impact was low because the CS file was provided one business day late.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Process confirmed and site was switched in on the registry as soon as this happened		17/04/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Process has been clarified and the Switching Team have been trained on this.		30/04/2018	

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

##### Code reference

*Clauses 17 and 18 Schedule 11.3*

##### Code related audit information

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

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

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

##### Audit observation

The switch withdrawal process was examined.



The Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were reviewed to:

- Identify all switch withdrawal requests issued by Pulse and Property Power. The content of a sample of at least two ICPs from the event detail report for each withdrawal code and participant code (or all if less than two were available) were checked using the typical sampling methodology, as well as all withdrawal requests rejected by other traders.
- Identify all switch withdrawal acknowledgements issued by Pulse and Property Power. A sample of nine (or all) rejections per participant code were checked.
- Confirm timeliness of switch requests, as this is not currently being identified in the switch breach report.

The switch breach reports were checked for any late switch withdrawal requests or acknowledgements and found six were recorded for Property Power.

#### **Audit commentary**

##### **Pulse**

The content of 20 Pulse NW files was checked. In all cases the withdrawal reasons provided were accurate.

Review of a sample of nine rejections by Pulse confirmed they were rejected based the information available at the time the response was issued. In some cases Pulse asked the other trader to reissue the withdrawal with the correct code, and later accepted.

One NW was rejected by another trader, and Pulse had good reasons supported by notes in Gentrack at the time of sending the NW.

Analysis of the event detail report found 48 Pulse NWs issued more than two calendar months after the switch date. 23 of these withdrawals used the code for wrong premises, and I note that this issue often does not become apparent for an extended period after a switch completes. A sample of the ten latest files were reviewed:

- Nine of the late NWs were issued in error. If a customer requested their account to be finalised or cancelled their application to move into an existing Pulse ICP, some users would incorrectly issue a NW (which would be automatically backdated to the switch in date), instead of finalising the account. For these incorrect NWs, Pulse was also the recipient and the switching team rejected the requests. Training has been provided to the users who were responsible, and the last invalid NW was processed in May 2018.
- One NW was issued late due to an incorrect ICP being requested, there was a delay in identifying the issue and confirming the correct ICP.

No late AW files were identified on the switch breach report.

##### **Property Power**

The content of all Property Power NWs was checked. In all cases, the withdrawal reasons provided were accurate.

One NW was validly rejected by Property Power because the withdrawal reason code provided was incorrect.

Analysis of the event detail report found one Property Power NW was issued more than two calendar months after the switch date. The withdrawal was delayed because the ICP switched out without the customer's knowledge, and the withdrawal request was issued promptly once Property Power was advised.

The switch breach report was examined and found one late AW and one late NW for Property Power. The late NW was not genuine, and the AW was four days late.

#### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 4.15</p> <p>With: Clauses 17 and 18 Schedule 11.3</p> <p>From: 03-Jan-18</p> <p>To: 10-Jul-18</p>	<p><b><u>Pulse</u></b></p> <p>48 late NW files; at least nine of which were issued in error.</p> <p><b><u>Property Power</u></b></p> <p>One late NW and one late AW.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Once previously</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are rated as moderate, as they are sufficient to prevent most errors but there is room for improvement.</p> <p>The impact is assessed to be low:</p> <ul style="list-style-type: none"> <li>the NWs issued in error have no impact, because Pulse is the only participant affected</li> <li>a small proportion of NWs were issued late.</li> </ul>		
Actions taken to resolve the issue		Completion date	Remedial action status
Training documents have been created to ensure simple checks are done before initiating a withdrawal to resolve issues around NWs issued in error.		25/07/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Refresher training has been scheduled for the Switching Team around withdrawals</p> <p>All customers are to be switched to PUNZ, and will fall under PUNZ's stronger controls.</p>		<p>7/08/2018</p> <p>31/08/2018</p>	

#### 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. Examples to confirm this procedure have been examined as part of the sending of final information for switches and read requests made.

##### Audit commentary

###### Pulse

All meter readings used in the switching process are validated meter readings or permanent estimates.

Some issues prevent Pulse applying the same permanent estimate read as the other trader for reconciliation purposes. This is discussed further in **section 12.7**.

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

###### **Property Power**

All meter readings used in the switching process are validated meter readings or permanent estimates.

Property Power's policies regarding the management of meter reading expenses is compliant.

##### Audit outcome

Compliant

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

##### Code reference

Clause 11.15AA to 11.15AB

##### Code related audit information

*A trader that buys electricity from the clearing manager may elect to have a switch saving protection by giving notice to the Authority in writing.*

*If a protected trader enters into an arrangement with a customer of another trader (the losing trader), or a trader enters into an arrangement with a customer of a protected trader, to commence trading electricity with the customer, the losing trader must not, by any means, initiate Pulse with the customer to attempt to persuade the customer to terminate the arrangement during the period from the receipt of the NT to the event date of the switch including by:*

*11.15AB(4)(a)- making a counter offer to the customer; or*

*11.15AB(4)(b)- offering an enticement to the customer.*

**Audit observation**

The Electricity Registry switch save protected retailer list was examined. Pulse has been a protected retailer since 13 January 2015, and Property Power has been a protected retailer since 31 August 2015.

Win-back processes were assessed to determine whether they are compliant.

The Pulse event detail report for 1 September 2017 to 11 June 2018, and the Property Power event detail report for 1 September 2017 to 18 June 2018 were reviewed to identify all switch withdrawal requests with a CX code applied prior to the switch completion date.

**Audit commentary**

**Pulse**

Analysis of the event detail report identified three Pulse NWs with reason code CX that were issued before the switch event date. None were issued due to win back activity.

- Two were issued because the customer had not provided adequate notice of their intended switch under their agreement with Pulse and had agreed to stay with Pulse for the notice period. The customer later decided that they wanted the switch to another retailer to proceed, and the withdrawal requests were rejected by the other trader.
- The other withdrawal related to switch in of a contracted customer, who requested a cancellation by Pulse (the gaining retailer) to avoid an early termination fee from the losing retailer. The losing retailer rejected the withdrawal and processed the switch, because their contract with the customer terminated earlier than the customer had expected.

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.

**Property Power**

Analysis of the event detail report did not identify any Property Power NWs with reason code CX that were issued before the switch event date.

Property Power does not initiate any win-back activity with lost customers during or after the switch. Contact is only made with departing customers to discuss outstanding accounts if required.

**Audit outcome**

Compliant

## 5. MAINTENANCE OF UNMETERED LOAD

### 5.1. Maintaining shared unmetered load (Clause 11.14)

#### Code reference

Clause 11.14

#### Code related audit information

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

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

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

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

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

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

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

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

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

#### Audit observation

I reviewed the processes to identify shared unmetered load.

The Pulse registry list file as at 11 June 2018 and Property Power list file as at 21 June 2018 were examined and found:

- Pulse has 18 ICPs with shared unmetered load
- Property Power has no ICPs with shared unmetered load.

#### Audit commentary

##### Pulse

The trader unmetered kWh was compared to the distributor's unmetered kWh for 14 ICPs where it was possible to calculate the distributor's unmetered kWh from the distributor's unmetered load details. All matched within  $\pm 0.00$  kWh.

ICPs 0000046311NTBD0 and 0007175794RN1C7 had unmetered load indicated by the distributor, but the unmetered flag was set to no and the daily unmetered kWh was not populated. Pulse confirmed that unmetered load was connected. Backdated updates to the registry and Gentrack were completed during the audit.

As discussed in **section 2.1**, unmetered load details are not reconciled to the registry.

#### **Property Power**

No shared unmetered load is supplied. Property Power does not intend to supply shared unmetered load.

#### **Audit outcome**

Non-compliant

<b>Non-compliance</b>	<b>Description</b>	
<p>Audit Ref: 5.1</p> <p>With: Clause 11.14</p> <p>From: 20-Nov-17</p> <p>To: 18-Jul-18</p>	<p><b><u>Pulse</u></b></p> <p>Two ICPs with shared unmetered load had missing trader unmetered load details in Gentrack and on the registry.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>	
<b>Audit risk rating</b>	<b>Rationale for audit risk rating</b>	
<b>Low</b>	<p>Controls are rated as moderate because there is room for improvement. The unmetered load has been updated on the registry for both ICPs.</p> <p>The audit risk rating is low; there is a minor impact on billing and settlement. Consumption is expected to be corrected and washed up.</p>	
<b>Actions taken to resolve the issue</b>		<b>Completion date</b>
Pulse has corrected the incorrect unmetered load		31/07/2018
<b>Preventative actions taken to ensure no further issues will occur</b>		<b>Completion date</b>
Pulse is implementing a report to monitor unmetered load details		28/09/2018
		<b>Remedial action status</b>
		Cleared

## 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 Pulse registry list file as at 11 June 2018 and Property Power list file as at 21 June 2018 were examined to identify any ICPs with annual unmetered load that exceeds 3,000 kWh.

### Audit commentary

#### Pulse

All unmetered ICPs supplied by Pulse have annual consumption below the 3,000 kWh threshold.

#### Property Power

One Property Power ICP had annual consumption between 3,000 and 6,000 kWh. The load is predictable and of a type approved and published by the Authority.

### Audit outcome

Compliant

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

### Code reference

*Clause 10.14 (5)*

### Code related audit information

*If the unmetered load limit is exceeded the retailer must:*

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

### Audit observation

The Pulse registry list file as at 11 June 2018 and Property Power list file as at 21 June 2018 were examined to identify any ICPs with annual unmetered load that exceeds 3,000 kWh.

### Audit commentary

#### Pulse

All unmetered ICPs supplied by Pulse have annual consumption below the 3,000 kWh threshold.

### **Property Power**

One Property Power ICP had annual consumption between 3,000 and 6,000 kWh. The load is predictable and of a type approved and published by the Authority.

No ICPs had load exceeding 6,000 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**

The Pulse registry list file as at 11 June 2018 and Property Power list file as at 21 June 2018 were examined to identify any DUML ICPs.

### **Audit commentary**

Pulse and Property Power do not deal with any distributed unmetered load ICPs.

### **Audit outcome**

Compliant



## 6. GATHERING RAW METER DATA

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

#### Code reference

*Clause 10.13, Clause 10.24 and Clause 15.13*

#### Code related audit information

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

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

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

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

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

#### Audit observation

Processes to ensure metering is installed and unmetered load is quantified were examined.

The process to manage distributed generation was examined. The list file was analysed and all ICPs where the Distributor has indicated distributed generation were identified. This was further broken down to identify any ICPs with a non-distributed generation profile. The metering configuration for these ICPs was analysed to confirm if an injection channel was present.

Pulse provided three examples of bridged meters during the audit period. Property Power did not identify any bridged ICPs.

#### Audit commentary

##### Pulse

##### 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 submission information is determined using subtraction.

##### Distributed Generation

To identify new distributed generation, Pulse relies on solar installers or customers informing them when distributed generation is present, and registry notifications received when the distributor updates generation related fields. Between the October 2017 implementation and April 2018 there were issues relating to receiving the notifications and directing them to work queues, and a backlog of notifications are being worked through.

Registry reconciliations for distributed unmetered load fields were stopped following the Gentrack 4 implementation. A recommendation to reinstate these checks is made in **section 2.1**.

Pulse's list file was examined in relation to ICPs with generation listed by the Distributor.

1,183 active ICPs with generation listed by the distributor were identified. The records were matched to the metering installation details report, to confirm whether import/export metering was installed. 1147 ICPs had a record on the metering installation details report. Of those 1083 (95%) had injection metering installed and 61 did not. A sample of 20 ICPs without injection metering were checked:

Quantity of ICPs	Findings
8	Pulse had confirmed that generation was present with the customer. For three of those generation metering is now installed, and for the other five installation of generation metering is in progress.
8	Pulse has not confirmed whether generation is present, primarily due to not identifying the potential distributed generation.
3	Pulse has notified the reconciliation manager under clause 15.13 of Part 15 they do not expect payment from the clearing manager. The generated electricity is gifted to the market.
1	Pulse confirmed with the customer and MEP that no generation is present, and the distributor record is incorrect.

Recommendation	Description	Audited party comment	Remedial action
Identification of new distributed generation	<p><b>Pulse</b></p> <p>All ICPs with potential distributed generation without import/export metering or a notification under clause 15.13 of Part 15 in place should be reviewed. Import/export metering should be installed as necessary.</p>	Networks have inconsistent stated requirements for generation metering. Where an EG tariff is present, generation meter is requested to be installed. Where network specifies that the “retailer may require generation metering”, this is considered optional, and the generation is gifted to the market unless the customer requests a generation meter be installed.	Identified

Generation profiles were checked:

- 302 ICPs with import/export metering and a profile that did not indicate generation were identified. I checked the database code in Cobra and found that any meters with ICP installation type B or G, fuel type solar and an EG content code have their profile automatically changed to PV1 for submission. The incorrect profile is recorded on the registry, and this is recorded as non-compliance in **section 2.1**.
- 19 ICPs had PV1 profile only. I confirmed that generation consumption is submitted against the PV1 profile and load is submitted against the RPS profile. Nine of the ICPs have had a backdated correction to RPS PV1 profile on the registry, the other ten still show the incorrect profile on the registry. This is recorded as non-compliance in **section 2.1**.

- Five ICPs with distributed generation had an incorrect profile start date recorded on the registry. Cobra's processes ensure that any NHH ICP with EG metering with consumption will have the consumption reported against the PV1 profile. This is recorded as non-compliance in **section 2.1**.

ICP	Profile	Recorded date	Correct date	Comments
0000002887TRFF3	RPS PV1	1/04/2018	23/01/2018	
0000003680UNF4A	RPS PV1	1/04/2018	02/02/2018	
0000004804NT7E9	RPS PV1	23/05/2018	26/01/2018	The 23/05/2018 record was entered in error
0000004977UN9F8	RPS PV1	1/03/2018	19/01/2018	
0000005103UNC02	RPS PV1	22/02/2018	21/02/2018	

- Profiles were compared to the fuel type and found to be reasonable, except for the exceptions described above.

#### Bridged meters

Pulse provided a list of three ICPs where remote disconnection had occurred then the meter had been bridged to reconnect. This is recorded as non-compliance below. I reviewed the affected meters and noted that they had all later been unbridged.

Corrections were not processed for consumption that occurred during the bridged period. This is recorded as non-compliance in **section 8.1**.

#### Property Power

Property Power's new connection process includes a check that metering is installed before electrical connection occurs, and that any unmetered load is quantified. No submission information is determined using subtraction.

Property Power's list file showed no ICPs with generation capacity listed by the distributor. A recommendation is raised in **section 2.1** in relation to identification of ICPs with distributed generation installed.

No bridged Property Power meters were identified during the audit period.

#### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 6.1</p> <p>With: Clause 10.13 and Clause 15.2</p> <p>From: 01-Sep-17</p> <p>To: 13-Feb-18</p>	<p><b>Pulse</b></p> <p>Energy is not metered and quantified according to the code where meters are bridged.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Once previously</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are rated as strong. Bridging only occurs where a soft reconnection cannot be performed after hours and the customer urgently requires their energy supply for health and safety reasons.</p> <p>The impact as rated as low, because only three bridged meters were identified, and all were unbridged within one month.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse will follow up on the identified issues where meters are identified as being bridged.		3/08/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Pulse will provide refresher to the relevant team to adjust consumption that occurred during the bridged period.		3/08/2018	

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

### Code reference

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

### Code related audit information

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

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

*The participant responsible for the metering installation must:*

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

#### **Audit observation**

The NSP table was reviewed to confirm whether Pulse or Property Power is responsible for any GIPs.

#### **Audit commentary**

Review of the NSP table confirmed that Pulse and Property Power 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 Pulse registry list report for 1 September 2017 to 11 June 2018, and the Property Power registry list report for 1 September 2017 to 18 June 2018 were reviewed to confirm the profiles used.

#### **Audit commentary**

Pulse and Property Power have not used any profiles which rely on the use of control devices for reconciliation purposes.

#### **Audit outcome**

Compliant

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

#### **Code reference**

*Clause 10.43(2) and (3)*

#### **Code related audit information**

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

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

### Audit observation

Processes relating to defective metering were examined.

Eight examples of potential defective meters were reviewed for Pulse, to determine whether the MEP was advised and if appropriate action was taken.

No defective meters were identified for Property Power.

### Audit commentary

#### Pulse

Defective meters are typically identified through the meter reading validation process, or from information provided by the meter read provider or customer.

Upon identifying a possible defective meter, Pulse raises a field services job to investigate. I reviewed eight examples of potential defective meters, including stopped or faulty meters and bridged meters. In all cases a field services job was raised, and the MEP advised.

#### Property Power

Defective meters are typically identified through the meter reading validation process, or from information provided by the meter read provider or customer.

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 it does not exceed the maximum interrogation cycle in the registry.*

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

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

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

f) *download the event log.*

2(6) – *The interrogation systems must record:*

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

#### **Audit observation**

The data collection process was examined.

Clock synchronisation processes for agents and MEPS were reviewed as part of their agent and MEP audits. Agents are to advise Pulse and Property Power of clock synchronisation discrepancies and adjustments. A sample of notifications provided to Pulse and Property Power were reviewed.

#### **Audit commentary**

All information used to determine volume is collected by agents or MEPS. Agents and MEPS monitor clock synchronisation, this is covered as part of their audits.

#### **Pulse**

Pulse receives emailed information on NHH clock synchronisation events from EDM1 and Metrix. Clock synchronisation events for AMS and FCLM are provided in their event files. No clock synchronisation information has been received from Arc.

AMS and EDM1 are expected to provide information by email if clock synchronisation events occur.

I did not see any examples of clock synchronisation events requiring action by Pulse.

#### **Property Power**

Property Power receives monthly confirmation of clock synchronisation events from EDM1. A sample of these confirmations were reviewed.

No clock synchronisation events have been received from the other MEPS, and I did not see any examples of clock synchronisation events requiring action by Property Power.

#### **Audit outcome**

Compliant

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

#### **Code reference**

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

#### **Code related audit information**

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

*All validated meter readings must be derived from meter readings.*

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

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

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

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

#### Audit observation

The data collection process was examined. NHH readings for 20 Pulse and 15 Property Power ICPs were checked from the read file to Gentrack and Orion respectively using the typical case sample methodology.

Processes for review of meter condition information provided by Wells were reviewed, including reviewing a sample of events.

Processes for customer and photo reads were reviewed.

#### Audit commentary

##### Pulse

A sample of readings were checked from the source files provided by the MEPs and agents to Gentrack and found to match.

During manual interrogation, the meter register value is collected and entered into a hand-held device. 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 monitors meter condition, as required by schedule 15.2 and provides information on meter condition along with the daily reads, and monthly summary report containing missing seal and broken seal events.

Processes for review of meter condition information changed following the implementation of Gentrack 4. Pulse archives the files received from Wells and will search the files for information if an issue with an ICP is identified through another validation process. The files are not routinely reviewed, and this is recorded as non-compliance below.

During Wells' agent audit some examples of events reported to Pulse over the past year were provided. These were checked during the audit to determine whether Pulse had taken appropriate action:

Event Type	Quantity	Action taken
Meter register differences – removal	1	<b>Yes.</b> The meter was removed in Gentrack.
Meter register differences –replacement	1	<b>Yes.</b> The meter was replaced in Gentrack.
Seals are not present and intact	1	<b>No.</b> No action has been taken to check or reseal the meter for ICP 0000120182EN7CD.

No examples of phase failure, tampering or damage, or electrically unsafe installations were found for review during the audit, but Wells' agent audit confirmed that checks are conducted for these events.

Pulse routinely treats customer and photo readings as actual validated reads for switching and reconciliation purposes. I checked a sample of seven customer reads and five photo reads to confirm whether they had been validated against at least two actual reads from another source. I found:

- nine of the readings had been validated, and were correctly treated as validated reads



- three of the readings had not been validated against at least two readings from another source and should not have been treated as validated reads.

I also identified a further four instances where customer and photo readings which had not been validated against at least two readings from another source had been used to support RRs.

#### **Property Power**

A sample of readings were checked from the source files provided by the MEPs and agents to Orion and found to match.

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

Wells monitors meter condition, as required by schedule 15.2 and provides information on meter condition along with the daily reads, and monthly summary reports containing all missing seal and broken seal events.

This information is saved on Property Power's network and is reviewed only if an issue is identified through other validation processes. Not routinely reviewing the meter condition information is recorded as non-compliance below. The monthly report of missing and broken seal events is reviewed and acted upon if any issues are present.

During Wells agent audit, I requested any meter condition events for Property Power to be provided and none were available. Property Power also could not locate any meter condition events.

Customer and photo readings are treated as actual in Orion and sent to JCC as validated readings. I reviewed five examples of customer readings and found they had all been validated against at least two actual readings from another source.

#### **Audit outcome**

Non-compliant

<b>Non-compliance</b>	<b>Description</b>
<p>Audit Ref: 6.6</p> <p>With: Clause 3(1), 3(2) and 5 Schedule 15.2</p> <p>From: 01-Sep-17</p> <p>To: 18-Jul-18</p>	<p><b><u>Pulse</u></b></p> <p>Meter condition information provided by Wells is not routinely reviewed.</p> <p>Seven customer and photo reads were treated as validated, when they had not been validated against at least two actual reads from other sources.</p> <p><b><u>Property Power</u></b></p> <p>Meter condition information provided by Wells is not routinely reviewed.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p>

Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>The controls are rated as weak, because they are not sufficient to ensure that meter condition information provided by Wells is reviewed and acted upon. There are insufficient controls to prevent photo and customer reads which have not been appropriately validated from being treated as validated readings for Pulse.</p> <p>There is a low impact for Pulse as a small number of events identified by Wells have not been actioned, and some unvalidated reads are being treated as validated for switching and reconciliation processes.</p> <p>There is no impact for Property Power, no meter condition issues have been identified by Wells during the audit period.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse has processed the missing seal report from Wells. Customer will be notified, and job will be issued for corrective action.		17/08/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Pulse has advised Wells to report meter condition to the Field Services team email rather than to a direct person.		26/07/2018	

#### 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.

##### Audit commentary

##### Pulse

NHH meter readings provided by MEPs and agents are applied as at 2400hrs. Switch in readings are appropriately treated as if they have occurred at midnight on the switch in date. Application of reads was reviewed as part of the historic estimate checks, discussed in **section 12.11**.

A sample of NHH meter readings for 20 ICPs were checked from the read file to Gentrack. Where read times were recorded in the files they were indicated to have occurred at the end of the day.

## **Property Power**

NHH meter readings provided by MEPs and agents are applied as at 2400hrs. Switch in readings are appropriately treated as if they have occurred at midnight on the switch in date. Application of reads was reviewed as part of the historic estimate checks, discussed in **section 12.11**.

I traced a diverse sample of 15 NHH meter readings from the read file to Orion. Where read times were recorded in the files they were indicated to have occurred at the end of the day.

## **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.

### **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”.

## **Pulse**

Between the implementation of Gentrack 4 in October 2017 and May 2018, Pulse’s processes to identify and follow up unread ICPs were put on hold. During this period, Pulse continued to move ICPs to manual meter reading routes where the MEP requested it.

From May 2018 onwards, Pulse has used a system report to identify ICPs without actual reads for three months or more. Pulse is working through contacting customers where reads have not received for the longest periods to arrange access to read meters. The process is tailored depending on the reason the meter is not read, but typically the customer is contacted by letter, which is followed by a phone call and then further communication as necessary. Because Pulse’s no read process begins after three

months without actual readings, it is likely that some ICPs supplied for shorter periods will not meet the best endeavours requirement.

Readings received from agents and MEPs are imported into PRADA, and then a read for the scheduled read date is transferred to Gentrack. I saw some cases where actual reads were recorded in PRADA but no actual reads were recorded in Gentrack. This is largely due to the reads not corresponding to the scheduled read date in Gentrack, or reads being received after a reading has been estimated for the ICP. The billing team is working to adjust Gentrack's schedules each month to ensure as many actual reads as possible are used.

Pulse provided a report which contained three ICPs where the period of supply had ended and the ICP did not receive an actual read. I found:

- switches for two of the ICPs had been withdrawn after the report was provided, and the period of supply is continuing
- one had an incorrect status recorded on the registry, and the period of supply is continuing; the incorrect status is recorded as non-compliance in **section 2.1**.

### **Property Power**

Property Power attempts to obtain reads for all ICPs. AMI meter readings are usually received promptly. Property Power sends a notification to Wells when a NHH ICP without AMI metering switches in.

A query is run in Orion to identify any ICPs which have not had an actual read in the previous four months. The ICPs are followed up, and the action taken depends on the reason a read cannot be obtained. On 18 July 2018 the query showed eight ICPs had been unread for at least four months. Because Property Power's no read process begins after at least four months without actual readings, it is likely that some ICPs supplied for shorter periods will not meet the best endeavours requirement.

Three ICPs were unread during the period of supply; all were supplied for less than 68 days. They were primarily unread due to the short period of supply, but in some cases there was also a delay in sending the ICP to Wells.

### **Audit outcome**

Non-compliant

Non-compliance	Description
<p>Audit Ref: 6.8</p> <p>With: Clause 7(1) and (2) Schedule 15.2</p> <p>From: 01-Sep-17</p> <p>To: 18-Jul-18</p>	<p><b><u>Property Power</u></b></p> <p>Three ICPs were unread during the period of supply. Exceptional circumstances did not apply and the best endeavours requirement was not met.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>

Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are moderate as they will ensure that most ICPs will receive a read during the period of supply. Some residual risk remains for ICPs with short periods of supply.</p> <p>The impact is low, because only three ICPs without an actual read during the period of supply were identified.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Refer below		01/09/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
All commissioned CPPL ICPs will be switched out by the end of August, so its processes will no longer pose a breach risk.		01/09/2018	

#### 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 for the months of September 2017 to May 2018 were provided by Pulse, and for October 2017 to May 2018 were provided by Property Power.

A sample of ten (or all if less than 10) 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

##### Pulse

As discussed in **section 6.8**, there are now processes in place monitor read attainment, and attempt to resolve issues preventing read attainment.

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
Sep 17	176	34	50	99.9%
Oct 17	177	35	53	99.9%
Nov 17	177	46	75	99.9%
Dec 17	177	49	79	99.9%
Jan 18	177	49	81	99.9%
Feb 18	178	58	98	99.9%
Mar 18	179	52	94	99.9%
Apr 18	179	54	92	99.9%

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.

- One ICP was vacant, and exceptional circumstances existed.
- For the other nine ICPs, exceptional circumstances did not apply, and the best endeavours requirements were not met.

Meter reading frequency reports are scheduled to be submitted to the EA by business day 20. Copies of the reports for September 2017 to March 2018 were provided during the audit. I viewed emails to confirm that the reports were sent earlier than 20 business days after the end of the month.

### **Property Power**

As discussed in **section 6.8**, there are processes in place monitor read attainment, and attempt to resolve issues preventing read attainment.

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
Oct 17	23	0	0	100%
Nov 17	23	0	0	100%
Dec 17	23	0	0	100%
Jan 18	23	0	0	100%
Feb 18	23	1	1	99.8%
Mar 18	24	1	2	99.7%

Month	Total NSPs where ICPs were supplied > 12 months	NSPs <100% read	ICPs unread for 12 months	Overall percentage read
Apr 18	24	1	1	99.8%
May 18	24	0	0	100%

I reviewed all ICPs not read in the previous 12 months determine whether exceptional circumstances existed, and if Property Power had used their best endeavours to obtain readings.

- One was disconnected, and the meter was subsequently removed; a reading was not required.
- One was located in an apartment building, and access needed to be arranged with the building manager. Pulse met the best endeavours requirement and the meter has now been read.

The content and format of the meter reading frequency reports is compliant. Some of the reports were not sent by business day 20 due to an oversight. This is recorded as non-compliance below.

#### Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 6.9</p> <p>With: Clause 8(1) and (2) Schedule 15.2</p> <p>From: April 2018</p>	<p><b><u>Pulse</u></b></p> <p>For nine ICPs without an actual read for 12 months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.</p> <p><b><u>Property Power</u></b></p> <p>Some meter reading frequency reports were submitted late.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Once previously</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p>
Audit risk rating	Rationale for audit risk rating
<b>Low</b>	<p>Controls for Pulse were weak to none for October to April 2018 and are now rated as weak. I expect that the controls will improve to moderate once the backlog of unread ICPs have been worked through.</p> <p>Controls are weak for Property Power because submission of the reports is not scheduled to ensure they are submitted on time.</p> <p>The impact is low for Pulse and Property Power, because overall read attainment rates are high.</p>

Actions taken to resolve the issue	Completion date	Remedial action status
Pulse has controls put in place and will be working through the backlogs starting from the oldest and arranging site visit to gain actual reads. Communications to the customers have been attempted.	Ongoing	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>	<b>Completion date</b>	
Process improvement is ongoing. All commissioned CPPL ICPs will be switched out by the end of August, so its processes will no longer pose a breach risk.	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 4 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 metered ICPs.*

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

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

##### Audit observation

The meter reading process was examined. Monthly reports for the months of September 2017 to May 2018 were provided by Pulse, and for October 2017 to May 2018 were provided by Property Power.

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

Property Power achieved compliance for all NSPs.

##### Audit commentary

###### Pulse

As discussed in **section 6.8**, there are now processes in place monitor read attainment, and attempt to resolve issues preventing read attainment.

The monthly meter reading reports provided were reviewed.



Month	Total NSPs where ICPs were supplied > 4 months	NSPs <90% read	ICPs unread for 4 months	Overall percentage read
Sep 17	176	1	454	99.3%
Oct 17	177	2	334	99.5%
Nov 17	177	2	403	99.4%
Dec 17	177	2	512	99.3%
Jan 18	177	2	560	99.2%
Feb 18	178	2	782	98.9%
Mar 18	179	4	815	98.9%
Apr 18	179	2	794	98.9%

Both NSPs where less than 90% of ICPs were read for April 2018 were reviewed. I found that exceptional circumstances did not apply, and the best endeavours requirement was not met to five ICPs.

#### Property Power

As discussed in **section 6.8**, there are processes in place monitor read attainment, and attempt to resolve issues preventing read attainment.

The monthly meter reading reports provided were reviewed. Compliance was achieved for all months reviewed.

Month	Total NSPs where ICPs were supplied > 4 months	NSPs <90% read	ICPs unread for 4 months	Overall percentage read
Oct 17	24	0	8	99.1%
Nov 17	24	0	9	98.9%
Dec 17	24	0	13	98.5%
Jan 18	24	0	17	98.0%
Feb 18	24	0	17	97.9%
Mar 18	24	0	19	97.6%
Apr 18	24	0	14	98.1%
May 18	24	0	9	98.7%

#### **Audit outcome**

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 6.10</p> <p>With: Clause 9(1) and (2) Schedule 15.2</p> <p>From: April 2018</p>	<p><b>Pulse</b></p> <p>For five ICPs without an actual read for 12 months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls were weak to none for October to April 2018 and are now rated as weak. I expect that the controls will improve to moderate once the backlog of unread ICPs have been worked through.</p> <p>The impact is low, because overall read attainment rates are high.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Pulse has controls put in place and will be working through the backlogs starting from the oldest and arranging site visit to gain actual reads. Communications to the customers have been attempted.</p> <p>Process improvement is ongoing.</p>		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Pulse has a weekly report to monitor and process to attain validated reads.</p>		02/07/2018	

#### 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**

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

#### **Audit commentary**

Compliance with this clause has been demonstrated by Pulse's and Property Power's agents and MEPs as part of their own 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 EDM I and AMS. HHR data collection was reviewed as part of their agent audits.

#### **Audit commentary**

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

#### **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 EDM I and AMS. HHR interrogation data requirements were reviewed as part of their agent audits.

#### **Audit commentary**

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

#### **Audit outcome**

Compliant

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

#### **Code reference**

*Clause 11(3) Schedule 15.2*

#### **Code related audit information**

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

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

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

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

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

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

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

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

#### **Audit observation**

HHR data is collected by EDM I and AMS. HHR interrogation log requirements were reviewed as part of their agent audits.

#### **Audit commentary**

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

#### **Audit outcome**

Compliant

## 7. STORING RAW METER DATA

### 7.1. Trading period duration (Clause 13 Schedule 15.2)

#### Code reference

*Clause 13 Schedule 15.2*

#### Code related audit information

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

#### Audit observation

Trading period duration was reviewed as part of the MEP audits, and AMS and EDM's agent audits.

#### Audit commentary

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

#### 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.

#### Audit commentary

Compliance with this clause has been demonstrated by the MEPs and agents.

#### Pulse

Review of audit trails confirmed that reads cannot be modified without an audit trail being created for NHH. Manual audit trail records are maintained for HHR data, this is discussed further in **section 2.4**. Access to modify readings is restricted through log on privileges.

Raw reading files are retained on Pulse's network. I saw evidence that NHH files from 2014 and HHR files from 2013 were still available.

#### Property Power

Review of audit trails confirmed that reads cannot be modified without an audit trail being created for NHH and HHR data, this is discussed further in **section 2.4**. Access to modify readings is restricted through log on privileges.

Raw reading files are retained on Property Power's network, and I saw evidence that NHH and HHR files from when Property Power began trading in 2015 were retained.

#### **Audit outcome**

Compliant

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

#### **Code reference**

*Clause 21(5) Schedule 15.2*

#### **Code related audit information**

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

#### **Audit observation**

Processes to record non-metering information were discussed.

#### **Audit commentary**

No non-metering information is collected by Pulse or Property Power.

#### **Audit outcome**

Compliant

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

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

#### Code reference

Clause 19(1) Schedule 15.2

#### Code related audit information

*If errors are detected during validation of non-half hour meter readings, one of the following must be undertaken:*

*19(1)(a) - confirmation of the original meter reading by carrying out another meter reading*

*19(1)(b) - replacement of the original meter reading by another meter reading (even if the replacement meter reading may be at a different date)*

*19(1)(c) - if the original meter reading cannot be confirmed or replaced by a meter reading from another interrogation, then an estimated reading is substituted, and the estimated reading is marked as an estimate and it is subsequently replaced in accordance with clause 4(2).*

#### Audit observation

Processes for correction of NHH meter readings were reviewed.

#### Audit commentary

##### Pulse

Where errors are detected during the validation process, Pulse may request a check meter reading for meters read by Wells, or review AMI readings for surrounding dates. If an original meter reading cannot be confirmed then an estimated reading is used, which is appropriately labelled.

I reviewed examples of corrections to determine whether they had been processed correctly and flowed through to revision submissions.

##### Defective meters

Where a defective meter is identified a field services job is raised, and the meter is usually replaced. The revenue assurance team calculates an estimated closing read for the affected meter or meters, and the correction is processed by the field services team.

I reviewed four examples of confirmed stopped, unreadable, or defective meters to determine whether consumption had been corrected appropriately:

- for two ICPs, revenue assurance had calculated a reasonable estimated closing read which was correctly applied
- for two ICPs, revenue assurance's estimate was not applied, possibly due to a typo, or another user re-estimating the consumption, this is recorded as non-compliance below.

ICP	Difference (calculated – applied volume)
0081061529TU31A	-70 kWh
0004100603ALAE3	-446 kWh

Estimated closing reads are treated as deleted reads and ignored in Cobra's historic estimate calculation process. This issue is discussed further in **section 12.7**.

### Multipliers

I reviewed two examples of multiplier corrections and confirmed that the multiplier correction was accurately backdated to the gain date in Gentrack for both ICPs.

For ICP 1099570059CNA76, the multiplier correction from 1 to 40 was not backdated to the gain date in Cobra. This is recorded as non-compliance below.

### Inactive ICPs with consumption

Disconnected ICPs with consumption are identified by the reconciliation team's Cobra checks, and by the revenue assurance team using the vacant consumption report. ICPs with confirmed consumption while inactive are passed to the field services team. It is intended that any inactive ICPs with consumption will be returned to active status, and re-disconnected if necessary. I checked a sample of ten inactive ICPs with consumption and found:

- five had been corrected to active status for the period with consumption
- five had not been corrected to active status for the period with consumption.

Of the five ICPs that were not corrected field services had been asked to correct one, but it had been overlooked. They had not received requests to correct the other four.

### Bridged meters

Three bridged meters were identified during the audit period, but no corrections were processed. This is recorded as non-compliance below.

ICP	Bridged period
0000021999WE275	Sep 17-Oct 17
0232520003LCAEC	17/1-5/2/18
0075322263WE44A	8/2-13/2/18

### Transposed meter readings

One example of transposed meter readings was checked and found to be processed correctly.

Transposed meter readings for new switch ins have sometimes been corrected without advising the switching team that a read change request may be required. This has led to the late issue of some RR files and is discussed further in **section 4.4**.

### Unmetered load

Cobra reports unmetered load based on the registry daily unmetered kWh and active ICP days.

ICPs 0000046311NTBD0 and 0007175794RN1C7 had unmetered load indicated by the distributor, but the unmetered flag was set to no and the daily unmetered kWh was not populated. Pulse confirmed that unmetered load was connected. Backdated updates to the registry and Gentrack were completed during the audit, however the unmetered load for ICP 0007175794RN1C7 was incorrectly updated to 0.173. Pulse intends to correct this to 0.175.

Revision submissions will be created based on the revised registry information, which is refreshed in Cobra prior to each reconciliation submission.



### **Property Power**

No examples of defective meters, bridged meters, incorrect unmetered load, incorrect multipliers, or transposed reads were identified during the audit period. Property Power is aware that corrections are required if these events occur and has processes in place for correction.

### **Inactive ICPs with consumption**

Inactive ICPs with consumption are identified by JCC prior to business day 4 and business day 13 reconciliation submissions. A list of any affected ICPs is provided to Property Power, who correct the status back to active effective from the date that the consumption began.

### **Audit outcome**

Non-compliant

<b>Non-compliance</b>	<b>Description</b>
<p>Audit Ref: 8.1</p> <p>With: Clause 19(1) Schedule 15.2</p> <p>From: 01-Sep-17 To: 18-Jul-18</p>	<p><b><u>Pulse</u></b></p> <p>Two corrections for defective meters were not processed using the reads provided by revenue assurance.</p> <p>One correction for a multiplier was not backdated to the correct date in Cobra. The multiplier is now correctly backdated.</p> <p>Five corrections for inactive ICPs with consumption had not been processed.</p> <p>Three bridged meters did not have corrections processed.</p> <p>One unmetered load correction was not processed accurately.</p> <p>Potential impact: Medium</p> <p>Actual impact: Unknown</p> <p>Audit history: Once previously</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p>
<b>Audit risk rating</b>	<b>Rationale for audit risk rating</b>
<p><b>Low</b></p>	<p>Controls are rated as weak as they are unlikely to mitigate the risk of incorrect data. Processes are in place to identify corrections required, but they are not consistently followed through to completion. There have been delays in both identifying ICPs requiring correction, and processing corrections.</p> <p>The impact is difficult to quantify but is estimated to be low based on the corrections reviewed during the audit.</p>

Actions taken to resolve the issue	Completion date	Remedial action status
Pulse will follow up on the identified issues and process accordingly for corrections.	10/08/2018	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Pulse will review process with relevant teams to identify the breakdown of the workflow.	31/08/2018	

## 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 errors are detected during validation of half hour metering information the correction must be as follows:*

*19(2)(a) - if a check meter or data storage device is installed at the metering installation, data from this source may be substituted*

*19(2)(b) - in the absence of any check meter or data storage device, data may be substituted from another period if the total of all substituted intervals matches the total consumption recorded on the meter, if available, and the pattern of consumption is considered materially similar to the period in error.*

### Audit observation

Processes for correction of HHR meter readings were reviewed.

A sample of three HHR corrections for Pulse and one for Property Power were reviewed.

### Audit commentary

#### Pulse

HHR data correction is completed by Pulse. Pulse has processed corrections for missing data and a backdated change of NSP.

When HHR data is provided, AMS and EDM I confirm whether there are any reads missing. Pulse creates a copy of the raw reading file and calculates an estimate based on the average consumption for the previous month. The values are entered into the copy of the raw reading file and imported into PRADA.

If actual volumes are provided later, the replacement file is imported into PRADA to replace the original data. I confirmed by examining three HHR data corrections that revised data flows through to the relevant submission files for HHR. Two of the corrections were replacement of estimated data with actual and one related to an NSP correction.

System audit trails do not exist for HHR corrections. This is recorded as non-compliance in **section 2.4**.

#### Property Power

Property Power replaces estimated data where actual data becomes available at a later date. There were no examples of corrections to actual data during the audit period.

I reviewed one example where estimated data had been replaced with actual during the audit period, and the process is compliant.

#### 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

*If error compensation and loss compensation are carried out as part of the process of determining accurate data, the compensation process must be documented and must comply with audit trail requirements.*

#### Audit observation

Error and loss compensation arrangements were discussed.

#### Audit commentary

##### Pulse

Pulse has calculated losses for metering at generation ICPs and the factor is programmed into the meter. Losses for metering at generation ICPs are calculated by the distributor and programmed into the meter by the certifying ATH.

No ICPs have error or loss compensation applied outside the metering installation.

##### Property Power

Property Power does not deal with any data where error or loss compensation occurs.

#### Audit outcome

Compliant

### 8.4. Correction of HHR and NHH raw meter data (Clause 22(1) and (2) Schedule 15.2)

#### Code reference

Clause 22(1) and (2) 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:*

*22(2)(a) - the date of the correction or alteration*

*22(2)(b) - the time of the correction or alteration*

*22(2)(c) - the operator identifier of the reconciliation participant*

*22(2)(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*

*22(2)(e) - the technique used to arrive at the corrected data*

*22(2)(f) - the reason for the correction or alteration.*

#### **Audit observation**

Corrections are discussed in **sections 8.1** and **8.2**, which confirmed that raw meter data is not overwritten as part of the correction process. Audit trails are discussed in **section 2.4**.

Raw meter data retention was reviewed as part of MEP and agent audits.

#### **Audit commentary**

##### **Pulse**

I reviewed audit trails and supporting calculations for NHH data corrections and noted that they were compliant with the requirements of this clause for the sample of corrections checked.

No system audit trails exist in IMS or PRADA for HHR data. Data is able to be replaced without an audit trail being created. A manual audit trail is kept for HHR data changes such as corrections, but it is not stored with the raw meter data. This is recorded as non-compliance in **section 2.4**.

##### **Property Power**

Audit trails are present in Viper and Orion. Retention of raw metering data is discussed in **section 7.2** and audit trails are discussed in **section 2.4**.

#### **Audit outcome**

Compliant

## 9. ESTIMATING AND VALIDATING VOLUME INFORMATION

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

#### Code reference

Clause 3(3) Schedule 15.2

#### Code related audit information

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

#### Audit observation

A sample of reads and volumes were traced from the source files to Pulse and Property Power'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 8.1** and **8.2**.

#### Audit commentary

Readings are clearly identified as required by this clause for Pulse and Property Power.

As discussed in **section 6.6**, Pulse routinely treats customer and photo readings as actual validated reads for switching and reconciliation purposes. I found that some of these reads were not validated:

- Three customer readings had not been validated against at least two readings from another source and should not have been treated as validated reads.
- A further four customer and photo readings which had not been validated against at least two readings from another source had been used to support RRs.

#### Audit outcome

Compliant

Non-compliance	Description
Audit Ref: 9.1 With: Clause 3(3) Schedule 15.2  From: 01-Sep-17 To: 18-Jul-18	<b>Pulse</b> Seven customer and photo reads were treated as validated, when they had not been validated against at least two actual reads from other sources.  Potential impact: Low Actual impact: Low  Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
<b>Low</b>	The controls are assessed to be moderate and the impact is assessed to be low.  The number of customer reads not validated against actual reads is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Pulse will review the process and include further validations to ensure customer reads are validated against two actual reads from other sources.	28/09/2018	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
As above.  Where customer (or any) readings present negative consumption or material update volume ( $\geq 150\%$ ), Cobra presents a validation error. These are manually reviewed by the Reconciliation Team, and marked as ignored where they do not match adjacent readings. We believe this to be a stronger control than presented during the audit.	28/09/2018	

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

### Code reference

Clause 3(4) Schedule 15.2

### Code related audit information

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

3(4)(a) - validated meter readings

3(4)(b) - estimated readings

3(4)(c) - permanent estimates.

### Audit observation

A sample of submission data was reviewed in **sections 11** and **12**, to confirm that volume was based on readings as required.

### Audit commentary

#### Pulse

Review of submission data confirmed that it is based on readings as required by this clause.

In some cases, validated meter readings or permanent estimates that should have been used to derive volume where not applied; this is recorded as non-compliance in **section 12.7**.

#### Property Power

Review of submission data confirmed that it is based on readings as required by this clause.

### Audit outcome

Compliant

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

#### Code reference

Clause 3(5) Schedule 15.2

#### Code related audit information

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

#### Audit observation

A sample of submission data was reviewed in **sections 11** and **12**, to confirm that volume was based on readings as required.

NHH data is collected by MEPs and agents, and HHR data is collected by AMS and EDM. Compliance was assessed as part of their MEP and agent audits.

#### Audit commentary

The MEPs retain the raw, unrounded data. Compliance with this clause has been demonstrated by Pulse and Property Power's agents and MEPs as part of their own audits.

#### Pulse

Manual meter readings do not record decimal places and are not rounded or truncated on import into Orion. AMI reads are rounded to the nearest whole unit, and HHR readings are rounded to two decimal places.

#### Property Power

Manual meter readings do not record decimal places and are not rounded or truncated on import into Orion. AMI reads are rounded to the nearest whole unit, and HHR readings are rounded to two decimal places.

#### Audit outcome

Compliant

### 9.4. Half hour estimates (Clause 15 Schedule 15.2)

#### Code reference

Clause 15 Schedule 15.2

#### Code related audit information

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

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

#### Audit observation

The HHR estimate process was examined, and a sample of three estimates were reviewed for Pulse and five estimates were reviewed for Property Power.

Property Power's HH estimation process document was reviewed, and the estimation process was walked through for Pulse and Property Power.

## Audit commentary

### Pulse

The process for HHR estimates is the same as for HHR correction. Pulse creates a copy of the raw reading file and calculates an estimate based on the average consumption for the previous month. The values are entered into the copy of the raw reading file and imported into PRADA.

I reviewed three examples of estimates and found that they were all based on the average daily consumption for the previous month. Two were later replaced with actuals. Pulse used reasonable endeavours to ensure that submitted information was within the percentage specified by the Authority.

I recommend that in situations where only part of a month is missing, Pulse considers the meter readings available and daily average consumption during the period surrounding the missing reads, as well as daily average consumption in the previous month.

Description	Recommendation	Audited party comment	Remedial action
HHR estimates	<b><u>Pulse</u></b> When creating estimates, consider readings and average daily consumption in the current month as well as the previous month's average consumption.	The JCC Viper HHR estimation system considers current month and previous month consumption patterns, and applies the average profile to each day or part of day missing. An estimate reading is required to be placed at the end of a month in absence of an actual reading to give a basis for pro-rata of shape for missing periods.	Identified

### Property Power

HHR estimates are calculated in the Orion system and entered into the Viper database for use in reconciliation submissions. At a high level the process to create estimates is:

1. Enter the raw metering data into Viper.
2. Viper produces a report of missing days of data during the month.
3. A request is made to Orion to produce estimates for the missing days based on the register readings available. If no reads are available, the estimates are based on historic consumption.
4. The estimated days of data are loaded back into Viper.
5. Viper outputs data for all trading periods for the month, which are loaded into Orion.
6. A request is made for Orion to produce estimates for any missing trading periods based on the readings available.
7. All trading period data including estimates is extracted from Orion and reviewed, including comparing the sum of the trading period data to the difference in readings for the month. Scaling is applied where necessary to ensure that the sum of the trading period data is within  $\pm 1$  kWh of the difference between the midnight readings at the beginning and end of the month.
8. The checked and updated data is then imported back into Orion and Viper.
9. A final check is completed to confirm there are no missing days and no missing trading periods.

Five examples of half hour estimates were reviewed. Property Power used reasonable endeavours to ensure that submitted information was within the percentage specified by the Authority.

## Audit outcome

Compliant



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

### Code reference

Clause 16 Schedule 15.2

### Code related audit information

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

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

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

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

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

### Audit observation

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

### Audit commentary

#### Pulse

NHH data is validated by several processes.

#### Meter reader checks

For non-AMI reads collected by Wells, the handheld data input devices perform a localised validation to ensure that the reading is within expected high-low parameters. Readings outside these parameters must be re-entered and acknowledged by the data collector. A meter cannot be skipped without reading unless a reason is entered. Wells is required to identify issues which may affect metering information accuracy, such as stopped or damaged meters, and report this information to Pulse. This is discussed further in **section 6.6**.

#### Read import validation

When the files from PRADA are uploaded into Gentrack there is a check for incorrect dates and file corruption. No issues with invalid formats or file corruption were identified during the audit period. Daily, the billing team checks the status of the imports on Gentrack's file manager transactions screen to confirm they have been successful.

Once imported into Gentrack, reads are available for export to Cobra for reconciliation, and use by other processes such as switching.

#### Billing validation

Billing validations, including validation for high, low, and negative consumption, runs the first night after the reads have been imported. Any readings which pass validation are billed and exceptions are held and reviewed by the billing team the following day. Any exceptions that are approved during the next day are billed the following night, and exceptions that are not approved remain unbilled.

In addition, Gentrack queries are run to identify:

- dual energy customers with only one ICP invoiced - these are manually fixed so that all ICPs can be billed together

- a post billing check identifies any credit invoices over \$200, invoices over \$1500, or instances where days billed are negative.

A final check occurs at the time the invoices are printed by Dataprint. Typically Pulse has identified and corrected any issues before this check is completed. Dataprint sends back a complete list of the printed invoices, and some random checks are conducted prior to bills being sent.

#### Read validations external to Gentrack

During the last audit, a master list of ICPs with zero consumption for three months or more was reviewed and updated weekly. The report was used to confirm whether the zero consumption was correct and identify possible stopped or faulty meters that required replacement. This process was stopped following the implementation of Gentrack 4, and a new report has been developed. This report will identify any ICPs with daily average consumption less than 1kWh, include additional fields to aid review and resolve some issues that were present in the previous report. These checks, along with the billing validations will help to identify bridged consumption.

Vacant ICPs with consumption are identified and investigated by the revenue assurance team. If vacant consumption is genuine, and no customer signs up, the ICP is referred to field services for disconnection.

Disconnected ICPs with consumption are usually identified by the reconciliation team or revenue assurance team and passed to the field services team for correction. It is intended that any inactive ICPs with consumption will be returned to active status, and re-disconnected if necessary. ICPs identified by this process are not consistently being followed through to correction, and this is recorded as non-compliance in **section 8.1**.

#### Cobra read validation

Further validation is completed in the Cobra NHH reconciliation system. If a reading is found to be invalid, it can be marked as invalidated, to prevent it being used in historic estimate calculations. The Cobra validation checks include:

- material update (more than  $\pm 50\%$  difference to the last period)
- negative consumption
- consumption on inactive ICPs
- future dated readings
- no gain read
- no actual read for more than four months (including active and decommissioned ICPs)
- no actual read for more than 12 months (including active and decommissioned ICPs)
- zero consumption per meter register.

Due to the large number of exceptions generated, not all are reviewed and acted upon. Focus is placed on inactive ICPs with consumption, negative consumption and future dated reads. Potential inaccurate consumption is normally flagged as invalid so that forward estimate is created.

#### Property Power

NHH data is validated by several processes.

#### Meter reader checks

For non-AMI reads collected by Wells, the handheld data input devices perform a localised validation to ensure that the reading is within expected high-low parameters. Readings outside these parameters must be re-entered and acknowledged by the data collector. A meter cannot be skipped without reading unless a reason is entered. Wells is required to identify issues which may affect metering information accuracy, such as stopped or damaged meters, and report this information to Property Power. This is discussed further in **section 6.6**.

### Orion validation

NHH meter reading validation occurs in Orion. The following checks are automatically conducted:

1. high consumption
2. low consumption (including zero consumption)
3. unknown site
4. unknown meter
5. duplicate read
6. incorrect date
7. closing read exists
8. read before the opening read
9. rollover reads.

Any exceptions are addressed, and action is taken depending on the type of exception.

### Other validation

Vacant ICPs with consumption were identified by issuing an invoice to the occupier (or vacant) account. This process was stopped in April 2018, and all vacant ICPs switched to Pulse from 1 June 2018.

Disconnected ICPs with consumption are identified by JCC during pre-reconciliation submission checks. This process is discussed further in **section 8.1**.

### **Audit outcome**

Compliant

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

### **Code reference**

*Clause 17 Schedule 15.2*

### **Code related audit information**

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

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

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

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

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

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

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

*17(4)(f) - a review of meter and data storage device event list. Any event that could have affected the integrity of metering data must be investigated.*

### Audit observation

I reviewed the HHR and AMI data validation process, including meter event logs and validation checks. Validation of electronic readings was reviewed as part of the HHR agent audits.

### Audit commentary

Electronic meter reading information is provided to Pulse and Property Power by agents and MEPs. Meters are interrogated regularly, and there is little risk that data can be overwritten. Data is held for a longer period at the meter and can be re-interrogated later if required.

Validation of electronic data was examined as part of the agent audits for EDMl and AMS and found to be compliant.

#### Pulse

HHR and AMI data is validated:

- Pulse checks HHR data for missing days and missing trading periods; if the data cannot be obtained, estimation is conducted as described in **section 9.4**.
- the Gentrack billing process checks for invalid data and compares data to historic consumption patterns.
- AMI data is validated according to the NHH validation process described in **section 9.5**.

Some meter event information is received and reviewed:

- Meter events requiring action are provided by EDMl as Pulse's agent.
- AMS send meter event information via FTP, which is checked periodically - the meter event information is not reviewed regularly.
- Metrix do not provide full meter event reporting but do email information on selected events; the only information that could be located related to clock synchronisation events which did not require action.
- Arc have advised Pulse that they are developing no communications reporting for their AMI meters.
- FCLM recently agreed to provide time change, tampering, reverse power and phase failure events, but do not provide full meter event lists.

#### Property Power

HHR and AMI data is validated:

- Property Power's Viper database completes a sum-check and checks for missing days and missing trading periods; if the data cannot be obtained, estimation is conducted as described in **section 9.4**.
- the Orion billing process checks for invalid data, and compares data to historic consumption patterns.
- AMI data is validated according to the NHH validation process described in **section 9.5**.

Meter events requiring action are provided by EDMl. AMS send meter event information via FTP but it is not reviewed. No metering event information is received from FCLM or Metrix.

### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 9.6</p> <p>With: Clause 17 Schedule 15.2</p> <p>From: 01-Sep-17 To: 18-Jul-18</p>	<p><b><u>Pulse</u></b> Meter event information is not obtained and reviewed for all MEPs.</p> <p><b><u>Property Power</u></b> Meter event information is not obtained and reviewed for all MEPs.</p> <p>Potential impact: Low Actual impact: Low Audit history: Three times previously Controls: Weak Breach risk rating: 3</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are rated as weak as they are insufficient to mitigate risk of non-compliance.</p> <p>The risk rating is low because most issues should be identified through Pulse and Property Power's other read validation processes, and some events are emailed by the MEPs for urgent action.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse will initiate a reporting requirement to collate all meter event information from MEPs to generate a regular report for monitoring and processing.		28/02/2019	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
As above.		28/02/2019	

## 10. PROVISION OF METERING INFORMATION TO THE PRICING MANAGER 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 pricing manager and the grid owner connected to the local network in which the embedded generator is located, half hour metering information in accordance with clause 13.138 in relation to generating plant that is subject to a dispatch instruction:*

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

#### Audit observation

The NSP table on the registry was reviewed.

#### Audit commentary

Pulse and Property Power are not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

#### Audit outcome

Not applicable

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

#### Code reference

Clause 13.137

#### Code related audit information

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

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

#### Audit observation

The NSP table on the registry was reviewed.

#### **Audit commentary**

Pulse and Property Power are not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

#### **Audit outcome**

Not applicable

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

#### **Code reference**

*Clause 13.138*

#### **Code related audit information**

*The generator must provide the information required by clauses 13.136 and 13.137,*

*13.138(1)(a)- adjusted for losses (if any) relative to the grid injection point or, for embedded generators the grid exit point, at which it offered the electricity*

*13.138(1)(b)- in the manner and form that the pricing manager stipulates*

*13.138(1)(c)- by 0500 hours on a trading day for each trading period of the previous trading day.*

*The generator must provide the half-hour metering information required under this clause in accordance with the requirements of Part 15 for the collection of the generator's volume information.*

#### **Audit observation**

The NSP table on the registry was reviewed.

#### **Audit commentary**

Pulse and Property Power are not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

#### **Audit outcome**

Not applicable

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

#### **Code reference**

*Clause 13.140*

#### **Code related audit information**

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

#### **Audit observation**

The NSP table on the registry was reviewed.

#### **Audit commentary**

Pulse and Property Power are not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

**Audit outcome**

Not applicable



## 11. PROVISION OF SUBMISSION INFORMATION FOR RECONCILIATION

### 11.1. Buying and selling notifications (Clause 15.3)

#### Code reference

Clause 15.3

#### Code related audit information

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

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

#### Audit observation

The Pulse registry list report for 1 September 2017 to 11 June 2018, and the Property Power registry list report for 1 September 2017 to 18 June 2018 were reviewed to determine whether any non-standard profiles were used.

#### Audit commentary

##### Pulse

Pulse does not use any non-standard profiles and has not been required to issue any trading notifications.

##### Property Power

Property Power uses the HHR profile. The profile was used prior to 1 September 2017, and no new trading notifications have been required during the audit period.

#### 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 diverse sample of ten NSPs with a small number of ICPs each for Pulse and Property Power to confirm the AV110 ICP days calculation was correct.

I reviewed variances for 18 months of GR100 reports for Pulse, and eight months for Property Power, and investigated any large discrepancies.

### Audit commentary

#### Pulse

The process for the calculation of ICP days was examined by checking ten NSPs with a small number of ICPs. The ICP days calculation was confirmed to be correct.

The following table shows the ICP days difference between Pulse files and the RM return file (GR100) for all revisions provided for 18 months. Negative percentage figures indicate that the Pulse ICP days figures are higher than those contained on the registry. The discrepancies are small and generally stable.

Month	Initial	1-Mth	3-Mth	7-Mth	14-Mth
Dec 2016	-	-	-	-	0.00%
Jan 2017	-	-	-	-0.61%	-
Feb 2017	-	-	-	-0.70%	0.00%
Mar 2017	-0.47%	-0.52%	-0.55%	-0.57%	0.00%
Apr 2017	0.03%	-0.20%	-	-0.25%	-
May 2017	-0.18%	-0.21%	-0.24%	-0.01%	-
Jun 2017	-	-	-0.29%	-0.28%	-
Jul 2017	-0.20%	-	-0.26%	0.00%	-
Aug 2017	-0.27%	-0.31%	-0.33%	0.00%	-
Sep 2017	-0.32%	-0.37%	0.00%	0.00%	-
Oct 2017	-0.23%	-0.30%	-0.24%	0.00%	-
Nov 2017	-0.15%	-0.01%	0.00%	-	-
Dec 2017	0.01%	-0.04%	0.00%	-	-

Month	Initial	1-Mth	3-Mth	7-Mth	14-Mth
Jan 2018	0.04%	0.00%	0.00%	-	-
Feb 2018	0.00%	-0.01%	0.00%	-	-
Mar 2018	-0.01%	-0.01%	-	-	-
Apr 2018	-0.02%	-0.01%	-	-	-
May 2018	0.00%	-	-	-	-

The 2017 audit found that ICPs with an installation type “G” (generation) were incorrectly included in Pulse’s AV110 ICP days reports. Only ICPs with installation type “B” (both) or “L” (load) are expected to be included. I confirmed that this issue has been resolved, by checking AV110 submissions for ICPs with installation type G.

#### Property Power

HHR ICP days are calculated in the RM tool. NHH ICP days are calculated by JCC based on registry list information. The same registry list information is used to validate the NHH submissions.

The process for the calculation of ICP days was examined by checking ten NSPs with a small number of ICPs. The ICP days calculation was confirmed to be correct.

The following table shows the ICP days difference between Property Power files and the RM return file (GR100) for all revisions provided for eight months. Negative percentage figures indicate that the Property Power ICP days figures are higher than those contained on the registry.

Month	Initial	1-Mth	3-Mth	7-Mth	14-Mth
Sep 2017	-0.13%	-0.06%	-0.01%	0.00%	-
Oct 2017	-0.23%	-0.18%	-0.11%	-0.11%	-
Nov 2017	-0.41%	-0.32%	-0.07%	-	-
Dec 2017	-0.23%	0.04%	0.00%	-	-
Jan 2018	-0.10%	-0.01%	-0.01%	-	-
Feb 2018	0.00%	0.07%	0.00%	-	-
Mar 2018	-0.21%	0.06%	-	-	-
Apr 2018	-0.23%	-0.08%	-	-	-

Although the percentages fluctuate, the difference in days is small. Differences over 30 days at NSP level were reviewed and appear to relate to backdated switches and registry updates.

#### 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 electricity supplied was examined by checking five NSPs with a small number of ICPs each for Pulse and Property Power to confirm the AV120 billed calculation was correct.

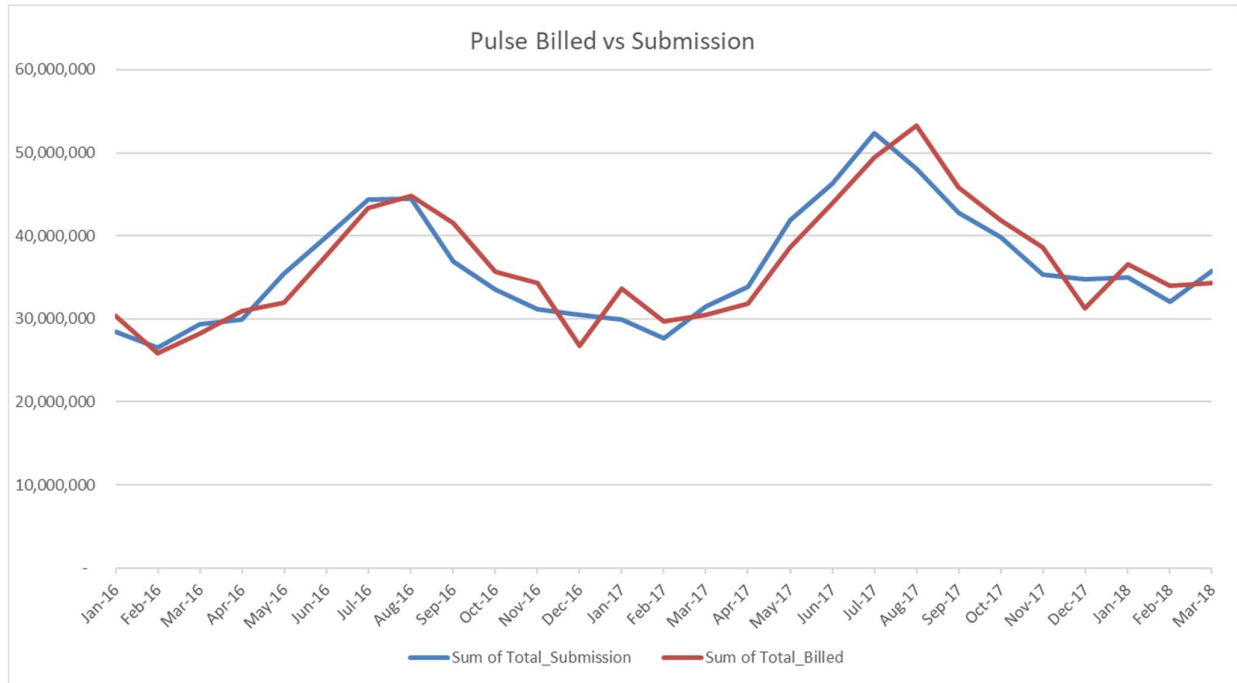
GR130 reports for January 2016 onwards were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

#### Audit commentary

##### Pulse

The accuracy of the NHH and HHR electricity supplied information was checked by examining five NSPs with a small volume and checking all invoices in Gentrack. Compliance is confirmed.

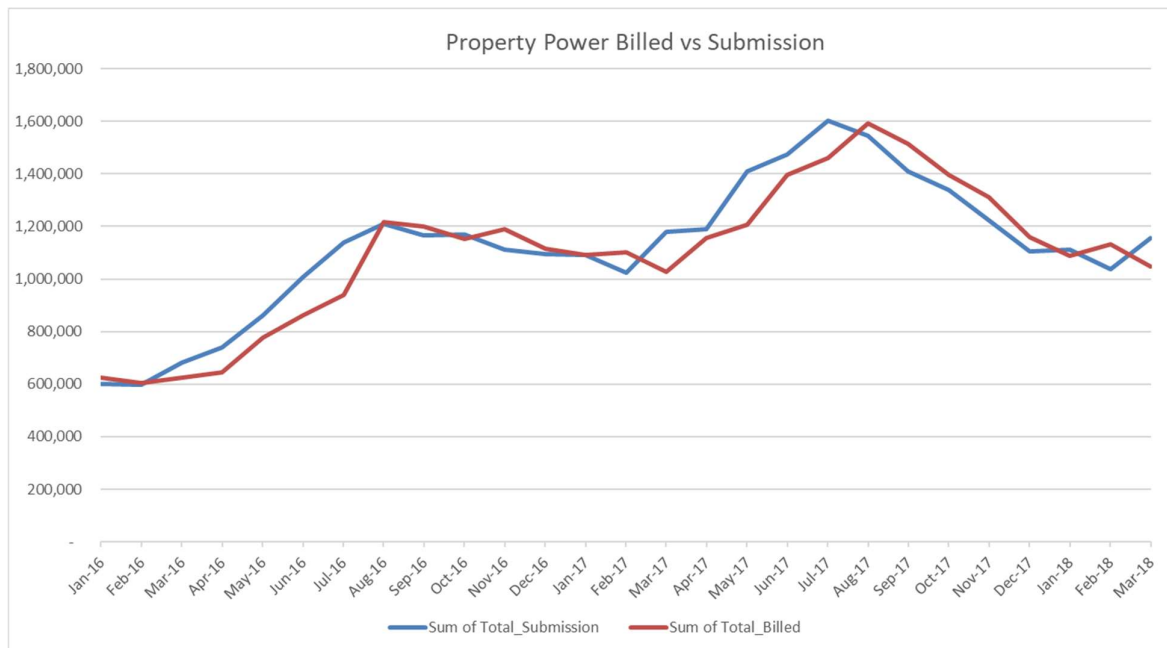
The chart below shows a comparison between submissions and electricity supplied information. At an aggregate level, submitted data is 0.8% lower than billed data for the two years ended March 2018 and 0.31% lower than billed data for the year ended March 2018. The differences were reviewed, and primarily relate to timing differences between the billed and submitted data.



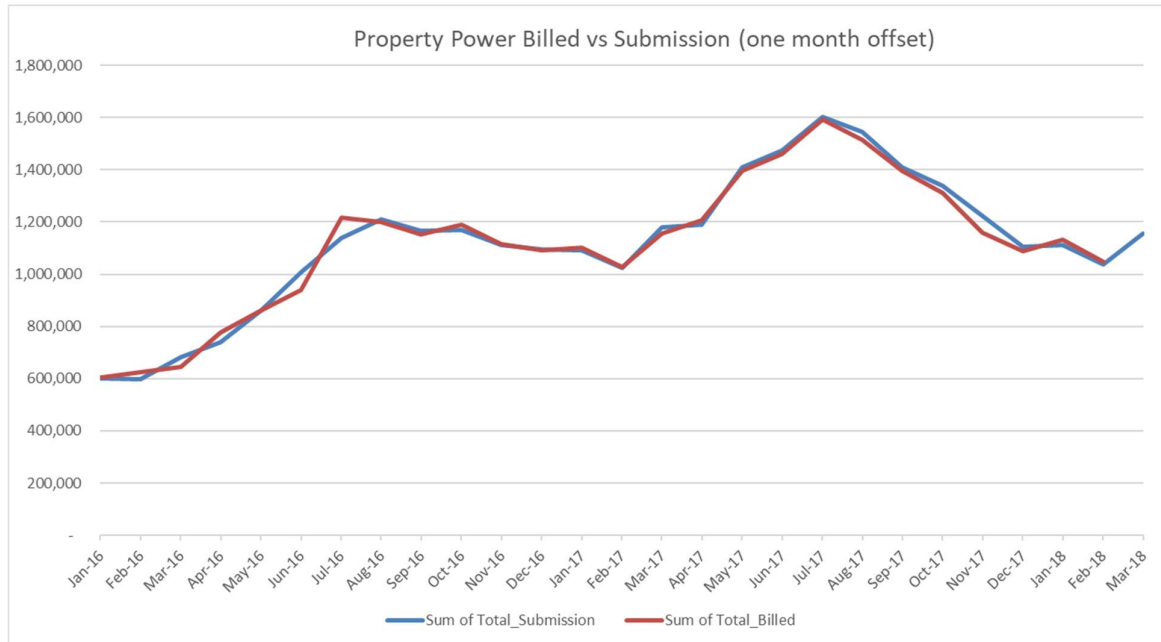
### **Property Power**

The accuracy of the NHH and HHR electricity supplied information was checked by examining five NSPs with a small volume and checking all invoices in Orion. Compliance is confirmed.

The chart below shows a comparison between submissions and electricity supplied information. At an aggregate level, submitted data is 0.9% higher than billed data for the year ended March 2018 and 2.4% lower than billed data for the two years ended March 2018.



The differences were reviewed, and primarily relate to timing differences between the billed and submitted data. When the billed and submission periods are aligned, the shape is very close.



## Audit outcome

Compliant

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

### Code reference

Clause 15.8

### Code related audit information

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

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

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

### Audit observation

I confirmed that the process for the calculation and aggregation of HHR data is correct, by matching HHR aggregates information with the HHR volumes data for 12 submissions. I traced volumes for one month for a sample of nine HHR ICPs and submissions from the source files to PRADA and the HHR aggregates.

GR090 ICP Missing files were examined for July 2016 to April 2018 for Pulse, and September 2017 to April 2018 for Property Power. All missing ICPs were checked.

### Audit commentary

#### Pulse

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

Pulse migrated from IMS to PRADA for HHR reconciliation from April 2018.

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 12 submissions. I traced volumes for one month for a sample of nine HHR ICPs and submissions from the source files to PRADA and the HHR aggregates submissions. All reads and volumes matched the source files.

GR090 ICP Missing files were examined for all revisions for July 2016 to April 2018. All ICPs missing were reviewed:

- three missing ICPs were caused by backdated changes to submission type, and Pulse's aggregates submissions were correct
- one missing ICP was caused by a change of NSP; the data was reported against the correct NSP by revision one
- one difference related to an inactive ICP, which was included in the aggregates but missing from the registry; Pulse no longer submits data for inactive ICPs.

#### **Property Power**

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

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 13 submissions and matching one month's volumes for one ICP for each MEP and agent to the source files.

GR090 ICP Missing files were examined for all revisions for September 2017 to April 2018. No ICPs were found to be missing from the registry or the submissions.

#### **Audit outcome**

Non-compliant

Non-compliance	Description
Audit Ref: 11.4 With: Clause 15.8  From: 01-Sep-17 To: 18-Jul-18	<b><u>Pulse</u></b> HHR aggregates files do not contain electricity supplied information. <b><u>Property Power</u></b> HHR aggregates files do not contain electricity supplied information.  Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The issue relating to content of the aggregates file is an error in the code, Pulse and Property Power are providing submission information as expected.		
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse support a change of the Code to better reflect the submission information rather than electricity supplied.		-	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
An option could be to submit the aggregate volume one month later (as it is invoiced to the customer after the trading month has ended), however Pulse will continue to provide information based on aggregation of HHR load and generation volumes for the trading month.		-	



## 12. SUBMISSION COMPUTATION

### 12.1. Daylight saving adjustment (Clause 15.36)

#### Code reference

Clause 15.36

#### Code related audit information

*The reconciliation participant must provide submission information to the reconciliation manager that is adjusted for NZDT using 1 of the techniques set out in clause 15.36(3) specified by the Authority.*

#### Audit observation

Daylight savings processes for MEPs and agents were reviewed as part of their audits.

A diverse characteristics sample of ten daylight savings adjustments were reviewed for Pulse, and six were reviewed for Property Power, covering changes to and from daylight savings, each agent, and generation consumption.

#### Audit commentary

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

All HHR data provided to Pulse and Property Power is daylight savings adjusted using the "trading period run on" technique. This was confirmed by checking the files for the start and end of daylight saving. The correct number of trading periods were recorded in all cases.

#### 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

The process to create submissions was reviewed.

#### Pulse

- NHH submissions are created using Cobra. A diverse sample of NHH ICPs were checked to confirm submissions were correct. Further information on calculation of historic estimate is

recorded in **section 12.11**, and the aggregation of the AV080 report was found to be compliant in **section 12.3**.

- HHR submissions were created in IMS and are now created using PRADA. HHR submissions are discussed in **section 11.4**.
- NSP volumes submissions are created manually. NSP volumes submissions are discussed in **section 12.6**.
- Alleged breaches were reviewed to determine whether any reconciliation submissions were late.

#### **Property Power**

- NHH submissions are created by JCC as an agent. A diverse sample of NHH ICPs were checked to confirm submissions were correct. Further information on calculation of historic estimate is recorded in **section 12.11**, and the aggregation of the AV080 report was found to be compliant in **section 12.3**.
- HHR submissions are created using the JCC developed Viper database. HHR submissions are discussed in **section 11.4**.
- Alleged breaches were reviewed to determine whether any reconciliation submissions were late.

#### **Audit commentary**

##### **Pulse**

Pulse prepares NHH reconciliation submissions using Cobra.

A sample of NHH ICPs were checked to confirm whether they were handled correctly:

- Two ICPs with vacant consumption were checked, and I found that vacant consumption is correctly included in submissions.
- Disconnected ICPs with consumption are only reported if their status is active for at least part of the read period. Corrections to active status were not processed for five of the 10 ICPs checked. This is recorded as non-compliance in **section 8.1**.
- A typical sample of 39 ICPs with distributed generation were checked and found to have generation consumption correctly reported using the PV1 profile.
- A diverse sample of 10 ICPs with unmetered volumes were checked, including standard and shared unmetered load. Two ICPs connected to Bunnythorpe were reported with double the expected unmetered load value. The error occurred because the Bunnythorpe GXP was created with two keys, resulting in the registry daily unmetered kWh being entered twice against the ICP. This issue is discussed further and recorded as non-compliance in **section 12.7**.

Two alleged breaches were recorded for late submission of volume information. This is discussed further in **section 1.6** and recorded as non-compliance below.

##### **Property Power**

Property Power NHH submissions are prepared by JCC as an agent.

A sample of NHH ICPs were checked to confirm whether they were handled correctly:

- Seven ICPs with vacant consumption were checked, and I found that vacant consumption is correctly included in submissions.
- The February 2018 submission for all ICPs with unmetered load were checked; correct consumption was submitted. Property Power calculates readings for each unmetered ICP based on the estimated daily consumption multiplied by the active days between readings.

No ICPs with distributed generation are supplied, and no disconnected ICPs with consumption were identified. I saw evidence that status is corrected to active where consumption occurs while an ICP is disconnected.

No alleged breaches were recorded for late submission of volume information.

#### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 12.2</p> <p>With: Clause 15.4</p> <p>From: January 2018 and April 2018</p>	<p><b>Pulse</b></p> <p>Two breaches were recorded for late provision of submission information.</p> <p>Potential impact: High</p> <p>Actual impact: Unknown</p> <p>Audit history: Multiple times</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p>		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are assessed to be moderate and the impact low, based on the EA's decision to decline to pursue the breaches without warning.		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>We have improved the speed of the NHH reconciliation system by 4.5x, resulting in greater time available to check and re-run submissions ahead of day 4 and day 13. In addition, additional checks are placed on the data supplied to the system.</p> <p>We continue to improve the quality of the base reconciliation data populated in Gentrack so that eventually it may be used for NZX submission generation.</p>		Apr 2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Continuous improvement		Ongoing	

### 12.3. Allocation of submission information (Clause 15.5)

#### Code reference

Clause 15.5

#### Code related audit information

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

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

#### Audit observation

Processes to ensure that information used to aggregate the reconciliation reports is consistent with the registry were reviewed in **section 2.1**.

The processes to ensure that submissions are accurate were discussed and observed, including review of reports used in the process.

The process for aggregating the AV080 was examined by checking five NSPs with a small number of ICPs each for Pulse and Property Power. The GR170 to AV080 files for a diverse sample of six months and revisions were compared for Pulse, and seven months and revisions were compared for Property Power, to confirm zeroing occurs.

#### Audit commentary

##### Pulse

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 not consistently being identified and resolved, as discussed in **section 2.1**.

The process for the calculation of NHH volumes was examined by checking five NSPs with a small number of ICPs. NHH volume aggregation was confirmed to be correct.

Cobra automatically inserts zero lines where consumption has been reported in a previous revision but is not present in the current revision. GR170 and AV080 files were compared for a diverse sample of six months and revisions, which confirmed that zeroing is occurring.

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

Pulse has validation processes to ensure that submissions are correct. HHR and NHH volume and ICP days submissions are validated together, using queries from the Vanadium SQL database. The queries compare the volumes and ICP days to previous months (for initial submissions) and previous revisions (for revision submissions). Differences are generally reviewed at total and balancing area level, including a check for differences between revisions of more than  $\pm 100,000$  kWh and  $\pm 15\%$ . If anomalies are found, GXP level and ICP level data is reviewed. Due to the size and spread of Pulse's customer base, accuracy issues may not result in breaches of the balancing area thresholds.

Since January 2018, JCC has been contracted to review NHH data prior to submission for any reporting month after Gentrack 4 went live. JCC has also been assisting Pulse with investigating some of the submission accuracy issues discussed in **section 12.7**. JCC's pre-submission review includes:

- ICPs where aggregation factors are inconsistent with the registry
- excessively high consumption
- missing consumption or ICPs; and
- meter record mismatches.

Exceptions identified are referred back to Pulse’s reconciliation team for investigation and resolution.

#### **Property Power**

JCC refreshes reconciliation data from the registry immediately prior to running reconciliation reports to ensure that aggregation factors and statuses are correct. Discrepancies between Orion and the registry are identified through the registry validation process described in **section 2.1**.

The process for the calculation of NHH volumes was examined by checking five NSPs with a small number of ICPs. NHH volume aggregation was confirmed to be correct.

Comparison of the AV080 and GR170 for seven months and revisions confirmed that the same NSPs were included, and zeroing occurs as required.

JCC provides a copy of reconciliation submissions to Property Power. Property Power staff check the submission data for reasonableness, and query any issues found with JCC. These checks are largely at an aggregate level, and issues for individual ICPs can be missed if the total volume submitted looks reasonable. I found that for some months with significant seasonal changes ICPs with consumption issues were not detected prior to the initial allocation. This is discussed further in **section 12.12**.

HHR processes ensure that volumes are submitted for every NSP with active ICPs.

#### **Audit outcome**

Compliant

### **12.4. Grid owner volumes information (Clause 15.9)**

#### **Code reference**

*Clause 15.9*

#### **Code related audit information**

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

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

#### **Audit observation**

The NSP table was reviewed to confirm whether Pulse or Property Power is responsible for any GIPs.

#### **Audit commentary**

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

#### **Audit outcome**

Not applicable

## 12.5. Provision of NSP submission information (Clause 15.10)

### Code reference

Clause 15.10

### Code related audit information

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

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

### Audit observation

A registry list was reviewed to confirm that Pulse and Property Power do not own any local or embedded networks.

### Audit commentary

Pulse and Property Power are not required to provide NSP submission information.

### Audit outcome

Not applicable

## 12.6. Grid connected generation (Clause 15.11)

### Code reference

Clause 15.11

### Code related audit information

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

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

### Audit observation

#### Pulse

Pulse's process to create AV130 (NSP volume information) was walked through. AV130 submissions were matched to the source meter data received for March, April, and May 2018.

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

#### Property Power

Property Power is not required to create AV130 submissions.

## Audit commentary

### Pulse

Pulse creates AV130 submissions for grid connected generation at ANI0331, as an agent to BOPE.

Nova emails volumes to Pulse as a CSV file. The CSV file is opened in Excel and a pivot table is used to group the data by day and trading period. The data is copied into a new file, and a header row is added. The file is saved and submitted to the reconciliation manager.

AV130 submissions were matched to the source meter data received for March, April and May 2018; all matched.

Pulse confirmed that the AV130 was affected by the breach for late submission information recorded for April 2018. This is discussed further in **section 1.6** and recorded as non-compliance below.

### Property Power

Not applicable.

## Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 12.6 With: Clause 15.11  From: April 2018	<u><b>Pulse</b></u> A breach was recorded for late provision of submission information.  Potential impact: High Actual impact: Unknown Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The controls are assessed to be moderate and the impact low, based on the EA's decision to decline to pursue the breach without warning.		
Actions taken to resolve the issue		Completion date	Remedial action status
NSP volume file(s) are now submitted ahead of NHH and HHR files where an issue is found with other files. This reduces the impact on the Reconciliation Manager and other parties.		05/07/2018	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Speed of submission process is enhanced, allowing greater time to review and correct submission information. Where file upload issues occur, other files are transmitted prior to addressing file upload issues.	05/07/2018	

## 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

The accuracy of submission information was reviewed, including a review of corrections in **sections 8.1** and **8.2**.

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

### Audit commentary

#### Pulse

Some submission data accuracy issues have been identified by Pulse since upgrading its billing system:



Issue	Description	Affects	Risk and Implications	Action to work around or resolve the issue
Null and incorrect register content codes	<p>Gentrack 4 has two fields for meter register content; one is used for billing, the other for reconciliation.</p> <p>These fields are not linked, and the data contained within them is inconsistent. The reconciliation register content is not mandatory.</p>	NHH	<p>Cobra relies on Gentrack for reconciliation register content codes, readings, and meter start and end dates.</p> <p><u>Missing content codes</u></p> <p>While the meters are physically present in Cobra, no historic estimate is calculated (because the registers were filtered out of the Cobra feeding process), and no forward estimate is calculated (because no register is present to assign the forward estimate to).</p> <p>At worst there were 835 ICPs missing from one initial submission.</p> <p><u>Inaccurate content codes</u></p> <p>Where no reads are present, forward estimate may be calculated based on average consumption for the wrong meter type and period of availability.</p>	<p>The issue was identified in January 2018, when the October 2017 3-month wash up created using Gentrack 4 information was compared to the October 2017 initial submission created using Gentrack 3.8 information. Until revision 3, the issue had not been obvious because customer acquisitions and seasonal changes had masked the issue.</p> <p>The number of ICPs missing is reducing with each revision as Pulse continues correct the reconciliation register content codes, by reconciling the data to the registry meter installation details report.</p> <p>Since January 2018 JCC has been contracted to assist with investigating this issue and reviewing data prior to submission for any submission month after Gentrack 4 went live. JCC's review includes:</p> <ul style="list-style-type: none"> <li>• ICPs where aggregation factors are inconsistent with the registry,</li> <li>• excessively high consumption,</li> <li>• missing consumption or ICPs; and</li> <li>• meter record mismatches.</li> </ul> <p>Exceptions identified are referred back to Pulse for investigation and resolution.</p>
Incorrect meter numbering	On 16 July 2018 Pulse identified six ICPs with meters recorded as registers on another meter, and five ICPs with incorrectly numbered meter channels. These ICPs were incorrectly set up in Gentrack 4.	NHH	Incorrectly recorded meter and serial numbers can result in reads being recorded against the wrong meter register.	Work has been undertaken to identify and correct the affected records. The checks and updates are ongoing.

Issue	Description	Affects	Risk and Implications	Action to work around or resolve the issue
Trader profiles	Trader profiles are not mandatory in Gentrack 4, or reconciled to the registry.	NHH	Reconciliation consumption may not be reported, or may be reported against an incorrect profile.	Cobra automatically applies RPS profile for NHH ICPs, and PV1 profile to EG meters with generation consumption.  Pulse is working to resolve registry profile mismatches in Gentrack.
Deleted meter channels	When a meter channel is set up in error in Gentrack, it is deleted and given status "99". 2,431 deleted meters have this status.  Meter channels with status "99" are sent to Cobra for reconciliation.	NHH	Because no reads were received for the deleted meters, Cobra applied forward estimate based on the register content and period of availability according to the forward estimate process described in <b>section 12.12</b> .	A script is run daily in Cobra to remove the reconciliation consumption for these meters. I walked through the process and viewed the script, which sets the end date and deletes the reconciliation estimation results where meter status is "99".
Meter channels with submission flag set to no	Meters channels with submission flag N are sent to Cobra for reconciliation.	NHH	If not corrected, reconciliation consumption will be submitted for these meters in error.  Registers with submission type N most commonly occurs for meters where one channel records the total consumption across the other channels.	Since the issue was discovered these channels have manually been removed from submissions for the Lines Company network by:  <ol style="list-style-type: none"> <li>1. Identifying all meters with submission type N, and confirming that the meter content codes are as expected.</li> <li>2. Aggregating the consumption for the affected meter channels by AV080 submission row.</li> <li>3. Deducting aggregated consumption from the affected row of the AV080 report.</li> </ol> <p>I walked through the process to adjust submissions, and found that appropriate checks and balances are applied to ensure that consumption is deducted correctly. Pulse intends to automate this process.</p> <p>ICPs outside the Lines Company network were not checked and adjusted at the time of the audit. Following the audit, Pulse completed further investigation and found 28 ICPs outside the Lines</p>

Issue	Description	Affects	Risk and Implications	Action to work around or resolve the issue
				Company network were affected, and has end-dated these registers in Cobra, using the deleted channel process. Pulse intends to run this process prior to business day 13 each month, until the submission status in Gentrack is fully populated and validated.
Treatment of readings in Gentrack and Cobra	<p>Some issues with readings used as inputs into the reconciliation process were identified.</p> <p><u>Estimated closing reads</u></p> <p>Cobra's processes were changed in January 2018 to automatically delete some estimated reads, including estimated closing reads.</p> <p><u>Switch in reads</u></p> <p>Gentrack automatically records switch in reads against the day before the ICP became active with Pulse. This process ensures that Gentrack's own reconciliation process (not currently used by Pulse) applies shape values correctly for the first day of supply. Cobra currently ignores any reads that occur before the first day the ICP is active with Pulse.</p> <p><u>Accepted RR reads</u></p> <p>Accepted RR readings are only transferred to Cobra if entered as consumption records in Gentrack 4.</p>	NHH	<p><u>Estimated closing reads</u></p> <p>Deleted estimated closing reads are ignored by the reconciliation process and forward estimate is created. This issue affects all deleted estimated closing reads, including switch reads.</p> <p><u>Switch in reads</u></p> <p>Cobra only includes reads that occur on or after the first day the ICP was active with Pulse in its historic estimate calculations. Switch in reads recorded the day before the switch in date by Gentrack are ignored, and consumption is calculated from the first actual read received after switch in, with default volume applied to the balance of the period.</p> <p><u>Accepted RR reads</u></p> <p>If the reads are entered into the invoice history but not the consumption records they are not transferred to Cobra and are ignored by the reconciliation process.</p> <p>This means that the losing and gaining trader will not be applying the same switch reading.</p>	<p><u>Estimated closing reads</u></p> <p>The issue can be corrected for individual ICPs by adjusting the read flag. Following the audit, Pulse decided to reverse the January 2018 process change.</p> <p><u>Switch in reads</u></p> <p>There is a process in Cobra to identify ICPs without gain reads, but it appears this process is either not identifying all missing gain reads, or not all exceptions identified by the process are being resolved.</p> <p><u>Accepted RR reads</u></p> <p>The reconciliation team tries to detect RRs by identifying negative consumption and checking the registry to determine whether an RR has been issued. This check will not detect instances where the switch read has been too low, have been initiated by another trader, or readings have caught up to actual reads relatively quickly. I suggest checking the event detail report for "AC" files by update date, to identify all accepted RR files.</p>

Issue	Description	Affects	Risk and Implications	Action to work around or resolve the issue
	<p><u>Customer and photo readings</u></p> <p>Customer and photo readings are routinely treated as validated readings, even if they are not validated.</p>		<p><u>Customer and photo readings</u></p> <p>Unvalidated customer and photo readings are applied as validated readings by the historic estimate process.</p>	<p><u>Customer and photo readings</u></p> <p>If a customer reading fails Cobra's high or low consumption validations it will be invalidated by the reconciliation team.</p> <p>Pulse have been advised that customer and photo readings should only be treated as validated where they have been validated against a set of validated readings from another source.</p>
Duplication of the Bunnythorpe GXP	The Bunnythorpe GXP was created in Cobra with two keys (17 and 18). The GXP was duplicated by a manually loaded NSP mapping table on 20 June 2018.	NHH	<p>When checking submissions for June 2018, Pulse discovered that BPE0331POCO volumes were split across the two NSPs with only one included in the June 2018 initial AV080 submission. According to Pulse's registry list as at 11 June 2018, 948 active NHH ICPs were supplied at Bunnythorpe.</p> <p>For two ICPs with unmetered load connected to Bunnythorpe (0000015716CP194 and 0000033024CP5E6) I saw that unmetered submissions were double the expected amount, and the registry events were duplicated in Cobra.</p>	<p>Data cleansing has eliminated the duplicate NSP. Revised submission information was provided for revision 1.</p> <p>I recommend that Pulse considers adding a check of unmetered load, after duplicate unmetered load was discovered at Bunnythorpe during the audit.</p>
Corrections not processed, or processed inaccurately	<p>A small number of accuracy issues occurred because corrections had not been processed accurately. This is discussed further in <b>section 8.1</b>:</p> <p>Two corrections were not processed using the reads calculated by revenue assurance.</p> <p>One multiplier correction was not accurately backdated in Cobra. The multiplier is now correctly backdated.</p>	NHH	Inaccurate submission.	Pulse's normal correction processes.

Issue	Description	Affects	Risk and Implications	Action to work around or resolve the issue
	<p>Five ICPs with inactive consumption had not been corrected to active status for the period with consumption.</p> <p>Three corrections for bridged meters had not been processed.</p>			
Incorrect statuses	There are some status discrepancies between Gentrack and the registry as described in <b>sections 2.1, 3.8 and 3.9</b> .	NHH HHR	Reconciliation submissions are based on registry status and this has led to some ICPs being incorrectly included in or excluded from submissions.	Pulse is working through identifying and correcting ICPs with incorrect statuses.
Daylight savings adjustment error	<p>Incorrect processing of the transition between NZDT and NZST in PRADA resulted in meter readings being attributed to an incorrect day and reimported into Pulse's systems. The error was not caused by an automated process; the adjustment was initiated manually when the timestamps were found to be inconsistent.</p> <p>The incorrect processing resulted in identical readings being recorded on 1 April and 31 March with zero consumption in between, leading to inaccurate submission data being calculated in Cobra.</p>	NHH	Breach 1801PEAL1 (24/01/18) was recorded. The EA declined to pursue without a warning being issued.	The issue was identified and corrected, and revised data was submitted based on Gentrack 4's reconciliation results.
Revision submissions were not provided in January 2018	Revision submissions were not provided in January 2018 while data accuracy issues were investigated.	NHH NSP Vols	Breach 1804PEAL1 (12/04/18) was recorded. The EA declined to pursue without a warning being issued.	Wash ups were provided for the missing revisions 1, 3 and 7. No wash up was provided for the missed revision 14 because there was no further opportunity to submit.

The following recommendations may help to improve submission accuracy:

Description	Recommendation	Audited party comment	Remedial action
Identification of accepted RRs	<p><b>Pulse</b></p> <p>To make sure agreed switch reads are applied, use the registry event detail report to identify all AC files accepting the RR. The report should be run by update date to ensure that backdated RR acceptances are identified.</p> <p>Accepted RRs will need to have their reads checked and/or updated in Cobra.</p>	<p>Given that RR's do not appear in the meter register history, Pulse is investigating options to include accepted (received and transmitted) RR's using the Data Warehouse.</p> <p>Where start readings cause reading validation errors, they are revised manually to reflect RR's received in Registry or reflect following reading where negative volume is reported and volume is less than 200kWh.</p>	Investigating

Description	Recommendation	Audited party comment	Remedial action
Submission flag N adjustment	<p><b>Pulse</b></p> <p>Investigate whether meters channels outside the Lines Company Network have submission flags set to N, and adjust the process as necessary.</p>	<p>.3GWh of additional volume was submitted on LINE network for May 2018 initial submission. This was subsequently washed-up on revision 1.</p> <p>In February 2018 the metering change notification process was enabled in Gentrack. Non settlement meter registers are populated in Gentrack as the MEP's update metering records on Registry. FCLM has subsequently updated LINE metering channels, resulting in notification files being transmitted to Gentrack. The additional registers not used for billing or settlement or switching, have subsequently been populated. The Cobra reconciliation system does not currently rely on settlement indicator within Gentrack as this information is yet to be fully populated and validated.</p> <p>A correction is applied to each market submission before we chose to use the non-settlement register flags in Gentrack.</p> <p>The "N" settlement indicator meter registers are now marked as "end dated", and are reviewed prior to day 13 each submission</p>	Identified

Description	Recommendation	Audited party comment	Remedial action
Pre-submission review by JCC	<b><u>Pulse</u></b> Investigate expanding the review to include a check of unmetered load.	ICP UML checks are added to the meter register level checks be performed for each submission starting day 4 August 2018.	Identified

### **Property Power**

One submission accuracy issue was identified for Property Power during the audit period.

Consumption for 0000637896UN4A8 was overstated in the September 2017 initial allocation submission. The last day of the month fell on a Saturday, and at that time AMS was not providing HH readings on weekends. The HERM file was used, which aggregated the night and day readings for the ICP and recorded them against the first register. The error was identified and corrected by revision 1.

### **Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 12.7 With: Clause 15.12  From: 01-Sep-17 To: 18-Jul-18	<b><u>Pulse</u></b> Some submission information was inaccurate.  <b><u>Property Power</u></b> Submission information for one ICP was inaccurate in the initial submission.  Potential impact: High Actual impact: Unknown Audit history: None Controls: Weak Breach risk rating: 6		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	Controls are rated as weak because they will not consistently mitigate the risk of inaccurate submission. I note that Pulse has acted to investigate and resolve errors once they are identified, and has enlisted the help of JCC.  The potential impact is assessed to be high, because the issues could have a major impact on settlement outcomes. These issues have already received management attention, and Pulse's corrective actions have reduced this risk to medium. Revised volumes will be submitted using the revision process.		
Actions taken to resolve the issue		Completion date	Remedial action status
Treatment of readings		Closed 20/07/2018	Identified

<p>BPE0331 GXP was duplicated due to a manually loaded NSP map table on 20 June 2018. A data cleanse process has been performed to eliminate the duplicate NSP which had resulted in diluting NSP volume across two identical NSPs.</p> <p>Status Codes</p> <p>The GT4 system has greater levels of automation and integration with registry compared to GT3.8. A programme of data cleansing is underway to ensure all MEPs, Profiles, ANZSIC, GXP, Network and other details are populated accurately.</p> <p>Daylight Savings</p> <p>A timestamp had been determined for NHH readings that are supplied with date only. This timestamp was close to midnight, resulting in transition across the dateline in the data warehouse during a daylight savings event</p> <p>JCC has been brought in to review NHH data at meter register level prior to submission to the Reconciliation Manager. Additional checks are in place to reduce the potential for error.</p> <p>January day 13</p> <p>NHH submission volumes were found to be below expected levels for the day 13 submission revision periods. Computer network issues delayed processing, resulting in late discovery of the volume shortfall.</p> <p>A decision to re-submit prior revisions was undertaken, however this was after the deadline. The missed submissions are being washed up with the exception of the 14 month revision that is finalised using the 7 month revision.</p> <p>RR integration</p> <p>The RR readings are currently applied at invoice rather than register. These are manually replaced by inspecting Registry where negative consumption is reported for new ICPs.</p> <p>Submission Flag</p> <p>The submission flag in registry is in the process of being verified inside the Gentrack database. Prior to GT4, GT3.8 held no settlement indicator data. Registers that were not marked for submission were not billed. Since the implementation of GT4's MENOTIFY system and at the same time as FCLM re-sets its LINE network metering, non-settled registers are being populated within Gentrack.</p>	<p>Ongoing</p> <p>Closed April 2018</p> <p>Closed before 01/02/2018</p> <p>Developing 28/02/2019</p> <p>31/07/2018</p>	
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<p>These are being marked as “Not for settlement, Invoicing or Market”. However the settlement details for “unchanged” meters are not verified (at this time). This is part of an ongoing data quality process.</p> <p>UML</p> <p>John Candy Consulting’s RM Tool will be used for the comparison of unmetered load at ICP level for each submission starting with July 2018 initial.</p>		
Preventative actions taken to ensure no further issues will occur	Completion date	
Treatment of readings	Ongoing	
Pulse is reviewing its import of NSP map data from external sources, and is considering use of the LIS file for NSP mapping of relevant NSPs, networks and reconciliation types.		
Status codes	Ongoing	
Pulse continues to update registry when it finds consumption on de-energised sites. This has been prioritised.		
Daylight Savings	April 2018	
All future NHH meter readings following this event have midday set as the reading time.		
The errant readings are marked as deleted in Cobra.		
January day 13 submission	01/02/2018	
NHH submission volumes were found to be below expected levels for the day 13 submission revision periods. Computer network issues delayed processing, resulting in late discovery of the volume shortfall.		
A decision to re-submit prior revisions was undertaken, however this was after the deadline. John Candy Consulting was subsequently brought in to improve the accuracy of NHH submission data.		
RR integration		
The RR readings are currently applied at invoice rather than register. We are investigating options to collect and store accepted RR’s in the data warehouse to make them available for reconciliation.	ETA 28/02/2018	
Submission Flag		
The submission flag in registry is in the process of being verified inside the Gentrack database. Prior to GT4, GT3.8	31/07/2018	

<p>held no settlement indicator data. Registers that were not marked for submission were not billed. Since the implementation of GT4's MENOTIFY system and at the same time as FCLM re-sets its LINE network metering, non-settled registers are being populated within Gentrack. These are marked as "Not for settlement, Invoicing or Market" in Gentrack, however the settlement details for "unchanged" meters are not verified (at this time). This information is to be updated and validated as part of an ongoing data quality process.</p> <p>UML</p> <p>Unmetered load has been added to the ICP level submission review process</p>	30/07/2018	
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## 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).*

*Volume information created using estimated readings must be subsequently replaced at the earliest opportunity by the reconciliation participant by volume information that has been created using validated meter readings or permanent estimates by, at the latest, the month 14 revision cycle.*

*A permanent estimate may be used in place of a validated meter reading, but only if, despite having used reasonable endeavours; the reconciliation participant has been unable to obtain a validated meter reading.*

### Audit observation

NHH volumes 14 month revisions were reviewed for November 2016 to January 2017 for Pulse and Property Power to identify any forward estimate still existing.

### Audit commentary

#### Pulse

Review of the 14 month revisions for November 2016 to January 2017 showed that not all estimated meter readings had been replaced with validated meter readings or permanent estimates.

Month	Forward estimate at r14
Nov-16	288,545
Dec-16	283,791
Jan-17	345,606

Month	Forward estimate at r14
Total	917,943

The key reasons for forward estimate were identified:

- permanent estimate reads can be entered into Cobra but are not routinely entered where an ICP had not received a validated read in the previous 14 months
- estimated switch readings are automatically flagged as deleted once transferred to Cobra; this results in forward estimate
- Cobra can continue to forward estimate if a meter has been removed but not end dated
- some of the data accuracy issues described in **section 12.7** can cause forward estimate to be created for deleted channels.

#### Property Power

Review of the 14 month revisions for November 2016 to January 2017 showed that all estimated meter readings had been replaced with validated meter readings.

#### **Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 12.8 With: Clause 4 Schedule 15.2  From: 01-Sep-17 To: 18-Jul-18	<b><u>Pulse</u></b> Some estimates are not replaced by revision 14.  Potential impact: Medium Actual impact: Unknown Audit history: Multiple times Controls: Weak Breach risk rating: 6		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	Controls are rated as moderate as they are sufficient to mitigate risk most of the time, but there is room for improvement. Some scenarios are consistently treated incorrectly by Cobra.  The audit risk rating is assessed to be medium. Total forward estimate across the three months reviewed was 917,943 kWh and may differ from the actual consumption for the affected ICPs.		
Actions taken to resolve the issue		Completion date	Remedial action status
The Cobra permanent estimation process has not been tested due to lack of historic processed data.		refer below	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
Pulse will test the permanent estimate process in Cobra.	ETA 28/02/2018	

## 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 must comprise the following:*

- *half hour volume information 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) *half hour volume information for the ICP; or*
  - b) *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

Processes to ensure that information used to aggregate the reconciliation reports is consistent with the registry were reviewed in **section 2.1**.

Aggregation and content of reconciliation submissions was reviewed, and the Pulse registry list as at 11 June 2018 and Property Power Registry list as at 21 June 2018 were reviewed.

### Audit commentary

#### Pulse

Compliance with this clause was assessed:

- all active ICPs with meter category 3 or higher have submission type HHR
- unmetered load submissions were checked in **section 12.2**, and non-compliance is recorded in **section 12.7** in relation to submission accuracy for unmetered load connected to the Bunnythorpe GXP
- no profiles requiring a certified control device are used

- no loss or compensation arrangements are required
- aggregation of the AV080 reports was checked checking five NSPs with a small number of ICPs. NHH volume calculation was confirmed to be correct.

#### Property Power

Compliance with this clause was assessed:

- all active ICPs with meter category 3 or higher have submission type HHR
- unmetered load submissions were checked in **section 12.2** and found to be correct
- no profiles requiring a certified control device are used
- no loss or compensation arrangements are required
- aggregation of the AV080 reports was checked checking five NSPs with a small number of ICPs. NHH volume calculation was confirmed to be correct.

#### Audit outcome

Compliant

### 12.10. Historical estimates and forward estimates (Clause 3 Schedule 15.3)

#### Code reference

*Clause 3 Schedule 15.3*

#### Code related audit information

*For each ICP that has a non-half hour metering installation, volume information derived from validated meter readings, estimated readings, or permanent estimates must be allocated to consumption periods using the following techniques to create historical estimates and forward estimates. (clause 3(1))*

*Each estimate that is a forward estimate or a historical estimate must clearly be identified as such. (clause 3(2))*

*If validated meter readings are not available for the purpose of clauses 4 and 5, permanent estimates may be used in place of validated meter readings. (clause 3(3))*

#### Audit observation

Eight Pulse and nine Property Power AV080 submissions for revisions 3 to 14 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

##### Pulse

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

Some permanent estimate readings including estimated closing reads, switch in reads and accepted RR reads are not always correctly applied in Cobra's historic estimate calculations. This is recorded as non-compliance in **section 12.7**.

##### Property Power

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

#### Audit outcome

Compliant

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

##### Code reference

Clause 4 and 5 Schedule 15.3

##### Code related audit information

*The methodology outlined in clause 4 of Schedule 15.3 must be used when preparing historic estimates of volume information for each ICP when the relevant seasonal adjustment shape is available.*

*If a seasonal adjustment shape is not available, the methodology for preparing an historical estimate of volume information for each ICP must be the same as in clause 4, except that the relevant quantities  $kWh_{Px}$  must be prorated as determined by the reconciliation participant using its own methodology or on a flat shape basis using the relevant number of days that are within the consumption period and within the period covered by  $kWh_{Px}$ .*

##### Audit observation

Pulse and Property Power provided examples of historic estimate calculations, which were reviewed. The check of calculations included confirming that readings and Seasonal Adjusted Shape Values (SASV) were applied correctly.

##### Audit commentary

###### Pulse

Correct SASV are applied. SASV are downloaded from the reconciliation manager portal into the data warehouse. Cobra checks for updates to the profiles daily, and retrieves any new profiles.

The historic estimate calculation excludes SASV for any days where the ICP is inactive, and is calculated as:

$$\text{Read period consumption} \times \frac{\text{SASV for active days within the reconciliation period}}{\text{SASV for active days within the read period}}$$

If the ICP is inactive for part of a read period where consumption occurs, all the consumption will be reported against the active days in the period.

If the ICP is inactive for an entire read period and consumption occurs, no consumption will be recorded because the SASV multiplier and divisor will be 0. This situation may occur where ICP status is incorrect, and inactive consumption occurs.

The table below shows that all scenarios are calculating as expected, as long as inputs into the calculation are as Cobra requires. Some issues with inputs into the reconciliation process were identified. These issues are discussed further and recorded as non-compliance in **section 12.7**:

- A process in Cobra is flagging estimated closing reads, including switch out readings as deleted. This means that the reads are ignored by the reconciliation process and forward estimate is created. The issue can be corrected for individual ICPs by correcting the read flag. Pulse is still investigating the extent of the issue and how it will be resolved, and is making progress with this.
- Pulse only includes reads that occur on or after the first day the ICP was active with Pulse in its historic estimate calculations. Gentrack automatically records switch in reads against the day before the ICP became active with Pulse. This process ensures that Gentrack's own reconciliation process (not currently used by Pulse) applies shape values correctly for the first day of switch in. Pulse is investigating a solution for this issue.

- Accepted RR readings are only transferred to Cobra if entered as consumption records in Gentrack 4. If the reads are entered into the invoice history but not the consumption records they are not transferred to Cobra and are ignored by the reconciliation process.
- There are some status discrepancies between Gentrack and the registry. Reconciliation submissions are based on registry status and this has led to some ICPs being incorrectly included in or excluded from submissions.
- Meters with incomplete information in Gentrack are excluded from submissions.

Test	Scenarios	Test expectations	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, as long as the switch in read is treated as a permanent estimate and recorded against the first day Pulse is responsible
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, as long as the switch out read is entered as a permanent estimate
f	ICP switches out then back in within a month	Consumption is calculated for each day of responsibility.	Has not occurred
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

Test	Scenarios	Test expectations	Result
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 actual reads	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 actual reads.	Compliant
o	ICP has a meter with a multiplier greater than 1	The multiplier is applied correctly	Compliant

### **Property Power**

The table below shows that all scenarios that had occurred during the audit period were compliant. The check of calculations included confirming that readings and shape files were applied correctly.

Test	Scenarios	Test expectations	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.	Did not occur
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.	Did not occur
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



Test	Scenarios	Test expectations	Result
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.	Did not occur
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 actual reads	Not provided
n	ICP with a photo read during the month	Photo reads are not used to calculate historic estimate, unless they have been validated against actual reads.	Not provided
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 for 13 months for Pulse and Property Power.

##### Audit commentary

##### Pulse

Pulse's forward estimate process is based on a straight line methodology for initial allocations. Historic shape files are applied to forward estimates for revision submissions.

If there is a validated reading during the read period, Cobra applies the daily average for the period between that read and the previous read. Otherwise a default annual national average for the meter type and period of availability is applied. The process does not account for the type of ICP or other meters installed. For example the same rate will be applied to each UN24 meter whether the customer has one UN24, two UN24s, or a CN16 and UN24.

The accuracy of the initial submission, in comparison to each subsequent revision is required to be within 15% and within 100,000kWh. The table below shows the number of balancing areas where this target was not met. Pulse actively monitors these variations prior to submission as described in **section 12.3**. Due to the size and spread of Pulse's customer base, differences over the threshold are relatively rare. There were issues with the accuracy of submission for October 2017, but it did not cause any individual balancing area differences over 15% and 100,000 kWh. This is discussed further in **section 12.7**.

Quantity of balancing areas with differences over 15% (Over 100,000 units)

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total
Feb 2017	0	0	0	0	80
Mar 2017	0	0	0	0	72
Apr 2017	1	0	0	-	80
May 2017	2	4	5	-	73
Jun 2017	0	0	0	-	72
Jul 2017	0	0	0	-	74
Aug 2017	0	0	0	-	75
Sep 2017	0	0	0	-	75
Oct 2017	0	0	0	-	76
Nov 2017	0	0	-	-	76
Dec 2017	0	0	-	-	76
Jan 2018	1	1	-	-	77
Feb 2018	0	0	-	-	77

Total variation between revisions (Positive means initial higher than revision)

Month	Revision 1	Revision 3	Revision 7	Revision 14
Feb 2017	1.26%	1.46%	1.58%	2.61%
Mar 2017	-4.55%	-5.86%	-5.94%	-5.06%
Apr 2017	-3.43%	-4.84%	-5.31%	-
May 2017	-7.75%	-10.58%	-10.20%	-
Jun 2017	-4.01%	-6.69%	-6.69%	-
Jul 2017	-2.87%	-4.39%	-4.13%	-
Aug 2017	-1.84%	-0.92%	-0.18%	-
Sep 2017	0.00%	3.86%	4.21%	-
Oct 2017	2.36%	2.36%	-	-
Nov 2017	-0.95%	0.96%	-	-
Dec 2017	0.00%	1.95%	-	-
Jan 2018	3.24%	4.27%	-	-
Feb 2018	3.04%	3.17%	-	-

All balancing area differences over the threshold were reviewed and found to relate to:

- Initial forward estimate being based on a flat profile and annual average consumption for the meter register content and period of availability. This caused low forward estimate in late autumn 2017 when a large number of customers switched into a balancing area and required forward estimation.
- Forward estimate for irrigation ICPs differing from actual consumption.

#### **Property Power**

JCC prepares forward estimates for Property Power. The JCC forward estimate process is based on the average daily consumption for the previous read period for each meter register. If previous read period information is not available, the forward estimate consumption is based on the estimated daily consumption provided by the previous retailer in the CS file.

The accuracy of the initial submission, in comparison to each subsequent revision is required to be within 15% and within 100,000kWh. The table below shows the number of balancing areas where this target was not met.

#### **Quantity of balancing areas with differences over 15% (Over 100,000 units)**

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total
Feb 2017	0	0	0	0	5
Mar 2017	1	1	1	1	5
Apr 2017	0	0	0	-	5
May 2017	0	0	0	-	5
Jun 2017	0	0	0	-	5
Jul 2017	0	0	0	-	5
Aug 2017	0	0	0	-	5
Sep 2017	0	0	0	-	5
Oct 2017	0	0	0	-	5
Nov 2017	0	0	-	-	5
Dec 2017	0	0	-	-	5
Jan 2018	0	0	-	-	5
Feb 2018	0	0	-	-	5

Total variation between revisions (Positive means initial higher than revision)

Month	Revision 1	Revision 3	Revision 7	Revision 14
Feb 2017	-1.30%	-0.94%	-0.90%	-0.86%
Mar 2017	67.88%	67.16%	67.24%	67.40%
Apr 2017	-0.56%	-0.47%	-0.47%	-
May 2017	-7.69%	-0.94%	-0.52%	-
Jun 2017	-0.38%	-1.35%	-1.33%	-

Month	Revision 1	Revision 3	Revision 7	Revision 14
Jul 2017	-0.32%	-0.80%	-0.85%	-
Aug 2017	0.76%	0.32%	0.29%	-
Sep 2017	12.83%	12.83%	13.00%	-
Oct 2017	0.08%	0.14%	0.41%	-
Nov 2017	0.38%	0.67%	-	-
Dec 2017	1.79%	1.88%	-	-
Jan 2018	-0.04%	-0.24%	-	-
Feb 2018	-0.34%	-0.39%	-	-

I reviewed all differences over the threshold and one large percentage difference under the threshold.

- The March 2017 difference related to a meter rollover issue which caused high consumption in error. The issue was identified and corrected by revision 1.
- The September 2017 difference related to ICP 0000637896UN4A8. Consumption was overstated because the last day of the month fell on a Saturday, and at that time AMS was not providing HH readings on weekends. The HERM file was used, which aggregated the night and day readings for the ICP and recorded them against the first register. The error was identified and corrected by revision 1.

#### Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 12.12</p> <p>With: Clause 6 Schedule 15.3</p> <p>From:</p> <p>Property Power March 2017 (r1, r3, r7 and r14).</p> <p>Pulse April 2017 (r1), May 2017 (r1, r3 and r7), Jan 2018 (r1 and r3)</p>	<p><b><u>Pulse</u></b></p> <p>The accuracy threshold was not met for all months and revisions.</p> <p><b><u>Property Power</u></b></p> <p>The accuracy threshold was not met for all months and revisions.</p> <p>Potential impact: High</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>

Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, as there is room for improvement.  Initial data is replaced with revised data and washed up. A small number of submissions had differences over the threshold.		
Actions taken to resolve the issue		Completion date	Remedial action status
For Pulse, NHH submission volumes greater than 15,000kWh per register are reviewed individually to confirm consistency against readings.  Property Power ICPs will switch to Pulse, eliminating future initial submissions.		in Place  01/08/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Pulse does not apply seasonal profile shape to initial NHH volume submissions and is likely to experience future submission variance from initial base on;  <ul style="list-style-type: none"> <li>- Seasonal profile shape (irrigation areas)</li> <li>- High growth (delay in setup of customers)</li> </ul>		Ongoing	

### 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

##### Pulse

The Pulse registry list report for 1 September 2017 to 11 June 2018 was reviewed to identify all ICPs which had a profile change.

A typical sample of 11 profile changes were reviewed to confirm that there was an actual or permanent estimate reading for profile change. All profile changes were from RPS to PV1 when generation metering was installed.

##### Property Power

The Property Power registry list report for 1 September 2017 to 18 June 2018 was reviewed. No ICPs with profile changes were identified.

#### Audit commentary

### **Pulse**

Analysis of the event detail report confirmed 497 ICPs had profile changes. All related to addition or removal of a generation profile.

I found that five of the 11 profile changes had an incorrect effective date recorded on the registry. This is discussed further in **section 6.1** and recorded as non-compliance in **section 2.1**. Cobra's processes ensure that any NHH ICP with EG metering with consumption will have the consumption reported against the PV1 profile.

The 11 profile changes checked had a meter reading or a permanent estimate on the day of the profile change.

### **Property Power**

No ICPs had a profile change during the audit period.

### **Audit outcome**

Compliant

## 13. SUBMISSION FORMAT AND TIMING

### 13.1. Provision of submission information to the RM (Clause 8 Schedule 15.3)

#### Code reference

*Clause 8 Schedule 15.3*

#### Code related audit information

*Submission information provided to the reconciliation manager must be aggregated to the following level:*

- *NSP code (clause 8(a))*
- *reconciliation type (clause 8(b))*
- *profile (clause 8(c))*
- *loss category code (clause 8(d))*
- *flow direction (clause 8(e))*
- *dedicated NSP (clause 8(f))*
- *trading period for half hour metered ICPs and consumption period or day for all other ICPs (clause 8(g)).*

#### 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**.

#### Audit commentary

Submission information is provided to the reconciliation manager in the appropriate format and is aggregated to the following level for both Pulse and Property Power:

- NSP code
- reconciliation type
- profile
- loss category code
- flow direction
- dedicated NSP
- consumption period.

#### 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 AV080, AV090 and AV140 and reports as part of the aggregation checks.

#### Audit commentary

##### Pulse

Review of eight Pulse AV080 non half hour volumes reports confirmed that submission data is rounded to zero decimal places.

Review of 12 Pulse AV090 half hour volumes reports confirmed that submission data is rounded to zero decimal places.

Review of 12 Pulse AV140 half hour aggregates reports confirmed that submission data is rounded to two decimal places.

##### Property Power

Review of nine Property Power AV080 non half hour volumes reports confirmed that submission data is rounded to zero decimal places.

Review of 13 Property Power AV090 half hour volumes reports confirmed that submission data is rounded to zero decimal places.

Review of 13 Property Power AV140 half hour aggregates reports confirmed that submission data is rounded to two decimal places.

#### Audit outcome

Compliant

### 13.3. Historical estimate reporting to RM (Clause 10 Schedule 15.3)

#### Code reference

*Clause 10 Schedule 15.3*

#### Code related audit information

*By 1600 hours on the 13th business day of each reconciliation period the reconciliation participant must report to the reconciliation manager the proportion of historical estimates per NSP contained within its non-half hour submission information.*

*The proportion of submission information per NSP that is comprised of historical estimates must (unless exceptional circumstances exist) be:*

- *at least 80% for revised data provided at the month 3 revision (clause 10(3)(a))*
- *at least 90% for revised data provided at the month 7 revision (clause 10(3)(b))*
- *100% for revised data provided at the month 14 revision (clause 10(3)(c)).*

#### Audit observation

The timeliness of submissions of historic estimate was reviewed in **section 12.2**.

I reviewed eight Pulse and nine Property Power AV080 reports to determine whether historic estimate requirements were met.

#### Audit commentary

##### Pulse

The quantity of historic estimate is contained in the submission file, and is not a separate report. The three, seven and 14 month revision files were examined for a selection of eight months, and the table below shows that the thresholds were not met for some NSPs for some revisions.

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Nov 2016			42	157
Dec 2016			42	157
Jan 2017			30	159
Jul 2017		159		160
Aug 2017		160		161
Sep 2017		162		162
Nov 2017	155			155
Dec 2017	148			148

The table below shows that the percentage of historic estimate across all NSPs is well above the required targets for the three and seven month revisions, and below the target for the 14 month revisions.

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Nov 2016	-	-	99.07%
Dec 2016	-	-	99.07%
Jan 2017	-	-	98.85%
Jul 2017	-	99.28%	-
Aug 2017	-	98.67%	-
Sep 2017	-	98.35%	-
Nov 2017	93.25%	-	-

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Dec 2017	90.94%	-	-

#### **Property Power**

The quantity of historic estimate is contained in the submission file, and is not a separate report. The three, seven and 14 month revision files were examined for a selection of eight months. The table below shows the threshold was met for all revisions.

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Nov 2016			22	22
Dec 2016			22	22
Jan 2017			22	22
Jul 2017		23		23
Aug 2017		23		23
Sep 2017		23		23
Oct 2017	23			23
Nov 2017	23			23
Dec 2017	23			23

The table below shows that the percentage of historic estimate across all NSPs is at or above the required target for all revisions.

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Nov 2016	-	-	100.00%
Dec 2016	-	-	100.00%
Jan 2017	-	-	100.00%

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Jul 2017	-	99.58%	-
Aug 2017	-	99.78%	-
Sep 2017	-	99.74%	-
Nov 2017	98.85%	-	-
Dec 2017	98.67%	-	-

#### Audit outcome

Compliant

Non-compliance	Description		
<p>Audit Ref: 13.3</p> <p>With: Clause 10 of Schedule 15.3</p> <p>From: Nov 16-Jan 17 (r14), Jul 17-Aug 17 (r7)</p>	<p><b><u>Pulse</u></b></p> <p>Historic estimate thresholds were not met for some revisions.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>Controls are rated as moderate as they are sufficient to mitigate risk most of the time, but there is room for improvement.</p> <p>Pulse was close to the target in all cases.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Pulse has improved its historic estimate rate, largely due to smart meter uptake and the timing of its submission process since the introduction of Cobra.		30/09/2018	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Pulse intends to implement an automatic NHH permanent estimate process in the Cobra NHH reconciliation system. This is scheduled for testing prior to the end of the current certification period.	30/09/2018	

## CONCLUSION

### Pulse

Pulse has undergone some system changes during the audit:

- An upgrade from Gentrack 3.8 to Gentrack 4 was completed on 1 October 2017. Gentrack is used for registry management, switching, billing, and AV120 as billed reporting. Some Gentrack 4 reconciliation data was used in April 2018, due an error in read dates which affected Cobra's submission calculations.
- HHR reconciliation submissions processes moved from IMS to the PRADA data warehouse from April 2018.

Further changes are planned. Once Property Power's customers are switched to Pulse's systems, it is intended that the Viper HHR reconciliation database created by JCC will be used for Pulse HHR reconciliation submissions. Some procedural and system changes will be required to enable this, as the current process is dependent on Property Power's Orion billing system.

The Gentrack upgrade led to some changes to treatment of data, system processes, and manual processes.

- Some of the reports used to check data and monitor exceptions with Gentrack 3.8 ceased to be used following the Gentrack 4 implementation. This included reports used to monitor registry discrepancies, read attainment, and zero consumption. Reliance was placed on Gentrack's validation manager and workflow processes, but some of these processes did not initially identify all validation issues as expected. Improvements have been made to the workflow processes, and some of the old monitoring reports have been reinstated, or are in the process of being reinstated.
- There were some changes to the fields in Gentrack required for registry updates and Cobra NHH reconciliation. This has led to some issues with rejected registry updates (and subsequent late updates to correct them), and submission inaccuracies.

All issues identified are described in the audit summary.

### Property Power

Pulse intends to migrate the Property Power customers to the Pulse reconciliation and billing systems by 1 October 2018. There have been no major changes to Property Power's systems or processes during the audit period.

The key issues identified were:

- No routine review of meter condition information for manual readings and AMI event information.
- Late processing of switching files, and incorrect daily average consumption in some switching files.

All issues identified are described in the audit summary.

### Next audit date

The next audit frequency table indicates that the next audit be due in three months, based on Pulse's final score of 96 (an increase from 56 in the 2017 audit). The score is inflated by issues that have caused non-compliance with multiple clauses of the code, particularly issues causing registry discrepancies and issues with the treatment of metering information and readings transferred from Gentrack to Cobra.

Pulse has resolved some issues and is working through clearing backlogs, and improving monitoring processes. Workarounds have been put in place to manage most of the reconciliation submission issues, which reduces their impact.

I have reviewed Pulse's responses to the compliance plan, and based on these I recommend a next audit period of at least eight months, to allow time for the Property Power ICPs to transition to Pulse and for improved processes to be bedded in and demonstrated.

## PARTICIPANT RESPONSE

Pulse have reviewed this report and their comments are contained within its body.